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Milestone Event - Moving Forward to Address New Challenges in Regional Health

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Asia-Pacific Academic Consortium for Public Health
Universiti Malaysia Sabah

Abstract Book
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## PUBLIC HEALTH FORUM

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PLENARIES
In the era of uncertainty, many incidents happened without early warning or sign. Major accident, such as airplane crashes, ship capsizes and train collision is occurring now and then without any early sign and alarm. Instability of weather due to global warming has been more serious than before causing major disaster such as typhoon, tornado, tropical storm, extreme temperature and a long drought. Other natural disasters such as earthquake, flood and tsunami though predictable using the available technologies, the aftermath of the disaster has not been fully appreciated and evaluated. The effect of man-made disaster such as September 11 terrorist attack, the anthrax incidents, chemical weapon war or related to human activities such as SARS and Nipah virus epidemic has triggered the world on the need for public health emergency preparedness and response. SARS and Nipah virus epidemic in Malaysia in 90s has indicated the need for quick response to any changes or unexpected pattern in the surveillance system. In that respect is besides a need for well-educated personnel to identify the emergence of the crisis and identify the cause or agent of the situation, it demands immediate response to address the emergency or crisis. University could be one of the places to get some highly trained personnel to handle the situation. The university could also provide the best diagnostic facilities to identify the emergence of a new organism or chemical compounds. The new approach in the emergency public health response is to be ready for or respond to various public health threats, including an epidemic of deathly viral infection or bioterrorism. The concept of an all-hazards approach to public health preparedness and response refers to functional integration of emergency management activities at all stages and involve all sectors including the universities.
Taiwan had a period of economic boom from 1970 to 1980. The number of motorcycles increased rapidly during this time to over 7 million, with the population being only 20 million at the same year. The high risk of motorcycle injury combined with low helmet use created the highest motorcycle death rate across the world in 1980. Beginning in 1987, the Injury Prevention Group from Taipei Medical University under the support of Department of Health began to collect cases of Traumatic Brain Injury (TBI) for further analysis of motorcycle-related injuries. In 1994, the Injury Prevention Group had collected over 50,000 cases in their TBI motorcycle-related database. Through the use of this database, the Injury Prevention Group proved wearing a helmet can effectively prevent TBI. Furthermore, a pilot study was performed in Taipei City. During a 4-month period, interventions were implemented to persuade motorcyclists to wear helmet. In this time, the motorcycle death rate decreased by 56%. These results inspired the nation and the mandatory Helmet Use Law was passed in 1997. In 2000, 3 years after the implementation of the Helmet Use Law, motorcycle death rates rapidly decreased by 33% and continuously dropped since then. This law successfully reduced an average of 3,000-4,000 deaths per year. Moreover, injury deaths moved from the 3rd leading cause of deaths down to 6th cause of deaths in Taiwan. In conclusion, the Injury Prevention Group from Taipei Medical University has played a major role in legislature by providing strong evidence of helmet protective effects. The TBI motorcycle-related database has continued to expand in the past 30 years, and currently has up to 180,000 cases. This database now utilizes Big Data to capture, store, analyze, and share information. The implementation of the mandatory Helmet Use Law is one of the most successful public health responses in Taiwan.
In public health, a major challenge is finding ways to influence the transition from technical discussions or expressions of concern to the implementation of effective political and social action. Certain phenomena, such as disasters or outbreaks, require no such transitioning. However, many other issues such as HIV/AIDS are not well understood or appreciated initially beyond technical levels until a period of socialization has fostered broader engagement. Other examples are tobacco control and climate change. Antimicrobial resistance (AMR) is another very significant danger that may, or may not, be effectively addressed depending on whether current efforts to broadly socialize the issue go far enough. AMR is a global phenomenon in which a wide range of microorganisms are becoming more resistant genetically to the available medicines used to inhibit or kill them. The implications are profound because the ability to fight infection is a fundamental requirement for both modern health and agricultural practices. While antibiotic resistance, which refers specifically to resistance among bacteria, has been known since the advent of antibiotics, concern over its implications has largely been restricted to health practitioners and scientists until recently. Today, a wider audience is becoming more aware of AMR due, in significant part, to concerted efforts to achieve greater social and political engagement. For example, by raising awareness through entities such as the World Health Assembly, the United Nations General Assembly, the World Economic Forum, and country grouping such as the G7, G20 and G77. In addition, expressions of concern among food consumers and (social) media in some countries have, more generally, fostered action. Nonetheless, it remains uncertain as to whether the issue has been sufficiently socialized to ensure sustained and effective long-term practices by key groups such as the general public, agriculture, food and pharmaceutical related industries, the health sector and governments. Evidence of progress will be reflected in the adoption of certain policies and changed practices, partnerships and incentives. What is certain, is that more actions appear to be needed, including the collection of critical evidence if complementary and synergistic policies and practices are to be established across sectors.
Plenary 2: Future Public Health Training

What are the Challenges? What Might the Solutions Look Like?

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The Asia Pacific region is diverse and has rapidly changing health needs. A major reshaping of the burden of disease is occurring as populations age and become sedentary, and the nature of work and communities transform. Prominent among the emerging public health problems are injury, neurological conditions, chronic physical disability, interpersonal violence, self-harm and mental disorders. Significant in-country health differentials exist. For example, Australia’s Aboriginal and Torres Strait Islander people experience a burden of disease that is twice that which would be expected. It is also apparent in epidemiological studies that some health needs are overlooked such as men’s reproductive health being ‘taboo’, and those with depression and anxiety disorders from stigmatisation. Also, as populations age, epidemiology shows that there will be more people experiencing elder abuse. The changing landscape in the Asia-Pacific region will require a critical-thinking, media-aware workforce that understands the epidemiology of health needs of the communities in which they work. They will need to be able to employ epidemiology principles on a day to day basis in multi-disciplinary settings. Solutions need to be contemporary and evidence-informed. This presentation will describe the future of Public Health workforce training. Future training needs to move past passive learning environments, often in large class settings employing didactic passive approaches, to one which engages students and academics in active realistic problem-solving. A recent analysis shows a complex and nuanced picture of student needs and preferences; academics will need to use multi-modal learning methods and tools that students engage with in different ways and at different times. These solutions may include the use of audience-response technology, simulations and work-integrated learning. Solutions will also need to accommodate the preferences for distance, off-campus learning approaches; and help students navigate multiple, often contradictory information sources. A competency-based approach will also challenge universities to explore formal and informal placement solutions that develop work-ready graduates.
There has been dramatic advancement in health status in the Asia-Pacific region (APR) over the past 50 years. Multiple public health interventions have increased life expectancies and reduced morbidities to an extent unseen in previous eras. Overall socioeconomic development that promoted equity and comprehensive measures were central to health improvement at affordable cost. With the application of Universal Health Rights, optimum health care for all became more a norm than a notion. Public health education (PHE) embedded such values and competencies into professional practice. The ever-changing paradigm of public health calls for continuous review and quality improvement of PHE. Success in health improvement and the PHE experience in the APR provided 3 major lessons for the future. The first is the value of health equity and social justice. The second lesson is on the balance between technical competency and social responsibility. PHE needs to maintain a balance between high tech (technical skills) and high touch (managerial, cultural, and context-related skills). Thirdly, PHE has promoted problem-solving experiences through well-structured public health field practicum. There is a need to be innovative, proactive and responsive to meet the new challenges. As a leading public health academic organization, APACPH has a leading role to play in this endeavour.
We live in a rapidly evolving world. Over the past decades, there has been rapid development in many Asia Pacific countries. This development has led to rapid urbanization. In Malaysia, development and urbanization has been associated with transitions of population structure and environment. These transitions led to lifestyle changes that have culminated in an epidemic of Non-Communicable Diseases. Sustainable development of our nations can result in healthier populations. An essential component towards sustainable development is developing public health intelligence. The rapid advances in technology and data collection provides us with a unique opportunity for intelligence. This talk discusses Public Health Intelligence and the importance of valid information to improve health.
Towards Public Health Genomics: Are We Ready?
Shamsul Azhar Shah

UKM Medical Molecular Biology Institute (UMBI), Cheras, Kuala Lumpur, Malaysia

Genomics is an interdisciplinary field of science focusing on the structure, function, evolution, mapping, and editing of genomes. A genome is an organism's complete set of DNA, including all of its genes. The Human Genome Project was a 15-year-long, publicly funded project initiated in 1990 with the objective of determining the DNA sequence of the entire human genome within 15 years. It was completed and published in 2004. The sequencing of the human genome holds benefits for many fields, from molecular medicine to human evolution. The Human Genome Project, through its sequencing of the DNA, can help us understand diseases including: genotyping of specific viruses to direct appropriate treatment; identification of mutations linked to different forms of cancer; the design of medication and more accurate prediction of their effects. Though in the clinical setting the genomics research has gained momentum as it is closer to patients' management but in public health it does not do the same. The research in public health genomics is less than a decade old. The genomics component in combination with the traditional public health research helps epidemiologists to explain many black box epidemiologies via gene-environment interaction studies. In the era of translational research, Public health genomics focuses on effective and responsible translation of genomic science into population health benefits. In this presentation, we will discuss the functions of genomics in public health, examples in non-communicable diseases and its expectations. We will also discuss things we need to do and prepare the next generation of public health specialist in the era of genomics.
Taiwan is becoming an ageing society and the number of people aged 65 is 14% of the total population. Health Promotion Administration (HPA) has established the network for community health promotion and initiated multiple programs related to “active ageing” in local health centers and medical institutes. The programs include multiple health promotion services and the environment of life-long learning, which are beneficial for the health, safety and participation among elderly Taiwanese citizens. According to the empowerment framework of Healthy and Age-friendly community, the HPA implemented the following actions through the four major components: (1) Provide resources: Publish the Health Promotion Policy Guidelines for both the county and city government personnel, Dietary Guidelines of Taiwan brochure, Daily Food Guide brochure and so on. (2) Personnel training: Advanced promotion strategies and experiences were provided to relevant promotion personnel of both county and city governments. (3) Support network: HPA operates Community Health Promotion program with the resources of the community and Asset Based Community Development (ABCD). HPA continues to update the health promotion information and resource on the official website. (4) Evaluation and participation: HPA developed a health literacy assessment index to enhance the effectiveness of health communication. Through community empowerment, the HPA continues to promote age-friendly communities, dementia-friendly communities, and caring communities. HPA constructed a public health policy framework that includes environments, services and policies. The framework connects communities, shops, charities, religious groups to create community partnerships. In this partnership, it supports the elders, people with dementia, patients with non-communicable diseases to live independently, participate in community activities, and impart related experiences and knowledge to the youth or assist family caregivers.
Empowering Marginalized Urban Islanders through Tuberculosis Detections and Community Dots Treatment by Using Modified IMCI Tools in Kota Kinabalu, Sabah


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Gaya islander has contributed re-emerging communicable diseases including Tuberculosis in Kota Kinabalu. JKKK claimed no health facility and requested UMS to facilitate in empowering the community to optimize their own health. They live in overcrowding house, untreated water, poor sanitation and inappropriate garbage management. This project has been carried out by the UMS health specialist. The objectives are to identify the knowledge gaps and transfer the knowledge for empowerment. The empowerment activities started from March 2017, during weekends in SMK Gaya Island. The program adapted from IMCI tools (WHO). We did engagements with island community, Health Department and DBKKK. Open interviews to recruit 50 Sukarelawan Rakan Stop TB (SRST) were conducted. We did coordination workshops among UMS trainers and GI on contents, delivery and evaluations. Knowledge transferred through participants-centred learning activities such as video show, drama, group-works, quiz, demonstration, interactive lectures and visits to TB clinic and SABATA. Pre-intervention, volunteers had moderate-low mean scores of TB knowledge (72.4+14.8) and attitude (45.8+2.6). Each workshop, 95% agree the session was easy to understand. Attendance was 80%. After 8 workshops, they able to lead, communicate effectively, how to detect TB, how to monitor DOTS strategy, how to prevent TB at home, prepare healthy plate and prevent malnutrition. Drama shows on stigma and discrimination was presented well. Feedback records were created. The quiz results showed 100% pass. In Nov 2017, SRST able to organize seminar, give talks, do TB screening, monitor TB treatments and formed association. The project was able to empower the volunteers to take care their own communities from getting TB. The transferred knowledge will enhance TB control in Gaya Island. The success of the projects will depend on community to take control of their situations, exercise influence, and achieve their goals to stop TB.
Sri Lanka has a unique health system which is able to provide comprehensive care with minimum resources. However, the system is currently under pressure due to a growing burden of non-communicable diseases compounded by demographic changes. Existing health service resources, including human resources, are not adequate. Among other proven strategies is the potential to address this deficit by building up existing stakeholder networks and encouraging greater participation of the community through Community Oriented Primary Care (COPC). COPC is defined as a care practice, providing accessible, comprehensive, coordinated, continuous, and accountable health care in a defined community. It includes defining the community, conducting a community diagnosis, developing and implementing an intervention, monitoring the impact of the intervention and actively involving the community in the intervention. As such, the Department of Community and Family Medicine, University of Jaffna (DCFM) developed a model primary care delivery system in the Nallur Medical Officer of Health (MOH) Area, aiming to create an innovative evidence-based model of COPC that could be replicated in Sri Lanka and other low- and middle-income settings. Stakeholders of this COPC model include the Medical Officer of Health Nallur, Divisional Hospital Kondavil, Divisional Secretariat Nallur, Primary Medical Care Units in the Nallur MOH Area, DCFM, Faculty of Medicine-University of Jaffna, and Community-based organizations such as community centers, pre-schools, sports clubs and residents of the Nallur MOH Area. The model was initially presented to the public at a medical exhibition at the Faculty of Medicine, University of Jaffna, in 2011 after which feedback from the general public and other stakeholders, including experts from various fields, was incorporated. COPC was implemented in 2012 by effective coordination and the introduction of motivation strategies among stakeholders, including health care workers, community organizations and the public. Active public participation in COPC is enhanced through a well-planned activity called the Community Health Empowerment Project. The project is funded by the AHEAD Trust, a Jaffna-based non-profit trust. All stakeholders receive training based on a curriculum designed by experts to provide knowledge and skills for community mobilization. Public involvement is enhanced by revitalization of local Mothers’ Clubs, School Health Clubs, and Elders Welfare Societies, and through them, the introduction of self-sustainable and income generating programs, including healthy traditional food promotion and organizing health canteens. In addition, non-communicable disease (NCD) screening programmes are conducted regularly and referral pathways and monitoring systems are strengthened on an on-going basis by holding regular meetings with stakeholders at various levels. Health information is maintained in paper-based documents and used for evaluating the outcome of the project.
Plenary 4: Community Empowerment – Knowledge Transfer

Some challenges and limitations have been identified since the inception of COPC five years ago. Based on the lessons learnt, three initiatives have been taken up with the support of international collaborators, including the development of a population-based cohort to improve preventive efforts and promote research. COPC has provided immense opportunities to learn about the active engagement of public through knowledge transfer towards sustainably improving the health of the people through community empowerment.
SYMPOSIUMS
Symposium 1: Infectious Diseases – Tuberculosis and HIV

Tuberculosis and HIV

Adeeba Kamarulzaman

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It is difficult to underestimate the global burden that TB and HIV bring, the numbers of which are staggering. Despite being preventable and treatable, tuberculosis is one of the top 10 causes of deaths worldwide and continues to kill more people than any other infectious diseases. More recently, the emergence of multi-drug resistance TB has created a public health crisis and a health security threat. In 2016, 10.4 million people fell ill with TB and 1.7 million died from the disease, where the majority (more than 95%) of TB deaths occur in low- and middle-income countries. In people living with HIV the risk of TB is estimated to be between 16-27 times greater than among those without HIV infection. Almost 60% of tuberculosis cases among people living with HIV were not diagnosed or treated, resulting in 390 000 tuberculosis-related deaths among people living with HIV in 2016. Recent advances in diagnostic tools, prevention and treatment of TB have made it possible to improve the management of TB. Overcoming implementation challenges including barriers to scaling up treatment of latent TB infection, ensuring adherence to treatment and integrating HIV and TB services should be the focus of national TB programs in order to reach the SDG target of ending TB by 2030.
HIV and Tuberculosis Co-Infection – Current Trend and Global Health Impact

Yuanan Lu

Office of Public Health Studies, University of Hawaii at Manoa, Hawaii, USA

Human immunodeficiency virus (HIV) and tuberculosis (TB) remain to be the core burden of infectious disease in many low- and middle-income countries. Recent estimates from WHO have indicated that there were more than 1.8 million new cases of HIV and 10.4 million new cases of TB, and approximately 1.7 million people died of TB and 1.0 million died of HIV/AIDS in 2016. These new cases of infection and death occurred mainly in Asia and South Africa. The HIV/TB co-infection has added more challenges to present management of these diseases since both HIV and TB impair the immune system and the co-infection interferes and impacts the pathogenesis and progression of each other, creating more difficulty for accurate diagnosis and therapeutic treatment of the two diseases. Today TB has become the leading cause of HIV/AIDS-related death, and more than 35% HIV patients died in 2016 due to the accomplice of TB infection. Given the fact that there is no effective vaccine for TB and no vaccine for HIV, more research and funding support for the development of more effective and practical intervention approaches including, increased awareness, improved diagnosis, and enhanced management of co-infection, particularly for the low- and middle-income countries, are essentially urgent in order to achieve the United Nation’s Sustainable Development Goals by 2030 relating to HIV/TB incidence reduction.
Tuberculosis is a public health challenge in Malaysia. Although the World Health Organization ranked Malaysia as an intermediate burden country, there is an increasing trend of reported tuberculosis cases. There is also an increasing trend of death related to tuberculosis. In 2016, 1,945 people died of tuberculosis which is 14.7% more than that reported in 2015 with 1,696 deaths. In comparison, there were 237 deaths from 101,357 cases of dengue fever in 2016, which tops the list of infectious diseases in Malaysia. In 2016, a total of 25,739 cases of tuberculosis were reported from the whole country. The major portion (19.2%) of these cases was from Sabah, one of the two states in Malaysian Borneo. Although the population of Sabah is only 12% of Malaysia, it is not known why this large number of cases is contributed by Sabah. Data accumulated in the Sabah State Health Department showed that from 2000 there was a gradual decrease of the number of tuberculosis cases; however, from 2008 the number has been gradually increasing. The reason for this increase is not known but assumed to be influenced by several factors, such as the influx of undocumented immigrants, access to health care facilities, awareness, virulent strains, and increasing effort to identify tuberculosis cases. In this presentation the epidemiology of tuberculosis in Sabah and new results from our recent studies will be discussed.
Breast Cancer Survival after Cancer Screening Intervention in Taiwan

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³School of Nutrition and Health Science, College of Nutrition, Taipei Medical University, Taipei, Taiwan

Breast cancer is one of the most common cancers for women in the world including Taiwan. The age adjusted standardized incidence rate of breast cancer was increased from 11.86 cases per 100,000 per year at 1979 to 70.74 cases per 100,000 per year at 2014 in females. Although rates of new cases of breast cancer in Western countries are higher than those in Taiwan, there has been a sharp 6-fold rise in the breast cancer incidence over the past three decades here. Notably, the age of breast cancer onset in Taiwan is about 10 years younger than that in the western countries. The Taiwanese national cancer screening program began in 1985 by providing trial-based screening program for breast cancer. In 1999, outreach service for breast cancer was started and gradually scaled up to the national level by physical examination. In 2002, risk-based mammography screening was conducted due to concerning about the clinical capacity to deliver population-based screening. Between 2004 and 2009, a universal mammography screening program was implemented by inviting women aged 50 to 69 years to biennial screening. From 2009, the age for women adopted mammography screening was further down to 45 years old. Since 2004, after 10-year effort, the mammography screening rate was increased from 18.13% to 26.24%. The five-year survival rate of screened patients who were recognized as early stage of breast cancer reached higher than 90%, whereas the five-year survival rate of unscreened patients suffered from breast cancer diagnosed at late stage (stage 4) was only 27.8%. Compared with population-based screening for breast cancer with annual clinical-breast examination (CBE), universal biennial mammography resulted in a 41% reduction in breast cancer deaths. In addition, risk-based and universal mammography screening did not result in significant over diagnosis of breast cancer when compared to annual CBE.
Involving Young People to Combat Non-Communicable Diseases

Rosnah Sutan

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Non-communicable diseases (NCDs) are a public health treat in 21st century. With increasing lifespan and number of population with variety of unhealthy life style has push the NCDs incidence rises and impact on burden of diseases. All age groups, regions and countries are affected by NCDs. Targeting the vulnerable risk groups of children, adults and the elderly with specific health intervention needs an integrative multidisciplinary collaboration. Evidence based medicine has shown unhealthy diets, physical inactivity, exposure to tobacco smoke or the harmful use of alcohol are closely related to rapid unplanned urbanization and globalization towards ageing population. These metabolic risk factors lead to cardiovascular disease, the leading NCD in terms of premature deaths. Increasing daily household costs indirectly may affect the ability to have good access to health care as both parents are busy on generating household income. NCDs will leads to drain of the household resources. This paper is aim to highlight the important of using young people in preventing NCDs in their society. Using a wide low-cost comprehensive community based approach model targeting the young people in reduction of the common modifiable risk factors is timely needed. Strengthening in detecting, screening and treating these diseases, and providing access to palliative care for people in need is the healthcare providers’ role. However, preventing modifiable risk factors is the role of everyone. A good model to intervene in preventing risk of NCDs will be discussed.
The level of training and competencies needed by doctors trained in occupational health vary depending on the services they are expected to provide. General practitioners in the country have always played a major role in taking care of the health of workers. Initially this was as Visiting Medical Officers (VMOs) taking care of workers in plantations. Next, they were thrust with the role of being panel doctors for workers in companies, and with industrialisation workers in factories. Full time corporate occupational physicians started to be employed in the early 1980s. Doctors also work in the occupational health units at the federal and state level in the Ministry of Health as well as occupational health units established in hospitals. There is an increasing number of doctors seconded to the Department of Occupational Safety and Health (DOSH) and being hired by the Social Security Organisation (SOCSO). Historically, other than a few hours of lectures in medical school, doctors did not have any specific training on occupational health. This has changed in recent years. In the 1980s the need for some form of training in occupational health became evident when medical surveillance requirements were included in regulations to address lead, asbestos, mineral dust and noise exposure under the Factories Machinery Act 1967. Standalone courses/workshops were conducted to address these regulations. The Introductory Course in Occupational Medicine, a nine-day three module course, conducted jointly by the Medical Faculty UKM, Factories and Machinery Department and College of General Practitioners started in late 1990. This course was then handed over to the National Institute of Occupational Safety and Health (NIOSH) where it was modified and conducted as the Occupational Health Doctor (OHD) course. Doctors conducting medical surveillance under the Occupational Safety and Health (Use and Standards of Exposures to Chemicals Hazardous to Health) Regulations 2000 are required to be registered by DOSH as OHDs. Doctors specialising in occupational health need to undergo four years of training. Historically this was conducted as a 4-year Master Programs and later changed to a 1-year Master of Public Health (MPH) program followed by 3-year Doctor of Public Health (DrPH) Program. Doctors having a Doctor of Philosophy (PhD) degree in the field are considered as equivalent to those possessing the DrPH qualification. Those having these qualifications are registered as public health specialists in the National Specialist Register (NSR). In 2018, the NSR also has provisions for registration of subspecialties in public health including occupational health. Qualifications to be registered as a subspecialist in occupational health in the NSR have already been determined and provisions for 3-year subspecialty training in occupational health are already in place and doctors in the Ministry of Health are being sent for subspecialty training. Training and examinations for the Licentiate and Membership of the Faculty of Occupational Medicine, Royal College of Physicians have been conducted in Malaysia since the mid-1990s. Alternative pathways to registration as specialists in NSR are also being explored.
The Alma Ata Declaration in 1978 calls for primary health care to be provided as close to as possible to where people live and work. In 2012 the global conference by the WHO affirmed that workers health is an essential prerequisite for workers household income productivity and economic development. In reality however, primary health care (PHC) and occupational health (OH) services remain disconnected worldwide and is not universally accessible to the working population. Protecting the health of workers depends not only on measures ensuring safety and health at the workplace alone but also includes providing required care to the family. In Malaysia, the availability of services that adequately addresses work related health issues is still inadequate. PHC being an established first point of contact for the people including workers and their families is essentially the thrust of the country’s health care system and it must play a vital role in protecting and maintaining the general health as well as the OH of the people. It cannot be overemphasized that the impact of such service goes beyond mere protection from physical and psychosocial hazards and it includes workers' social needs, social status, personal development, social relations as well as their self-esteem. Provision of OHS through PHC, awareness and understanding of the basic structure and services offered by OH services is important to protect the engines of growth socially and economically for the country.
Should We Stop Eating Seafood in Sabah? Seafood Mercury Concentration and Dietary Intake Advice: A Review

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The discovery of Minamata Disease (Methylmercury poisoning) in Japan in year 1956 around Minamata Bay, Japan has triggered a huge number of scientific researches to address and study the disease and its health effects. One of the most significant current discussions in Mercury concentration in human's body is its relation to dietary intake, in particular, seafood. Seafood, mostly fishes, are found to contain Methylmercury (MeHg$^+$). Methylmercury is generated naturally from inorganic mercury by certain bacteria in the water environment, and accumulates in fish and mammals through the food web. Since seafood are one of the major sources of diet, it is important to recognise the relation of mercury concentration through dietary intake, in particular, seafood, and the tolerable concentration of mercury in human's body to prevent adverse health effects. Thus, the aim of this study is to comprehensively review the literatures involving study of the hair mercury levels in relation to seafood consumption and the public health benefits of hair mercury analysis as well as dietary advice in lowering the mercury level among people. This study has identified that previous research has indicated positive associations between mercury concentrations in human body in relation to seafood consumption through hair analysis. An important implication of this study is that there is a need to conduct future research on mercury concentration in human body in relation to seafood consumption, specifically in Sabah as prior studies have not been able to establish similar research in Sabah, as well as to educate on the tolerable level of seafood consumption among Sabahans.
In the era of promoting universal health coverage (UHC), the World Health Organization (WHO)'s cube diagram is well known. It explains service coverage, population coverage, and cost coverage. As it does not address disparities in coverage across population groups, another cube diagram, Step Pyramid, has also been introduced. Although this new model has a potential to urge policy makers to focus on health equity, it still focuses on the expansion of services, populations and cost, and aims to expand the cube which is similar to the present diagram by WHO. While these two models are focusing more on diagnosing and treating current and future diseases, it lacks to consider the success of a disease control and the potential of disease prevention and health promotion. For example, the cube fails to acknowledge the effects of when malaria or tuberculosis is well controlled in a country, while Step Pyramid model only suggests to change the priority and shift the fund to other diseases. In a situation where malaria fatality is reduced, the treatment costs can be decreased. Subsequently, as the service and population coverage is reduced, the proportions of costs also can be lowered. As a result, the cube can shrink, the opposite direction of the ideal coverage of UHC, but effectively still benefiting the population. Similarly, if disease prevention and health promotion programs are successful, the number of high risk population may be reduced for chronic conditions, such as diabetes or hypertension. Under these circumstances, the cube diagram will illustrate a smaller coverage with a smaller cube for these health threats. The current discussion of UHC does not address this aspect of shrinking the cube. As the expansion nature of the cube will remain, the cube will be more dynamic and become more realistic by considering that it is not a one way direction to shrink. Finally, we need to move forward to shrink the cube, by advocating more about the potential of disease prevention and health promotion, in particular, in resource limited settings.
Universal Health Coverage in Malaysia

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Malaysia has a dual healthcare system with the public and private sectors contribute to almost the same proportions in achieving a fairly acceptable health status of a middle income country. The current health financing for public sectors relied heavily on taxation while healthcare services are mainly provided by the government. Financing of healthcare has a progressive distribution and average household out-of-pocket payments are relatively small, especially for poorer households. Overall, the population enjoys high levels of financial risk protection and the use of public healthcare services is equitably distributed. The poor are spared a high burden of out-of-pocket payments due to the extensive network of public health facilities which provides a wide range of very cheap healthcare services to those in need. Direct household out-of-pocket health payments are in fact almost exclusively for the purchase of private care. The changing demographics and the poor lifestyles of the people poses great challenges in maintaining the health status should there be no innovations in the health financing system. It is about time that to consider social health insurance as another means of financing healthcare in Malaysia.
Universal Health Coverage and Public Health

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In September, 2015, the UN General Assembly established the Sustainable Development Goals (SDGs). Goal 3 of the SDGs is to “ensure healthy lives and promote well-being for all at all ages” and target 3.8 to “Achieve universal health coverage (UHC), including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all.” UHC includes ‘promotion and prevention’ and ‘treatment and care’. The objective of this paper is to discuss the role of public health in achieving and maintaining balance in UHC in our region. A review of UHC and public health in the Asia Pacific region and the continuing monitoring of public health achievements, including progress in moderating the effects of the social determinants of health. The role of APACPH is to ensure that public health principles are maintained in the pursuit of UHC. Public health is about prevention and equity. In implementing UHC it is our responsibility to ensure that SDG targets 3.7 and 3.8 are applied with equity across all segments of society, including rural and urban areas, ethnic, socio-economic, age and gender barriers. This has been an education priority of APACPH since our inception in 1984 a principle of public health education. Public health has been a success as child mortality in our region has declined by 60% and life expectancy has increased by almost 10 years. An important change in UHC embodied in the SDGs is the notion of sustainability. In this paper we will review the present state of universal health coverage in our region and continuing roles for APACPH in education, monitoring and research in the era of UHC.
Policy Surveillance and Using Health Law as a Tool for Further Actions

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Policy surveillance is the systematic scientific mapping of laws of public health importance. The practice ideally serves several important public health goals: it creates data to support empirical evaluation of the effects of laws on health; it provides greater public and professional access to health policy information; it supports diffusion of healthy policies within and across nations; and it enhances the ability of health organizations and individuals to identify and track progress in achieving goals for legal reform. This presentation will cover the basic methods and tools of policy surveillance, and explains how it relates to other essential public health law services. It then uses examples from U.S. and global surveillance projects to show how the practice is now being used to advance healthier public policy.
Comparative Analysis of Domestic Health Law in Western Pacific Region

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The aim of this study was to analyze and summarize in-country analysis on health law in Western Pacific Region. The purpose of review was to obtain a broad if superficial overview of the country’s legal coverage pertaining to health, just to see what laws are on the books. More specifically, scope of this study was to assess current status of public health law using ‘Tool to Assess Health Law’ / To find the difference of health law coverage by socio-economic status and characteristics of countries / To check the effects of health law coverage on health indicators in SDGs 3 and other health related SDGs / To discuss the outcomes of the assessment results to suggest future policy strategies and actions / and To find the way for strengthening the capacity of public health law of the countries in need.

Data collection was conducted from January 2013 to December 2015. Domestic health legislations were collected using ‘Tool to Assess Health Law’. In each country, local researchers were nominated and he or she has expertise on public health law. As a local researcher for representing country, he or she conducts the two processes for completing the mission. The first step was Desk Review. Local researcher gathered most of data on public health laws from library, archives of the Ministry of Health, and also from the website for the latest posting. If country has official or non-official website on legislation, local researcher remarked it. / 2nd step was having consultation meetings with Local Consultants. Results of desk review could be supplemented with consultation meetings. Expected consultant would be WHO country office technical staff, government officers in central and local (MoH, Provincial and District Health Offices), and Health Law specialists etc. Subjects were Legal system in countries, applied results on tool, health related legislation itself and assessment results including list of health legislations, synthesized report including major gaps. Then we aggregated all data in one excel file for comparative analysis.

Contents were existence of health law, list of health law, assessment process, legal system, major gaps in several countries. Total 33 countries were analyzed among 37 western pacific countries while some countries such as China, French Polynesia, New Caledonia, Wallis and Futuna were excluded due to lack of information or couldn't find appropriate local country researchers. Analysis was conducted using mixed methods. Firstly, using quantitative analysis methods, / frequency and percentage by countries and contents, / t-Test, ANOVA, chi-square test, and simple regression analysis were applied. Independent variable is health law coverage by Tool to Assess Health Law Module 1 IDHL / and dependent variable is Health indicators which is based on World Health Statistics 2017. Also, qualitative analysis such as comparative analysis, contents analysis, categorization, and ranking also used. This study empirically shows Health law affect health indicators. Of course, a significant number of gaps in domestic health law were noted. The number of laws in
a given country covering a given area differs widely from country to country. There are many concerns with the way law is currently employed to support health. Laws are oftentimes developed without regard to existing evidence and expertise, and not effectively implemented or enforced. Laws are oftentimes poorly designed and not effective in supporting the underlying policy objective or have unintended impacts that are harmful to population health. Laws are implemented without any evaluation such that we don't know if interventions are effective or not, why or why not. However, Law enables health sector agencies to effect appropriate public health countermeasures. Governments are increasingly reliant on regulatory strategies to advance SDGs. Regulatory systems in many countries are weak and face challenges including under-resourcing and capacity gaps. Institutions of public administration are the cornerstone to ensuring successful implementation of the SDGs. These institutions are established and defined by law, as well as the rights guaranteed to the population. Administration and governance needs to align to principles of effectiveness, inclusiveness, and accountability. Law rarely provides a total solution to any problem, and it almost never can work in isolation from the rest of what we do in health. Law is just one more possible system intervention that health professionals may draw upon to promote institutional performance, healthy behavior and environments. There is a need to more closely examine the relationship between law, governance and health, and support countries to integrate effective legal interventions into their policy making and strategies to achieve the SDGs.
Impact of New Regulations on Heath Reforms in Public Health

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The Health System in Bahrain is undergoing an extensive reform impacting the whole health sector. In 2014, the Supreme Council of Health has devised a strategy to implement a national health insurance system (NHIS) taking the Kingdom towards achieving the UN Sustainable Development Goals, Goal 3 “Good Health well-being”. Together with the World Bank support we have devised the best option for Bahrain for implementing the National Social Health Insurance system. Such reforms required the issuance of a new Law that sets the future direction for the Health sector to develop and ensure compliance with the new bylaws and regulations. Following the approval of the National Insurance Law, the Council has started implementation of NHIS program. The law clearly defines all aspects of the formation of financing entity, that is, National Social Health Insurance Fund Authority (SHIFA), with main responsibility of acting as the payer for the provision of health care services. I will share with the audience at the conference the model of financing for the program in Bahrain highlighting the role of the government payer “SHIFA” and private health insurance companies’ roles. Such multi-financing model has its challenges which will be discussed. Furthermore, another key aspect of the Law is giving autonomy for the public health providers. This could be considered as the most critical and most cumbersome challenge on hand. We experience much resistance from Ministry of Health, who is currently responsible for the provision of health care services to the public. Such resistance could be attributed to concerns of the unknown and risk to their current privileges and control. We are working with both public hospitals and health centers on the "challenging" journey of transformation. As result, work has started with Ministry of Health, Ministry of finance and Civil Service Bureau to see the impact of the new law on the exiting practices mandate by these stake-holding ministries! Another key important partner to implementing NSHI is the private health sector, this include both insurance companies and Private hospitals and clinics. The new law has clearly defined their future role in rendering health services. It is important to manage such dual role of Public and Private provision and procurement of Health care services. Well-defined benefit packages, access and referral system are being devised to ensure clear demarcation of responsibilities and accountabilities as set by the law. With the international gathering of experts and healthcare professionals during the conference, it will be a good opportunity to share the Bahrain experience in implementing the NSHI law and to share knowledge of best practices to setup the government Fund Authority and the road to implementing autonomy in the public sector with minimal disturbance to the existing operation and obtaining high health quality outcomes.
Building Capacity for Global, National and Local Health Promotion

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Capacity building is a term used by international organisations, funding bodies, government departments, non-government agencies, communities and individuals. They use the term capacity building when referring to the strengthening of skills and abilities to perform functions and/or, to processes and the provision of resources to solve problems and achieve objectives. Ultimately capacity building is about the provision of support to enhance the potential of entities to adapt and thrive. The concept of capacity building is intimately linked with ideas of autonomy and empowerment, with concomitant responses often being directed at individuals, as opposed to solutions directed towards broader systems or social determinants that contributed to the original lack of capacity. When thinking about capacity building the critical questions are whose capacity needs building and by whom and for what purpose? This presentation will use three cases to examine aspects of capacity building. The first case study will explore the development of health promotion competencies amongst undergraduate and postgraduate students whom upon graduation are accredited as health promotion professionals, and are eligible for employment in some countries. The second case examines the development of a long term successful partnership between a university and government and the development of skills and the provisions of resources to build the capacity of non-government agencies working to prevent blood-borne virus transmissions and treatment of associated illness. Finally the presentation will briefly report on the involvement of APACPH in a global movement to improve the marine environment so as to improve health and wellbeing of communities, countries and whole regions. In this example multi-disciplinary, multi-national teams whose members have little or no understanding of health promotion are being asked to develop preventive strategies and allocate funding to globally significant projects.
The nature and needs of health service organizations, both public sector institutions and civil society organizations, are changing dramatically. This is especially true for chronic disease prevention and health promotion implementing organizations. Organizations now face expectations for greater accountability and transparency as well as improved organizational results. Organizational capacity building for health promotion could multiply health gains, achieve program sustainability and carry out more health promotion strategies and activities. Taking health promoting hospital as an example of health promotion organizational capacity building, Taiwan updated the HPH standards by integrating age-friendly and environment-friendly features, as well as emphasizing health literacy as a core component of clinical care. In addition, the outcomes of health promoting health care, and the Healthy Hospital (HH) Accreditation were implemented. In order to strengthen the promotion of public participation and establish a patient-centered health promotion services in hospitals, the Taiwanese government promoted the Shared Decision Making (SDM) program where patients and their families can actively participate in the medical care decision-making process. Moreover, the government promoted health literacy in medical institutions so that the hospitalized patients can easily obtain, understand, and use the healthcare information and services to improve their health. Capacity building of health promotion hospitals (i.e. strengthening of internal organizational structures, systems and processes, management, leadership, governance, overall staff capacity) is beneficial to the effective implementation of health promotion. Taiwan’s example in the investment of organizational capacity building for chronic disease prevention could contribute to people’s health in the Asia-Pacific region.
Partnerships in Health Promotion: The Malaysian Experience

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The Malaysian Health Promotion Board, currently called the MySihat was established in 2007 with a vision of building a healthy and active Malaysian society, via a healthy lifestyle promotion and a healthy and enabling environment for health promotion. The core function of MySihat is to empower NGOs through training and provision of grants or other financial assistance to support programs and activities in health promotion. To plan, develop and implement actions, plans and programs for strengthening and developing capacity for health promotion. MySihat priority areas for health promotion include: diabetes prevention, cardiovascular disease prevention, prevention of obesity, sexual and reproductive health (including HIV/AIDS), research in health promotion, and promoting health through sport, cultural and arts activities. MySihat Action Agenda for Health Promotion include prevention of tobacco use, encourage regular physical activity, healthy eating, improve mental wellbeing, and prevent harm from alcohol. In order to achieve all these, there is a need to build leadership capacity to lead health promotion campaigns. Thus, partnerships and cooperation in terms of support, networking and capacity building at all levels is warranted in order to achieve success in health promotion. Partners with other government agencies, NGOs, media, corporate sectors, religious groups, international organisations, higher learning institutions, and the community. This lecture will highlight some of the health promotion programs conducted in the local context and the challenges faced.
Develop National Capacity for Tobacco Control: Experience from Taiwan

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WHO Framework Convention on Tobacco Control (WHO FCTC) was developed to combat global tobacco epidemic and urges coordinated national and global effort to address one of the most significant risks for premature death and disease. Developing national capacity to carry out effective and sustainable national tobacco control programmes is a top priority recognized in the WHO FCTC. Building and strengthening national capacity ensures sustainable governmental and community action for comprehensive tobacco control effort. This presentation will showcase how Taiwan government builds national capacity and sets up viable national tobacco control programmes to successfully decrease smoking prevalence from 21.9% in 2008 to 15.3% in 2016. The Health Promotion Administration (HPA) of the Ministry of Health and Welfare (MHW) in Taiwan developed a national plan of action with supporting the infrastructure and capacity to provide a comprehensive and sustainable national strategy for multi-sectoral tobacco control programmes and policies as well as tobacco control training and education. The HPA works closely with inter governments, the health bureaus of local governments and non-profit organizations to raise public awareness through effective communications and media advocacy, especially for protection of young generations from the hazards of tobacco. The HPA puts forward stronger legislating measures for tobacco control to respond to emerging tobacco products and changing landscape of tobacco use. The MHW raises Tobacco Health and Welfare Surcharges to inhibit tobacco consumption and provides key source of funds for tobacco control and health care. This presentation will also highlight the HPA’s efforts in countering the tobacco industry, forming effective partnerships, monitoring and evaluating progress, and exchanging information and research.
PUBLIC HEALTH FORUM
Public Health is no longer confined within a community. Epidemics and disasters threaten hundreds of millions of populations each year, whilst environmental, workplace and lifestyle diseases have accompanied rapid economic growth within the region. With the ease of travel in today’s fast-moving world that we live in, countries have become borderless and this comes hand in hand with the ease of spread of diseases. Diseases such as avian influenza, Zika and dengue are common within this region. Historically countries had focused very much on a national level approach but we need to keep abreast with the rapid evolution of diseases. This sentiment is echoed in the United Nations’ Sustainable Development Goals, where it is observed that health plays a pivotal role in many of the stipulated goals. Here in Malaysia, we are part of the ASEAN region where we have a substantial amount of regional mechanisms to combat common ‘enemies’. Natural disasters such as the earthquake in Indonesia, or floods in Myanmar are a common occurrence these days and although we may not directly affected, the fact that it occurs in our neighboring countries is a matter of concern to us. With the development of the ASEAN Coordinating Centre for Humanitarian Assistance for Disaster Management (AHA Centre) and ASEAN Regional Capacity on Disaster Health Management (ARCH) which aim to coordinate regional mechanisms and management during a disaster, Malaysia is an active player in the scene. In addition to that, as part of the Western Pacific Region of WHO, Malaysia also works very closely with WHO in improving public health programmes and developing new strategies for dealing with changing conditions. When we are faced with common problems, sharing of data and information within the region is of utmost importance. Sharing of resources such as vaccines produced within the region is another mechanism. The ability to critically appraise and synthesize situations from a regional perspective to assist leader and policy-makers is a role which is of growing importance over the years. Ultimately, the goal that we need to accomplish is to promote evidence-based health planning and action, reinforce the need for strong public health systems with an effective balance between clinical care and public health to ensure a healthy nation, within the region.
In the past 5 years, One Health concept has been emphasized by various international agencies as a choice approach when dealing with complex problems such as emerging infectious diseases and antimicrobial resistance. One health is not a new concept but has been re-enforced due to the nature and growing complexity of emerging global problems. It is well recognized that not a single agency or institutions can manage these aforementioned type of problems themselves due to the inherent limitations of portfolio-based knowledge and expertise. Therefore assistance and facilitation by others empowered with the desired knowledge and expertise became necessary. Unfortunately collaboration and partnership (as opposed to the ‘silo’ approach) between agencies and institutions is easier said than done due to various reasons that ranges from organizational structure/culture, leadership and communication. Therefore it became critical that one health approach is introduced and taught amongst our undergraduate and graduate students especially those in programs relevant to human/public health, veterinary health and environmental/ecosystem health. The current guidelines by international authorities for human and animal health recommended graduates in medical and veterinary fields to be competent in one health. In addition the Global Health Security Agenda (GHSA) and Animal Health (OIE’s) Performance of Veterinary Services (PVS) assessment criteria includes One Health competency as integral among ministerial officers. Hence, it is incumbent for the universities to include One Health in taught courses not just to align our graduates with international requirements but to increase their relevance to the national/government sectors. Malaysia One Health University Network (MyOHUN) has been working closely with major universities and ministries to facilitate and enhance this process since 2013. More than 90 various one health relevant trainings has been conducted with participations of more than 1000 university students and 1000 academicians and ministerial officers nationwide. Among the academicians, trainings include innovation in teaching and learning practices to insert aspects of one health in current student teaching and learning activities and exposing them (academicians) to various inter-ministerial activities in preparing and responding to emerging diseases. These experiences can be brought to the students in classroom teachings. For student level activities, inter-disciplinary problem-based learning, community extension work through One Health Students Clubs and leadership and communication programs has been carried out not just to expose students to one health but also to polish their skills in core competencies of leadership, communication, partnership and collaboration. Workforce transformation is an on-going effort that takes significant amount of time but can be better enhanced and made sustainable when relevant university programs that address one health issues underwent transformative evolution.
Implementing UHC, requires a robust well integrated Health Insurance system with a big repository of health information accessible by all. It is important to identify the systems that will operate, monitor, control and analyze all processes that are required to ensure a successful implementation of UHC. We will describe in this presentation the systems that have been designed, developed and implemented in partnership with the Korean Health Insurance Review Assessment services (HIRA) to manage the Bahrain Social Health Insurance System (NSHI). This includes Health Insurance Information system, Drug Utilization Review system and the National Electronic Medical Repository System. Also, we will discuss how the data security aspect of the whole system is being addressed. It is critical to adhere to the patient confidentiality and protection of the national "Big Data" systems from any cyber attach! We have gone a long way toward completing the project and HIRA, who has been working onsite hand in hand in Bahrain playing as a key partner towards the transformation of the current Health system to a National Social Insurance System (NHIS) as part of the health reforms toward UHC. We have successful implemented drugs tracking from point of entry to patient drug dispensing. Moreover, the claims raised by providers to the payers are checked for financial and clinical accuracy and effectiveness. This helps us in rendering a high-quality patient care services and ensuring that effective and efficient use of resources. More importantly the National Electronic Repository system has created a central virtual system accessible by all government and private entities related to healthcare being internal or external to the country giving better access to patient medical record and health status regards who renders the service. The nationwide network is connected to the cloud through high fiber connectivity with very robust data security measures to ensure adherence the national public law related to information access, and in-line with international standards. As a result of this project, I hope to share our experience highlighting the effectiveness of two nations (Kingdom of Bahrain and Republic of Korea) collaborating to implement information systems that can best operate and manage the UHC system. We have gained much from the South Korean experience and knowledge in this area and we hope to set a good example of cross-counties cooperation towards a successful transformation to UHC.
ORAL PRESENTATIONS
Abstract ID: OR0001AQ

**Quality of Life among Breast Cancer Patients in a Tertiary Hospital in Malaysia**

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**Background:** Breast cancer has major psychological impact and significant change to the quality of life (QOL) of the sufferer. QOL is one of the measurements to assess a severity level of breast cancer patients. The objectives of the study were to measure the QOL and to determine the associated factors. **Methods:** This is a cross-sectional study conducted among breast cancer patients attended for treatment or follow-up between October and December 2017 at one of the tertiary hospitals in Malaysia. Patients were recruited by universal sampling of all breast cancer patient attended as out-patient or inpatient. Quality of life scores and domains were determined using EUROQOL EQ-5D-5L consist of 5D-5L Descriptive System and Visual Analogue Score. **Results:** A total of 173 breast cancer women aged between 33 to 87 years old were recruited. About 68.2% were between age 50-69 years old, 80.0% were married and more than half of them had concurrent illnesses (57.2%). Clinically, almost half of the patients were diagnosed breast cancer between 1-5 years ago (47.4%). Financially almost half of the patients were socioeconomically poor with monthly wages less than RM1000.00 (48.6%). Only ethnicity (F=6.924, p=0.001) and presence of concurrent illnesses (t=2.084, p=0.039) were found significantly associated with QOL. The QOL VAS mean score was 79.65 (SD=+/- 15.99). Pain and discomfort was the worse of QOL domain which significantly affected by young Indian breast cancer age 30-39 years old. **Conclusions:** The factors affecting QOL inconsistently revealed. Clinically, no difference in QOL between treatment modalities and no evidence of financial difficulty affecting QOL. Current protocol of treatment and financial assistant provided may contribute to current QOL. Targeting a group affected such as young breast cancer, Indian and present of co-morbid may improve the QOL in the future.

**Keywords:** Breast cancer, Quality of life, Tertiary hospital, Malaysia
Challenges for Promoting Volunteer Activities at Dementia Cafes: A Case Study of Japan

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Background: Dementia cafés have been provided for people with dementia and their carers to share the information about dementia with community dwellers and care workers. In Japan, the first dementia café was introduced in 2012, and today more than 2000 cafés were opened. In the national strategic plan for dementia, such cafés are expected to play a key role in mobilizing volunteers who support people with dementia. This study aimed to assess the status quo and challenges of promoting volunteer activities at dementia cafés in Japan. Methods: A structured questionnaire was distributed to 252 dementia cafés in Hyogo prefecture, Japan. In total, 167 cafés responded (response rate = 66.3%). The questionnaire contained basic information on dementia cafés, volunteer activities, operational problems of café, and issues regarding volunteer activities at cafés. A chi-square test and Mann-Whitney U test was applied to analyse the characteristics of cafés which have volunteers. A qualitative analysis was used to identify the challenges of promoting volunteer activities at dementia cafés. The Ethical Committee of the Kobe City College of Nursing has approved the study protocol. Results: Approximately half of all dementia café have had volunteers. Statistical analyses showed that volunteers were more likely to participate in the dementia cafés, which were located in the community that had high number of dementia supporters and high number of people with dementia. A qualitative analysis explored four categories regarding issues related to volunteers working at dementia cafés: ‘volunteer coordination,’ ‘quality of volunteers,’ ‘continuum training for volunteers,’ and ‘recruitment.’ Conclusions: To promote volunteer activities at the dementia cafés, training programme should be provided for dementia supporters to improve communication skills. Information sharing among dementia cafés are also required to improve the quality of dementia cafés.

Keywords: Befriending service, Dementia, National strategic plan
The Effects of Horticultural Therapy on the Elderly in Community

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Background: According to reports, older people aged 60 or over account for 1/9 of the world's population, and it is expected that by 2050, older people over 60 will reach 1/5. Because the children work outside and other reasons, most elderly people are empty nesters, and this group of people has a higher risk of mental health problems. With the increasing aging of the population and the rise of positive psychology, the issues of well-being and quality of life of the elderly have become hot spots for research in recent years. Scholars are constantly exploring the mechanisms and models of elderly care to increase the happiness index of elderly people in China. This study was to evaluate the effects of horticultural therapy on the sense of loneliness and happiness and quality of life of community elderly.

Methods: Totally 67 older in the community who took the program willingly were randomly divided into intervention group (n=33) and control group (n=34). The control group was treated with nothing while the intervention group received the horticultural therapy. University of California Los Angeles Loneliness Short Scale (ULS-6), Memorial University of Newfoundland Scale of Happiness (MUNSH), and Quality of Life Comprehensive Assessment Questionnaire (GQOLI-74) were used to assess the improvement, before and after the intervention.

Results: ULS-6 score of intervention group after 2 months was 8.23±3.17, which were significantly lower than that of the control group; MUNS Hand GQOLI-74 score of intervention group after 2 months were 34.65±10.73, 78.93±21.65, respectively, which were significantly higher than those of the control group (P<0.05).

Conclusions: Horticulture therapy can significantly decrease the sense of loneliness and improve the sense of happiness and quality of life of elderly in the community, and it is worthy to be promoted in the process of exploring the retirement pattern.

Key Words: Horticultural therapy, Elderly, Loneliness, Happiness, Quality of life
Abstract ID: OR0004AQ

Development of Active Ageing Questionnaire (AAQ) Among the Older Person in Malaysia

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Background: Active ageing is a conceptual understanding of ageing well resulting in good quality of life. Yet, there is still no local tool available which could be used to measure it. Thus, this study aims to develop and validate a measuring instrument on active ageing among the older person in Malaysia. Methods: Development of Active Ageing Questionnaire (AAQ) was informed by another qualitative study on active ageing in Malaysia and followed the steps for scale development. Three domains which were independence, participation and satisfaction with total 81 items were developed and went through content and face validation. Construct, criterion validation and reliability test were carried out on 302 elderly. Convenient sampling was applied among members of older person organization in all five regions of Malaysia. WHOQOL-BREF (Malay) was used for criterion validation. Content validation index, face validation index, exploratory factor analysis, Cronbach’s Alpha and Pearson Correlation analysis were carried out. Results: The AAQ scale development showed excellent content and face validation index. Three factors namely independent, participation and satisfaction were extracted with 20 items in each domain. The Cronbach’s Alpha value for the AAQ was 0.96 for overall; for independence, participation and satisfaction domain these were 0.95, 0.93 and 0.92 respectively. There were significant positive strong correlations between AAQ and WHOQOL (BREF). Conclusions: The AAQ showed a good validity and reliability for measuring active ageing level among older person in Malaysia. This will allow measurement of active ageing to inform policy of older person in Malaysia.

Keywords: Older person, Active ageing, Scale development
The Epidemiology of Frailty among Community-Dwelling Older Adults in Rural Sri Lanka

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Background: Frailty is an important health problem of older age. There is limited evidence on the burden of frailty in low- and middle-income countries particularly Asia, including rapidly ageing countries such as Sri Lanka. The objectives of this study were to 1) estimate the prevalence of frailty and pre-frailty and describe the associated socio-demographic correlates among community-dwelling older adults in rural Sri Lanka and 2) compare findings with other Asian countries, and other middle-income countries worldwide. Methods: A community-based cross-sectional study was conducted with 746 community-dwelling older adults aged ≥60 years residing in rural Kegalle district in 2016. A three-stage probability sampling design was used to recruit participants. The prevalence of frailty was estimated using the Fried phenotype in the overall sample and by socio-demographics. Multinomial logistic regression was used to estimate the association between socio-demographic covariates and frailty status. A cross-country comparison of frailty was performed across income classification and geographic regions. Results: The prevalence of frailty and pre-frailty in rural Kegalle district was estimated as 15.2% (95% CI: 12.3%, 18.6%) and 48.5% (95% CI: 43.8%, 53.2%) respectively. We found strong association between age and both frailty and pre-frailty. Strong associations were also observed between longest-held occupation and frailty and education level and pre-frailty. The prevalence of frailty across all the age groups except 60-64 years was higher in Sri Lanka compared with other countries (Japan, China, Malaysia and Latin American countries). Conclusions: The prevalence of frailty in the rural Sri Lankan older population was high in comparison to both high income and upper-middle-income countries. Moreover, the scale of the problem in Sri Lanka appears larger than in other countries across Asia where data are available. The profile of health and social care services in Sri Lanka needs to address the high burden of frailty.

Keywords: Epidemiology, Frailty, Asia, Sri Lanka
Disability-Adjusted Life Years of Elderly Depression and Research on Its Risk Factors

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Background: Depression in the elderly is a global health problem that has caused public health and economic losses. The aim of this study was to describe the DALYs of Late-Life Depression and analyze its risk factors to provide effective prevention strategies. Methods: We used data on global disease burden (Global Burden of Disease, GBD) related to depression provided on the website of Institute for Health Metrics and Evaluation (IHME) and descriptively analyzed the current situation of Late-life Depression. China's 2011-2012 Longitudinal Health Longevity Survey (CLHLS) is a large-scale cross-sectional survey consisting of 9765 participants aged 65 years or older in 23 provinces. CLHLS collects information regarding the socio-demographics, health-related characteristics, family support, and social welfare. We used multivariate linear regression to estimate risk factors associated with depression in the elderly. Results: From 1990 to 2016, among all the diseases that use DALYs as an indicator, the ranking of depression in elderly people over 70 years old remained unchanged. However, this ranking in China rose from the 18th to the 15th during the same period. The elderly depression related DALYs in China is higher than the world average. The observed DALYs rate for the elderly depression in China is higher than expected. Compared to the males, the females are more susceptible to depression when they are getting older. Urban residence, marital status, activities of daily living, self-reporting health, epilepsy, dementia, offspring relationship, and medical insurance are the major risk factors for depression in the elderly (p value ≤ 0.01). Conclusions: The results of this study indicate that the depression in the elderly is a public health problem that cannot be neglected. Our study provided health policy decision makers with a signal that they need to better understand the depressive symptoms of the elderly.

Keywords: Late-life depression, DALYs, YLDs, GBD, Risk Factor
Assessing the Effectiveness of Elderly-Healthcare Voucher Scheme in Hong Kong: Planning for Computation Simulation

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Background: In Hong Kong, the Elderly Health Care Voucher (EHCV) scheme is expected to increase the number of elders choosing private primary healthcare services, on the other hand, to reduce reliance on the public sector. Clearly, the scheme was not satisfactory reported by some literatures to date. In this study, a qualitative interview was conducted to evaluate different potential enhanced EHCV strategies for a further computation simulation. Methods: The purpose of the qualitative phase is to obtain the opinions from the private primary care professionals about the preference of using EHCV for consultations in the healthcare system. They needed to comment on the identified factors that affected the behaviours of elderly and service providers on using the vouchers. Five private primary care professionals who have worked for at least 10 years in the private sector were invited in order to ensure they are familiarized with the private healthcare system. Results: In general, all interviewees regarded the eHealth system has greatly improved since 2009. Majority of them have suggested the price is not enough and the price settings should be based on the needs of elderly (e.g. chronic diseases). Wider population also suggested such as below 65 years old. Conclusions: Given a major concern about the amount of vouchers, the test scenarios in the computational model should be the increase of voucher amounts, lowering age eligibility criteria, and voucher specified for chronic diseases. The findings will be further synthesized into computational simulations for a long term effectiveness evaluation.

Keywords: Elderly, Simulation, Voucher, Interview
The Experience of Living with Mild Cognitive Impairment (MCI) among the Elderly in Northern Sri Lanka

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Background: The concept of Mild Cognitive Impairment (MCI) is a condition between normal and dementia-type pathological ageing. The concept of MCI applies to people who suffer from cognitive impairment at the same time with the normal activities of daily living. The people with MCI may progress to dementia or remain in MCI or revert to normal cognition. Living with this disease condition may increase their uncertainty, leading to an additional psychological burden. This study was to describe the subjective experience of living with MCI among the elderly in Northern Sri Lanka. Methods: In-depth interviews were conducted among a sample of elders who had been identified as having MCI within 6 months in a study of MCI prevalence among 1028 elderly aged 65 years and above. Results: The study unit for this qualitative study was 16 elders (8 males and 8 females) with a mean age of 74.3 years, whom have been identified as having MCI during the above-mentioned study. All the interviews were audio-recorded and transcribed in verbatim. The interviewer checked the transcription for accuracy. Grounded theory was used to explore the themes of the objectives. There were four common themes that emerged from these qualitative studies. Changes, attributions, consequences and coping were the four themes explored during analysis. Changing pattern in cognitive abilities after getting MCI was ‘forgetfulness’, ‘poor concentration’, and ‘problems in geographical orientation’. Attributions after getting MCI were ‘normal ageing phenomena’, ‘personality trait’, and ‘somatic conditions. The reported consequences were categorized into two categories as experienced by the patient and by the family members. Three categories of coping mechanisms were adopted by the patients following the diagnosis of MCI. Those were emotion-oriented, problem-focused and avoidance-oriented coping mechanisms. Conclusions: Living with a new disease can significantly influence a patient’s emotional response, symptom perception, attributions and coping skills.

Keywords: MCI, Elderly, Patient perception, Sri Lanka
The Impact of Health Education Intervention for Chinese College Students

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Background: Practicing healthy behaviors have been shown to be the most effective ways to reduce chronic diseases, morbidity, and mortality. However, college students, during a critical transition period, tend to have poor health lifestyles. Therefore, this study aimed to assess the impact of health education intervention on healthy behaviors, well-being, and general self-efficacy among Chinese college students. Methods: This study was conducted at Wuhan University, China from March to October 2016. Participants were assigned to a control or intervention group. The intervention group attended a 6-week lesson on knowledge, attitude, and practice of healthy behaviors. Participants reported their lifestyles using a self-administered questionnaire. Their subjective well-being, self-efficacy, and health behaviors were assessed by standardized questionnaires. Results: A total of 532 college students aged 19.6±0.9 years (n=263 intervention, n=269 control) completed this survey. Although no significant differences were observed at baseline, participants in the intervention group reported significantly increased prevalence for high physical activity and regular breakfast, as well as lower screen time, sugar beverages intake, and internet addiction tendency than those in the control group. Furthermore, intervention students improved in general self-efficacy (p=0.029) and health behavior scores (p<0.001), compared with the control group, while the changes in subjective well-being were not significantly different between the two groups. Conclusions: Health education may promote the healthy behaviors among Chinese college students. Our results provide more evidence to develop interventions to improve healthy lifestyle and prevent risky behaviors in this population.

Keywords: College, Students, Health, Behaviors, Intervention
Abstract ID: OR0003CA

Socio-Demographic Determinants of Stunting on Adolescent Girls in West Sulawesi Indonesia

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Background: Poor nutrition status on adolescent girls is one of the key factors that promote the high burden of malnutrition in Indonesia. This study was aimed to determine socio-demographic factors associated with stunting on adolescent girls. Methods: This study was a cross sectional study design with a total sample of 455 girl students in Class X from 4 senior high schools at Mamuju District, West Sulawesi. Socio-demographic data were collected by using structured questioner, while body height was measured by using microtoise with precision of 0.1 cm. According to WHO, HAZ found <-2 SD was categorized as stunting. Data were analyzed by using chi-square and binary logistic regression test. Results: The prevalence of stunting on adolescent girls was 34.1%, which found higher proportion among aged 13-15 years (53.5%), and more commonly found in those whose parents with low education level i.e. mother (56.1%) and father (61.3%), fathers’ occupation in informal sector (75.5%) and unemployed mother (69.9%), and number of siblings more than 1 sibling (86.5%). There was a relationship between age group of adolescent girls (13 – 15 years and 16-18 years), level of parents’ education, fathers’ occupation (informal sector), number of siblings with stunting (p<0.05), while the occupation of mother was not significant statistically. Based on binary logistic regression showed that education level of father (OR = OR = 2.084) and age group of adolescent girls (OR = OR = 1.603) were significantly associated with stunting (p<0.05). Conclusions: Stunting on adolescent girls was determined by socio-demographic factors. Therefore, it is need the intervention to improve social determinant factors of stunting on adolescent girls by partnership between governments and university.

Keywords: Socio-demographic determinants, Stunting, Adolescent girls
Premarital Sex and Its Predictors among Secondary School Students in the Malaysian Borneo

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Background: Adolescence is the transitional stage from childhood to adulthood. During this period, adolescents go through biological, psychological and social changes predisposing them to risky sexual behaviours. Engagement in premarital sex may result in contraction of sexually transmitted infections and unwanted pregnancies leading to poor health and even death from unsafe abortion. Methods: This cross-sectional study assessed factors associated with sexual and reproductive health (SRH) among secondary school students in the Malaysian Borneo (Sabah and Sarawak). Two-stage sampling process was adopted. The questionnaire was self-administered, covering topics on SRH knowledge, attitude and practice, risky lifestyle behaviours, adolescent psychology, family attachment, peer risky behaviours, school attachment, commitment towards education and school environment, neighbourhood and community environment, sources of SRH information and socio-demographic information. Logistic regression was performed to determine the risk and protective factors for premarital sex. Results: A total of 2,858 school students participated. Mean age was 15.4 years old (SD=1.6). There were more female respondents (64.6%) and those from rural area (71.45%). The proportion of respondents who had premarital sex was 2.9% and was higher among the males (4.1%) and those resided in rural area (3.1%). Among respondents who have had sexual intercourse, less than half reported to practice contraception (43.9%). Mean age at first sex was 15.3 (SD=2.3) years old. The risk factors for premarital sex were age 16-17 (OR: 2.82, CI: 1.37-5.82) and 18-19 (OR: 3.06, CI: 1.34-7.03) years old, read/watch pornographic materials (OR: 2.35, CI: 1.28-4.33), having friends who had premarital sex (OR: 7.03, CI: 3.59-13.75) and involvement in dating (OR: 2.22, CI: 1.24-3.99) and clubbing (OR: 3.29, CI: 1.58-6.85). The protective factor against premarital sex was religious strength (OR: 0.47, CI: 0.26-0.85). Conclusions: This study highlights the urgent need to intensify the education drive of SRH in schools with focus religious values and teachings. In addition, efforts to restrict underage individual access to pornographic materials and entertainment clubs should be further upscale.

Keywords: Premarital sex, Secondary school, Student, Borneo
Promoting Balance Diet among Elementary School Children through Behavioral Based Nutrition Education Using MyPlate

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Background: Health promotion and nutrition education is believed to be the key in moving forward towards conscious behavioral change in health and wellbeing. The objective of the study was to increase children’s knowledge about balance diet. Methods: This was a pre-post behavioral intervention study to promote balance diet including fruit and vegetables intake among 100 elementary school children. Games, songs and actual plate designed in accordance to MyPlate recommendation was used as part of the intervention build upon Theory of Planned Behavior. To assess the difference in children’s knowledge before and after intervention the test of analysis of variance (ANOVA) was performed. Results: The results showed that after the intervention the overall knowledge of the children about balance diet was significantly improved (p-value<0.001). When asked to arrange food items into their respective group significant improvement was seen among staple food (p-value=0.004), vegetables (p-value=0.002) and water (p-value<0.001). Conclusions: In conclusion this study highlighted the effectiveness of behavioral based nutrition education in improving knowledge about balance diet among school children.

Keywords: Nutrition education, Balance diet, Children, Fruits, Vegetables
Abstract ID: OR0006CA

Risk and Protective Factors Affecting Young People’s Sexual and Reproductive Health in Sabah, Malaysia

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Background: Young people sexual and reproductive health (SRH) had raised a lot of concern due to the rising of sexually transmitted infections (STIs) in Malaysia. This study aims to identify the factors that influence young people’s SRH in Sabah. Methods: The study was a cross-sectional survey conducted among 1396 students in 17 secondary schools in Sabah. Data was collected using a standardised EM-ASRH questionnaire. Results: The most cited risky behaviour among student’s is dating (29.0%) followed by loitering (14.8%), tobacco use (8.0%) and alcohol (7.9%). The proportions of student’s having friends who were involved in all aspects of risky behaviours are quite low (46 % of the total students); having friends who were involved in smoking (18%) and truancy (22 %) and drugs and sexual misconduct (<10%). A high proportion of students view religion to be very important (98%) and majority (86%) admitted that the strength of their religious beliefs was the main barrier for them to have premarital sex. A high proportion of students reported they were close to their parents or guardians (94.9%), enjoy spending time (92.8%), had positive communication and attachment (91%) and received assistance and support when needed (90.1%). About 95 % of the students agreed or strongly agreed that they like going to school, 86 % reported that their teachers like them, school is fun (91.1%), like their teachers (91.8%) and felt accepted in school (94.9%). Majority of the students felt that their neighbourhood community were concerned about one another (76.1%) and that their community tried to prevent young people from vices (83.9%). Conclusions: The common risky lifestyle behaviours engaged by the students were dating, late night loitering and alcohol consumption. On the other hands, religion, family, friends, schools and community plays important factors in protection against likelihood of negative health behaviors.

Keywords: Risk factors, Protective factors, Sexual activity, Reproduction, Adolescent
Abstract ID: OR0007CA

Prevalence of Overweight/Obese and Hypertension in Children and Adolescents in Wuhan

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Background: The prevalence of obesity and hypertension in children and adolescents has been increasing rapidly. Childhood obesity and hypertension are important risk factors for certain health hazards, including obesity and essential hypertension in adulthood. This study aims to investigate the prevalence of overweight/obesity and hypertension in two districts in Wuhan, China. Methods: We collected data of the physical examination of all primary and middle school students in two districts (Hongshan and Donghugaoxin) of Wuhan in 2015. We then analyzed the sociodemographic information, body weight, height, blood pressure of children and adolescents aged 7-17 years old, and assessed the distribution of overweight/obesity and hypertension in these two regions. We performed descriptive analysis, chi-square test, and linear regression for data processing and analysis. Results: This study included a sample of 79,823 subjects, of which boys accounted for 55.0%. Children and adolescents in urban areas in Hongshan District accounted for 57.6%, and Donghugaoxin accounted for 42.4%. The prevalence of overweight, obesity, and hypertension were 15.3%, 10.6%, and 11.0%, respectively. There were significant differences in the distribution of overweight/obesity and hypertension between these two regions (χ² = 25.017, P < 0.001; χ² = 106.624, P < 0.001) and gender (χ² = 1960.802, P < 0.001; χ² = 94.505, P < 0.001). Conclusions: The high prevalence of overweight/obesity and hypertension among children and adolescents in Hongshan and Donghugaoxin Districts in Wuhan, China is alarming. Measures must be taken to stop the trend.

Keywords: Children, Adolescents, Overweight, Obese, Hypertension, Wuhan
Abstract ID: OR0008CA

**Relationship between Mental Health Status and the Cognitive Performance among Adolescents in Northern Sri Lanka**

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**Background:** Mental health disorders are one of the major burden of disease in global. Mental health problems in adolescents thus present not only a major public health challenge but are also a development issue in low- and middle-income countries and may be central to achieving different Sustainable Development Goals. Good mental health of adolescent is very important for his/her optimum level educational performance and thus a brighter future. This study evaluated the relationship between the mental health status and the cognitive performance of the adolescents in a conflict-affected district of Northern Sri Lanka. **Methods:** A descriptive cross-sectional study was performed among the school going adolescents in Jaffna district of Northern Sri Lanka. Students’ mental health was assessed with Tamil Version of Strength and Difficulty Questionnaire (SDQ). High score of SDQ indicates more mental health issues. Cognitive performance was assessed by an aptitude examination. Both were self-administered by the study participants. The assessments were carried out in the schools. **Results:** Six hundred and fifty-five school students have participated in the study. Mean age of the study participant was 14 years. Male-female ratio of the study participants was 1:1. The mean aptitude score was 64.0 with the range of 6-100. The SDQ score ranged from 0-26 and the average score was 9.6. Negative relationship was observed between SDQ score and aptitude score. The correlation coefficient of the relationship between SDQ and the Aptitude test was -0.11 and is statistically significant (p=0.003). This relationship was more among boys (r=-0.169, p=0.003) than girls (r=-0.069, p=0.21). **Conclusions:** Good mental health of an adolescent is important for better cognitive performance.

**Keywords:** Adolescents, Jaffna, SDQ, Mental health, Cognitive performance
Effectiveness of a Primary School-Based Intervention in Malaysia

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Background: Unhealthy dietary practices among school children such as meal skipping were prevalent in Malaysia, and this may further contribute to overweight and obesity and poor cognitive performance. Methods: This quasi-experimental study aimed to evaluate the effectiveness of Healthy Lifestyle Program (HLP) in eating behaviour, body weight status (body mass index-for-age [BAZ]) and cognitive performance before and after program between intervention and comparison groups. The intervention group was asked to complete the HLP for 3 months, while no intervention activity for the comparison group. The 3-month HLP in children consisted of two components, namely nutrition education camps which were implemented using standardized modules by trained teachers, and healthier snacks were served to the children during school recess time. All children from four primary schools in Batu Pahat district (Intervention group: 201 children; Comparison group: 219 children) were required to complete the Eating Behaviour Questionnaire (EBQ) before and after program implementation. Cognitive performance was assessed using Raven's Coloured Progressive Matrices, while their body weight and height were measured. After the program, the intervention group showed more frequent consumption of lunch and dinner, while the comparison group has a higher prevalence of breakfast skipping. Results: There was a significant increase in BAZ in the comparison group, but no significant difference in BAZ was observed in the intervention group after the program. The intervention group had also shown a higher improvement in cognitive performance as compared to the comparison group after the program. Conclusions: In short, integrating both strategies in education and environmental support in school-based intervention is effective in a primary-school based setting.

Keywords: Intervention, Eating behaviours, Breakfast skipping, Cognitive performance, Body weight status
Abstract ID: OR0010CA

Physical Activity Related Injuries (PARIs) and Risk Factors among Secondary School Students in Hong Kong

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Background: Increase in PA has been observed in several studies in the past decade. However, it might elevate risks for physical activity-related injuries (PARIs). Secondary school students are relatively active and may be exposed to high risk of PARI. Evidence in PARI occurrences and associated risk factors among the general population is scarce. This study aimed to investigate the incidence rate and risk factors of PARI among secondary school students in Hong Kong. The study was supported by the Faculty Research Grant, Hong Kong Baptist University (Ref. No: FRG2_13-14_032).

Methods: A self-administered questionnaire was developed to collect PARI episodes in the past 12 months, PA habits, sedentary behaviors, sleep duration, and socio-demographic characteristics of the participants. Multivariate logistic regression was performed to estimate risks of the study variables for PARIs.

Results: A total of 1916 secondary students in Grades 7-12 (aged 14.3 ± 1.7 years) participated in the study, with a participation rate of 78.0%. Among them, 609 reported at least one PARI episode in the past 12 months, with an overall yearly PARI incidence rate of 32.1%. Multivariate analysis revealed that boys, those with mothers having higher education, those in a single-parent family, and those whose family owning a car were more likely to experience PARIs. Whilst those in the graduating classes were less likely to suffer from PARIs. Risk for PARIs increased along with PA levels (min/day), especially vigorous-intensity PA (VPA). Insufficient sleep duration (hr/day) also elevated the risk for PARIs.

Conclusions: PARIs were common among secondary school students in Hong Kong. The VPA level (min/min) was the strongest predictor of all PA indicators. Safety should be emphasized when recommending PA to this population. There is an urgent call for actions to prevent them from PARIs.

Keywords: Physical activity, Sports injury, Injury, Adolescent, Risk factor
Association between Body Weight Misperception and Eating Behaviors among Chinese Adolescents

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Background: Adolescence is a critical period of both physical and mental development when lifestyle behaviors are cultivated. The research literature suggests that adolescents' weight misperception is increasing, which may in turn affect adolescents' weight management behaviors. It is becoming increasingly important to understand the extent of body image misperception and the associations between it and unhealthy eating behaviors in the Chinese adolescent population. Objective: To examine the association between body weight misperception and eating behaviors among Chinese adolescents. Methods: 3059 students from a middle school and a high school in Wuhan, China participated in a cross-sectional study and responded to a self-designed questionnaire. The questionnaire was based on Global School-Based Student Health Survey (GSHS) of WHO and the recommended nutrition standard of Chinese Nutrition Society. Self-reported information, including weight, height, body weight perception, food-frequency and eating habits, was collected. The actual body weight status was evaluated by BAZ (body mass index for age z-score), which was calculated from self-reported height and weight with WHO AnthroPlus. We used descriptive, logistic regression analysis and Kappa test to analyze the data using SPSS. Results: Among the participants, 22.4% and 34.3% underestimated their weight, respectively. Compared with the correctly-perceived group, weight underestimating students tended to have food late at night (OR=1.32, P=0.008), have dinners with family (OR=1.34, P=0.007), check nutrition labels (OR=1.55, P<0.001), and eat more food, such as meat and eggs. In contrast, weight overestimating students were less likely to have food late at night (OR=0.76, P=0.034). They seldomly had dinners with family and eat less food such as fruit and meat. In addition, normal-weight adolescents who perceived themselves as overweight or obese were more likely to eat less food or food lower in fat (OR=2.27, P<0.001). Conclusions: Body weight misperception is associated with unhealthy eating behaviors among Chinese adolescents.

Keywords: Body weight, Misperception, Unhealthy eating behaviors, Adolescents
Examining Sexual and Reproductive Health Knowledge among Secondary School Students in East Malaysia

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Background: This paper examined knowledge of various aspects of sexual and reproductive health (SRH) among secondary school students using self-administered questionnaire. Methods: The study involved a cross-sectional survey of 2858 respondents aged 13-18 years from 33 schools in Sabah and Sarawak, East Malaysia. Twelve items related to SRH were used to measure respondents' knowledge based on their responses ‘True’, ‘False’ or ‘Don’t know’. The Cronbach’s Alpha for the 12 SRH items was 0.761. Results: The proportion of respondents who answered correctly ranged from 8.0% on the statement that ‘Abortion cannot be carried out for any reasons under the laws of Malaysia’ to 73.7% on the statement that ‘A woman can get pregnant if she had sexual intercourse with a man’. While majority of the respondents knew that HIV and AIDS can be transmitted through sexual intercourse, low knowledge was observed for the item that a woman can get pregnant if she had sex only once and that people with sexually transmitted infections may look like a normal healthy person. Overall the mean number of correct answers was 6.8 and that there were variations in the level of SRH knowledge across a number of socio-demographic variables. The data were further analysed by examining those respondents with high SRH knowledge using logistic regression. A respondent was considered as having high SRH knowledge if she/he obtained at least seven correct answers. Of the total respondents 37.1% had high SRH knowledge and that male, older respondents, those from Sabah and urban schools had significantly higher SRH knowledge compared with their respective counterparts. Conclusions: Hence more emphasis should be given to specific topics which had low level of SRH knowledge in educating these adolescents with greater attention to female, younger respondents and those residing in Sabah and in the rural areas.

Keywords: SRH knowledge, East Malaysia, Schooling adolescents
Change in Health Status, Living Environment, and Emotions of Victims of the Great East Japan Earthquake and Tsunami: A Comparative Study of Temporary Housing Residents in Iwate, Japan

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Background: The Great East Japan Earthquake and Tsunami affected a wide area of East Japan in 2011. We visited and conducted interviews twice in Rikuzentakata City, Iwate, since 2011. We sought to (1) describe the change in self-reported health status, living environment, and current emotions of victims who lived in temporary housing, and to (2) identify factors associated with the feeling of isolation in these victims. Methods: We conducted a cross-sectional study using a self-administered structured questionnaire given to victims living in temporary housing in Rikuzentakata in August 2013 and August 2016. SPSS for Windows was used for statistical analysis. Results: In total, 899 (44.7%, 2013) and 322 (35.8%, 2016) residents participated in this study. In the 2013 survey, complaint of physical health was dominant, whereas complaint of mental health-related symptoms, such as fatigue and difficulty sleeping at night, drastically increased in the 2016 survey. As for distress related to living in temporary housing, majority of residents reported a severe stressful life in 2013; however, positive comments about living environment significantly increased in 2016. Concern about a new community after relocation was also mentioned. The social capital level did not significantly change between 2013 and 2016. The major factors associated with a perceived feeling of isolation in 2016 were having trouble with neighbors (adjusted odds ratio [AOR]: 4.37, 95% CI 2.24–8.50, p < 0.001), living family structure (AOR: 2.34, 95% CI 1.33–4.12, p = 0.003), perceived deterioration of mental health (AOR: 2.26, 95% CI 1.28–3.98, p = 0.005), and 65-75-year-old age group (AOR: 2.08, 95% CI 1.10–3.91, p = 0.024). Conclusions: Disaster victims’ feelings, health status, and community social capital changed as time advances. Quick policy decision and a flexible system corresponding to victims’ situation are strongly required, particularly in large disaster-affected areas.

Keywords: Disaster, Great East Japan Earthquake, Victims, Health, Tentative housing, Tsunami
Abstract ID: OR0004DI

Chemical, Biological, Radio-Nuclear (CBRN) Emergencies: Knowledge and Practices of the Laboratory Workers at Medical Research Institute Sri Lanka

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Introduction and objectives: Chemical Biological Radio-Nuclear (CBRN) emergencies impose threats to laboratory workers. This study assesses the knowledge and practices of the CBRN emergency situations among laboratory workers. Methods: A cross sectional study among laboratory workers at the Medical Research Institute of Sri Lanka was carried out a self-administered questionnaire, inquiring into knowledge and practices of universal guidelines, precautions, standard definitions, hazard symbols and personal protective equipment in respect to CBRN. SPSS version 20 was used in analysis. Results: The response rate was 94.40% (253/268) with 72 males and 118 female responders. Majority (89%) was Sinhalese, and most between 31-40 years of age. Nearly 25% had more than 10 years of working experiences. The term of “CBRN emergencies, Biological emergencies and Chemical emergencies” were correctly identified by >75%. Universal precautions were identified by 81% (n=205). Knowledge based on guidelines for surveillance of laboratory workers, were correct among 757. Majority (80%) had correctly identified hazard symbols. Forty five percent (n=113) had experienced a CBRN emergency situation. Safe handling of the sharps following institutional policies were done by 79% (n=199). Hand washing after handling the hazards was practiced by 95% (n=244) and 82% (n=208) always properly disposed laboratory waste. However, 39.1% had not received laboratory safety training before starting working in laboratory and more than 80% participants and not participated in CBRN emergency drill during their working years. Conclusions: There were gaps in knowledge and practices with CBRN emergency situation among laboratory workers which need to be addressed.

Keywords: Post graduate trainee, Health sector disaster management
Perception Level of Technical Terms Regarding the Radiation Effect on the Human Body by Healthcare Workers of Japan

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Background: This study aimed to examine the level of perception of the technical terms related to the effect of radiation on the human body and relevant issues among medical doctors (MDs), pharmacists and nurses in Japan. Methods: A total of 170 MDs, 246 nurses and 84 pharmacists were surveyed. Differences in the recognition level of technical terms related to the effect of radiation on the human body among them and relevant issues were assessed. Results: Compared with nurses and pharmacists, MDs showed the highest recognition level for 3 terms out of 20 with a statistically significant difference. From viewpoints of the “agree” on the reliability of central government, approximately one-fifth of respondents agreed that “by adhering to risk-avoidance behavior according to the criteria defined by the government, citizens can adequately prevent adverse health effects." One-third of respondents also agreed that "taking into account the uncertainty of the risk assessment, citizens should avoid health risks." Conclusions: Our findings indicate that the central government should consider these results sincerely to improve the efficacy of risk communication since trust is one of the critical pre-requisite for risk communication.

Keywords: Risk communication, Radiation, Fukushima, Perception, Healthcare workers
Individual Perception and Preparedness of Earthquakes Based on the Health Belief Model in Tokushima City, Japan

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Background: Japan is an earthquake-prone country. Huge earthquakes along Nankai Trough, in southern Japan, had occurred on a 100 to 150-year cycle. Based on this history, a chance of magnitude 8 or 9 class earthquake, called Nankai Trough Earthquake, occurring within 30 years has been estimated as 70%, and it will lead enormous physical and economic losses. The Japanese government recommended the nation to prepare for earthquakes at individual level to reduce damages. The aim of this study was to explore the individual perception and preparedness of earthquakes in Tokushima City, locates along Nankai Trough area. Methods: This cross-sectional study comprising residents aged 18 or older was conducted. Self-administrated questionnaires based on the Health Belief Model, personal characteristics, knowledge, and 11 earthquake preparedness items, recommended by the government, were used. Pearson’s correlation coefficients and t-test were applied to assess the association of each factor and earthquake preparedness. Results: A total of 209 respondents participated in this study. Age was from 18 to 93 years, and 54.1% was female. 92.3% prepared for earthquakes at least on one item, and their average was 5.7. The highest implementation preparedness was confirmation of the designated evacuation centre (67.5%), and the least was stockpiling daily life water (28.2%). Perceived susceptibility, perceived benefits, and perceived barriers significantly correlated with earthquake preparedness. The elderly, female, people living with others, those had cues to action (disaster preparedness program by media, information and campaign by administrations, and recommendation from others), and higher knowledge people prepared for earthquakes more than the others. Conclusions: Although almost all took action for earthquakes, it was insufficient and needed to be improved through raising perceived susceptibility and perceived benefits and lowering perceived barriers. Moreover, media could be a major tool in sharing information and administrations should provide detailed information on preparedness to people.

Keywords: Earthquakes, Preparedness, Perception, Health Belief Model, Nankai Trough
Abstract ID: OR0001DO

Oral Hygiene Practices and Associated Factors among Adults in Malaysia In 2014

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Background: Oral hygiene is one of the most important methods for controlling dental carries and periodontal diseases. However, poor oral hygiene practices had been arising due to lack of self-awareness and other associated factors such as sociodemographic, healthy living practices and body index. Therefore, the aim of the study was to determine the prevalence of poor oral hygiene behaviour and its associate factors among adults in Malaysia in 2014. Methods: This study was part of the Malaysia Adult Nutrition Survey (MANS) 2014. The survey used multi-stage stratified cluster sampling method. Adults aged from 18 to 59 years old were eligible to participate into this study. A set of validated structured questionnaire was used to collect data on oral hygiene practice, supplement and food intake, physical activity, and anthropometry assessment using face to face interview. Statistical analysis including univariate analysis and logistic regression was done using SPSS version 16. Results: 3000 adults completed the survey with the response rate of 74.2%. Overall, 4.5% (CI: 3.5-5.7) adults did not brush their teeth before breakfast, 47.7% (CI: 44.7-50.8) did not brush their teeth after main meals, 37.7% (CI: 35.1-40.3) did not rinse their mouth after consuming sugary food and 80.8% (CI: 78.8-82.7) did not use straw when drinking carbonated beverages. In multivariate analysis, males were significantly associated with all poor oral hygiene practices (did not brush teeth before breakfast: 1.79, 1.25-2.55; did not brush teeth after main meals: 1.47, 1.24-1.73; did not rinse mouth after consuming sugary food: 1.64, 1.40-1.92; did not use straw when drinking carbonated beverages: 1.27, 1.04-1.56). Other factors were also significantly associated with certain oral hygiene practices. Conclusions: This study found that oral hygiene practices among adults in Malaysia are poor. There is a need to heighten the awareness of oral hygiene practices among adults in Malaysia.

Keywords: Oral hygiene, Dental hygiene, MANS 2014
E-WASTE: Are We Ready?

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E-Waste is an electronic waste; uncontrolled disposal may be harmful to human health and the environment because e-waste contains many toxic substances and heavy metals such as lead and chromium. Management of e-waste can create good business opportunities that generate high returns because e-waste contains valuable materials such as gold, silver, platinum and palladium. Sources of e-waste are divided into those from the industrial sector and those from households. E-waste has been regulated in Malaysia since 2005 under the Environmental Quality (Scheduled Wastes) Regulations, 2005. This regulation has included e-waste as scheduled wastes. Until 2010, 18 full recovery facilities and 128 partial recovery facilities using various available technologies have been specified for sorting, dismantling and treating e-waste. However, there are still some states that do not have these facilities. Generation of e-waste in 2008 was about 688,000 metric tons and forecasted to be 1.11 million metric tons in 2020. According to existing regulations, no person shall be allowed to dispose any e-waste to landfills. E-waste must be recycled and recovered at prescribed premises or licensed, and disposal must take place at prescribed premises only and must be done in a way that is environmentally friendly. The main technology employed to recover e-waste in terms of precious metals in Malaysia is still limited to wet chemical processes and electrolysis. Planning and action must be done collectively among agencies that have been tasked to resolve issues of environmental health in Malaysia. Based on the current situation such as the level of awareness and public education, law enforcement, attraction and rejection factor for the economy, the quantity and quality of recovery facilities; it is reasonable to ask ... are we ready?

Keywords: E-waste, Scheduled waste management, Recycle facility
Climate Change Adaptation and Mitigation at Individual Level: Capacity Assessment of School Teachers

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Climate change is the biggest global health threat of the 21st century. Its impacts scatter through every strata of the society placing the marginalized clusters at highest vulnerability and call for action at all levels. Adaptation enhances the resilience, whereas mitigation minimizes the anthropogenic forces of climate change; are crucial initiatives for a climate resilient sustainable development. A descriptive study was done to assess knowledge and attitudes of school teachers in three educational zones of Kalutara district using random cluster sampling. Cluster units were defined as Type 1AB and Type 1C schools and 25 clusters were selected from 106 cluster units randomly. Self-administered questionnaire including twenty five equally weighted questions to assess knowledge and ten statements to assess attitudes was used. The response rate was 98.8% [n=618] and 95% of the study population agreed that the global warming is happening. It was revealed that 23% of the study population had poor knowledge in climate change adaptation and mitigation at individual level. Satisfactory knowledge was observed among 54.7% of the participants. Favorable attitudes were observed among more than 65% of participants for all the statements on climate change adaptation and mitigation. Average family income, working duration, involvement in school environmental societies and highest education qualification showed significant positive association whereas age and current grade had a significant negative association with good knowledge. Level of knowledge had no significant variation among male and female teachers. Overall knowledge on was poor among more than 20% of the teachers highlighting the need for school and community based awareness programs to be implemented to address the issue. Further qualitative studies are recommended to describe multidimensional factors associated with individual level climate change adaptation and mitigation activities to implement targeted intervention.

Keywords: Climate change, Adaptation, Mitigation, School teachers, Knowledge, Attitudes
Screening of Organophosphate and Carbamate Pesticide Residues in Vegetables Sold in Markets and Market Fairs, Thasala Municipality Area, Nakhon Si Thammarat, Thailand

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Background: The wide use of pesticides in agriculture increases awareness of consumers related to the health risk from the consumption of fresh produce. This study aimed to screen pesticide residues in vegetables sold in markets and market fairs.

Methods: One hundred and eighteen samples of 10 commonly consumed vegetables were randomly collected from 5 local market places; chilies, choy sums, cabbages, cucumbers, spring onions, corianders, lettuces, red cabbages, snake beans, and gotu kolas. All samples were analysed for organophosphate and carbamate pesticide residues by using cholinesterase inhibition technique, GT-Test kit.

Results: It was found that 35.60% of samples (42/118) were detected with unsafe level of pesticide residues, 45.76% (54/118) detected with safe level, and 18.64% (22/118) was no detected.

Conclusions: The results of this study suggest the importance of enforcing monitoring programmes for agricultural pesticides use and pesticide residues contamination on crops in local markets. Moreover, effective washing methods should be promoted to reduce the health risk from the pesticide residues exposure among consumers.

Keywords: Carbamate, Organophosphate, Pesticide, Screening, Vegetable
Abstract ID: OR0008EO

Cardiovascular Burden of Disease Attributable to Exposure to Ambient PM$_{2.5}$

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Background: PM$_{2.5}$ (particulates with aerodynamic diameter ≤ 2.5 μm) is one of the major air pollutants in China. Cardiovascular disease (CVD) is the leading cause of death in China. However, the study on premature deaths and disability-adjusted life years (DALYs) of CVD attributable to exposure to ambient PM$_{2.5}$ in China is very limited. This study aims to provide a city-level estimation of PM$_{2.5}$-related premature deaths and DALYs by age and sex in Hubei province. Methods: PM$_{2.5}$ mass concentrations (μg/m$^3$) at different cities were obtained across Hubei province from the Hubei Provincial Environmental Quality Supervision and Administration Bureau. The city-level demographic data in Hubei province was obtained from the sixth national population census of China in 2010. Sex- and age-specific mortality and DALY data were extracted from the Global Burden of Disease Study (GBD) 2016. The integrated exposure-response (IER) model, developed by the GBD, was used to estimate PM$_{2.5}$-related CVD premature deaths and DALYs in Hubei province. Results: In 2016, there are 2,922.08 premature deaths and 92,807.09 person-years of DALYs that can be attributed to exposure to ambient PM$_{2.5}$ exposures in Hubei province. The number of premature CVD deaths attributable to PM$_{2.5}$ exposures increased with age. The CVD burdens attributable to PM$_{2.5}$ exposures were higher in males than in females. The PM$_{2.5}$-related disease burden of CVD, IHD, and stroke, especially the premature death attributable to IHD, was mainly concentrated in the east of Hubei Province. Conclusions: This is the first study to quantify the DALYs attributable to ambient PM$_{2.5}$ exposure at the city level in Hubei province. This work adds insights to the current literature regarding age, sex, and spatial variations of PM$_{2.5}$-related CVD burden in Hubei province. The findings of this study provide significant implications for policymakers to determine priority areas for air pollution prevention and control in Hubei province.

Keywords: PM$_{2.5}$, Cardiovascular disease, Disease burden
Association of Rare Earth Elements in the Peripheral Blood with the Risk of Genetic Damage in Chromate Exposure Population

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Background: For the past decades, most attention in heavy metal toxicology has been paid to cadmium, lead, chromium, and vanadium because these metals widely polluted the environment. However, pollution of heavy metals most often occurs in combination with multiple metal ions in the occupational exposure. Whether genetic damage effects among chromate exposure population were correlated with rare earth elements (REEs) is still not well understood. The present study aimed to investigate whether chromate exposure associated with REEs and their interaction effects on genetic damage. Methods: In this study, 293 participants from a chromate production plant were recruited into the study. Questionnaire was applied to collect personal information and occupational history. The genetic damage was evaluated by urinary 8-hydroxydeoxyguanosine (8-OHdG). The concentrations of 15 REEs [lanthanum (La), samarium (Sm), europium (Eu), gadolinium (Gd), terbium (Tb), dysprosium (Dy), holmium (Ho), erbium (Er), thulium (Tm), ytterbium (Yb), lutetium (Lu), Yttrium (Y), cerium (Ce), praseodymium (Pr), and neodymium (Nd)] and chromium (Cr) accumulated in participants were analyzed by ICP-MS in whole blood samples. Results: Significant genetic damage was observed in chromate exposure workers. The levels of REEs in the exposure group were significant higher than control group. REEs content increased in a concentration dependent way with blood Cr. There were also significant correlations between blood Cr and 10 REEs concentrations, and their correlation coefficient order with was Td < Sm ≤ Ho ≤ Eu < Ce < Gd < La ≤ Pr < Dy < Y. Blood Cr had a significant positive correlations on the concentration of urinary 8-OHdG (P=0.031). Cr and Y had a positive interaction effect on urinary 8-OHdG, and their scaled interaction coefficient was 0.12 (P=0.033, 95CI: 0.01-0.24). Conclusions: These results suggest that chromate exposure workers were accompanied by REEs, and there were interaction effects on genetic damage between Cr (VI) and Y.

Keywords: Chromate, Rare earth elements, Interaction effects, Genetic damage
Impact of Job Stress on Burnout and Compassion Fatigue among Nurses

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Background: Nurses, as healthcare providers, are more likely to experience burnout and compassion fatigue from traumatic episodes than other workers nowadays. In this study, we attempted to characterize levels of compassion fatigue and burnout among clinical nurses in HuBei, China, and clarify the relationship between compassion fatigue and burnout with job stress and confirm the mediating effects of compassion satisfaction and depression. Methods: A cluster sample of 2172 clinical nurses was recruited from 11 hospitals in HuBei province between November 2017 to January 2018. The structured questionnaires included the demographic data, Chinese nurse work stress scale, Professional Quality of Life Scale (ProQOL), Self-Rating Depression Scale (SDS). To test the hypothetical path model, we performed a path analysis by using AMOS, version 23.0. Results: The nurses in the HuBei, China expressed a medium-average level of job stress (Mean±SD 83.89±20.85), on which workload and time allocation had significant direct and total effects (beta=0.820, P=0.001), a below-average level of compassion fatigue (Mean±SD 18.2±4.81) and burnout (Mean±SD 23.67±5.53). This research indicated that job stress was significantly associated with compassion fatigue, burnout, compassion satisfaction and depression. While nurses with a high level of job stress were prone to report compassion fatigue and burnout, which were mediated negatively by compassion satisfaction and positively by depression. Conclusions: Clinical nurses in HuBei, China had moderate job stress degree and low burnout and compassion fatigue levels in this study. And in order to decrease the level of depression, compassion fatigue and burnout which could benefit both the patient care and the profession of nurses in China, we should improve job stress, especially workload and time allocation, and compassion satisfaction among nurses.

Keywords: Clinical nurses, Job stress, Compassion fatigue, Burnout, Compassion satisfaction, Depression
Doctors’ Job Satisfaction and Its Relationships with Doctor-Patient Relationship and Work-family Conflict in China: A Structural Equation Modeling

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Background: Chinese doctors are working in a climate full of high load, tension and risks, their job satisfaction is found to be low and still declining. Doctors’ job satisfaction has increasingly gained research attentions over the past two decades, while the working climate and cultural background of Chinese doctors are significantly different from those of western doctors. Exploring factors based on different cultural backgrounds help gain a deeper understanding of doctors’ job satisfaction. In this study, we aim to explore the relationship of doctors’ job satisfaction with doctor-patient relationship and work-family conflict, and try to identify each of their potential influential factors for better improvement of their relationship. Methods: The data came from a part of China’s Fifth National Health Services Survey in Hubei Province. Multistage stratified cluster random sampling was applied to select doctors. Univariate analysis, stepwise multiple linear regression and structural equation modeling (SEM) were applied for data analysis. Results: A total of 1080 doctors were approached, with 908 completing the questionnaire. The mean score of job satisfaction was 19.61 on a scale ranging from 6 to 30. Both age and type of labor contract were found to have statistically significant impact on job satisfaction, work-family conflict, and doctor-patient relationship, respectively. Work-family conflict was found to have negative impact on doctors’ job satisfaction (coefficient=-0.177), and good doctor-patient relationship was found to have positive impact on their job satisfaction (coefficient=0.438). Conclusions: The level of doctors’ job satisfaction in Hubei Province of China is relatively low and still has ample room for improvement. Hospital administrators and policy makers should make effort to design and implement strategies that focus on meliorating doctor-patient relationship and balancing doctors’ work and family life to further improve job satisfaction.

Keywords: Doctors, Job satisfaction, Doctor-patient relationship, Work-family conflict, China
Health Risk Assessment (HRA) in Production Unit of Pt. X

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Background: Long duration of work and work environment that using toxic raw materials is an example of hazard faced by workers at PT. X. These conditions can cause various health effects. The aim of study was to identify the hazards and risks faced by employees in production unit of PT. X, health effects, and control to minimize the possible health effects. Methods: The type of this study was qualitative. The data collection was conducted with in-depth interviews, walk-through survey, and document review at PT X. The informants were 6 people consisting of operators from cast shop division, kiln, painting, and quality control.

Results: At the anticipation stage, there were potential hazards in the production unit in the form of physical, chemical and ergonomic hazards. In the Recognition Stage found the health hazard source with high risk category on the process of moving semi-finished products to kiln and on product packing process. In the evaluation stage, it was known that in production unit of PT X, there were 4 risk classifications namely high risk, moderate risk, low risk, and risk under control. At the control stage, a risk control hierarchy consists of elimination, substitution, engineering control, administration, and the use of personal protective equipment.

Conclusions: it was required the recommendation program on hazards that still in high risk and moderate risk in production unit of PT. X in the form of heat control, chemical hazard control, ergonomic control, noise control, action plan, and medical surveillance.

Keywords: Anticipation, Recognition, Evaluation, Control, Health risk assessment
Relationship between Levels of Trace Elements and Colorectal Cancer Risk: A Case-Control Study

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Background: Previous studies have investigated the role of trace elements in the development of colorectal cancer, but the results were inconsistent. This study was aimed at exploring relationships between blood levels of trace elements and colorectal cancer risk. Methods: The matched case-control study includes 204 colorectal cancer patients and 204 healthy controls. Questionnaires and blood samples were collected when subjects were recruited. Nine element concentrations (Vanadium, Chromium, Manganese, Iron, Cobalt, Nickel, Copper, Zinc, and Molybdenum) in whole blood were measured by inductively coupled plasma mass spectrometry. Tertile was defined based on the distribution of each trace element concentration in all subjects. Results: Colorectal cancer patients had significantly higher levels of vanadium, manganese, cobalt and copper, meanwhile lower concentrations of iron and zinc, as compared with controls. There were no significant difference in chromium, nickel or molybdenum level between cases and controls. Adjusted odds ratios for the highest versus lowest tertile were 5.47 (95% CI: 2.43, 12.33) for vanadium, 1.93 (95% CI: 0.92, 4.07) for manganese, 3.00 (95% CI: 1.32, 6.87) for cobalt, 18.48 (95% CI: 5.74, 59.51) for copper, 0.05 (95% CI: 0.01, 0.18) for iron and 0.33 (95% CI: 0.15, 0.72) for zinc. Conclusions: Our study presented a significantly positive association between blood vanadium, manganese, cobalt, or copper level and risk of colorectal cancer, however, a significantly negative association between blood iron, or zinc level and risk of colorectal cancer.

Keywords: Trace elements, Blood metal level, Colorectal cancer
Involvement of Calcium in 50 Hz Magnetic Field-Induced Activation of Sphingosine Kinase1

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Background: Today's, electrical grid and electrical appliances increased extremely low frequency electromagnetic field (ELF-EMF), which frequency is below 300-Hz, exposure of humans in the public and occupational environments. ELF-EMFs have been classified as 2B (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC) in 2002. Up to now, the mechanisms of biological effects of ELF-EMFs is still unclear. It is known that sphingosine kinase 1 (SK1) is one of the key rate-limiting enzymes that catalyse the formation of sphingosine-1-phosphate (S1P), promote cell proliferation and relate to the progress and differentiation of multiple tumours. Our previous study showed that exposure to 50 Hz MF could induce human epithelial (FL) cell proliferation through the activation of SK1. The present study investigates the SK 1 activation signal pathway in FL cells exposed to 50 Hz magnetic fields. Methods: Human amniotic epithelial (FL) cells were exposed to a 50-Hz MF at 0.4 mT with or without Nifedipine (NIF, an inhibitor of L-type calcium channel), Go6976 (the inhibitor of PKCα), SKI II (the inhibitor of SK1), or U0126 (the inhibitor of ERK1/2) for different durations. The intracellular Ca^{2+} was analysed by fluorescence microscopy. Phosphorylation of SK1 and the activities of PKCα (protein kinase C α) and ERK (extracellular receptor kinase) were determined by western blotting. Results: We found that the intracellular Ca^{2+} increased after MF exposure for 5min and 10min; that ERK regulated SK1 activation induced by MF is mediated by the L-type calcium channel; The L-type calcium-mediated phosphorylation of PKCα did not enhanced the activation of SK1 in FL cells exposed to MF. Conclusions: Intracellular calcium mediated the 50 Hz magnetic fields-induced sphingosine kinase1 activation through ERK rather than PKCα.

Keywords: Sphingosine kinase1, Calcium, ERK, PKCα
Associations of Blood Metal Exposure with Thyroid Hormones in Chinese Pregnant Women: Hangzhou Birth Cohort

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Background: Few epidemiological studies have investigated associations of exposure to multiple metals with thyroid hormone homeostasis, especially for the pregnant women. The aim of this study was to examine the associations between blood metal concentrations and parameters of thyroid hormones during pregnancy. Methods: Thirteen metals were measured in blood samples collected around 25 weeks gestation from 984 pregnant women enrolled in 2016 in Hangzhou, China. Serum levels of thyroid hormones including free triiodothyronine (FT3), total triiodothyronine (TT3), free thyroxine (FT4), total thyroxine (TT4) and thyroid-stimulating hormone (TSH) were abstracted from the medical records. Relationships between tertiles of metal levels (setting the lowest tertile as the reference) and percent changes in thyroid hormones were estimated by multivariable adjusted linear regression models. Results: Seven metals [arsenic (As), titanium (Ti), selenium (Se), cobalt (Co), manganese (Mn), nickel (Ni), antimony (Sb)] were significantly linked to decreased levels of one or more thyroid hormones based on trend tests in the single-metal models. Percent changes [95% confidence intervals (CIs)] in thyroid hormones for the third tertiles of metals remained significant between FT3 and As [-3.60% (-5.46%, -1.70%)]; Ti [-3.08% (-4.94%, -1.19%)]; and between TT3 and As [-3.33% (-6.06%, -0.53%)]; and between FT4 and Mn [-2.28% (-3.74%, -0.80%)], Ti [-2.37% (-3.85%, -0.88%)]; and between TT4 and Se [-4.88% (-7.44%, -2.24%)] in the multiple-metal models. Conclusions: Thyroid hormone concentrations were reversely related to the levels of blood metals of As, Ti, Mn and Se among Chinese pregnant women. Additional prospective studies are warranted to confirm the causality.

Keywords: Metals, Thyroid hormones, Pregnant women, Associations
Abstract ID: OR0020EO

The Association between Fine Particulate Matter and Infant Low Birth Weight in Huangshi, China

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Background: Numerous studies have explored the associations between ambient air pollution and adverse birth outcomes such as low birth weight (LBW). Nevertheless, comparing with low pollutant concentration in developed countries, pollutants with high concentration in developing countries seem to have different effects on infants. The results of the relationship between fine particulate matter and birth outcomes are not consistent. Methods: Birth information included 4770 mother-infant pairs who delivered at a single hospital during 1st January to 31st December in 2017 in Huangshi, China. After excluding women with gestational disease, preterm infants, infants delivered by cesarean, 1494 children were identified. Data of pregnancy exposure was accessed by stationary monitors including particulate matter10 (PM₁₀) and particulate matter2.5 (PM₂.₅). Using logistic regression adjusted for maternal age, parity, the sex of the infant and gestational week, we evaluated the association between ambient particulate matter and the risk of low birth weight during the entire pregnancy and each trimester. Results: In models adjusted for maternal age, parity, the sex of the infant and gestational week, every 1-µg/m³ increase in PM₁₀ was significant with an increasing risk in LBW when considering exposure through the entire pregnancy (OR: 1.085, 95% CI: 1.010~1.166) and exposure during the second trimester (OR: 1.023, 95%CI: 1.001~1.046). Otherwise, over the entire pregnancy, every 1-µg/m³ increase in PM₂.₅ showed significant association with the increasing risk in LBW (OR: 1.132, 95%CI: 1.017~1.260) and a similar effect was observed during the second trimester (OR: 1.030, 95%CI: 1.001~1.060). Conclusions: Results indicate that exposure to PM₁₀ and PM₂.₅ at high levels may increase the risk of low birth weight.

Keywords: Low birth weight, Air pollution, Fine particulate matter, PM₁₀, PM₂.₅
Abstract ID: OR0021EO

Association between Relatively Low-Level Air Pollution Exposure and Daily Outpatient Visit in Hubei Province, China

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Background: Recently, air pollution is aggravating in China. However, compared to severe polluted area, low pollution areas were grossly underemphasized. Since many studies indicated that low level exposure to air pollutants is associate with elevated mortality, we conducted a research in Shennongjia, a resort for low pollution in Hubei province, to explore the influence of air pollution on health. Methods: Collect meteorological data, atmospheric pollutant data, and outpatient visits data from Shennongjia people's hospital from 1st January 2015 to 31st December 2017. 1. Draw time-series plot of air pollutants, meteorological factors and hospital outpatient visits. 2. Analyze the correlation between pollutants concentration and meteorological factors. 3. Analyze the exposure–effect relationship between pollutants concentrations and meteorological factors. 4. Analyze the effect of air pollutants on outpatient visits in different lag days with the modification of season. Research uses the GAM model of SAS. Results: During observation, the average concentration and IQR of air pollutants were measured. The number of days exceeding air-quality standard were PM$_{2.5}$: 51, PM$_{10}$: 12, O$_3$: 3. IQR increase of PM$_{2.5}$, PM$_{10}$, NO$_2$ and CO was significantly associated with total daily outpatient visits. ER (Excess Risk) values were 0.88%–2.18%. PM$_{2.5}$, PM$_{10}$, NO$_2$ and CO and O$_3$ concentrations were significantly associated with respiratory outpatient visits. ER values were 1.89%–2.74%. PM$_{10}$ was significantly associated with ocular adnexal outpatient visits with current day, lag 4 days (lag4) and 4 days moving average exposures. ER values were 3.07%–3.64%. NO$_2$ was significantly associated with cardiovascular outpatient visits with current day, lag 1 day (lag1) and 1, 2 and 3 days moving average exposures. ER values were 3.97%–4.87%. PM$_{2.5}$ was significantly associated with respiratory outpatient visits at lag1 and lag0:1 days in cool season. ER values were 2.62%–4.11%. Conclusions: Since air pollutants exposure in Shennongjia presents risk to health, air pollution prevention in low pollution area in China is urgent.

Keywords: Air pollutants, PM$_{2.5}$, Outpatient visit, Low exposure level, Generalized additive model
Abstract ID: OR0022EO

Associations of Exposure to Air Pollution with Insulin Resistance: A Systematic Review and Meta-Analysis

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Background: Air pollution has become one of the largest environmental risk factors for chronic disease. Insulin resistance (IR) is a condition characterized by decreased tissue sensitivity to the action of insulin. Growing evidence has suggested a link between air pollution and IR, but the results are equivocal. This study aims to systematically review the available evidence and explore the association between air pollution and insulin resistance using meta-analytic techniques. Methods: Nine databases were searched for studies examining the association between air pollution and insulin resistance. The Newcastle-Ottawa scale (NOS) was used to measure the quality of individual studies. Heterogeneity within studies was assessed using $I^2$ statistics and Q-test. We also performed sensitivity analyses to test the stability of our results. Funnel plots and Egger's regression test were employed to evaluate publication bias. Results: Six cohort studies were included in our study, which assessed air pollutants including PM$_{2.5}$, NO$_2$ and PM$_{10}$. A pooled effect (% change) was observed, with a 1 μg/m$^3$ increase in NO$_2$ associated with a 1.25% change (95% CI: 0.67, 1.84; $I^2 = 0.00\%$, $P = 0.07$) in the Homeostasis Model Assessment of Insulin Resistance (HOMA-IR) a 0.60% change (95% CI: 0.17, 1.03; $I^2 = 30.94\%$, $P = 0.27$) in insulin. Similar to the analysis of NO$_2$, a 1 μg/m$^3$ increase in PM$_{10}$ was associated with a 2.77% change (95% CI: 0.67, 4.87; $I^2 = 94.98\%$, $P < 0.0001$) in HOMA-IR and 2.75% change in insulin (95% CI: 0.45, 5.04; $I^2 = 58.66\%$, $P = 0.057$). No significant association was found between PM$_{2.5}$ and insulin resistance biomarkers. Conclusions: This study showed NO$_2$ and PM$_{10}$ can increase the risk of insulin resistance, but no association was found between PM$_{2.5}$ and insulin resistance.

Keywords: Air pollution, Insulin resistance, Meta-analysis
Prevalence and Associated Risk Factors of Musculoskeletal Disorders among Nurses in a Tertiary Hospital in Botswana

Kagiso Kgakge and Paul Chelule

Background: The risks of work related musculoskeletal disorders are high among various healthcare professions, particularly in the nursing profession on a global scale. In order to minimize injuries in the nursing profession, it is important to investigate the extent of the problem, the prevalence of such injuries as well the associated risk factors in the workplace. The aim of this study was to determine the prevalence and investigate the associated risk factors of musculoskeletal disorders among nurses in a tertiary hospital in Botswana. Methods: This was a cross sectional survey, undertaken among healthcare professionals working at Princess Marina Hospital, Botswana in a three-month period. Questionnaires were used to collect data on prevalence and associated risk of musculoskeletal disorders among nurses. Descriptive statistics were used to calculate, interpret and present data. Bivariate and multivariate logistic regression was used to test the association between categorical variables. All outcomes having a p-value of less than 0.05 were considered significant. Results: Among the 245 healthcare professional recruited, a total of 220 participants completed the questionnaire. The participants were predominantly females, with a mean age of 35 years. Majority had less than 5 years of work experience. The 12-month period prevalence of MSD (lasting 3 or more days) at anybody region was 91%. The most common MSD was lower back pain, with 68.6% prevalence. Significant risk factors for MSD identified included: age (OR=0.28, 95% CI=0.09-0.88, P=0.03), working while injured (OR=4.5, 95% CI=1.68-12.17, P=0.003 and the period of employment OR= (0.2, 95% CI=0.055-0.76, P=0.018). Conclusions: This study has shown that there is a high prevalence of musculoskeletal disorders among Botswana nurses, with low back being the most reported. There is need for education programmes and training to help prevent MSD among nurses, hence increase efficiency in patient care.

Keywords: Musculoskeletal disorders, Occupational health, Nurses, Hazards, Work
Contribution Measurement and Potential Health Hazard Evaluation of Radon Bath in Taishun, Zhejiang, China

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Background: Radon is a radioactive noble gas that had been classified as a human carcinogen. Radon Solus Par Agula (SPA), namely bathing exposed to radon for healthcare purposes, has been widely used worldwide. However, few studies on radon bath trials has been conducted to evaluate environmental exposure level of radon that is transferred from spring water to indoor, which may increase human exposure to radon radiation. Objective: Our study selected a radon theme hotel in Taishun County, Zhejiang province, China to measure baseline level and dynamic variation of radon exposure to simulate customer bath. Human effective exposure dosage was also evaluated. Methods: Baseline measurement: Air radon concentration was measured by RAD-7 in sampling sites including guest room, banquet room, and outdoor spa in the hotel. Radon level in the town was measured as local background exposure level. Dynamic monitoring: Dynamic air radon concentration was monitored in selected hotel guest rooms for 15 min with shower followed 45 min after shower, or for 1 h with bath. Dose estimation: The personal and occupational exposure dosages for ‘model’ customers and hotel workers were estimated according to the baseline radon concentrations. Results: The background values of indoor radon in the investigated sampling sites were varied from 10.78 to 44.72 Bq/m³, as well as 5.29 and 5.38 Bq/m³ in the hotel outdoor and the town. The radon concentrations were from 7.95 to 135 Bq/m³ during bath and shower time. The occupational and personal exposure dosages were varied from 5.67×10⁻³ to 0.194 mSv. Conclusions: The average indoor radon levels were lower than the reference level of WHO (100 Bq/m³) or IAQ standard of China (300 Bq/m³). Dynamic levels were lower than reference level of IAQ standard of China. The annual effective doses of customers and hotel workers were lower than the limit for public exposure (1 mSv).

Keywords: Radon, Bath, Monitoring, Exposure dose estimation
The Modifying Effects of Regular Exercise on the Association between Organizational Justice and Psychological Well-Being in Korean Employees

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Background: Many studies show that organizational justice (OJ) is related to psychological determinants of employees’ physical and mental health and that physical activity is one of the most important issues related to health in the workplace. Objective: To examine the modifying effects of regular exercise (hours per week) on the association between OJ and psychological well-being (PW) in Korean employees. Methods: This study used cross-sectional data obtained from 494 subjects in South Korea. Self-administered questionnaires comprising OJ, PW, and lifestyle factors (e.g., smoking, drinking, sleeping and exercise) were completed by employees in April, 2017. We conducted multiple logistic regression analyses to estimate the association of procedural justice (PJ) and interactional justice (IJ) with the prevalence odds ratios and 95% confidence intervals of the risk to PW. These analyzed values were stratified by the regular exercise category. Results: After the adjustment of sociodemographic characteristics and lifestyle factors (Model 3), the main effects of PJ and IJ on the risk to PW were significantly observed by prevalence odds ratios 0.43 (95% confidence interval, CI; 0.30-0.62), and 0.41 (95% CI 0.29-0.58), respectively. Furthermore, the prevalence odds ratios decreased gradually from the “None” group to the “1-2h” group by regular exercise, and the “1-2h” group of IJ was the lowest among these values. Conclusions: Regular exercise seems to reduce the effects of OJ on the prevalence odds ratio of the risk to PW. Regular exercise seems to reduce the effects of OJ on the prevalence odds ratio of the high risk to PW. Improving the organizational environment and increasing physical exercise might prevent the high risk to PW for employees.

Keywords: Organizational justice, Interactional justice, Procedural justice, Psychological well-being, Lifestyle, Exercise
Water Quality and *E. coli* Assessment in Sepetang River, Matang Mangrove Forest, Perak

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**Background:** Mangrove forest is an important ecosystem that provides goods and services to the coastal people. Meanwhile, the rapid development and other land uses along the Sepetang River Matang Mangrove Forest are among the factors contributing to the degradation of ecological and ecosystem health. *Escherichia coli* (*E. coli*) in fresh water can indicate the presence of pathogens (disease-causing organisms) from animal or human faeces. The pathogen can cause illness for anyone who ingests them. The objectives of this study are to assess the water quality of the Sepetang River Matang Mangrove Forest and to determine the *E. coli* concentration along this river. **Methods:** A total of 30 water samples were collected from five stations which were set up along the Sepetang River and each parameter of water quality was measured following the standard method. *E.coli* concentrations were measured from laboratory analysis of water samples. The level is expressed as the number of *E.coli* per 100mL (*E.coli*/100 mL). **Results:** As the result, the Sepetang River falls into Class IV (not suitable for human consumption and only suitable for irrigation only) based on the Water Quality Index (WQI) and the National Water Quality Standards for Malaysia (NWQS). Meanwhile the average number of *E. coli* in the Sepetang River was 793 cfu/100mL and the highest number at station 4 was 850cfu/100mL. Both figure numbers were categorized as above of the acceptable level. The acceptable levels of *E. coli* are measured in cfu (colony forming units) and commonly include both a 30 day mean (126 cfu/100mL) and a single sample number (235 cfu/100mL – 575 cfu/100mL). **Conclusions:** The findings means, the water along Sepetang River has low quality and has a high concentration of *E.coli*. **Keywords:** *Escherichia coli*, Mangrove, Forest, Water quality, Perak
Aim: The study was aimed to explore the effect of community-based nursing intervention of postpartum practices of “doing the month” in Chinese postpartum women on maternal physical and psychological health. Methods: A randomized controlled trial design was used. A total of 120 normal full-term pregnancy women were randomized between October 2016 and May 2017 in Wuhan. A total of 108 women completed the study, where 52 participants were in the experimental group and 56 were in the control group. The experimental group received regular postpartum home visits and scientific guidance of “doing the month” practices within 2 weeks of postpartum, and followed up again 30 days later. The control group received regular postpartum home visits twice, within 2 weeks and 30 days after postpartum. Maternal physical and mental health was measured by the severity of physical symptoms and Edinburgh Postnatal Depression scale 2 weeks after postpartum. Adherence was measured by the Adherence to “Doing the Month” Practices questionnaire, as well as the severity of physical symptoms and Edinburgh Postnatal Depression scale to evaluate maternal physical and mental health 30 days after postpartum. Results: It was obvious difference between experiment and control group in postpartum practices (P < 0.05). Maternal physical symptoms show a weak positive relevance to adherence to doing the month over time (r = 0.175, P < 0.05). The most common postpartum symptoms in the control group were poor appetite, dyspepsia and constipation. Meanwhile, the experimental group had arm muscle pain, dry skin and backache. No difference was found between the two groups as to postpartum depression (P > 0.05). Conclusions: The high prevalence of physical symptoms indicates the need for postnatal care to be provided in the community. Providing scientific and clearer guidance to women on postpartum practices and abandoning bad behaviours under the influence of traditional culture can effectively alleviate postpartum symptoms and promote maternal rehabilitation.

Keywords: Postpartum practices, Intervention, Community-based, Physical, Psychological, Chinese
Abstract ID: OR0002HP

The Community-Based Anti-Frailty Program of New Taipei City, Taiwan-Information and Communications Technology of F4A Cloud

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Background: Frailty increases the risk of disability, reduces the averaged healthy life expectancy (HALE, REF). To effectively prevent frailty of elderly, the “Fit for Age (F4A) Cloud Information Platform” is developed to integrate health promotion assessment, exercise and nutrition records management services, and achieve the goal of reversing frailty by public promotions.

Methods:
I. Community campaign: The campaign mobilised all departments of the city government, including Department of Health, Social Welfare, Education, Civil Affairs, Labour, etc., aiming to advocate and increase the public awareness that exercise and nutrition prevent frailty.
II. Data collection and management: Standardised operation protocols were established to collect data of frailty tests, before and after the interventions.
III. Information aggregation: “Fit for Age Cloud Information Platform” is developed to perform self-checkup, including vital signs, nutrition and diet, recording of exercise and physical activities, etc.
IV. Business opportunity: Integrating private-public partnership to achieve the goal of sustainable development.
V. International collaborations: combination of international and domestic experiences in frailty prevention, for example, "Exercise is Medicine, Taiwan".

Results:
Key results obtained from August 2016 to the end of December 2017.
I. Planning and advocacy: 38,323 promotional events were held.
II. To increase the accessibility of the program, 1,559 sites had been set up in the community that provides group classes of exercise intervention.
III. The use condition of the "Fit for Age APP":
A. The current registered users: 320,913. (App downloads: 65,551 people)
B. The monthly population active utilization ratio: 12.0%.
C. The monthly exercise active utilization ratio: 8.4%.
D. The monthly nutrition active utilization ratio: 2.2%.

Conclusions: The program utilised various ICT platforms, such as personalised WEB accounts and multifunctional module APP, to enhance citizen’s awareness and literacy to frailty, and to help individual citizens to conduct their own self-managed exercise and nutrition interventions against frailty.

Keywords: Ageing, Sarcopenia, Frailty, Fit for age, Policy
Effect of Internet Plus Intervention Model on Breastfeeding Outcomes: A Meta-Analysis

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Background: The current situation of breastfeeding in China is not optimistic. According to statistics, the exclusive breastfeeding rate in China is only 28% in the age of 0 to 6 months. Recent years, with the popularization of information technology and the Internet, mobile phone text messages, video, network platforms are increasingly being used in breastfeeding education and other health promotion fields. Objective: Evaluating the effect of internet plus intervention model on breastfeeding knowledge, breastfeeding attitude, breastfeeding confidence and exclusive breastfeeding rate. Methods: Cochrane Library, PubMed, Web of Science, Embase, CNKI and Wanfang Data were searched systematically from inception to August 2017 to select all literatures studying the effect of internet+ intervention model on breastfeeding outcomes. Two researchers screened the literature independently, extracted the data and evaluated quality of the literature according to the Cochrane Handbook Bias Risk Assessment Tool. Meta-analysis was conducted with RevMan 5.3 software. Results: Twenty-two trials involving 6439 participants were included. Meta-analysis showed that there was statistical significance in breastfeeding knowledge [SMD=1.49, 95%CI (0.66, 2.31), P=0.0004], breastfeeding attitude [SMD=1.49, 95%CI (0.66, 2.31), P=0.0004], and breastfeeding rate at six months [RR=1.82, 95%CI (1.41, 2.36), P<0.05] between internet intervention group (experimental group) and traditional health education group (control group), but there was no statistical significance in short-term (four months) exclusive breastfeeding rate [RR=1.82, 95%CI (1.41, 2.36), P<0.05] and breastfeeding confidence [SMD=0.00, 95%CI (-0.09, 0.08), P=0.91] between two groups. Conclusions: The evidence shows that internet plus breastfeeding intervention model can improve breastfeeding knowledge, breastfeeding attitude and exclusive breastfeeding rate at six-month postpartum compared with the traditional health education model, but there is no influence on mothers’ breastfeeding confidence and short-term (four months) exclusive breastfeeding rate.

Keywords: Breastfeeding, Internet plus, Intervention, Meta-analysis
Validation of the Information-Motivation-Behavioral Skills (IMB) Model of Self-Care Behaviors among Chinese Patients with CHD

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Background: Coronary heart disease (CHD) is the most prevalent causes of cardiovascular morbidity and mortality worldwide. People who suffered CHD often require urgent treatments to control angina symptoms. However, urgent treatments can only control the acute conditions, which cannot reverse the underlying pathophysiology of coronary atherosclerosis. Patients after discharge still face the risk of the restenosis of coronary arteries and recurrence of acute cardiac events. Therefore, the management of CHD must be accompanied by long-term self-care to control risk factors, reduce the recurrence and repeated admission, improve the prognosis and quality of life. The objective of this study was to validate the Information-Motivation-Behavioral Skills (IMB) Model of self-care behaviors among Chinese patients with CHD.

Methods: A sample of 169 patients with CHD hospitalized in a general hospital in Wuhan, China participated in this cross-sectional investigation. Information about demographic data, disease-related knowledge, social support, self-care confidence and self-care behaviors related was collected. The IMB Model and the Middle-Range Theory of Self-Care of Chronic Illness were combined to develop a hypothesis model to predict self-care behaviors related to CHD. Measured variable path analysis was used to validate the hypothetical model.

Result: The hypothetical model had a good fit with the data. Knowledge and self-care confidence could directly influence self-care behaviors (β=0.371 and 0.212; β=0.358 and 0.447). Additionally, knowledge and social support indirectly influenced self-care behaviors through the self-care confidence (β=0.071 and 0.057; β=0.071 and 0.057). The final model could explain the 38.6% of the total variation in self-care maintenance and the 32.3% of the total variation in self-care management.

Conclusions: Consistent with the IMB model, having better disease-related knowledge, stronger social support and higher self-efficacy was associated with better self-care behaviors. Findings indicate self-care support interventions for patients with CHD should integrate knowledge, social support and strategies improving self-care confidence into the intervention.

Keywords: Coronary artery disease, Self-care, validation
Family-Centered Care for Hospitalized Preterm Infants: A Systematic Review and Meta-Analysis

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Background: Family-centered care has been increasingly emphasized as an important and necessary element of neonatal intensive care. The majority of preterm infants must stay in neonatal intensive care units to receive life-saving care in the early days of life, as they were threatened by potential developmental and health problems. Therefore, the study aimed to evaluate the effects of family-centered care on hospitalized preterm infants using systematic review and meta-analysis method.

Methods: The Cochrane Library, PubMed, CINAHL, EMBASE and Web of Science databases were searched for all English-language studies published up to December 31, 2017. Randomized controlled trials that evaluated the effects of family-centered care versus standard neonatal care were included. Two authors independently extracted data and evaluated the quality of the relevant literature. The methodological risk of bias of each included study was evaluated according to the 2011 Cochrane guidelines.

Results: Among 964 reports identified in the literature search, four studies involving 1,026 preterm infants were included in the meta-analysis. Compared with standard neonatal care, family-centered care shortened the total length of hospital stay (mean difference [MD] = -4.77, 95% confidence interval (CI) -8.77 to -0.76), and decreased the length of stay in the NICU (MD= -4.62, 95% (CI) -7.40 to -1.83). There was inadequate evidence to demonstrate any effects of family-centered care on infant morbidity, feeding and growth, and neurobehavioral performance.

Conclusions: Family-centered care is an effective and safe intervention to shorten the length of stay in the hospital and improve survival quality among hospitalized preterm infants. Further research is needed to explore short- and long-term effects on preterm infants and their parents with well-designed interventions. Moreover, healthcare providers are required to have a better understanding of family-centered care and recognize the crucial role of parents in infant care.

Keywords: Preterm infant, Family-centered care, Meta-analysis, Systematic
Abstract ID: OR0008HP

The Association of Fruit and Vegetable Consumption with Changes in Weight and Body Mass Index in Chinese Adults: A Cohort Study

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**Background:** Findings regarding the benefits of fruit and vegetables (FV) on weight control are inconsistent and little is known among Chinese populations. Therefore, we examined the relationship between change in FV consumption, weight, and change in body mass index among Chinese adults, participants of the China Health and Nutrition Survey (CHNS). **Methods:** Two waves of CHNS conducted in 2006 and 2011 were used. Continuous FV consumption increase was considered as the exposure and changes in weight and BMI as outcomes. Change in FV consumption was categorized into quintiles. Analysis of covariance and multiple linear regression models, after controlling for potential confounders such as energy intake, and physical activity, were used to describe the relationship between change in FV consumption and change in weight and BMI. **Results:** A total of 4357 participants aged 18–65 years were included in this study. The respective weight and BMI gains in male individuals were 1.81 kg and 0.73 kg/m² in the fifth quintile of FV change relative to individuals in the first quintile (3.67 kg for weight gain, 1.48 kg/m² for BMI gain). An increase in FV consumption by 100 g was associated with a 211 g weight loss ($B = -2.11; 95\% \text{ CI}, -3.34, -0.89, P < 0.001$) and a decrease in BMI by 0.94 kg/m² ($B = -0.94; 95\% \text{ CI}, -1.36, -0.46, P < 0.001$) in men; and a 140 g weight loss ($B = -0.14; 95\% \text{ CI}, -0.97, 0.69, P = 0.74$) and a decrease in BMI by 0.29 kg/m² BMI ($B = -0.29; 95\% \text{ CI}, -0.63, 0.06, P = 0.11$) in women. **Conclusions:** Increase in FV consumption was associated with statistically significant weight loss and a decrease in BMI among Chinese men, and, although suggested, weight loss among women was not significant. Considering the protective effect of FV on human health and increasing FV consumption in the Chinese population are recommended.

**Keywords:** Adult, Fruits, Vegetables, Weight, BMI
Bibliometric Analysis of Patient Navigation Model Applied in Colorectal Cancer Care Based on Web of Science

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Background: The mortality rate of colorectal cancer in China is on the rise, which has exceeded the average global rate, thus making the care of colorectal cancer widely concerned. As a comprehensive nursing model, patient navigation model has shown its effectiveness in improving the quality of life among patients with chronic diseases and relieving the shortage of current healthcare resources. This study aimed to identify the current status and problems of the patient navigation model applied in colorectal cancer care in China. Methods: Bibliometric method was used to analyze published articles about the application of patient navigation model in colorectal cancer care retrieved from the Web of Science. Data were presented using visualization method processed by the BICOMB system. Results: 124 articles were retrieved from 2006 to 2018, covering 14 countries, involving 931 researchers, 356 institutions and 60 publications, among which, articles from the United States accounted for the biggest part, and China was only involved in one research. The distribution of institutions was centralized with the top three institutions accounting for nearly 58% of the total number of issued documents, while the distribution of authors was relatively decentralized. "CANCER" is the main journal to publish the research in this field. Research hotspots are focused on "cancer prevention and screening", "health disparities", "economic evaluation", "patient navigators", and "ethnicity". Conclusions: The research on the patient navigation was still in its infancy in China. The Chinese government should provide more support to this area, and the cooperation with other countries should be encouraged. There is still a long way to go for China to explore patient navigation on colorectal cancer care and establish a model that adapts to its cultural backgrounds.

Keywords: Patient navigation, Colorectal cancer, Bibliometric analysis, Bicomb
Background: Health literacy (HL) refers to people's competencies to access, understand, judge and apply health information in healthcare, disease prevention and health promotion. Objectives of this study were to describe the level of HL of school teachers in Colombo Education Zone and its associated factors. Methods: A cross-sectional study among a sample of 520 teachers selected using two-stage cluster sampling method along with probability proportionate to the size of the teacher population in the schools in the Colombo Education Zone using the culturally adapted and translated self-administered Health Literacy Survey-European Union (HLS-EU) to assess HL. Based on the score, respondents were divided into four levels of HL as 'inadequate', 'problematic', 'sufficient' and 'excellent' as well as two levels as 'limited' and 'adequate'. Data on factors associated with 'limited' HL was through a self-administered questionnaire and were determined through univariate and multivariate analysis. A p-value of 0.05 determined the significance. Results: The response rate was 96.5%. Mean age was 43 years (SD=±9.75), 81.7% (n=410) were females and 66.1% (n=332) were graduates. Only 3.6% (n=18) were teaching health while 18.3% (n=92) were teaching science. 'Limited' HL was found in 32.5% (95%CI 28.4%-36.6%) while 67.5% (95%CI 63.4%-71.6%), 61.2% (95% CI 56.9%-65.5%) and 6.4% (95%CI 4.3%-8.5%) showed 'adequate', 'sufficient' and 'excellent' levels, respectively. 'Problematic' and 'inadequate' HL were 31.5% (95%CI 27.4%-35.6%) and 1% (95%CI 0.1%-1.9%). Service as a teacher being < 10 years (p=0.042), monthly income <LKR 50,000.00 (p=0.024), not being a member of health club/welfare group (p=0.034) and visit to a medical practitioner within 6 months (p=0.002), were found to be associated with limited HL among school teachers. Conclusions: The high proportions of 'limited' HL among school teachers needs to be addressed. Modifiable factors associated with 'limited' HL should be taken into consideration when designing the targeted interventional activities.

Keywords: Health literacy, Factors, Teachers
Correlates of Objectively-Measured Sedentary Behaviour in Singaporean Adults

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Background: Sedentary behaviour (SB) is an independent risk-factor of non-communicable diseases. To inform SB reduction strategies, knowledge on multilevel correlates of SB is required. Such knowledge is lacking in Asia. The aim of this study was to investigate personal, behavioral and environmental correlates of objectively-measured SB in Singaporeans. Methods: In a population-based study (Singapore Health Study 2), SB was measured with a waist-worn ActiGraph GT3X+ accelerometer over seven days. We collected data on socio-demographics, body-mass index, time spent in light and moderate-to-vigorous physical activity (PA), and daily step counts. The PA Neighborhood Environment Survey was used to collect information on environmental variables. The outcome was time spent in SB defined by the validated vector magnitude cut-point of <150 counts per minute. Multivariable linear regression was performed to identify variables associated with daily SB time. Results: A total of 676 participants wore the accelerometer for at least 4 days and provided valid survey data (mean age = 45.6 years, 58.3% female, 66.2% Chinese). Mean daily SB time was 493.7 ± 133.8 minutes. In the fully adjusted model, university and above was associated with more SB (b=-22.9, 95% CI: -44.6 to -1.2) than pre-tertiary education. Additionally, more light PA (b=-58.7, 95% CI: -68.9 to -48.4) and higher daily step count (b=-26.1, 95% CI: -38.7 to -13.5) were associated with less SB time. Estimates for the association between environmental constructs and SB varied between 5.85 (95% CI: -10.82 to 22.51; transit access) and -2.37 (95% CI: -9.12 to 13.86; bicycle infrastructure) with none of them being significant. Conclusions: Higher education, lower step counts and less time in light PA were associated with more SB time. None of the environmental characteristics was associated with SB time. Promoting sitting breaks in formal work environments where most people with higher education are employed might be considered. Keywords: Sitting, Determinants, Environment, Behaviour, Accelerometer
ToyBox Study Malaysia: Feasibility of Adapting a European Obesity Prevention Programme for Malaysian Preschoolers

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Background: Childhood obesity is rising in Malaysia; however, we know of no intervention programmes that focus on prevention of obesity among preschoolers. This study, funded jointly by Medical Research Council (UK) and Academy of Sciences Malaysia, aimed to assess feasibility of adapting a kindergarten-based family-involved intervention programme from Europe to Malaysia. Methods: ToyBox programme aims to improve four key energy-balance related behaviours; namely drinking water, eating healthy snacks, reducing sedentary behaviour and increasing physical activity. The project is conducted in three phases: (i) Preparation Phase – adaptation of European ToyBox-Study components into Malaysian context, (ii) Implementation Phase – conducted in selected kindergartens in Kuala Lumpur, Selangor and Sarawak, and (iii) Evaluation Phase – assessment of feasibility and effectiveness in comparison to control kindergartens. Using stratified sampling, ToyBox Study Malaysia intervention will be delivered and compared to usual practice by assessing behaviour, physical activity, dietary intake and health-related outcomes as measured by questionnaires, accelerometry and anthropometry. Results: Adaptation process of Toybox intervention and assessment questionnaires took nearly a year, and included focus group discussions and Theory of Change workshop with kindergarten teachers and parents. Materials were translated for language and Malaysia specific content (e.g. foods) and context. The modules prepared are Teachers’ Guide, Jom Minum!, Jom Aktif!, Makanan dan Snek Sihat, and Tingkah Lakuku Sedentari. The feasibility study is being conducted at 15 preschools in Klang Valley and 7 in Sarawak, with 18 and 8 control preschools, respectively, at each location. Conclusions: The ToyBox-Study programme was successfully adapted into Malaysian version. It is hoped that the programme will help to achieve healthier behaviours in preschoolers and their families and provide lifelong benefits to health. We are also optimistic that the programme will be sustainable and be adopted by other kindergartens in Malaysia when proven to be feasible and effective.

Keywords: Child nutrition, Physical activity, Obesity intervention, Feasibility study, Preschooler
Ethnic Differences in Body Dissatisfaction and Relating Factors between Japanese and Malaysian Chinese Females

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\textbf{Background:} The way individuals perceive themselves may drive behavioural modifications and is therefore considered important in health promotion strategy. Japanese young females have been reported to have a greater body dissatisfaction compared with other ethnic groups. However, it is unclear if their greater body dissatisfaction is due to greater distorted body perception. The present study aimed to compare body perception between Japanese and Malaysian Chinese females and also to investigate factors that may influence body perception and body dissatisfaction among the ethnic groups. \textbf{Methods:} A total of 197 Japanese and 291 Malaysian Chinese females (aged between 18 and 30 years) who completed a questionnaire on age, current height and weight, ideal weight and the body satisfaction scale (BSS) were included in analyses. Body perception was examined based on perception toward their current physique and body mass index (BMI) calculated from self-reported height and weight. The BSS, lifestyle and social values, and body perception were compared between the two ethnic groups. \textbf{Results:} While Malaysian Chinese were significantly taller (p<0.01) and heavier (p<0.05), no difference was observed in current and ideal BMI. The study also showed that body perception did not differ by ethnic groups or relative to current BMI. However, Japanese females showed significantly (p<0.01) greater body dissatisfaction than Malaysian Chinese females regardless of their body perception. While Japanese females who perceived themselves as “being fat” considered “fashion” as an important factor that influences concern toward their own physiques, a large proportion of Malaysian Chinese females considered “health” as an important factor (p<0.01). \textbf{Conclusions:} While there were no ethnic differences in body perception, Japanese females expressed a considerably higher level of body dissatisfaction. This may suggest that differences in cultural values, including multi-ethnicity, fashion and value toward how they appear to others may contribute towards ethnic differences in body dissatisfaction.

\textbf{Keywords:} Body perception, Body dissatisfaction, Japanese, Malaysian Chinese, Females, Cultural values
Health Promotion: Participation Motives among Borneo Marathon Runners

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Background: The numbers of recreational runners who complete a marathon has significantly increased in the last 30 years. In recent years, runners come from different demographic and socioeconomic strata that run both recreational and competitive reason. Numerous physical the factors which motivate someone to initiate an activity are often different from factors which motivate the individual to continue in the activity. Objective: The purpose of this study is to identify the participation motives among Borneo Marathon Runners. Methods: This study compared the participation motives between genders, BMI, status and race categories using The Motivations of Marathoners Scales. The MOMS questionnaire was distributed to 480 runners (mean age 27.2 ± 7.3 years; mean BMI 22.76 ±4.21; 120 males and 120 females) who participate in The 2018 Borneo Marathon. The data was analysed by using one-way ANOVA, and Multivariate analysis of covariance (MANCOVA). Results: Analysis showed psychology motives, social motives, physical motives and achievement motives were in high level. There were no differences psychology motives, social motives, physical motives between BMI, and status except genders and race categories. Result also shown there were differences achievement motives between BMI, status and genders except race categories. Conclusions: Differences in participation motives can help the organizer to increase their health promotion.

Keywords: Participation, Motives, Marathon, Psychological characteristics, Health promotion
Out-Of-Pocket and Catastrophic Health Expenditures among Hepatitis C Patients: Results from a Middle-Income Asian Country

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Background: Chronic hepatitis C disease often causes significant financial implications through high out-of-pocket (OOP) payment that can lead to financial catastrophe. A study was conducted at one of the main hepatology referral centers in Malaysia to describe the OOP expenses incurred by hepatitis C patients and its impact on the household. Methods: A cross-sectional study among consecutive patients was conducted from April to September 2017 using a pre-tested structured questionnaire through face-to-face interviews. The questionnaire captures information on household characteristics and healthcare expenditures related to hepatitis C disease. Catastrophic health expenditure (CHE) is defined as OOP expenses exceeding 10% of annual household income. All costs were presented in price year 2017 and were reported in US dollars (USD) and Malaysian Ringgit (RM) using the conversion rate of US$1=RM3.93. Results: There were 135 patients included in this study with mean age 61.2 years, 62% males, 90% married and 56% unemployed. The distribution of HCV disease stages were 22.2%, 24.2%, 23.7%, and 29.6% for non-cirrhotic chronic infection (NCCI), compensated cirrhosis (CC), decompensated cirrhosis (DC) and hepatocellular carcinoma (HCC), respectively. The average annual household income was USD12785 (RM50200) and ten households were below the poverty line before health care spending calculated. 56% of patients have access to free-of-charge (FOC) medical treatments through government servants’ medical benefits. Median expenditure for hepatitis C was USD650 (IQR=USD1573); RM2551 (IQR=RM6178) annually. Direct medical cost was the greatest proportion of total cost (86%) with medical visits and hospitalisation contributing the largest proportion of the costs. CHE was experienced by 40 (30%) of the 135 households examined. Patients who did not receive FOC health care benefits, at DC stage, at HCC stage and single/divorced have significantly higher probability to incur CHE. Conclusions: Despite the study being conducted within the national publicly-funded and highly subsidised healthcare system, 30% of patients experienced CHE. Strong governmental advocacy on affordable treatment will provide better financial risk protection among hepatitis C patients.

Keywords: Hepatitis C, Out-of-pocket, Financial implications, Catastrophic health expenditure, Malaysia
In Silico Identification of Specific Genetic Markers for Mycobacterium tuberculosis

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Background: Tuberculosis (TB), commonly caused by Mycobacterium tuberculosis (MTB), is a worldwide infectious disease with more than 10.4 million cases and 1.7 million deaths reported in year 2016. The classical gold standard, microbiological culture for detection and differentiation of mycobacteria are time-consuming and laborious. Thus, fast, easy and sensitive nucleic acid amplification tests have been developed for diagnosis of TB. The identification of MTB remains challenging because there are high degree of homology within MTB complex (MTBC) members, high risk of gene mutations and absence of target genes in the genome of some strains. Thus, the diagnostic value of the reported markers caused diagnostic decision doubtful in some instances. This study aimed to identify candidate genetic markers and to design specific primers to detect MTB using in silico methods.

Methods: MTB H37Rv chromosome reference genome sequence was mapped with other Mycobacterium using MegaBLAST program available at National Center for Biotechnology Information (NCBI) and Mycobacterium africanum (MAF) GM041182 was found to be the most similar microorganism. Identified target regions that were present in MTB, but not MAF were mapped with other MTBC members using BLASTn program. Primers were designed to amplify the specific MTB fragments using in silico amplification method.

Results: The results of the study showed that mutations at Rv1967, Rv1969, Rv1970, Rv1974, Rv1976c, Rv2650c, Rv3618 and Rv3623 gene fragments could be used as target markers to detect MTB as they are present in most/all MTB strains and do not cross-react with other Mycobacterium and non-Mycobacterium. Bacterial whole genome sequences and bioinformatics have provided predictive identification of many new target markers that can specifically be used to detect a particular species. Conclusions: This valuable information enables fast and accurate detection of MTB and is important in guiding public health and primary care decisions.

Keywords: Mycobacterium tuberculosis, In silico, Genetic markers
Abstract ID: OR0004ID

*Plasmodium knowlesi* in Humans: A Vector Control Challenge in Public Health

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**Background:** *Plasmodium knowlesi*, a life-threatening malaria parasite in humans, is the predominant simian malaria species affecting humans in Malaysia, especially in East Malaysia. The Leucosphyrus group of *Anopheles* mosquitoes are bridge vectors between humans and macaques. Deforestation and changes in land-use have contributed to the current situation during the time when malaria elimination program is in progress. **Methods:** Sampling of *Anopheles* mosquitoes using human landing catch was conducted in Kudat from 2013-2016, in various sites to study the population changes over time and in different habitat types. *Anopheles* mosquitoes were dissected as well as tested with PCR for presence of *Plasmodium* parasites. **Results:** The incriminated vector, *An. Balabacensis*, demonstrated early biting activity and feeding predominantly outdoors in the early evening between 1800-2000 hrs. This suggests that current vector control tools such as indoor residual spraying and insecticide treated bed-nets may not be appropriate. However computer models suggest that these methods are sufficient to reduce the risk of transmission to humans. Our data shows that *An. balabacensis* is found more in peridomestic area than inside the house, and more in forested areas. It is the most efficient vector with high sporozoite rates, and has been found positive not only with *P. knowlesi* but with multiple species of other simian malaria parasites. Deforestation for oil palm estates and human settlements has increased interaction between humans and macaques, contributing to increased infection rates among the villagers. **Conclusions:** Presently *P. knowlesi* appears to be a zoonotic disease but if human malarias are eliminated by 2020 according to plan, it may become anthroponotic. Thus, more in depth studies are urgently required on the transmission dynamics of the vectors in association with the macaques and humans.

**Keywords:** *Plasmodium knowlesi*, Vector control challenge
**Viral Hepatitis Incidence Change Influenced by Alternative Disease Prevention Strategies**

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**Background:** Viral hepatitis seriously threatens the population health; therefore, its prevention and control is a current disease control priority. This study aimed to evaluate the strategies for viral hepatitis prevention and further explore how to achieve better viral hepatitis prevention outcomes. **Methods:** Data between 2004 and 2015 were extracted from Center for Disease Control of Hubei Province of China for epidemiological analysis by using SPSS21.0 and Excel. **Results:** When reported incidence rates for Hepatitis E (from 1.81/10⁵ in 2004 to 4.02/10⁵ in 2015) and Hepatitis C (from 2.05/10⁵ in 2004 to 15.66/10⁵ in 2015) increased, the same index for hepatitis A (from 6.01/10⁵ in 2004 to 1.47/10⁵ in 2015) dropped, and a slightly fluctuant downward trend of Viral hepatitis B incidence (100.60/10⁵ in 2004, 146.67/10⁵ in 2009 and 110.14/10⁵ in 2015) was shown from 2004 to 2015. We also observed that hepatitis B fatality decreased significantly from 0.18% in 2004 to 0.02% in 2015 and the reported hepatitis B cases accounted for more than 80% of all the registered hepatitis cases. **Conclusions:** Hepatitis B prevention is still the most important task for viral hepatitis prevention, though the outcomes of the disease have been better through all these years. Great success in hepatitis A and B prevention was mainly attributed to the implementation of vaccination plan, while other viral hepatitis prevention strategies need to be emphasized and strengthened as well. In addition, the data showed that a more informative surveillance system which includes information not only the onset of the disease, but also the infection status would be more effective in developing prevention strategies to stop infection initially.

**Keywords:** Viral hepatitis, Incidence, Vaccination, Prevention
Study on Adherence to Antiretroviral Therapy and Its Associated Factors among People Living with HIV/AIDS in Wuhan City

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Background: Highly active antiretroviral therapy (HAART) is recognized as the most effective AIDS treatment. The adequacy of adherence to HAART, as the key factor for the successful treatment, is a serious challenge for people living with HIV/AIDS (PLWHA). In this study, we aim to study adherence to antiretroviral therapy and its associated factors among PLWHA in Wuhan City, and to provide scientific evidence for policy making. Methods: Face-to-face anonymous survey was conducted using self-designed questionnaire and scale among PLWHA recruited in the medical treatment center of Wuhan City. Chi-square test, Spearman rank correlation and multiple logistic regression were performed to analyze data with SPSS 20.0. Results: Among 451 PLWHA, the average adherence was 98.73%, 414 (91.8%) of them have high adherence. Multivariate analysis showed that those PLWHA with more than 24 months' treatment duration (OR=0.383, 95%CI:0.191~0.767), higher stigma scale score (OR=0.980, 95%CI:0.961~0.999) had worse adherence. Conclusions: PLWHA in Wuhan City have high adherence to antiretroviral therapy. We should pay more attention on PLWHA with longer treatment time and higher stigma score and explore intervention measures to improve their medication adherence.

Keywords: PLWHA, Antiretroviral therapy, Medication adherence, Associated factors
The Effects of Meteorological Factors on Bacterial Intestinal Infectious Disease Related to Emergency Room Visits in Seoul, South Korea

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Background: To better understand the effects of meteorological factors (average air temperature (°C), relative humidity (%), average precipitation level (mm) and average wind speed m/s) on weekly reported emergency room visits of all bacterial enteritis (ICD-A00 to ICD-A05) obtained from 30 hospitals in Seoul, South Korea from 2009 to 2014. Methods: After controlling for potential confounding factor, GAM generalized additive model was used to evaluate the association between weekly emergency room visits (data were extracted from NEDIS data-base) and meteorological factors (data were received from Korea meteorological administration). Both single day and distributed lag models were explored over a previous one and two weeks. Results: Weekly emergency room visits reported cases are 2646 (53% is female), distributed as ICD’s codes (ICD-A00 Cholera 29, ICD-A01 Typhoid and paratyphoid fever 58, ICD-A02 Salmonella infection 140, ICD-A03 Shigellosis 32, ICD-A04 Other bacterial intestinal infection 1954 and ICD-A05 Other bacterial foodborne intoxication 450), most reported cases under age group 19-64 years (51%) and least group under age 7-12 years old (5%). A statistically significant positive association existed only between emergency bacterial enteritis cases and bacterial enteritis cases. The cumulative summary of Relative Risk estimated for average air temperature above 10°C is 1.008 (95% CI: 1.01 to 1.003) and below 10°C is 0.97 (95% CI: 0.99 to 0.96), and for an Excess Risk estimated (for 1°C increase above 10°C being 0.85% (95%CI: 1.3% to 0.40%) increase in ER visits and a negative effect was observed for air temperature below 10°C, for increase 1°C was -2.4% (95% CI: -0.85% to -3.9%). Conclusions: This study suggests that air temperature has an effect of ER visits related to bacterial enteritis, while other meteorological factors (relative humidity, average precipitation level and average wind speed) were observed statistically non-significant.

Keywords: Meteorological factors, Cholera, Typhoid, Paratyphoid fever, Salmonella infection, Shigelliosis
Analysis of Antimicrobial Resistance (AMR) Policies in Singapore Based on Experts’ Perspectives: A Qualitative Study

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Background: Antimicrobial Resistance (AMR) is a global public health threat that warrants urgent action by every country. However, the multifaceted nature of AMR often overwhelms policymakers and complicates development of a comprehensive policy. In this study, we explore expert’s perspectives on the strategies adopted in tackling AMR by a well-resourced country, Singapore. Methods: We conducted semi-structured, in-depth interviews with 22 participants from within and outside Singapore. Our participants held expertise in human, animal or environmental health and worked at either ministry, healthcare institution, academia or civil society. Interviews were transcribed verbatim and analysed thematically. Results: Participants reported that Singapore’s AMR policies were largely driven by a group of infectious disease clinicians and enforced through a strong political will. The Ministry of Health (MOH) has effectively funded AMR control programmes and research in all public hospitals. In addition, a preexisting ‘one health platform’ among MOH, Animal and Veterinary Authority and National Environment Agency was perceived to have facilitated coordination and formulation of Singapore’s AMR strategies. Nonetheless, participants highlighted that the success of AMR strategies is compounded by various challenges such as surveillance in private hospitals and clinics, resource constraints at community-level health facilities, low public awareness, regulation on antimicrobial use in animals, and environmental contamination. Furthermore, most participants emphasised that control of AMR is beyond national effort and requires collective actions at the regional level. Conclusions: The process of planning and executing AMR policies is complicated even in a well-resourced country like Singapore. A strong political will and motivated workforce are keys in Singapore for well-planned AMR programmes in public hospitals. However, more efforts are needed in overcoming crucial challenges in other sectors. Ultimately, better coordination and joint action at the ASEAN level will help mitigate the threat of AMR not only in Singapore but also in the Southeast Asian region.

Keywords: Antimicrobial resistance, One-health, Policy analysis
Analysis of Influencing Factors of AIDS in Africa

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Background: AIDS in Africa is a focus of global infectious disease prevention and control. This study aims to investigate the possible causes of AIDS in Africa and provide evidence for the future prevention and control of AIDS. Methods: The AIDS-related data of countries in Africa were sourced from the WHO and World Bank databases, including the prevalence of HIV among adults (%) (Y), condom use among adolescents (%) (X1), number of testing and counselling facilities per 100000 adult population (X2), number of adults who received HIV testing and counselling (X3), reported number of testing and counselling facilities (X4), number of adults who received HIV testing and counselling per 1000 adult population (X5), and prevalence of condom use by adults at higher-risk sex (%) (X6). Y was the dependent variable, and X1-X6 were independent variables. The data from 25 African countries were collected. Statistical analysis was performed using multiple linear regression by SPSS software for 2014 data. Results: The statistics result shows that there is a strong correlation between X1 and X6 and X3 was related to X4. In the regression analysis of the factors, in addition to X1 and X6, the other four indicators have a regression relationship with the prevalence of AIDS with statistical significance. The multiple linear regression model had an R value of 0.727 and R² was 0.528 (p=0.021), which was statistically significant. X3 and X4 were selected into the model. The R value of the two indicators was 0.699, R² was 0.489, and the F value was 10.515 with statistical significance. Conclusions: Estimated number of people who received HIV testing and reported number of testing and counseling facilities have the greatest impact on the prevalence of AIDS. Strengthening the subjective aspirations of AIDS testing and counseling has an important role in reducing AIDS prevalence.

Keywords: AIDS, Influencing factors, Africa
Effects of Stigmatization on Compliance to General Healthcare Seeking Behaviour among People Living with HIV in Kuala Lumpur

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Background: Stigma and discrimination towards HIV/AIDS remain to be a challenge. In addition to distressing the lives of people living with HIV/AIDS, stigma is also causing hurdles to the progress and application of HIV prevention, treatment, care and support programs. This study assessed the relationship between enacted stigma at healthcare setting and compliance to general healthcare seeking behaviour among HIV-infected individuals in Federal Territory of Kuala Lumpur. Methods: A cross-sectional study was carried out among people living with HIV/AIDS (PLHIV) whom were enrolled in non-governmental organizations peer support groups. Structured, self-administered questionnaires were used to collect data and subsequently analysed with SPSS 23. Results: A total of 282 people living with HIV participated in the survey, out of which 236 (83.7%) were males, 31 (11%) were females and 15 (5.3%) were transgenders. Majority stated HIV transmission was mainly through homosexual transmission (48.6%), followed by heterosexual (27%), injecting drugs (11.7%) and others (5.3%). One in three (34%) HIV-infected individuals stated that they have experienced stigmatization at healthcare setting. In all, 205 participants (73%) agreed to have a good compliance to healthcare seeking behaviour. Multivariate analysis showed that enacted stigma at healthcare setting had significant association with PLHIV compliance to general healthcare seeking behaviour. Conclusions: The people living with HIV/AIDS with low level of stigmatization are more likely to have better healthcare seeking behaviour. Health education and counseling services on compliance should be a strong component of all PLHIV care. The application of this study can be used to provide a better quality of care and life for the HIV/AIDS patients.

Keywords: Enacted stigma, HIV/AIDS, Healthcare, Seeking behavior
Abstract ID: OR0017ID

Short-Term Effect of Air Pollution on Tuberculosis Based on Kriged Data: A Time-series Analysis

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Background: Tuberculosis (TB) has a very high mortality rate worldwide. However, only a few studies have examined the associations between short-term exposure to air pollution and TB incidence. Objective: Our objectives were to estimate associations between short-term exposure to air pollutants and TB incidence at Wuhan city, China, during 2015 – 2016. Methods: We applied a generalized additive model to access the short-term association of air pollution with TB. Daily exposure to each air pollutant in Wuhan was determined using ordinary kriging. The air pollutants included in the analysis were particulate matter with an aerodynamic diameter ≤ 2.5 and 10 μm (PM$_{2.5}$ and PM$_{10}$), sulfur dioxide (SO$_2$), nitrogen dioxide (NO$_2$), and carbon monoxide (CO). Daily incident cases of TB were obtained from the Hubei Provincial Center for Disease Control and Prevention. Both single - and multiple-pollutant models were used to examine the associations between air pollution and TB. Seasonal variation was assessed by splitting the all-year data into warm (May – October) and cold (November – April) seasons. Results: A total of 12,648 incident cases of TB were included in the analysis, with a daily mean and standard deviation of 17 ± 13.49. In the single-pollutant model, for a 10 μg/m$^3$ increase in PM$_{2.5}$ and PM$_{10}$ at lag 7, the associated TB risk increased by 3.70% (95% CI: 1.44, 6.02) and 1.83% (95% CI: 0.26, 3.43), respectively. Seasonal analysis suggested an evident trend that the associations were larger during the warm season than during the cold season. Conclusions: Our study reveals that the mechanism linking air pollution and TB is still complex. Further research is warranted to explore the interaction of air pollution and TB.

Keywords: Tuberculosis, Infectious disease, Air pollution, Time-series, Poisson regression, Kriging
Uncovering the Epidemiological Changes of Measles Infections in Southern China: A Retrospective Data Analysis

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Background: In Guangdong, a province in Southern China, the 2009 province-wide and 2010 nation-wide supplementary immunization activities (SIAs) greatly reduced measles prevalence. However, resurgence started in 2013 and the high prevalence persisted in 2013-2014. This paper assessed changes on measles epidemiology over 2009-2016, particularly between two periods of 2009-2011, referred as the two years when provincial SIAs were conducted and the year after, and 2012-2016. Methods: Totally 22,362 clinically and laboratory confirmed measles cases from January 2009 to December 2016 were extracted from the National Infectious Disease Monitoring Information System. Patients’ demographic and date of illness onset were retrieved. The changes on epidemiological characteristics between 2009-2011 and 2012-2016 were compared. Results: After 2012, infants aged 0-8 months had replaced the 7-25 years old in having the highest number of measles cases (p<0.01), as the ≤8 months old cases increased from 32 in 2011 (10.3\% of all cases) to 2,306 (32.8\%) in 2013, which contributed the most to the resurgence. Cases in 7-25 years old, the group partially covered by two province-wide SIAs, dropped significantly in 2012 and constituted the least proportion of cases in 2012-2016 (p<0.01). Nevertheless, the proportion of adult cases increased from 2014 onwards and adults replaced the 0-8 months old in having the highest number of cases in 2016. Conclusions: Although Guangdong has implemented province-wide routine immunization and SIAs with remarkable results achieved, the benefits of the activities were short-lived. Enhanced vaccination coverage with strengthened routine immunizations targeting young and adult susceptible conducted, are needed before measles elimination can be achieved.

Keywords: Measles, Supplementary immunization, Vaccination, China, Vaccine
Knowledge, Attitude and Practice (KAP) of Rabies Prevention in a New Canine Rabies Positive Locality in Julau, Sarikei, Sarawak

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Background: Rabies is a fatal yet preventable disease. The determination of knowledge, attitude, and practice (KAP) of rabies prevention in a new canine rabies positive locality, as well as sources of rabies information, is crucial towards effective rabies awareness and prevention. Methods: Cross-sectional KAP survey using a newly developed, validated, self-administered questionnaire by means of universal sampling within 1.0 km radius of a canine rabies positive locality, Julau, Sarikei, Sarawak. The questionnaire included details of sources of rabies information among respondents. Population age 18 years old and above living within the locality in the past 3 months were included. Results: A total of 163 respondents were surveyed, with reported mean age 44.4 (SD 15.49) years, mainly females (56.4%), attained secondary education (36.8%), were farmers (39.3%), and dog owners (36.2%). Most of them have heard of rabies (87.7%), obtained rabies information mainly from ‘TV or radio’ (86.5%), ‘family or friends’ (47.9%), ‘newspaper’ (38.7%), ‘social media’ (29.4%), ‘pamphlets or banners’ (11.0%), and ‘talks or health staff’ (8.0%). Almost two-third of respondents (64.4%) have good KAP, and it was significantly associated (p<0.05) with higher education attainment, dog ownership, having source of rabies information from ‘TV or radio’, ‘newspaper’, ‘talk or health staff’, and ‘social media’. Respondents showed awareness in avoiding strays (95.7%), and seeking treatment at health facilities if bitten (93.9%), but have gaps in post-bite wound management and pet care. Logistic regression revealed factors predicting good KAP were dog ownership [OR 2.495 (1.053, 5.913)], source of information from ‘newspaper’ [OR 2.680 (1.013, 7.091), and ‘social media’ [OR 8.962 (1.758, 45.693). Conclusions: Systematic delivery of specific health messages using suitable communication media is key towards better rabies awareness and prevention. Furthermore, this study informs stakeholders on effective health promotion methods for rabies control and prevention in Sarawak.

Keywords: Rabies, Prevention, KAP, Sarikei, Sarawak, Malaysia
Unsafe Sexual Behaviour and Substance Abused among HIV Positive Men Who Have Sex with Men in Sabah

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Background: Studies among MSM population indicated that there is increase in HIV prevalence which is supported by evidence of increasing percentage of substance abused and reduction of condom usage among this group. Thus, there is a need to study and understand their sexual behaviour especially among the HIV Positive MSM. The objective of this study is to determine the prevalence of unsafe sexual behaviour and its association with substance abused among HIV positive MSM in Sabah. Methods: This is a cross-sectional study conducted from 31st January until end of May 2017. The data were collected through interviewer guided questionnaire. The questionnaire includes questions on sociodemographic factors; sexual behaviour and substance abused. Results: The mean age of the respondents was 33.6 years (SD = 8.1) and ages ranged from 18 to 54 years. Results show that the prevalence of unsafe sexual behaviour among HIV Positive MSM was 62.4%. For substance abused, 84.4% of those who took alcohol (OR 6.15, 95% CI 2.39 – 15.81) and 100% of those who took Methamphetamine (OR 8.13, 95% CI 1.79 – 36.92) before sex involved in unsafe sexual behaviour. Conclusions: There is significant association between substance abused and the unsafe sexual behaviour among HIV Positive MSM where substance abused contributes to the high prevalence of unsafe sexual behaviour among HIV Positive MSM.

Keywords: Substance abused, Unsafe sexual behaviour, HIV positive, MSM
Abstract ID: OR0021ID

Risk Factors of Outbreak Investigation of Influenza A/H1N1 (2009) in a Training Unit Camp, Yasothon Province, Thailand

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Background: The Surveillance and Rapid Response Team of Yasothon Provincials Health Office was notified a cluster of influenza–like illness (ILI) in a training unit camp. An investigation was conducted to confirm a diagnosis, identify risks factors of ILI and to implement outbreak control measure during May 15-31, 2017. Methods: Descriptive and Retrospective cohort study. Multiple logistic regressions were used to identify independent risk factors. Interviewing, active case finding in a training unit camp, environmental survey, and the throat swab for confirmed case using real-time polymerase chain reaction (RT–PCR) were applied. Results: There were 163 soldiers in a training unit camp, 82 cases were met case definition (50.3%). Ten cases admitted in the hospital (12.2%). The most common of clinical was cough, sore throat, muscle pain, fever, headache and mucus. Four out of 5 cases were tested positive influenza A/H1N1. Multiple logistic regressions revealed 2 independent risk factors include bed close with the case (adj. OR = 10.6, 95%CI 1.9 to 58.0) and contact with the case while training (adj. OR = 13.1, 95%CI 3.7 to 45.8). The control measure was health education, an advising all suspected to keep personal hygiene including wearing a mask, hand washing and isolation, increase spacing between the beds in bedroom. After follow up for fourteen days, there was no additional case in a training unit camp. Conclusions: This outbreak was caused by influenza A/N1H1 (2009). The closed contact with the case was the strong risk factor. Delay detection and notification including mild severity of influenza A/N1H1 (2009) made a wide spreading easily. However, a training unit camp should be to get a flu vaccine about two weeks before to be on active service, screening illness and early isolate among military enlisted in everyday especially earliest stage of training of military enlisted.

Keywords: Influenza, Outbreak, Training unit camp
Determinants of Seasonal Influenza Vaccination in Children: The Role of the Parents’ Vaccination Status and Health Belief

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Background: Children are not only endangered by influenza virus, but also play a major role in spreading influenza viruses. For this reason, childhood influenza vaccination is important than other age groups, but the vaccination rate is insufficient to prevent influenza effectively as yet. The study was designed to find out the factors influencing childhood influenza vaccination based on the Health Belief Model and prior studies. Methods: Participants were children and their caregivers, 588 and 312 respondents each. Data were collected through survey questions on basal sociodemographics, vaccination status and their health belief. After univariate analysis by chi-square test and Fisher's exact analysis, binary regression analysis was done for multivariate analysis. The total vaccination rate of children was 42.52%. In caregiver's univariate analysis, caregivers who are below 40, urban residents, educated above college level, not drinking for recent 1 year, and had influenza vaccination themselves were positively related to children's vaccination. Children's age, children with pneumonia or asthma, health insurance, positive medical use and passive smoking history negatively related to their vaccination. Using the Health-belief model, the caregiver's perceived threat, benefit, and the perception of needs for vaccination were all significant factors. In multivariate analysis with caregiver's factors, caregivers' age (younger), influenza vaccination (vaccinated), perceived threat and benefit were significant. Results: The caregiver's influenza vaccination was the greatest factor with an odds ratio of 9.57(4.98-18.40 at 95% C.I.), P<0.001. In children's factors, children's age (younger), passive smoking history, and the history of medical use were significant factors for the influenza vaccination. Caregivers' influenza vaccination would mostly determine childhood vaccination rate. Although other significant factors should be considered in predicting influenza vaccination, this factor would be the greatest effector. Conclusions: Thus, when planning campaigns to increase childhood influenza vaccination rate, it is good to select campaigns which include caregivers as major subjects.

Keywords: Vaccination, Influenza, Health-belief model, Public health education, Immunization rate
Abstract ID: OR0024ID

Community Contribution to Tuberculosis Care: A Qualitative Study in the Krachi West District of Ghana

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Background: Ending the spread of Tuberculosis (TB) is one of the targets of the Sustainable Development Goal (SDG) three. In the light of limitations inherent in prevailing tuberculosis care (which could thwart achievement of the SDG three target related to TB) and the global urgency to improve TB care, a renewed drive for active community contribution to TB care and control has arisen. Decentralising TB care beyond health facilities by harnessing the contribution of communities is essential in ensuring effective tuberculosis care. In this paper, we explored community contribution to TB care in the Krachi West District of Ghana. Methods: In this qualitative study, 24 TB stakeholders made up of 7 health workers, 9 tuberculosis patients, 4 community health volunteers, 2 treatment supporters and 2 opinion leaders were interviewed. Data collected were analysed manually, but thematically. Statements of the participants were presented as quotes to substantiate issues discussed. Results: Community contribution to TB care was low. Most of the community members were not aware of any community level activity towards tuberculosis care and control. Though patients were mainly the ones responsible for the selection of their treatment supporters, there were instances where health workers had selected supporters for them without their consent. Treatment supporters were not given any form of training concerning their roles. This resulted in some patients defaulting treatment by taking their medications wrongfully. Conclusions: Our study revealed low community involvement in tuberculosis care in the Krachi West District of Ghana. Community sensitisation on the World Health Organisation’s Directly Observed Treatment Strategy (which Ghana adopted in 1994) to increase community involvement in tuberculosis activities is, therefore, recommended.

Keywords: Tuberculosis, Treatment supporters, TB care, Community contribution, Ghana
Influence of Selected Factors on Knowledge and Practices on Prevention of Infectious Water Borne Diseases among Grade-10 Students in Mannar Education Zone in Sri Lanka

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Introduction: Infectious water borne diseases are still a problem in developing countries including Sri Lanka. Poor knowledge, attitude and hygienic practices play major role in the increased burden of water borne diseases. Objective: to assess the knowledge and practice of school adolescent and association of school and health related factors in Mannar education zone. Methods: A descriptive cross-sectional study was carried out among grade-10 school children in the Mannar education zone in Northern Sri Lanka. The study enrolled 504 students using multistage stratified cluster sampling method. A pre-tested self-administered questionnaire was used to collect data on knowledge, attitude and practices and selected school and health factors. Results: The study found that the level of students’ knowledge on prevention of infectious water borne diseases was satisfactory. Among the health and school factors which were studied, to see the association on overall knowledge on prevention of water borne diseases, the cleaning water container routinely (93.5%) in school and the allocating a designated place for drinking water (92.4%) were significant at p value 0.05 level. With regard to practices, only 42.1% of students engaged in good practice in drinking water in school and this was 57.5% at home. Factors, hand washing facilities with soap at school, cleaning water container in school routinely, leaflets available regarding diarrheal diseases in the school, class teacher discussed about diarrheal diseases were also statistically significant, at p value 0.05 level. Conclusions: Providing healthy environment will help the students to improve the knowledge and practices to prevent the infectious diseases.

Keywords: School health, Infectious diseases, Hygiene, Sri Lanka
Cloning and Expression of Lactate Dehydrogenase from *Plasmodium knowlesi* for Anti-Malarial Drug Development

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**Background:** Malaria remains a global burden, where drug resistance issue has triggered a major concern in the affected regions. *Plasmodium* lactate dehydrogenase, which is the key enzyme in the parasite's glycolytic pathway has shown to be a potential novel therapeutic target. The aim of the study is to clone and express the recombinant lactate dehydrogenase from *Plasmodium knowlesi* in bacterial system. **Methods:** The synthetic Pk-LDH gene was amplified and the PCR product with the size of 951bp was cloned into pET21a expression vector. The ligated product was transformed into BL21 (DE3) strain to induce Pk-LDH expression. Soluble expression was obtained at 20°C, incubated for 18 hours in Terrific Broth media in the presence of 0.5 mM isopropyl β-d-thiogalactoside (IPTG). The expressed Pk-LDH protein was later purified by using a combination of Immobilized Metal Affinity Chromatography (IMAC) and Size Exclusion Chromatography (SEC) methods. Sequencing and BLAST analysis revealed an open reading frame of 316 amino acids of Pk-LDH, which shows 91.8% sequence similarity with *Plasmodium falciparum* 's LDH. The SDS–PAGE analysis exhibits that Pk-LDH protein of 34kDa in size was present in the soluble fraction. A sharp protein peak corresponding to the size of Pk-LDH was also observed upon gel filtration elution, indicating that the protein has successfully been purified to homogeneity. MALDI-TOF analysis gave a peptide score of 282, which is significant with L-lactate dehydrogenase from *P. knowlesi*, as revealed from the Mascot analysis. Pure and active Pk-LDH was obtained. **Conclusions:** The successful expression and purification system developed of Pk-LDH in this study offer a reliable method to produce soluble Pk-LDH that is biologically active, which can be used for future antimalarial drug development study.

**Keywords:** *Plasmodium knowlesi*, Recombinant lactate dehydrogenase, Malaria, Drug development
Escalating the Rapid Diagnosis of Pulmonary Tuberculosis in Sabah by Using Molecular Diagnostic Tool

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**Background:** The incidence of tuberculosis can be reduced by preventing the transmission with rapid and precise case detection and early treatment. The Gene-Xpert@MTB/RIF assay can detect *Mycobacterium tuberculosis* along with resistance to rifampicin in around two hours by using nucleic acid amplification technique. **Objective:** In this study, the performance of the Gene-Xpert@MTB/RIF assay as well as other conventional methods for rapid detection of pulmonary tuberculosis was assessed. **Methods:** This cross-sectional study included 235 patients with suspected tuberculosis at Luyang primary health care clinic from September 2016 to June 2017. After taking written informed consent, three samples of sputum for AFB staining, one sample for Gene-Xpert@MTB/RIF assay and one sample for culture were taken from each patient. **Results:** Based on clinical, radiological, and bacteriological evidences, 72 patients (out of 235) were considered to have pulmonary tuberculosis. Out of 72 cases; 49 samples were culture positive, 49 were smears positive with AFB staining and 70 samples were positive with Gene-Xpert@MTB/RIF. Two of the sputum samples were TB positive in AFB staining but negative by Gene-Xpert and one of the two was culture positive for *M. tuberculosis*. One of the samples showed drug resistance by Gene-Xpert@MTB/RIF and it was confirmed by culture, showing resistance with Isoniazid. Statistical analysis showed the sensitivity of 68.49%, 68.06% & 95.89% and specificity of 99.36%, 100% & 99.36% for detecting pulmonary tuberculosis by sputum AFB staining, culture and gene Xpert @MTB/RIF assay respectively. **Conclusions:** Significant numbers of tuberculosis cases were detected by using Gene-Xpert@MTB/RIF. The study shows that the early diagnosis of tuberculosis can be enhanced by using this molecular method beyond the current standard first line diagnostic tools.

**Keywords:** Rapid diagnosis, Pulmonary tuberculosis, Molecular diagnostic tool
Oral Health Status in Association with CD4 Counts in Children Living with HIV in Phnom Penh

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\textbf{Background:} The CD4 count is a marker of the functioning of the immune system, and a healthy immune system is indispensable in preventing the occurrence of AIDS in children living with HIV. An association between oral health status and immune system has been suggested in uninfected populations. However, it remains unclear whether this association exists in children living with HIV. The present study assessed the association between oral health status and CD4 counts in children living with HIV.

\textbf{Methods:} This cross-sectional study was conducted at the National Pediatric Hospital in Phnom Penh, Cambodia. The participants were 143 children living with HIV, aged 8–15 years who were receiving care and treatment services in an antiretroviral therapy clinic. Face-to-face interviews, CD4 count examinations, dental check-ups, and saliva tests were conducted. Oral health status was assessed using the decayed, missing, and filled teeth (DMFT) index; dental plaque status was evaluated using a debris index; and saliva buffer capacity was assessed based on salivary pH levels.

\textbf{Results:} The mean age was 12.3 years (SD, 1.8), and 51% participants were male. The mean individual DMFT score was 4.3 (SD, 3.3). In multiple linear regression analysis, higher DMFT score was negatively associated with CD4 count in male children ($\beta = -0.134$; 95% CI, $-0.251$ to $-0.017$). Higher salivary pH was positively associated with higher CD4 count in all participants ($\beta = -0.644$; 95% CI, 0.020 to 1.269).

\textbf{Conclusions:} Our study suggests that oral health status is positively associated with CD4 counts in children living with HIV in Phnom Penh. Therefore, promoting oral health may contribute to improving the immune system, thereby suppressing the onset of AIDS in children living with HIV.

\textbf{Keywords:} HIV, Child, Infectious diseases, Cambodia
Effects of a Soccer Exercise Protocol on Ankle during a Single Legged Jump Landing Task

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Background: Ankle is one of the commonly injured joint during sports which affects the performance and match participation of the athlete. Evidence shows a tendency of increased ankle injuries towards the later of the match and one possibility is the duration. It can be argued that longer play can affect ankle injuries by increasing the level of fatigue during a match. Therefore, the objective of this study was to identify how prolong intermittent exercise protocol simulating a soccer match would affect ankle kinematic and kinetic variables during a single legged jump. Methods: This pre post study design included 17 male recreational athletes. Participants performed a simulated 90 minute soccer exercises protocol and data was collected at three time points, pre, during half time and after the protocol. During the data collection they performed a single legged landing from a 20cm step on to the force plate (Kistler) wearing motion tracking sensors (Xsense). Ankle angle, ground reaction force (GRF) and centre of pressure (CoP) was measured at two stages of the jump, before landing and at peak GRF. Results: Participants’ heart rate (HR) and rated perceived exertion (RPE) showed significant changes after the protocol. However, no significant changes were identified among ankle angle, GRF or CoP variables. Conclusions: Soccer simulated exercise protocol was unable to change ankle variables during a single legged landing. Future research is needed to identify the combine effects of duration and fatigue with other risk factors for ankle injury. Keywords: Soccer, Ankle injury, Kinematics, Kinetics
Public Perception and Sociodemographic Predictors of Urban of Transport Safety: Cross-Sectional Study after a 2017 Urban Underground Metro Fire in the Chinese Metropolis

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Background: Increase public transport utilization is regarded as one of the key strategies to improve urban environment and health but critical incidents in public transport system might cause mass casualty. Limited literature has been published on urban community health and accidental risks perception sociodemographic predictors of attitude, knowledge and willingness to learn about health and emergency responses in public transport fire incidents.

Methods: This was a population-based stratified cross-sectional survey conducted in March 2017, one month after a major underground metro incident in Hong Kong. A representative sample was randomly selected with the Random Digit Dialing method among the Hong Kong Cantonese-speaking population aged above 15. Descriptive analysis, chi-square test, multiple logistic regressions and structural equation modelling were conducted.

Results: Final study sample involved 1,000 valid participants which was representative as compared with the recent 2016 Hong Kong population census data. Among the respondents, 87% used daily public transport (e.g. subway and bus). Risk perception level was found to vary but independent with the type of regular daily transport mode adopted and sociodemographic predictors of public transport risk perception were identified. Of note, even with a recent subway fire incident, public confidence in subway safety remained above 85% and subway was regarded to be the safest mode of public transport. Only 32% of respondents had ever received first aid training and their performance was significantly better than the non-trained group in the knowledge test of fire emergency response. A number of suboptimal medical/health knowledge gaps were found at the individual level for general post-fire self-help and wound management.

Conclusions: Urban public health and emergency risk perception appear to be independent of major crisis in public transport. Suboptimal fire response knowledge and risk perceptions will need to be addressed to improve potential community and individual capacity to respond accurately in crisis.

Keywords: Urban fire, Disaster, Risk perception, Emergency response, First aid training, Injury
From Perceived Stigma to Depression among HIV-infected Men who have Sex with Men in Nanjing, China: A Structural Equation Model

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Background: HIV-infected MSM may be more prone to depression due to dual stigmatization related to homosexuality and HIV infection. There is a dearth of information regarding perceived stigma and mental health among HIV-infected MSM in China. Structural relationships linking perceived stigma to depression have not been thoroughly examined. Therefore, the study aimed to examine the structural relationships linking perceived stigma to depression through social support, resilience, and self-esteem among HIV-infected MSM. Methods: An institutional based cross-sectional study was conducted from Jul to Aug 2016 in Nanjing, China, using a self-reporting questionnaire. A total of 347 HIV-infected MSM were recruited. Sociodemographic, psychological variables (perceived stigma, social support, resilience, self-esteem, depression) about the participants were collected. Structural equation modeling (SEM)-path analysis was used to examine the interrelationships among the study variables based on the hypothesized model. Results: 38.6% of the participants had depressive symptoms. The final structural equation model had a highly satisfactory fit. Perceived stigma had a direct influence on depression. Also, perceived stigma may indirectly affect depression through social support and self-esteem. Resilience mitigated the effects of perceived stigma and social support on self-esteem, which in turn affected depression. Conclusions: Perceived stigma has direct and indirect impact on depression among HIV-infected MSM. Enhancing personal self-esteem, resilience or social support might reduce perceived stigma to decrease depression among HIV-infected MSM.

Keywords: Perceived stigma, Depression, HIV, MSM, Structural equation model
Cognitive Behavioural Therapy (CBT) Intervention to Improve the Mental Health of Caregivers of Dependent Elderly in the Community: A Systematic Review Protocol

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The physical and emotional condition of the caregiver directly affects the quality of care provided to dependent elderly. The most widely practiced intervention to improve mental health of such informal caregivers is Cognitive Behavioral Therapy (CBT). The aim of this systematic review was to evaluate the effectiveness of CBT Intervention in improving the mental health of informal caregivers of dependent elderly in the community. This systematic review included all RCTs on CBT to improve mental health of informal caregivers of dependent elderly aged ≥60 years in the community. We included randomized and quasi-randomized controlled trials including cluster randomized controlled trials comparing CBT to standard care. The search was performed for any eligible articles from selected electronic databases (PubMed, Embase and CENTRAL) from 2009 until May 2018. Study selection followed the Preferred Reporting Items for Systematic Reviews and Meta Analyses (PRISMA) guideline. All data extracted using a standardized data extraction form and quality of the studies was assessed using the Newcastle-Ottawa scale (NOS) guideline. Any categorical data, we pooled outcome estimates that were measured using relative risk (RR), risk difference (RD) and number needed to treat for an additional beneficial outcome for each specific comparison with their respective 95% confidence intervals. For continuous data, we pooled measures at a similar time point using mean difference (MD) with 95% confidence interval. This systematic review provided evidence to support the effectiveness of CBT Intervention in improving the mental health of informal caregivers of dependent elderly in the community. Overall, the review will provide evidence of the improvement of mental health status and reduction of the burden of care among informal caregivers who take care of dependent elderly aged ≥60 years.

Keywords: Cognitive behavioral therapy, Caregivers, Dependent elderly
Abstract ID: OR0007MH

Post-Traumatic Stress Disorder and Its Associated Factors among People Living with HIV in Wuhan City

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Background: Post-traumatic stress disorder (PTSD) symptoms, which have three characteristic symptoms: repeated re-experiencing, avoidance/affective numbness symptoms and persistent high alertness, have become the most common psychological comorbidity problem in people living with HIV (PLWH) and affect the life of PLWH badly. This study explored the prevalence and associated factors of PTSD in PLWH in Wuhan city, and provided evidence for improving mental health and living quality of PLWH.

Methods: We used a self-designed questionnaire, which includes demographic data, PTSD Checklist-Civilian Version (PCL-C), The HIV Stigma Scale-Revision and The Bonding Social Capital Scale-Short Version. 535 questionnaires were received from PLWH who were examined at the Wuhan Medical Treatment Center from October 2015 to January 2016. Data was analysed by SPSS 20.0.

Results: In Wuhan city, the prevalence of PTSD in PLWH was 26.5%. The prevalence rates of re-experiencing symptoms, avoidance/affective numbness symptoms and persistent high alertness symptoms were 56.8%, 48.2% and 41.9%. The mental conflict of diagnosis and the degree of perceived discrimination were associated with the occurrence of PTSD (mental conflict: very high: OR=10.033, 95% CI:1.246~80.787; perceived discrimination: OR=1.055, 95% CI:1.036~1.073) and re-experiencing symptoms (mental conflict: high: OR=4.229, 95% CI:1.526~11.723; very high: OR=7.158, 95% CI:2.585~19.823; perceived discrimination: OR=1.039, 95% CI:1.024~1.053). Greater mental conflict of diagnosis (high: OR=3.251; 95% CI:1.044~10.126; very high: OR=5.112, 95% CI:1.653~15.805), more perceived discrimination (OR=1.042, 95% CI:1.028~1.057), less possession of social capital (OR=0.920, 95% CI:0.883~0.959) maybe means more occurrence of the avoidance symptom. The less perceived discrimination, the less possession of social capital, the worse high alertness symptom (perceived discrimination: OR=1.045, 95% CI:1.030~1.060; the degree of possession of social capital: OR=0.950, 95% CI:0.913~0.988).

Conclusions: The prevalence of PTSD is high among PLWH population, as well as the comorbidity rates of the three major symptoms. The mental conflict of diagnosis, the degree of perceived discrimination and social capital is the main factor associated with the occurrence of PTSD among the PLWH population.

Keywords: HIV, PTSD, Associated factors, Wuhan
Association between Pain Symptoms and Minor Depressive Disorders from a Nationwide Dataset Analysis

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Background: Pain has been known to be correlated with depression but the interrelationships remain undetermined. This study aims to explore the relationships between pain symptoms and the development of minor depressive disorders. Methods: We recruited subjects with newly diagnosed minor depressive disorders (ICD-9-CM codes: 300.4 and 311) in Taiwan’s NHIRD in 2003 with no such diagnosis in the preceding year. The control group was from the subjects without mental illness (ICD-9-CM codes: 290-319) and matched by age and gender (1:1). The pain symptoms of interest included headache, backache, and pains from musculoskeletal, gastrointestinal, abdominal, chest, and other systems. We employed logistic regression model to explore the associations between pain symptoms and minor depressive disorders. Survival analysis probed survival time of subjects with/without pain in dysthymia and control groups. Results: 63% of all Taiwan adult patients newly diagnosed minor depressive disorders (57,548) is female, and the age levels distribute aged 18-34 (34.1%), 35-44(21.9%), 45-65(29.5%) and greater than 65 (14.5%). Alarmingly, 79.1% of the minor depression group perceived pain in the preceding year compared to 63.9% in the control group. Nearly all pain symptoms (except musculoskeletal pain) in the preceding year predicted development of minor depression with odd ratios ranging from 1.2 to 2.3. The associations between pain and depression were more noticeable in younger people. Among those with minor depression, patients with pain symptoms were associated with around 20% increase in the mortality. Conclusions: We have to pay more attention to people with pain complaints especially for the younger people. Future research is warranted to further explore the mechanisms between pain and depression and to improve management of this important clinical issue.

Keywords: Pain, Minor depressive disorder
HIV Disclosure Patterns and Its Associated Factors among People with HIV/AIDS

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Background: Disclosure is an effective approach for its prevention, control and treatment. However, HIV disclosure is a complex process and big challenge among PLWHAs. To assess patterns of HIV disclosure and its related factors among people with HIV/AIDS (PLWA), latent class analysis was used. Methods: The questionnaire included socio-demographics, HIV infections, psychosocial factors and disease disclosure. Latent class analysis was completed by Mplus7.1. 466 individuals complete the questionnaires. PLWA were more likely to disclose to family members. 81.0% PLWA disclosed their HIV status to at least one person. It was classified six latent classes of HIV disclosure among PLWA, including systematic disclosure, disclosure to parents, systematic concealment, disclosure to family members, not concerned and disclosure to spouse. The majority of the participants were systematic concealment. Results: Compared with the systematic concealment, PLWA of class 1 were more likely to be older and lived with friends or others and have lower perceived stigma. PLWA of class 2 were more likely to be employed and live with family members, and more likely to have low monthly income and time of diagnosis over 2 years. PLWA in Class 4 were more likely to be married and have lower education level, less likely to be female, never married and have higher perceived stigma. PLWA in Class 5 were more prone to be older and have lower education level. PLWA in Class 6 were more likely to be married and older, and they were less likely to be never married. The rate of HIV disclosure was low, while PLWA were more likely to disclose to family members. Conclusions: The study was classified six latent classes and systematic concealment was the largest one. PLWA who conceal their status were more likely to be younger, never married, live alone or have short duration of infection, higher education level and higher score of perceived stigma.

Keywords: PLWA, Disclosure patterns, Latent class analysis
The Depression Stigma among Chinese Community Population – A Cross-sectional Survey

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Background: To examine respondents’ personal attitude to depression and respondents’ beliefs about the stigmatizing attitudes of others in Chinese community population, and to identify the predictors of personal stigma and perceived stigma towards depression. Methods: A cross-sectional survey was administrated among residents in Wuhan city using a multi-stage stratified cluster random sampling design. A total of 1697 participants aged from 16 to 89 years (M=30.28, SD=15.55) completed and returned the questionnaires. General demographic information, depressive symptoms and stigmatizing attitudes were measured. Results: Participants had higher perceived stigma (M=21.59, SD=5.24) than personal stigma (M=17.87, SD=5.23), no gender difference in stigmatizing beliefs were found in this study, both personal stigma and perceived stigma were predicted by age, and personal stigma also predicted by study/work status and employment. People experiencing depression reported higher personal stigma, but depressive symptoms didn’t enter the regression equation as a predictor. Conclusions: This is the first study to investigate depression stigma of general population in Chinese communities. This study showed people’s stigmatizing attitudes towards depression and found factors which predicting personal stigma and perceived stigma. Clinicians, social worker and government should join in the campaign to reduce depression sigma and promote help-seeking behavior. Effective measures should be taken aim at specific population. Further researches put more effort to explore relationship between depression and depression stigma.

Keywords: Depression, Stigma, Chinese community, Factors, Depression
A Study on the Influencing Factors of Anxiety and Depression in Hospitalized Patients

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\textbf{Background:} The prevalence of anxiety and depression among inpatients in China has been increasing annually. It has been shown that anxiety and depression of inpatients have adverse effects on their recovery and quality of life. Anxiety and depression are influenced by multiple factors, including personality, physical symptoms, occupation, and household income. This study aims to explore the influencing factors of anxiety and depression among inpatients in Shiyan, China.

\textbf{Methods:} 638 inpatients were involved in a questionnaire survey from November 2017 to March 2018. We performed rank sum test to examine the difference between different groups (different genders and hospital departments). Sociodemographic information, social support (including objective support, subjective support, and support utilization) and health network usage were included in multiple linear regression models. \textbf{Results:} A total of 396 inpatients (208 males and 188 females) were included in this study according to the inclusion criteria. Results showed that the objective support of men was lower than that of women ($P = 0.012$), while subjective support was higher than that of women ($P = 0.009$). There were significant differences in the levels of anxiety ($P < 0.001$) and depression ($P < 0.001$) among inpatients in different departments. Age ($P < 0.001$), alcohol consumption ($P = 0.001$), support utilization ($P < 0.001$) and health network usage ($P < 0.001$) were associated with anxiety in inpatients. Age ($P < 0.001$), support utilization ($P = 0.003$) and health network usage ($P = 0.017$) were associated with depression. \textbf{Conclusions:} Age and health networks usage were positively associated with increased levels of anxiety and depression in inpatients. The support utilization was negatively associated with increased levels of anxiety and depression. Alcohol consumption was negatively associated with increased level of anxiety.

\textbf{Keywords:} Inpatients, Social support, Health network usage, Anxiety, Depression
A Qualitative Study on the Role of School Psychosocial Environment on the Suicidal Ideation and Behaviors of Filipino Adolescents Enrolled in the Department of Education’s Alternative Learning System

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**Background:** Globally, suicide is a significant cause of death among adolescents and young adults. Previous studies conducted in high-income countries suggest that students enrolled in alternative schools are more likely to engage in suicidal behaviors than students in formal schools. This study aimed to explore the role of school psychosocial environment on the suicidal ideation and behaviors of Filipino adolescent learners enrolled in the Department of Education’s Alternative Learning System (ALS). **Methods:** This qualitative study was conducted in March 2018 on 18 ALS centers across the six school districts in the city of Manila, Philippines. Using purposeful sampling, in-depth interviews were conducted with 18 teachers and 10 learners. The questions focused on the teachers’ and learners’ interaction with each other, and teachers’ experience of having learners with suicidal behaviors. Data were analyzed using thematic analysis. **Results:** Majority of the teachers who were interviewed experienced having students with suicidal ideation or behaviors. Five themes on how the ALS’ school psychosocial environment can affect learner suicidal ideation and behaviors emerged from the study: Teacher-Learner Relationship, Peer Relationship, Teaching Philosophy, School-Offered Services, and Community Partnerships. Peer and learner-teacher relationships positively and negatively influence suicidal ideation and behavior among learners, and both can be attributed to the teaching philosophy of the teachers, especially when managing suicidal ideation and behaviors. Existing school-offered services and partnerships with community organizations and local government offices can also impact learners’ suicidal behaviors through the availability of supportive services such as counselling and seminars. **Conclusions:** The ALS’ school psychosocial environment can influence learners’ suicidal ideation and behaviors through their interaction with their teacher and their peers. The study also highlighted the role of supportive school services and collaboration among school staff and community institutions in creating a health-promoting environment for the learners. **Keywords:** School health, Suicidal behaviors, Alternative learning system, Philippines
Refugee’s Health Needs in South East Asia: Health Systems Responses and Challenges

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Background: South East Asia is both a refugee-producing and hosting region. Refugees have multiple health needs, and their health access is often complicated by the social and policy environment in host countries. This study was conducted to examine common health issues faced by refugees, as well as health systems responses and challenges in addressing these needs in South East Asia.

Methods: Thirty semi-structured in-depth interviews were conducted with experts, healthcare professionals and program personnel experienced in refugee health issues. They were from MoH, UN agencies, public healthcare facilities, civil society organisations and academic institutions. Deductive and inductive analyses were conducted to identify themes.

Results: Our study found that refugee’s health needs in South East Asia are more complex than their host populations. Although countries in the region are of diverse economic development and with different health systems, participants reported similar health issues faced by refugees across all host countries. These include psychological conditions, infectious diseases, maternal-and child-health related issues, and non-communicable diseases. Financial constraints appear to be a major hurdle in addressing refugee’s health needs from both the health systems and recipients perspectives. Besides, delivery of health services is often compounded by social and cultural discordance, and it lacks comprehensiveness, accessibility and continuity of care for refugees. In some countries, refugees’ access to essential medicines for chronic conditions is compromised due to restrictive policies. Overall, the region lacks governance in refugee health. Health policies are further complicated by mixed-migration contexts in hosting countries. The flows of refugees and economic migrants are mainly internal and within ASEAN, thus it accentuates the needs for ASEAN countries to collaborate on formulating efficient health and migration policies.

Conclusions: Refugees’ health needs in South East Asia are complex and inadequately addressed. Multi-sectoral collaboration among ASEAN countries needs to be urgently up-scaled in order to effectively address these needs.

Keywords: Refugee, Health systems, Equity, ASEAN, South East Asia, Migrant
The Second Child Bearing Willingness and Its Influencing Factors among Migrants under the Universal Two-Child Policy in China

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Background: China’s reproductive policy has a huge impact on the fertility of the population. The implementation of the universal two-child policy will inevitably result in the change of birth scale among the migrant population. If the scale of migrants increases significantly in a short period, there will be higher demand for education, medical resource, employment and other aspects. This paper attempts to explore the second childbearing willingness of 15 to 49 years old migrants who have had one child already and analyze the influencing factors. Methods: Hubei provincial data from 2016 National Migrant Population Dynamic Monitoring Survey in China were used in this study. The survey was based on a stratified multi-stage PPS sampling design, and quality control was implemented in data collection and input. We categorised migrants into 3 groups according to their second childbearing willingness at the time of the investigation, namely want to have a second child, have no idea, and don’t want a second child. The influencing factors of the second childbearing willingness were analyzed through a multinomial logistic regression model. Results: It was found that 20.10% of the migrant population had a clear family planning of the second child. Gender, age, the nature of household registration, educational level, employment status, the gender of the first child, income, medical insurance, reason for the current migration, cumulative floating time and long-term residence planning in inflow place would affect the second childbearing willingness on migrant population. Conclusions: The second childbearing willingness is relatively low among the migrants. It is suggested that various measures should be taken to enhance the migrant populations’ desire to have a second child by strengthening the propaganda of the universal two-child policy, reducing the economic pressure, and improving the related resources and facilities for bearing and raising of a second child.

Keywords: Two-child policy, Migrant, Second child, Factors, Multinomial logistic regression
Achieving Equity in Health Care in a Diverse Society – Empirical Insights from Germany on Challenges and Solutions

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Background: The populations in many countries worldwide become increasingly diverse. Some population groups, such as migrants and ethnic minorities, may differ from the majority population in terms of health status, access to health care and health care outcomes. Measures implemented by health care providers aiming to mitigate disparities are not always successful. The present study provides empirical insights from Germany, where about one fifth of the population are migrants. The study illustrates the need for evaluated diversity-sensitive measures of health care by means of a trend analysis of disparities in health care outcomes over a nine-year period.

Methods: The analysis is based on routine data on completed rehabilitative treatments in Germany during 2006-2014 (n=617,683). The outcome of interest is the result of a standardized evaluation of the patient’s health condition after medical treatment (health condition improved vs. not improved). The outcome is being compared between patients with a nationality from Germany, Portugal/Spain/Italy/Greece, Turkey and Former Yugoslavia using logistic regression adjusted for demographic/socioeconomic factors. Differences in disparities over time are examined by means of interaction analysis.

Results: Turkish and Former Yugoslavian nationals had an 43% and 50%, respectively, higher chance of a poor health care outcome (no improvement of health condition after treatment; OR=1.43 [95%-CI=1.34,1.52] and OR=1.50 [95%-CI=1.39,1.62], respectively). Fewer differences were observed between nationals from Portugal/Spain/Italy/Greece and Germans. Disparities did not significantly differ between the years in which services were utilized.

Conclusions: Although disparities in health care between migrants and the majority population have been frequently highlighted by health services research and also health care providers increasingly provide services which aim to address the needs of a diverse population, disparities did not decrease over time. This calls for an increased and coordinated transfer from research into practice as well as more targeted, thoroughly evaluated and sustainable diversity-sensitive health care strategies.

Keywords: Migrants, Health care, Diversity, Germany
Knowledge Regarding Common Communicable Diseases among Tourists Visiting Sri Lanka

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Background: More than 2.1 million visitors (one tenth of the country’s population) arrived Sri Lanka (SL) in 2017. Though Sri Lankan public health programme is one of the best in the region, travel health is usually neglected. The purpose of this study was to assess the knowledge of communicable diseases in Sri Lanka, among the short-term travellers. Methods: A cross sectional study was conducted from May to August 2017 in selected main tourist destinations. Randomly selected foreign nationals were interviewed by trained tourism undergraduates. Results: There were 385 visitors, representing 44 countries with 159 (41.3%) males and 212 (55.1%) females. The mean age was 37.7 (SD 20.0). Of them, 53 (13.8%) had past visits to SL and 260 (67.5%) planned to stay more than 14 days. Health visits during Sri Lankan stay was reported by 41 (10.6%) and 8 (19.5%) of them were for vaccinations. Only 247 (64.2%) sought medical advices before coming to SL. The main perceived health concern was vaccination 156 (40.5%), followed by mosquito bites (46, 11.9%) and food & water sanitation (21, 5.5%). Dengue was known to 231 (60%) as a common health threat, while 189 (49.1%), 110 (28.6%), 100 (26%), 83 (21.6%) thought that Hepatitis A, Rabies, Typhoid and tuberculosis as common diseases respectively. Uncommon diseases such as yellow fever, Malaria, Cholera, MERScov, Zeca, Ebola were reported as common in SL by 64 (16.6%), 63 (16.4%), 39 (10.1%), 18 (4.7%), 16 (4.2%), 9 (2.3%) of tourists respectively. Reported vaccine coverage were Hepatitis A: 258 (77.4%), Hepatitis B: 239 (72.8%), Diphtheria: 178 (57.6%), Typhoid: 174 (55.9%), Tuberculosis: 82 (29.0%), Rabies: 58 (20.2%) and Dengue: 18 (6.4%). Conclusions: The knowledge and preventive strategies of common CDs among foreign tourists visiting SL seems highly inadequate. Information dissemination and preventive strategies for visitors should be strengthened.

Keywords: Health, Tourists, Sri Lanka, Communicable diseases, Vaccines, Travelers health
Factors Associated with Perceived Risk and Knowledge of HIV among International Students Studying in Japanese Language Schools in Tokyo

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Background: Migration is interlinked with increase in HIV risk. In Japan, around 80,000 students mostly from Asian developing countries are studying in language schools. In past few years, their number has increased by three folds, in the context of Japanese workforce shortage. Most of them are also working as cheap labors and are high risk population with poor access to healthcare. Several socio-economic and behavioral factors make them vulnerable to HIV and also prohibit them to utilize HIV testing services. However, little is known about these issues in Japan. We examined the factors associated with HIV knowledge and perceived risk of HIV among them. Methods: We conducted a cross-sectional study among 769 Chinese, Vietnamese and Nepalese students studying in language schools in Tokyo. We collected data from September to December 2018, using self-administered questionnaire. We used multivariable regression models to analyze the data. Results: Nepalese and Vietnamese students were less likely to have higher perceived risk of HIV infection scale (PRHS) score than Chinese students, (β= -7.08, p<0.001) and (β = -4.29, p < 0.001) respectively. Female (β = -1.17, p = 0.003) and married (β = -2.75, p = 0.018) students were less likely to have higher PRHS score. Students who had better Japanese language skill were less likely to have higher PRHS score (β = -0.13, p = 0.030). Nepalese students were more likely to have higher HIV knowledge score than Chinese students (β = 0.80, p = 0.013). Students who had higher PRHS score were more likely to have higher HIV knowledge score (β = 0.04, p = 0.009). Conclusions: Among international students in language schools in Tokyo, factors associated with their perceived risk of HIV include nationality, gender, marital status and Japanese language skill. Furthermore, the factors associated with their HIV knowledge are nationality and perceived risk of HIV. These findings may help to design interventions in improving their access to HIV related health services.

Keywords: Migrants, International students, HIV risk, Japan
Use of Medical Interpreter Services and Understanding of Doctor's Consultation among Immigrants from Phillipines, Nepal, and Vietnam with Limited Japanese Proficiency in Kanto area, Japan

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Background: Access to medical and health services among immigrants has been an emerging agenda in global health. Medical interpreter services are important among immigrants with limited language proficiency in a country of destination and healthcare providers. However, research on the use of medical interpreter services for non-English speaking immigrants in non-English speaking countries is limited. This study evaluated the use of medical interpreter services among immigrants from China, Taiwan, the Philippines, Nepal, and Vietnam and their understanding of doctor's consultation in Kanto region, Japan. Methods: This study collected data from immigrants aged 18 or above with limited Japanese proficiency living in Japan three months or more in February 2018 through face-to-face interview using a structured questionnaire translated into Chinese, Filipino, Nepalese, and Vietnamese. Generalized linear models were used to estimate relative risks of understanding what a doctor has explained. Results: Among 436 immigrants surveyed, 296 (67.9%) reported that they experienced any symptoms within a year of the survey and 162 (37.2%) visited a hospital or clinic for the symptom. Among the visitors, 101 (62.3%) visited the hospital or clinic without anyone accompanying them, 57 (35.2%) went with a family member or friend, and only four (2.5%) received a medical interpreter service. Visiting a hospital or clinic with a family member or friends was only associated with a lower level of understanding of doctor's consultation (relative risk ratio = 0.59, 95% CI: 0.41 to 0.85). Conclusions: Despite efforts of improving the availability of medical interpreter services, the services were not used by most of the immigrants from China, Taiwan, the Philippines, Nepal, and Vietnam in the study area. The level of understanding of a doctor's consultation was low among those who visited a hospital or clinic with their family member or friend. Keywords: Transients, Migrants, Health services, Accessibility, Communication, Japan
Comparing a Telephone- and a Group-Delivered Diabetes Prevention Program: Characteristics of Engaged and Non-Engaged Postpartum Mothers with a History of Gestational Diabetes

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Background: To explore the acceptability of a telephone- or a group-delivered diabetes prevention program for women with previous gestational diabetes and to compare the characteristics associated with program engagement. Methods: Postpartum women participated in a lifestyle modification program delivered by telephone (n=33) or group format (n=284). Semi-structured interviews on barriers and enablers to program engagement (defined as completing ≥80% sessions) were conducted before (Group) and after (Group and Telephone) interventions. The Health Action Process Approach theory was used as the framework for inquiry. Psychological measures were compared between engagement subgroups before and after the group-delivered intervention. Results: In the telephone-delivered program, 82% of the participants met the engagement criteria compared with 38% for the group-delivered program. Engaged participants (Group) had significantly higher risk perception, outcome expectancy, and activity self-efficacy at baseline (P<0.05). There was a greater decrease in body weight (-1.45±3.9 vs -0.26±3.5, P=0.024) and waist circumference (-3.56±5.1 vs -1.24±5.3, P=0.002) for engaged vs non-engaged participants following group program completion. Conclusions: Telephone delivery was associated with greater engagement in postpartum women. The engagement was associated with greater reduction in weight and waist circumference. Further studies are required to confirm the effectiveness of telephone-delivered program for diabetes prevention in postpartum women.

Keywords: Diabetes prevention, Engagement, Lifestyle intervention, Lifestyle modification, Postpartum women
Meta-Analysis of the Effects of Delayed Cord Clamping in Preterm Infants

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**Background:** More and more studies have found that early cord clamping (ECC) may reduce the blood volume of newborns, and even cause some complications. So, delayed cord clamping (DCC) is getting more and more concerned. DCC can increase the blood volume of preterm infants by 8 to 24%, and prevent the incidence of neonatal anemia and the complications caused by insufficient blood supply. However, many studies have found that DCC may increase the incidence of pathological jaundice in the newborn. So, this study was to assess the effects of DCC in preterm infants. **Methods:** The randomized controlled trials of DCC in preterm infants were searched by retrieving Cochrane Library, PubMed, EMBase, Web of Science and CNKI. The retrieval time was from inception to December 2017. After 2 researchers screened the literature, extracted information and evaluated the included literature independently, the RevMan 5.3 software was used for Meta-analysis. Seventeen literatures were included in this study. **Results:** Meta-analysis showed that the blood pressure within 4 hours after birth (WMD=2.49; 95% CI=[0.74,4.24]), hemoglobin concentration (WMD =15.92; 95% CI=[6.37,25.47]) and hematocrit (WMD =4.84; 95% CI=[3.47,6.22]) in 24 hours after birth in the DCC group were higher than those in the ECC group. The risk of anemia (RR=0.62; 95% CI=[0.47,0.81]), IVH (RR=0.64; 95% CI=[0.45,0.91]) and mortality (RR=0.42; 95% CI=[0.2,0.86]) in the DCC group were lower than those in the ECC group. The peak of serum bilirubin, the risk of hyperbilirubinemia and polycythemia between the 2 groups did not show significant difference. There was also no significant difference in the need of blood transfusion and phototherapy. **Conclusions:** These results showed that DCC was safe to preterm infants as well as effective to improve the outcome of premature.

**Keywords:** Delayed cord clamping, Meta-analysis, Preterm infants
Parental Decision-Making on Human Papillomavirus Vaccination for Daughters in Japan

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Background: Human papillomavirus (HPV) infection, a sexually transmitted disease, is a well-known cause of cervical cancer. The incidence of cervical cancer has been increasing in Japan. In April 2013, Japan introduced a regular HPV vaccination program for females to reduce the transmission of the virus. Yet soon after the program began, the mass media began to repeatedly report adverse events. In June 2013, the fear of adverse events compelled the government to withdraw its recommendation and to cease all of its measures to promote vaccination. This study assessed how the Japanese government’s policy change against HPV vaccination influenced the degree to which parents in remote areas in Japan accepted the vaccine for their daughters, and analysed the related factors. Methods: A self-administered questionnaire was distributed to parents with daughters attending secondary schools or high schools in two remote areas of the country. Results: Out of 700 eligible parents, 246 (35%) responded. The percentage of parents in the "accept group" (those whose daughters had already been vaccinated or those who intended to have their daughters vaccinated) dropped from 54% before the government withdrew its HPV vaccine recommendation to only 4.5% after the withdrawal (1.5% of whom intended to vaccinate, and 3% of whom had already had their daughters vaccinated). Vaccine acceptance was higher in parents who were employed as healthcare workers, had been educated through to the completion of high school, had good level of knowledge about cervical cancer and the HPV vaccine, had low perceived barriers against the HPV vaccine, and received high levels of social support. Conclusions: The acceptance of HPV vaccination among parents was low overall. Higher acceptance may be possible if the government restores its recommendation and healthcare providers disseminate appropriate information about the HPV vaccination and cervical cancer.

Keywords: HPV vaccination, Cervical cancer, Parents’ decision making, Japan
The Continuity of Breastfeeding Behaviour in Consecutive Offspring: A Systematic Review

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Background: Multiparas are always considered more likely to initiate breastfeeding and breastfeed much longer. However, the effect of parity on breastfeeding is inconsistent in many studies. The reasons why some multiparas choose not to initiate breastfeeding and some discontinue breastfeeding early have not been explored sufficiently to date. Objective: The objective of this review is to summarize the evidence of association between previous breastfeeding experience and subsequent breastfeeding outcomes as well as to explore the possible reasons of this relationship. Methods: A systematic search of Embase, Web of Science, PubMed, and Cumulative Index to Nursing and Allied Health Literature databases from inception to March, 2018 was conducted for cohort studies regarding “previous breastfeeding experience” as an influencing factor to subsequent breastfeeding initiation and duration. A narrative synthesis was used in this review according to Preferred Reporting Items for Systematic Reviews and Meta-Analyses and study quality was assessed using the Newcastle-Ottawa Scale. Results: Fourteen articles were eligible for this review. Previous breastfeeding experience was consistently positively correlated with subsequent breastfeeding initiation and duration. Effect sizes differed depending on methodology. However, short previous breastfeeding duration and unsatisfactory previous breastfeeding experience had negative effects on subsequent breastfeeding outcomes. Conclusions: Robust evidence for breastfeeding continuity in consecutive offspring was present. Reasons that explained this association may be the increased breastfeeding confidence, motivation and intention under the effect of previous breastfeeding experience.

Keywords: Breastfeeding; Breastfeeding experience
Abstract ID: OR0012MR

Effects of Physical Exercise During Pregnancy on Maternal and Offspring Outcomes in Overweight and Obese Pregnant Women: A Meta-Analysis

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Background: Overweight and obesity have been proven closely related to maternal and infant physical health, such as gestational diabetes mellitus (GDM), preeclampsia and macrosomia. The purpose of this meta-analysis was to assess the effect of physical exercise on maternal and offspring outcomes in overweight and obese pregnant women. Methods: Two researchers independently searched Cochrane Library, Embase, PubMed, Web of Science and ClinicalTrials.gov. Published English-language based randomized controlled trials (RCTs) that examine physical exercise in overweight and obese pregnant women and their effects on maternal and infants’ outcomes were searched. Primary outcomes were the occurrence of gestational weight gain (GWG), relative risk of GDM. Secondary outcomes were gestational hypertension, preeclampsia, caesarean section, birth weight, gestational age at birth, large for gestational age (LGA), small for gestational age (SGA), macrosomia and preterm birth (PTB). The summary analyses were reported as relative risk (RR), mean difference (MD) or standard mean difference (SMD) with 95% confidence interval (CI). This meta-analysis was registered on PROSPERO on November 18, 2017; the registration number is CRD42017081565. 12 studies involving 1351 participants were included. Risk bias was evaluated using Cochrane Collaboration’s tool. Results: Small or no evidence of heterogeneity was found in each pooled analysis. This meta-analysis showed that physical exercise had reduced GWG (MD= -1.13 kg, 95% CI= [-1.68, -0.58], P<0.0001) and risk of GDM (RR= 0.70, 95% CI= [0.55, 0.88], P= 0.003) of overweight and obese pregnant women. There were no significant differences in other outcomes such as hypertension, preeclampsia, caesarean section, birth weight, gestational age at birth, LGA, SGA, macrosomia and PTB. Conclusions: Physical exercise reduced GWG and risk of GDM in overweight and obese pregnant women. No significant evidence in harm or benefits for infants was found. However, consideration should be taken in interpreting these findings due to the relative small sample size in this meta-analysis. Keywords: Meta-analysis, Exercise, Overweight, Obesity, Maternal health outcomes, Infant health outcomes
 Associations between Mother’s Antenatal Care Uptake and Newborn’s Complications: A Cross-Sectional Study in Cambodia

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Background: The past few decades have witnessed a decline in the incidence of preventable deaths among mothers and children worldwide; however, this varies within and between regions. The framework of “the continuum of care” recommends a regular antenatal care with at least four prenatal visits, delivery by skilled birth attendants, and postnatal care. This study examined the association between deviations from the continuum of care among mothers and the health status of newborns in Cambodia. Methods: This cross-sectional study was conducted in Ratanakiri, Cambodia among a sample of 377 women of reproductive age who had given birth within the past two years. Face-to-face interviews were conducted using a structured questionnaire, and multiple logistic regression analyses were performed. Results: Longer distance to health centers was negatively associated with completion of the continuum of care (AOR: 0.877; 95% CI: 0.791–0.972), whereby only 5% (n = 19) of participants had completed the continuum of care as recommended in the above-defined framework. In total, 74% of women discontinued their continuum of care at the postnatal care stage, and 19% of the women had not received any care at all during pregnancy, delivery, or after giving birth. Not receiving any antenatal care was associated with neonatal complications at six weeks after birth (AOR: 3.075; 95% CI: 1.310–7.215). Conclusions: These results strongly emphasize the importance of receiving antenatal care to prevent newborn's complications. Furthermore, the study identified significant deviations from the continuum of care at the postnatal care stage. Efforts are needed to increase the uptake of antenatal care and to enhance the continuum of care among women in this area.

Keywords: Maternal health, Child health, Continuum care, Cambodia
Analysis on Association Rules of Different Domains for Preschoolers’ Neuropsychological Development

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Background: The data from UNICEF shows that the stunting rate of children under five in China is 9.9% (2008-2012), which indicates that children's developmental problems are relatively crucial especially among preschoolers in China. Preschool age is the critical period for neurological, psychological and intellectual development; therefore, exploring the neuropsychological development of preschoolers at this time and analyzing the development rules are important. This study analyzed the correlation and association intensity of different contents of neuropsychological development like motor, language, cognitive and social skills among preschool children, and provided statistical and theoretical support for early childhood development interventions.

Methods: A total of 1500 children from three kindergartens aged 3-6 were selected for the survey from November to December 2017 using cluster sampling in Wuhan, China. Children’s development conditions were evaluated using the "Chinese version of Age and Stages Questionnaire-Third Edition", completed by the main adopters. The association rules between different domains among preschoolers were explored by Apriori algorithm in Clementine 12.0 software. Rules were pruned by establishing the minimum support and confidence, improving the lift and confidence.

Results: (1) The prevalence rate of neuropsychological delay among 1359 preschoolers in one or more domains was 16.26%, and the rate of developmental delay in Communication, Gross Motor, Fine Motor, Problem Solving, and Personal-Society were 6.25%, 5.59%, 4.05%, 4.05% and 3.68%, respectively. (2) Ten rules were acquired on the association between five domains with strong correlations, sorted by confidence: fine motor → gross motor (confidence, 34.21%), personal-society → fine motor (confidence, 34.0%), communication → fine motor (confidence, 32.73%) and so on, and the rules of different age groups varied.

Conclusions: There were correlations among different contents of neuropsychological development in preschoolers of different age according to the association rules. Emphasizing on children with one domain delay and taking early intervention based on different ages have important early warning significance.

Keywords: Preschool children, Neuropsychological delay, Association rules, Apriori modeling
The Comparison of Quality of Life among Second-Baby Advanced Maternal Age Puerperal and Non-Advanced Maternal Age Puerperal

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Background: With the implementation of universal two-child policy, the increase of pregnant women with two children has become a trend. Attention should not only be paid to the health management before pregnancy and during pregnancy, but also attach importance to the long-term health and postpartum quality of life (QoL). This study investigated the QoL between second-baby advanced and non-advanced maternal age puerpera and provided basis for making decision in delivery mode and taking care humanly after delivery. Methods: Fifty-seven second-baby elderly puerpera (study group) and 57 second-baby non-advanced maternal age puerpera (control group) were sampled conveniently to conduct QoL (SF-36), self-rating anxiety scale (SAS) and self-rating depression scale (SDS) at 6 weeks and 6 months postpartum. Results: (1) At 6 weeks and 6 months postpartum, the scores of SF-36 in the study group were lower than those of the control group (P<0.05). (2) As far as the study group was concerned, at 6 weeks postpartum, the general health dimension scored higher and other dimensions lower in the cesarean section women. There were significant differences regarding body pain, general health and vitality (P<0.01). At 6 months postpartum, the scores of SF-36 dimensions were also low in cesarean section women. There were significant differences regarding body pain, general health and physiological function (P<0.01). (3) At 6 months postpartum, the median value of SAS scored below 50 and there was statistically significant difference of SAS, but not SDS, score between two groups (P<0.05). Conclusions: Second-baby advanced maternal age puerpera had lower QoL and higher level of anxiety, which lasted for a longer time and appeared apparently in those postpartum women after caesarean section. Home visit and continuous nursing should consider postpartum QoL. QoL should be viewed as an imperative perspective in making decision in delivery mode.

Keywords: Advanced age, Postpartum women, Quality of life, Mental status
Sexual and Reproductive Health (SRH) Issues: Voices of Young People in Sabah, East Malaysia

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Background: Understanding SRH issues among young people are a concern in the national agenda. This qualitative study explored the SRH activities among young people and identified the risk and protective factors influencing their SRH. Methods: Six focus group discussions and 12 in-depth interviews (N=53) were conducted among those aged 13-24 years old in Kota Kinabalu, Sabah, East Malaysia. All the audio recordings of the interviews were transcribed verbatim and the data were analysed using QSR NVivo software. Results: Majority were aged 20-24 years, college students, females, Muslim, not married, and most were staying in the dormitory. The respondents defined sexuality as the intimate sexual relationship between male and female for satisfaction and enjoyment. To some, sexuality was confined within the marriage institution. They found difficulties in discussing SRH matters with their parents or teachers, and voiced their concern that the sexual education in school was too technical. Sources of SRH information were obtained from social media. Various factors leading to risky sexual behaviour included curiosity, peer pressure, easy access to pornographic materials and ease of making friends through social media, lack of discipline at home, lack of SRH knowledge, influence from the social media and substance abuse. Protective factors include role of families, proper sexuality education, extracurricular activities, religion and beliefs and empowerment of individuals. Conclusions: More SRH programmes should be implemented taking into account the risks involved and protective factors.

Keywords: Sexual and reproductive health, Qualitative study, Sexual knowledge, Sexual attitudes, Sexual behaviour, Risk and protective factors
A Survey of Obstetrical Service Ability in Our City After the Implementation of Comprehensive Two-Child Policy

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Background: To understand the obstetrical service ability of the health care institutions in our city after the implementation of comprehensive Two-child policy, and to provide basis for improving the service quality of health care. Methods: Self-designed survey questionnaires were sent to midwifery health care organizations at various levels in the city to investigate the obstetric service volume, obstetric beds, distribution of obstetricians and midwives, etc. Results: Classified by the geographical region, the utilization of obstetric beds in our city ranged from 47.90% to 99.58%. Classified by the type of hospitals, the utilization of beds in our city ranged from 27.50% to 102.00%. There was a statistically significant difference in the utilization of beds in different counties (cities and districts) (P<0.05); there was also a statistically significant difference in the utilization of beds in different types of hospitals. The number of obstetric beds per 1000 childbirth in the city is 27, reaching the national standards as 17. Conclusions: The obstetrical service abilities of the health care institutions in our city meet the requirements, basically. However, there are problems as general shortage of obstetric medical personnel and uneven distribution of the resources.

Keywords: Obstetrics, Service ability, Medical staff
Child Discipline in Malaysia and Factors Associated with Violent Disciplinary Methods: Findings from NHMS 2016

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Background: We condemn violence against children, yet at the same time hit our children supposedly for their own good. Despite growing evidence on the short and long term negative effects from the use of corporal and violent discipline towards children, this practice remains prevalent. The aim of this study was to determine the factors associated with violent disciplinary practices towards children from one to five years of age in Malaysia. Methods: Data was obtained from the Malaysian National Health and Morbidity Survey (NHMS) in 2016. A two stage stratified random sampling design was used to carry out this cross sectional nationwide survey among mothers, family members and caregivers of children, between February and May 2016. The questionnaire on disciplinary practices was adapted for local use from the Multiple Indicator Cluster Surveys (MICS) questionnaire. Results: A total of 14,042 responses from Malaysian parents or caregivers on their children were captured for this study. The prevalence of violent disciplinary practices was 72.0% among Malaysian parents, with only 5.2% practising severe physical punishments. Multivariate analysis showed that older children, male child, unmarried parents and fathers working in private sectors were significant predictors for violent punishment. Violent punishment was also significantly associated with children with higher parental engagement and significantly lower among those with inadequate care. Conclusions: There is a high prevalence of violent discipline used by Malaysian parents, consistent with other regional studies. Parents in Malaysia need to be educated on non-violent forms of discipline. Healthcare professionals and early childhood educators must take the lead to educate parents in positive parenting methods and discourage the use of violent disciplinary practices. Public education campaigns are necessary to highlight the risks of violent discipline and educate young parents in correct parenting methods to ensure healthy upbringing of a child.

Keywords: Child discipline, NHMS, Violent discipline
Abstract ID: OR0025MR

Current Situation and Influencing Factors of Maternal Breastfeeding Self-Efficacy among Women in Hubei Province, China

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Background: In China, breastfeeding rate and duration fall well below the World Health Organization (WHO) recommendation. Maternal breastfeeding self-efficacy is strongly associated with breastfeeding rate and duration according to previous studies. Factors that affect breastfeeding self-efficacy have not been adequately examined. The aim of the study was to investigate the current status and factors influencing self-efficacy of breastfeeding among puerperal women in Hubei Province, China. Methods: Between December 2017 and March 2018, a cross-sectional study was conducted among 1246 women before their discharge following delivery at 3 public hospitals in Hubei, China. Data on women’s demographic characteristics, breastfeeding history, social support, breastfeeding counseling, breastfeeding knowledge, and self-efficacy status were obtained by using self-report questionnaire. Multivariate linear regression was used to identify the independent correlates associated with self-efficacy score. Results: A total of 1133 valid questionnaires were collected, in which the average score of breastfeeding self-efficacy was (45.31±12.41). Partner’ positive attitudes towards breastfeeding (β=0.077, P=0.050), other family members’ positive attitudes towards breastfeeding (β=0.085, P=0.029), friends’ positive attitude towards breastfeeding (β=0.068, P=0.036), professional help within half an hour after delivery (β=0.092, P=0.004), breastfeeding experience (β=5.299, P<0.001) were associated with higher breastfeeding self-efficacy. Conclusions: The breastfeeding self-efficacy among puerperal women in Hubei Province is in the medium level, and is associated with social support, professional help within half an hour after delivery, and breastfeeding experience. Our study emphasizes the importance of providing extensive social support and strengthening the breastfeeding skill training, so as to improve the breastfeeding self-efficacy and promote the breastfeeding rate.

Keywords: Breastfeeding, Self-efficacy, Social support, China
Abstract ID: OR0026MR

The Association between Sleep Quality and Pregnancy Stress in Pregnant Women

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Background: Women experience great physiological and psychological changes during pregnancy. Certain internal and external factors can lead to pregnancy stress or sleep disorder, which will be harmful to pregnant women and fetus. The prevalence of pregnancy stress and sleep disorder has been increasing in China recently. This study aims to explore the association between sleep quality and pregnancy stress in pregnant women in Shiyan, China. Methods: A questionnaire survey was conducted from December 2017 to April 2018 in Shiyan, China. The questionnaire consists of three parts, the basic demographic characteristics, the Pittsburgh sleep quality index (PSQI) and the pregnancy stress scale. Descriptive statistics, regression analysis, and Spearman non-parametric test were performed to analyze the data. Results: 418 valid questionnaires were collected. The mean age of pregnant women was 28.73\pm4.37 years old. The mean score of PSQI was 7.56\pm3.06, indicating that the overall sleep quality of the subjects was poor. PSQI score of "good", "general", and "bad" accounted for 28.23%, 53.35% and 18.42% respectively. The mean value of pregnancy stress score was 0.52\pm0.45. Pregnancy stress score of "no stress", "medium stress", and "heavy stress" in pregnancy was 12.20%, 72.01% and 15.79%, respectively. We found that there was a significant correlation (P < 0.01) between the pregnancy stress scores and sleep quality, sleep time, sleep time, sleep disorder, daytime dysfunction and PSQI scores, but not sleep efficiency or sleep medication. Conclusions: The majority of pregnant women in Shiyan, China had sleep disorder and pregnancy stress, and their sleep quality was correlated with pregnancy stress.

Keywords: Pregnant women, Sleep quality, Sleep disorder, Pregnancy stress
The Association between Off-Hours Delivery and Severe Maternal Morbidity: A Population-Based Cohort Study

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Background: Korean maternal mortality is higher compared with the average for OECD countries. The majority of maternal deaths occur during childbirth, and the postpartum period; therefore, it is necessary to find the risk factors influencing maternal mortality during and after delivery. However, there have been few studies of severe maternal morbidity which is replicable indicator for maternal mortality and time/day of delivery in Korea. Therefore, this study identified the relationship between off-hours delivery and severe maternal morbidity. Methods: Data were extracted from the Korean National Health Insurance Service-National Sample Cohort for 90,072 cases of delivery at 37 or more weeks of gestation during 2003-2013. Severe maternal morbidity status was determined using a published algorithm of the Center for Disease Control and Prevention’s algorithm. Day/time of delivery was estimated by EDI codes. A generalized estimating equation (GEE) model with log link was performed for the relationship with severe maternal morbidity and maternal factors to estimate adjusted risk ratio (RR). Results: Of the 90,072 delivery cases, 2,085 (2.31%) had severe maternal morbidity. In the GEE model, women who had weekday night time or weekend delivery had a higher risk of severe maternal morbidity compared with those who had weekday daytime delivery (RR 1.15, 95% CI 1.00-1.33, P-value 0.0496 and RR 1.51, 95% CI 1.24-1.84, P-value < 0.0001 respectively). Conclusions: Weekday night time or weekend delivery was related to the risk of severe maternal morbidity. Therefore, policy makers should provide financial support and systematically allocate adequate human resources and labor facilities in vulnerable areas, as well as during weekends and night times to improve the quality of intrapartum and postpartum maternity care.

Keywords: Maternal, Morbidity, Off-hours, Delivery, Weekend
Abstract ID: OR0028MR

Association between Pregnancy Exposure to Air Pollution and Childhood Asthma or Wheezing: A Systematic Review and Meta-analysis

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Background: Whether pregnancy exposure to air pollution contributes to the development of childhood asthma is unresolved as the conclusion has been no clear consensus. We conducted a systematic review and performed meta-analyses to critically evaluate and summarize the association between prenatal exposure to air pollution and early childhood asthma or wheezing. Methods: We systematically reviewed studies published between January 2010 and April 2018 available in the Web of Science, PUBMED and EMBASE databases. Studies that examined the relationship between air pollution exposure including NO\textsubscript{2}, SO\textsubscript{2}, PM\textsubscript{2.5}, PM\textsubscript{10} and the incidence of wheezing or asthma from birth to 10 years of age were selected. We analyzed unstandardized and standardized results adjusted by unit for each summary exposure-outcome association. Pooled odds ratios (OR) with 95% confidence intervals (CI) were estimated using a random effects model or fixed effects model according to the I\textsuperscript{2} value. Subgroup analyses were performed under the trimester grouping. Results: Nine studies met our eligibility criteria and six of them were published after 2016. After converting all risk estimates into a common exposure unit of 10μg/m\textsuperscript{3}, the overall odds ratios estimates (95%CI) of different pollutants were 1.10 (1.00–1.21) NO\textsubscript{2}, 1.09 (0.93–1.29) SO\textsubscript{2}, 1.17 (0.98–1.36) PM\textsubscript{2.5}, 1.46 (1.00–2.12) PM\textsubscript{10} for childhood asthma and 1.02 (0.99–1.06) NO\textsubscript{2} for childhood wheezing. Harmful effect was observed for NO\textsubscript{2} exposure and asthma or wheezing especially in the second trimester with the pooled OR being 1.46 (1.40–1.52) and 1.06 (1.00–1.11). Conclusions: The overall and subgroup risk estimates from the meta-analyses showed statistically significant associations between pregnancy exposures to NO\textsubscript{2} and PM\textsubscript{10} and the onset of children asthma. There is insufficient evidence to show an effect of prenatal exposure to SO\textsubscript{2} and PM\textsubscript{2.5} on childhood asthma or wheezing. Further studies are needed to characterize the interaction between prenatal and postnatal exposure.

Keywords: Air pollution, Pregnancy, Asthma, Wheezing, Childhood
Abstract ID: OR0029MR

Associations of Urinary Polycyclic Aromatic Hydrocarbons with Age at Natural Menopause in U.S. Women Aged 35-65, NHANES 2003-2012

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Background: Polycyclic aromatic hydrocarbons (PAHs) mediated ovarian toxicity has been demonstrated in animal experiments. However, this issue has not been assessed in humans. Methods: Based on the National Health and Nutrition Examination Survey (NHANES) 2003–2012, data analysis was restricted to 1221 general U.S. women aged 35-65 years with complete data of interest. Levels of nine PAH metabolites in spot urine specimens were measured by isotope dilution gas chromatography/tandem mass spectrometry (GC-MS/MS). Self-reported information on the menopause status and age at menopause were obtained during interview. Cox proportional hazards regression was employed to assess the associations between PAHs levels and natural menopause. Relationships between PAHs levels and time since menopause, the duration between last menstrual period and interview, were estimated by linear regression among the naturally menopausal women. Results: Compared with women in the first quartile, subjects in the highest quartile of 1-Hydroxynapthalene [hazard ratio (HR) = 1.46, 95% confidence interval (CI) = 1.06 to 2.01], 2-Hydroxynapthalene (HR = 1.51, 95% CI = 1.12 to 2.05) and 3-Hydroxyfluorene (HR = 1.51, 95% CI = 1.06 to 2.16), or in the second quartile of 9-Hydroxyfluorene (HR = 1.53, 95% CI = 1.05 to 2.22), had elevated risks of earlier onset of natural menopause. While PAHs levels associated with time since menopause was not statistically significant (p > 0.05). Conclusions: Our findings suggested positive associations between urinary PAH levels and earlier age at natural menopause in the general U.S. women. Prospective studies are warranted to confirm the causality in the future.

Keywords: Polycyclic aromatic hydrocarbons, Women, Menopause, NHANES
Abstract ID: OR0030MR

Diet Quality and Its Contribution towards Bone Resorption among Postmenopausal Chinese Women in Kuala Lumpur and Selangor

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Background: Osteoporosis is one of the health issues encountered by postmenopausal women due to the elevated bone resorption after menopause. Hence, nutrients such as protein, calcium, and phosphorus are essential in maintaining good bone health status. These nutrients should be obtained from various food groups instead of a single nutrient or food group. This study determines the diet quality and its contribution towards bone resorption among postmenopausal Chinese women. Methods: There were 214 postmenopausal Chinese women recruited from seven selected senior citizens clubs in Kuala Lumpur and Selangor participated in this study. The researchers interviewed the subjects to obtain their dietary intake over the past one month using a semi-quantitative food frequency questionnaire (FFQ), and their diet quality was evaluated with the Healthy Eating Index (HEI) for Malaysians. Blood samples of the subjects were collected to determine the serum collagen type 1 cross-linked C-telopeptide (CTx-1) concentration. Results: The mean diet quality score of the subjects was 66.9 ± 9.9, and approximately 4 out of 5 subjects (83.6%) needed to improve their diet quality. The subjects had the lowest mean score of 1.9 ± 2.7 for dairy products. Meanwhile, the subjects had the highest median score for poultry, meat and egg [10.0 (9.6, 10.0)] and percentage of energy from fat [10.0 (10.0, 10.0)]. The mean serum CTx-1 concentration of the subjects was 0.5 ± 0.2 ng/ml. In bivariate analysis, the number of serving for poultry, meat and egg was positively correlated with bone resorption (r=0.147, p<0.05). In multiple regression, consuming more servings of poultry, meat and egg (B=0.027) contributed to higher bone resorption (R²=2.2%, F=4.679, p<0.05). Conclusions: Postmenopausal Chinese women need to consume moderate amount of animal proteins, such as poultry, meat and egg to prevent further bone loss. Future studies are recommended to focus the type of proteins and its association with bone resorption.

Keywords: Diet quality, Bone resorption, Postmenopausal women
Routine Antenatal Care Might Not Be Good Enough to Prevent Anemia in Pregnancy: The Need for Improved Maternal Care

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Background: Routine iron supplementation and using double dose of iron for mild anemia are probably the most widely used universal interventions to prevent anemia in pregnancy. The present study was carried out to determine the effects of routine care package including iron folate supplementation, in pregnant women in Sri Lanka. Methods: We selected a cohort of pregnant women who has registered at District General Hospital Kegalle, Sri Lanka in 2014 to assess the hemoglobin status during pregnancy. Consecutive pregnant women who were regularly followed up in the antenatal clinic, from booking visit to the third trimester were recruited. As a part of routine care, each pregnant woman has screened for anemia at booking visit and at 28 weeks of gestation. Results: Total of 443 pregnant women were included in the study. At the booking visit, mean hemoglobin level was 11.7(SD1.0) and prevalence of anemia was; mild 18.3%, moderate 6.8%, and severe 0.5%. All pregnant women received iron-folate supplementation and those with mild to moderate anemia received iron double dose. At the 28th weeks of gestation, mean hemoglobin level was 11.1(SD1.0) and prevalence of anemia was; mild 15.1% and moderate 11.1%. Of the women who had normal hemoglobin at booking visit, 21.2% developed anemia at 28 weeks (mild 14.5% moderate 6.7%). In addition, 17.3% of the mildly anemic pregnant women deteriorated their condition to moderate anemia and 41.9% of moderately anemic pregnant women remained in the same category. The linear regression model shows that the only predictor of hemoglobin at 28 weeks was booking visit hemoglobin level. Conclusions: Despite receiving appropriate routine care, significant number of women remains anemic or became anemic at 28 weeks of gestation. This raises the importance of finding the causes for subnational variation of anemia and the new interventions to overcome anemia during pregnancy to have better maternal and fetal outcome.

Keywords: Anemia, Pregnancy, Sri Lanka, Routine care
Caregivers’ Preferences of Health Services upon Childhood Diarrhea in Kandal, Cambodia

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**Background:** Diarrhea is still one of the leading causes of deaths among children under the age of five. Factors associated with access to health services upon such a childhood illness have been explored. However, the access itself does not ensure that children receive appropriate treatment. Quality provided at health facilities has substantial variations, and that determines the quality of services that children can receive. Caregivers of children may perceive the quality of services at health services to determine if they take their children to a health facility. This study aims at eliciting mothers’ preference for the components of services at health facilities upon childhood diarrhoea in Kandal, Cambodia. **Methods:** A cross-sectional study was conducted in Kandal, Cambodia in March 2017 among 640 mothers who have a child aged between one and four. In a discrete choice experiment, mothers answered eight questions regarding the choice from one of two health services that had different sets of components of services (the type of a provider, distance to a health facility, the availability of services, the attitude of a provider, and the cost of treatment). Conditional logit models were used for the analysis. **Results:** Mothers had the strongest preference for the type of a provider (whether doctors saw them and their child at a health facility) \((b=3.10, 95\% \text{ CI}: 2.98 - 3.23)\), followed by availability (whether a health facility opens whenever they visited) \((b=1.42, 95\% \text{ CI}: 1.30 - 1.54)\). Mothers tended not to prefer the cheaper cost of treatment \((b=0.05, 95\% \text{ CI}: -0.05 - 0.16)\). **Conclusions:** Upon childhood diarrhoea, mothers preferred non-monetary factors in health services rather than cheaper costs of services. Even under a high level of out-of-pocket expenditures to receive health services, mothers were willing to pay for better quality of services.

**Keywords:** Childhood diarrhoea, Access, Health services, Discrete choice experiment, Cambodia
Factors Adversely Associated with Breastfeeding among Obese Mothers in Malaysia

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Background: Total of obese mothers is growing throughout Asia. Breastfeeding provides the perfect nutrition for infants, by promoting a higher IQ and protecting against childhood and adult diseases. A prospective cohort study was carried out of expecting mothers attending antenatal clinics run by the Ministry of Health in Selangor, Malaysia to document the prevalence of obesity and its relationship with breastfeeding outcomes. Methods: A total of 652 mothers were recruited and followed up until six months postpartum at a response rate of 93.1%. Pre-pregnancy body mass index (BMI) of the mothers showed 36.5% of the mothers were overweight or obese. Results: There were a total of 78 obese mothers and 41 (52.6%) of them were able to initiate breastfeeding within one hour of birth compared to 238/337 (70.6 %, χ² 9.35, p<0.001) of those with a normal BMI. At six months, 23.1% of obese mothers were exclusively breastfeeding their infants, compared to 56.0% of the normal BMI mothers. Instead, the rate of infant formula feeding was higher in the obese mothers by 53.8% compared to 19.0 % among normal weight mothers, χ² 37.6, p<0.001. Further analysis suggested these factors were found to be positively associated with discontinued exclusive breastfeeding at six months among obese mothers; mothers whom delayed breastfeeding initiation, had health problems during pregnancy, caesarean delivery, reported had insufficient colostrum/milk and babies had sucking problems before four weeks and had low breastfeeding support. Conclusions: These findings suggested the greater the pre-pregnant BMI, the earlier the cessation of exclusive breastfeeding and were less likely to initiate breastfeeding and have less adequate milk supply. Future investigations of the effects of maternal obesity on breastfeeding outcomes should be conducted along with effective interventions to advance the care of obese women at reproductive age and their children.

Keywords: Maternal obesity, Exclusive breastfeeding, Breastfeeding outcomes
Colorectal Cancer Mortality Trends in China between 2002 and 2016: An Age-Period-Cohort Analysis and a Join-Point Regression Analysis

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Background: Colorectal cancer (CRC) is among the leading causes of cancer-related deaths worldwide. China still suffers from continuous increasing of CRC mortality. This study aimed to assess the mortality trends of CRC and discuss the age, period and cohort effect (APC) on CRC mortality in both urban and rural China between 2002 and 2016. Methods: The data of CRC mortality was collected from the "China Health Statistical Yearbook" from 2002 to 2016. Join-point regression analysis was performed to estimate the average annual percent change (AAPC) with the corresponding 95% confidence interval (C.I.), which were used to describe the CRC mortality trends. Furthermore, Intrinsic Estimator (IE) APC model was established to examine the age, period and cohort effect on CRC mortality. Results: We observed a consistently increased trend in CRC mortality in both urban (AAPC=3.8%, 95% CI 1.3%-6.4%) and rural (AAPC=6.0%, 95% CI 2.3%-9.80%) areas of China from 2002 to 2016. The CRC mortality risk increased with age. Compared with people aged 20-24, the relative risk (RR) of people aged 60-64 in urban and rural were 31.09 and 11.46 respectively. The period effect on the CRC mortality risk increased. Compared with period 2000, the RR of periods 2005, 2010, 2015 in urban and rural were 1.01, 1.36, 1.42 and 1.12, 1.24, 1.69 respectively. The cohort effect on the CRC mortality risk weakened. Compared with people born in 1920-1924, the RR of people born in 1990-1994 in urban and rural China were 0.10 and 0.12 respectively. Conclusions: We found a consistent increase of CRC mortality in China from 2002 to 2016. Aging and recent period were risk factors for CRC mortality while recent born year served as a protective factor. In China, especially in rural areas, interventions to reduce CRC burden, particularly the implementation of CRC screening programs, as well as the measures to decrease behavioral risk factors for CRC, are needed.

Keywords: Colorectal cancer, Mortality, Trend, Join-point regression analysis, APC
Need for Health Education on Non-Communicable Diseases for Pregnant Women: A Cross-Sectional Study in Myanmar

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Background: Non-communicable diseases (NCDs) are the leading causes of death for adult women in Asia and they should know how to prevent them as early as possible. Pregnancy is a good timing to raise awareness as series of care during this period provide opportunities for NCD prevention. This study aimed to assess the level of knowledge on NCDs and nutrition among pregnant women and to identify the factors associated with their knowledge in Myanmar. Methods: We conducted this study in Pantanaw, Wakema and Ingapu townships, where all are predominantly rural areas of Myanmar. From May to June 2017, we collected data from pregnant women based on socio-economic characteristics, obstetric history, medical history, behavioral risk factors for NCDs, and knowledge on NCDs and nutrition. Knowledge questions had five parts; NCDs in general, hypertension, diabetes, anemia and nutrition. We performed a multiple linear regression analysis to identify the factors associated with knowledge on NCDs and nutrition. Results: A total of 630 pregnant women participated in this study. Mean score of knowledge on NCDs and nutrition was 39.6 out of 56 points. Its accuracy rate was highest in the anemia part (82.5%) followed by nutrition (72.8%), diabetes (68.9%), hypertension (68.8%) and NCDs in general (44.7%). Pregnant women who had the following characteristics had higher knowledge scores: those living in Wakema and Ingapu, those in the second, middle and forth quintiles of wealth index, whose husbands completed primary or higher education, whose family members had any NCDs, and whose family members did not smoke. Conclusions: Pregnant women’s knowledge on hypertension and diabetes was low in Myanmar. Socio-economic and family factors were significantly associated with their knowledge. As some of these factors are modifiable, pregnant women should learn first and then share their knowledge on NCDs to other family members, too.

Keywords: Knowledge, Non-communicable diseases, Myanmar, Pregnant women
Factors Associated with Diabetes Mellitus in Maldivian Adults

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Background: The Maldives is undergoing a rapid transition in economic development and globalisation with which there have been many changes in lifestyle. There is a need to identify the impact of these lifestyle changes on non-communicable diseases such as diabetes. To document the prevalence of type II diabetes and associated lifestyle risk factors. Methods: A cross-sectional survey was employed to assess the risk factors for type II diabetes and hypertension of 19,521 participants from all the atolls of the Maldives. Age, family history of diabetes, pre-diabetes, blood pressure, heart disease, cholesterol levels, fruit and vegetable consumption, physical activity, smoking and waist circumferences were recorded. A validated questionnaire developed by Dr. A Ramachandran for Asians was used to assess the risk for type II diabetes and a risk score of more than 21 was regarded as high risk for diabetes. Results: The prevalence of type II diabetes was 8.1%. More than 13% of the population is obese (BMI >30) and 67% had a BMI above 23. Majority (70%) of the female participants had a waist circumference more than 80 centimetres and more than 55% of the male participants had a waist circumference more than 85 centimetres. The percentage of participants with a risk score for type II diabetes above 21 was 82.1%. Participants who had type II diabetes (diagnosed by urine analysis) had larger mean waist circumferences compared with participants who did not have diabetes (mean difference ± 7.1, 95% CI: 6.6 – 7.5). Older participants with a higher BMI were more likely to develop type II diabetes. After being diagnosed with a non-communicable disease participants were more likely to start consuming fruits and vegetables, start exercising and to quit smoking. Conclusions: In the Maldives high risk behaviours for type II diabetes are prevalent and, health promotion programs with embedded lifestyle interventions are needed to promote healthy lifestyles. These programs should include healthy eating habits, adequate physical activity and smoking cessation.

Keywords: Diabetes, Obesity, Healthy life style, Waist circumference
Abstract ID: OR0004NC

Association between Fruit and Vegetable Intake and the Risk of Hypertension among Chinese Adults: A Longitudinal Study

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Background: Fruit and vegetable intake has been inversely associated with the risk of hypertension. However, there is inconsistent evidence on the long-term association. Given this gap in the literature, it is necessary to identify evidence from large prospective studies, especially in China, where insufficient evidence exists. Thus, we examined the association of fruit and vegetable intake with incident hypertension in Chinese adults. Methods: We conducted analyses among 5659 Chinese adults aged 18-64 years, free of cardiovascular disease, cancer, and hypertension in the 2006 wave of the China Health and Nutrition Survey. Fruit and vegetable intake was assessed using consecutive 24-hour recalls. Incident hypertension was identified from the 2011 wave of the survey. Results: A total of 866 participants developed incident hypertension. The relative risks (RRs) and 95% confidence intervals (CIs) of hypertension were 0.74 (0.55-0.99), 0.65 (0.48-0.88), 0.68 (0.50-0.92), and 0.73 (0.53-0.99) comparing each quintile group of fruit and vegetable intake with the lowest quintile group. These associations attenuated for the change of intake but remained significant for the fourth quintile, of which the RR (95% CI) was 0.65 (0.47-0.89). The magnitude of association was stronger among those who were younger, female, overweight and had prehypertension. When examined separately, fruit intake was more strongly and significantly associated with lowering BP than vegetable intake. Adding body mass index to the models attenuated all associations. Conclusions: Greater long-term intake and increased intake of fruit and vegetables may reduce the risk of developing hypertension in Chinese adults.

Keywords: Hypertension, Prospective studies, Fruit, Vegetable, China
The Burden of Cancer in Korea from 2007 to 2015

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Background: Approximately 14.1 million patients were newly diagnosed with cancer, and 8.2 million people died from cancer in 2012 worldwide. The cancer incidence and mortality are expected to increase with the aging population and westernized lifestyles. In Korea, cancer is one of the leading causes of morbidity and mortality. The objective of this study was to quantify the burden of cancer by considering both premature death and poor quality of life due to cancer, using the Disability-Adjusted Life Years (DALYs) in Korea. We performed analysis on the trend of burden of cancer by age groups, gender and cancer types. Methods: We used data from the Korean National Cancer Registry. To determine mortality, we used the Causes of Death Statistics from the Statistics Korea. Results: The calculation of the burden of cancer among the 21 disease groups in 2015 showed that all cancers accounted for around 5% of the total DALY and was ranked 7th among 21 diseases. On the other hand, years of life lost (YLL), the index related to death, ranked first among the 21 diseases groups and accounted for 32% of the total YLL. In 2015, the most common cancers among Koreans were lung cancer, stomach cancer, and colorectal cancer. Since 2007, the burden of cancer has been steadily increasing. With YLL, there was no notable change, but the years lost due to disability (YLD) tended to increase continuously. In particular, the YLD for 2015 increased by about 150% from 2007. Conclusions: The absolute size of the burden of cancer is increasing, but the proportion of YLL, which is the indicator of premature death, is decreasing. This is the result of increased cancer survival rate.

Keywords: Cancer, Burden, Korean, Disability-adjusted life years, DALY
Lung cancer is one of the common malignant tumors in human, and it is gradually becoming the first disease of cancer mortality. Many studies have shown that IncRNA (long non-coding RNA) plays an important role in lung cancer cells. Recently some studies found that LncRNA-DANCR (Differentiation Antagonizing Non-Protein Coding RNA) which is a kind of IncRNA participates in the regulation of hepatocellular carcinoma stem cell activation, osteoblast differentiation, etc. At the same time, we found that the expression of DANCR in non-small cell lung cancer is significantly higher than that in normal lung tissue. Moreover, epigenetic disorder is a major factor in the development of tumors including non-small cell lung cancer and IncRNA is a very important epigenetic factor. So, we have reasons to think there might be some relationships between them. Then we will start with histone methylation and DNA methylation which are two kinds of epigenetic control. We plan to use chromatin immunoassay (ChIP) to verify the enrichment of DANCR and ezh2-prc2 complexes and DNMT1. In combination with bioinformatics prediction and chip technology, the exact location of EZH2 and TIMP2/3 promoter and the enrichment of DNMT1 and E-cadherin promoter will be confirmed. Finally, the role of DANCR in the regulation of histone methylation and DNA methylation in non-small cell lung cancer will be clarified. After we finish these tasks, we can find whether DANCR participates in epigenetic modification of non-small cell lung cancer or not and the specific mechanisms for participation. This achievement can further elucidate the development of non-small cell lung cancer and epigenetic modification mechanism, to improve the early diagnosis rate of non-small cell lung cancer and improve its therapeutic effect and prolong the survival time of prognosis.

**Keywords:** IncRNA-DANCR, Non-small cell lung cancer, Epigenetic disorder
Incidence, Management, Center Caseload and Survival of Biliary Atresia in Korea: A Nationwide Population-Based Study

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Objectives: The incidence of biliary atresia (BA) from nationwide population-based studies is scarce. The objective of this study was to investigate the epidemiology and mortality of BA and assess the effect of the age at Kasai operation (KP) and center caseload volume. Methods: From the Rare Intractable Disease database, which covers the entire Korean population, all BA patients born between 2007-2016 diagnosed using uniform criteria were identified and followed-up until December 2016. We determined whether BA patients underwent KP and/or liver transplantation (LT) and tracked their vital status. Results: A total of 514 BA patients were identified, and the average annual incidence was 11.3 per 100,000 live births. Among them, 480 patients (93.4%) underwent KP, and 91.2% of BA patients received surgery within 90 days of age. A total of 213 patients (41.4%) underwent LT. The 5-year survival was 90.6%, the 5-year native liver survival was 72.7%, and the 5-year LT survival was 91.7%. Early KP and high caseload center management were associated with improved outcomes. Five-year native liver survival was 74.7% in high caseload centers and 60.6% in low caseload centers. Conclusions: We demonstrated that BA incidence in Korea is higher than North America and Europe. We also found improved survival compared to previous reports which may be attributed to increased awareness of BA and the universal access of the Korean healthcare system. However, there were still 12.5% of patients who underwent surgery at a low caseload center, indicating room for improvement through early diagnosis and centralization of BA management.

Keywords: Cholestatic disease, Kasai portoenterostomy, Liver transplantation, Center volume-outcome, Epidemiology
Colonoscopy Identified Polyp Clinical-Pathological Characteristics and Related Risk Factors in a Chinese Patient’s Cohort

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Background: Polyp is a frequent problem found in Colonoscopy. Therapy might be needed when it is necessary. It is important to analyze the colonoscopy found polyp clinical characteristics and related risk factors in order to explore its prevention strategies. Methods: A patient cohort was obtained from March of 2013 to November of 2014 from a hospital. 951 cases were included by standards and 466 were normal, 374 were found with polyp, 111 were with other diagnosis. Data were collected by case report form and analyzed by SPSS 19.0. Results: Female got less chance for polyp found (OR=0.413, P<0.000). Aging increased the chance for polyp found (50-group, OR=2.093, P<0.001; 60-group, OR=3.252, P<0.001). College education decreased the risk (OR=0.642, P=0.047). Cadre and retired people showed higher odds to be found with polyp (OR=2.917, P=0.002; OR=2.341 P=0.006). Labor work decreased the polyp found rate (Light: OR=0.595, P=0.028. Medium and heavy: OR=0.460, P=0.003). Smoking was found as a risk factor (OR=2.247, P<0.001). Never or quit alcohol drinking was found as a protective factor (OR=0.393, P<0.001). Stepwise method was used in multivariable analysis, and gender, age, education were finally in the model. Conclusions: Colonoscopy is a useful measure to find polyps and provides therapy before it progresses into cancer. Concerning the risk factors found in this study, people should get more polyp prevention knowledge, do more exercise, establish healthy life style, do not drink alcohol and do not smoke.

Keywords: Clinical-pathological characteristics, Colonoscopy, Colorectal cancer, Polyp, Risk factors
Study of Family Crisis of Stroke Patients Based on FAAR Model

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Background: Stroke attack makes crisis for patients and their families since acute care at hospital until advance care at home. Families are expected to be able to cope with the crisis situation through right meaning of situational; family identity; and world view, so they can achieve effective coping strategies. The purpose of study is to describe family crisis of stroke patients based on family adjustment and adaptation response (FAAR) model.

Methods: This study used observational with cross sectional approach. The sample was 170 families of stroke patients in the working area of Primary Health Care in Surabaya City covers an area East of Perak, South of Krembangan, Sidotopo, Peneleh, Dupak and Gundih. The sample was recruited using multi stage sampling. The variable was family crisis, that are consists of family demands (stressors, strains, daily hassles) and family capabilities (resources and coping behaviors). The instrument was questioner. Data analysis was using descriptive.

Results: The results showed family crisis of stroke patients that almost all respondents had moderate stressor (66.47%), slight strain (72.35%), and rarely daily hassles (85.88%). Most of them had adequate family resources (83.53%) and half of them had adaptive coping behavior (50%).

Conclusions: Families of stroke patients have been able to meet their needs based on 3 indicators (stressors, strains, daily hassles). Stroke attack of family member was the largest stressor component causing the crisis. On the other hand the identification of capability of family resources has reached an adequate level, but the family has not been able to achieve adaptive coping behavior. Implementation of community health nursing through multidisciplinary interventions especially family stress management is expected to further improve family adaptation and family resilience.

Keywords: Family crisis, FAAR model, Stroke patient
The Status of Adherence to Oral Hypoglycemic Medication among T2MD Patients with Community-Based Diabetes Management in Shandong Province, China: A Cross-Sectional Study

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Background: Poor adherence to medications is one of the major public health challenges in developing countries. Previous studies had reported that the status of glycemic control among Type 2 Diabetes Mellitus (T2MD) patients was suboptimal in China in spite of the conduction of community-based diabetes management programme nationwide. However, little is known about the adherence levels and their associated factors among Chinese T2MD patients. This study aimed to study the adherence profiles and the factors associated with oral antihyperglycemic drug adherence among T2MD patients in China. Methods: This was a cross-sectional study and a multi-stage stratified randomized sampling method was used to select a representative sample of T2MD patient both in urban and rural area in Shandong province, China. T2MD patients who were currently taking at least one oral antihypertensive drug were invited to complete a self-administered questionnaire, consisting of basic socio-demographic profile, self-perceived health status, and self-reported medication adherence. The outcome measure was the Morisky Medication Adherence Scale (MMAS-8). Data was analyzed via Stata version 15 with significant p-value <0.05. Results: From 1545 T2MD patients, 38.5% had a high adherence, 37.3% had a moderate adherence, and 24.2% had a low adherence level. Multivariate regression analysis was conducted with medication adherence level as the outcome variable. Female (OR=0.69, 95% CI 0.54~0.90, p=0.01) was the risk factor of medication adherence. Older age (patients aged 50-64: OR=1.53, 95% CI 1.01~2.34, p<0.05. patients aged 65-79: OR=2.21, 95% CI 1.43~3.43, p<0.01), good dietary management (OR=2.21, 95% CI 1.23~1.92, p<0.01) and good self-monitoring of blood glucose (OR=1.29, 95% CI 1.01~1.64, p<0.05) were associated with good adherence. Conclusions: This study reported a high proportion of poor medication adherence among T2MD patients. Patients with factors associated with poor adherence should be more closely monitored to optimize their drug taking behavior.

Keywords: T2MD, Medication adherence, MMAS-8, Shandong
The Impact of Sociodemographic Factors on the Quality of Life of Hemodialysis Patients in Sarawak

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Background: Hemodialysis is still the best treatment modality for the long-term survival of chronic renal failure patient. However, the hemodialysis has many constraints that may affect patient's quality of life. The study was conducted to explore the quality of life (QOL) of the hemodialysis patient at the Northern region of Sarawak and to determine the impact of sociodemographic factors on the QOL of these patients. Methods: One hundred patients undergoing hemodialysis treatment in a Centre in Sarawak were selected and interviewed using a structured questionnaire (KDQOL-SF) which comprised of their component (kidney disease, mental and physical components). Data on sociodemographic and QOL were collected and analyzed. Results: Out of 99 patients responded, 39.4% aged more than 60 years old, 30.3% were Ibans (the indigenous people), 75% were married, 54.5% were primary school educated and more than 20% lived more than 30km from the centre. The underlying cause for the kidney failure was diabetes mellitus (43.4%) and hypertension (30.3%). The result has shown that the overall score for Kidney disease QOL was 69.09. The score for the kidney disease component was 66.3, mental health 52.61 and physical health component 39.43. In general, most of patients have good QOL in the kidney disease component and mental health component despite having poor QOL in the physical health component. It was found also that patients with higher education level have high QOL in mental health component whilst younger age group and married patients have higher QOL in physical health factors. Conclusions: In conclusion, the QOL of hemodialysis patient can be improved by improving their knowledge on the disease, better control of the underlying cause of the disease and keep themselves occupied with social and physical activities.

Keywords: Hemodialysis, Quality of life, Sociodemographic factors, Sarawak
Spatial Changes in PM$_{2.5}$ and the Associated Mortality Burden in China between 2015 and 2016

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Background: In recent years, research on the spatiotemporal distribution and health effects of fine particulate matter (PM$_{2.5}$) has been conducted in China. However, the limitations of different research scopes and methods have led to low comparability between regions regarding the mortality burden of PM$_{2.5}$. Methods: Data Resource: Ground monitoring PM$_{2.5}$ data was from China National Environmental Monitoring Center. The population and deaths reported at each monitoring site were collected, summarized and combined in the China Death Monitoring Data Set. A kriging model was used to simulate the distribution of PM$_{2.5}$ in 2015 and 2016. Integrated exposure–response (IER) model was used to estimate relative risk (RR) at a specified PM$_{2.5}$ exposure concentration for different causes of mortality: lung cancer (LC), ischaemic heart disease (IHD), cerebrovascular disease (stroke) and chronic obstructive pulmonary disease (COPD). Results: Due to the overall decrease in the PM$_{2.5}$ concentration, the total number of deaths decreased by approximately 10,658 per million in 336 cities, including a decrease of 1400, 1836, 6312 and 1110 caused by LC, IHD, stroke and COPD, respectively. Conclusions: Our results suggest that the overall PM$_{2.5}$ concentration and PM$_{2.5}$-related deaths exhibited decreasing trends in China, although air quality in local areas has deteriorated. To improve air pollution control strategies, regional PM$_{2.5}$ concentrations and trends should be fully considered.

Keywords: PM$_{2.5}$, Spatiotemporal characteristics, Population exposure, Mortality burden, China
Universal Health Coverage in the Maldives: Pilot Study on Type II Diabetics Using Big Data Analytics Methodology

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Background: Big data analysis is a cost-effective, innovative way of data analysis, which has become a new trend in research. The aim of this study was to use big data to monitor type II diabetes prevalence in the Maldives. The objectives were to extract, simplify and analyze big data for type 2 diabetes. Methods: The records collected for year 2016 by Aasandha (National Health Insurance Scheme) was extracted by the National Social Protection Agency (NSPA) for this study. The data was then analyzed using SPSS. Results: The results showed that total 5291 people in the Maldives got treatment for type II diabetes in 2016 in which 65% were women, and 79% used private health care while 21% used government health facilities. The mean age of the type II diabetes patients was 57. Most common risk factors associated with type II diabetes were essential (primary) hypertension, hyperlipidemia, gastro-esophageal reflux disease, overweight and obesity, acute upper respiratory infection, and benign prostatic hyperplasia. The most modifiable risk factors include overweight, obesity, hyperlipidemia and hypertension. Conclusions: In conclusion, more than 3 in five were women suffering from type II diabetes. Majority of the people seek health care from private health care providers. Most risk factors associated with type II diabetes are modifiable and these could be addressed through preventive measures like providing a supportive environment to intake nutritious food and practice an active life style. Holistic approach could be the best way to minimize diabetes such as developing healthy public policies, developing personal skills, strengthen community actions and re-orienting health services.

Keywords: Type II diabetes, Maldives, Obesity, Overweight, Hypertension, Big data
Correlation between Mammographic Breast Density and Breast Cancer Characteristics

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Background: Mammographic density (MD) is a known risk factor for breast cancer. This is probably due to stromal and epithelial cell proliferation as well as growth factors. We investigated the association between MD and tumour characteristic histologically. Methods: Invasive breast cancer cases from 2014 to 2017 were identified. MD was assessed by two experienced radiologists according to the Fifth Edition Breast Imaging Reporting and Data System (BI-RADS) and conflated to nondense and dense categories. Tumour-related histology information was obtained from clinical records. We evaluate the association between the MD and tumour histologic characteristic (high or low risk) based on receptor status (ER/PR/Her 2), lymphatic/vascular invasion and histologic grade. Statistical analysis using the chi-squared test was done to study the association. Results: Of the 122 cases, the mean age was 58 years. 40% (n 53) of women had dense breasts. There is a higher incidence (68%) of high-risk tumours in women with dense breasts, regardless of age. In women aged > 50 years (n 103), 35% (n 37) had dense breasts, in which 24 patients (69%) had high risk tumour. In women aged <50 years (n 28), 46% (n13) had dense breasts, in which 10 patients (76%) had high risk tumour. Density was not significantly associated with high risk tumours (p=0.28), oestrogen receptor (p=0.92), progesterone receptor (p=0.85), human epidermal growth factor receptor 2 (p=0.21), lymphovascular invasion (p=0.44). Conclusions: Although there is a higher incidence of high-risk tumour in women with dense breasts, there is no significant association statistically. This suggests that MD is probably related to biologic factors in contributing high risk tumour but our sample size is limited to prove it. Despite the biologic factors, the clinical factor plays a role in aggressiveness of breast cancer. A larger sample size is required in assessing the association. The evidence of association is important in developing screening guidelines.

Keywords: Mammographic density, Breast cancer, Receptor status, Histology
Homozygous Wildtype of rs174547 Polymorphism in FADS1 Gene is Associated with Dyslipidemia in Malaysian Vegetarians

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Abstract

Abstract ID: OR0018NC

Background: Dyslipidemia is defined as the derangements of one or more of the lipoproteins in blood such as elevated in total cholesterol (TC), triglyceride (TG), low-density lipoprotein cholesterol (LDL-c), and reduced in high-density lipoprotein cholesterol (HDL-c). Fatty acid desaturase 1 (FADS1) gene controls the fatty acid metabolism, which modulate by the amount of dietary intake of long-chain polyunsaturated fatty acids (PUFAs). Genome-wide associations studies reported that single nucleotide polymorphism of rs174547 in FADS1 gene was associated with dyslipidemia in the general population. However, there is no published data in vegetarians who were reported with different long-chain PUFAs profile from the general population. This cross-sectional study aimed to determine the association between rs174547 in FADS1 gene and dyslipidemia among vegetarians in Kuala Lumpur and Selangor. Methods: The data on vegetarianism practices, and socio-demographic characteristics were collected from 273 vegetarians from the community centers. A total of 10.0 ml fasting blood sample was withdrawn for TC, TG, HDL-c, and LDL-c analysis. DNA was extracted, and allele-specific polymerase chain reaction was used to genotype the FADS1 gene polymorphism. Results: A majority of the vegetarians were lacto-vegetarians (31.5%), females (64.8%), and Chinese (54.9%), with an average age of 47.5 ± 13.1 years. The prevalence of high TC, high TG, high LDL-c, and low HDL-c were 34.1%, 24.5%, 72.9%, and 31.1%, respectively. Vegetarians with homozygous TT genotype (wildtype) were 2.16 times (96% CI: 1.09, 4.27, p=0.015) higher risk of developing high TC, and 2.36 times (95% CI: 1.18, 4.72, p=0.015) higher risk of developing low HDL-c compared to vegetarians with homozygous CC genotype. Conclusions: In short, dyslipidemia occurs among vegetarians. TT genotype of rs174547 in FADS1 gene contributes to high TC, and low HDL-c in vegetarians. Prospective studies on gene-diet interaction are needed to affirm the association between rs174547 in FADS1 gene and dyslipidemia in vegetarians.

Keywords: Fatty acid desaturase 1 gene, Genotype, Single nucleotide polymorphism, rs174547, Dyslipidemia, Vegetarians
Diagnostic Agreement between DSM IV and V Criteria of Autism Spectrum Disorder in Bangladeshi Context

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Background: Autism Spectrum Disorder is a lifelong disability with a huge economic burden and a great impact on children and their family. The current revision for Autism spectrum disorders (ASD) diagnostic criteria represents a shift from DSM IV to V. However, currently there is no available DSM V criteria-based diagnostic scale validated in Bangladeshi context. Methods: In this mixed method study, we interviewed caregiver and reviewed document of 229 autistic children receiving interventions at autistic care center who were diagnosed based on DSM 4 criteria. We used the Gilliam Autism Rating Scale 3 (GARS-3) to measure the diagnostic agreement between DSM IV and V criteria and document review to assess periodic intervention outcome of children with ASD. Descriptive and Inferential statistics were applied to analyze data. Results: Proportion of Children fulfilling DSM V criteria was 95% where most of the Children were at very likely ASD level 2 and 3 (48% and 39.3% respectively). Their mean age at diagnosis was 3.5 (±1.1) year with a mean diagnostic delay of 1.1(±0.82) years. More than half of the Children were non-verbal (53.3%). Children's ASD severity level and total score varied significantly with their age (P<0.001) and ability to talk (P<0.05). Total autism score also correlated with family size (r = 0.154), experience of caregiver (r = 0.186), diagnosis delay (r = 0.211) and age at diagnosis (r = 0.205), (P<0.05). Domain-specific symptoms and total ASD symptoms improved significantly after intervention (P<0.05). Children's positive intervention outcome correlates with their treatment duration and age at diagnosis (P<0.05). Conclusions: The results of this study suggest ASD prevalence estimates may be lower under the DSM V based ASD criteria than DSM IV. Further study is needed to validate a DSM V based autism diagnostic scale in Bangladeshi context and measure the outcome of domain-specific intervention for ASD.

Keywords: Autism spectrum disorder, ASD, DSM IV, DSM V, Diagnostic agreement
Abstract ID: OR0020NC

Parental Practices and Obesity-Related Behaviours among Children with Intellectual Disability

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Background: Evidence has suggested that parents play an important role in their offspring's obesity-related behaviours, such as eating and physical activity (PA), among typically developing children. However, little is known about the situation among children with intellectual disability (ID). This study aimed to test the relationship between parental practices and offspring's obesity-related behaviours among children with ID. Methods: A cross-sectional study was conducted among children with ID in Hong Kong. Parents of the participants completed a self-administered questionnaire on socio-demographic characteristics, parental practices, children's physical activity (PA), sedentary behaviours (SB), and eating habits. The height and weight of the participating children were also measured at school. Multivariate regression was performed to estimate the relationship between parental practices and obesity-related behaviours, after controlling for socio-demographic variables and children's body weight status. Results: A total of 558 children with mild and moderate ID (age: 6-21 years, 12.2±3.9 years; boys: 68.8%) were investigated. Less than 10% of them (6.25%) were physically active (i.e., MVPA ≥ 60 min/day). More than half (51.8%) spent 4 hours/day or more on sedentary behaviours. Insufficient vegetable consumption, high consumptions on sweetened food, fried food and snacks, as well as skipping breakfast were common (prevalence rates ranged from 20.2% to 86.1%). Multivariate analyses revealed that parental practices in monitoring their children's diet and PA and those on restricting access to unhealthy food and sedentary behaviours were negatively associated with all unhealthy eating habits except for snack consumption. Parents using food or sedentary behaviours as rewards elevated the risk for snack consumption. No parental practices were significantly associated with children's PA and sedentary behaviours. Conclusions: Parental practices play a role in the eating behaviours of children with ID. However, parental practices may not influence their children's PA and sedentary behaviours much.

Keywords: Physical activity, Eating, Parenting, Child, Intellectual disability
Application of Geographic Information System (GIS) for Positioning Location of Elderly Chronic Risk Diseases in Chiangyuen District, Mahasarakham Province

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This cross-sectional base line survey of research and development study aimed at positioning location of elderly chronic risk diseases with application of the geographic information system (GIS) in Chiangyuen District, Mahasarakham Province of Thailand. The elderly of 1,636 individuals in household were collected by using structural interview with geographic information system simultaneously setting up of elderly house hold location obtained all descriptive statistic (e.g. Chi-square test and Pearson’s product moment coefficient.) analyzed data. The results showed mostly female (66.8%), early aging ((60-69 years old) 53.9%), famer (57.1%), monthly income less than 1,000 baht per month (70.7%), normal body mass index (BMI) (18.50-22.99 kg./m²) 37.0%), high level knowledge of hypertension and diabetes mellitus (69.4%) and (77.5%), respectively, high level of physical activity (44.6%), high level of stress management (65.2%), and high level of self-care behavior (61.9%). The strength of associations between knowledge of hypertension and diabetes mellitus and elderly self-care behavior were weak but significant with $r=0.142$, $p$–value=$0.001$ and $r=0.099$, $p$–value=0.001, respectively. The distribution population density (DPD) of hypertension patient showed mostly as random polygonal shape area of non-association for seven sub-districts, except Don-ngern sub-district which showed grouped area with association. The DPD of diabetes mellitus patients showed grouped area with polygonal area non-association for all eight sub-districts. Both combination of hypertension and diabetes mellitus patients showed mostly random polygonal with non-association area for all six sub-districts versus only two sub-districts, where Suer-Thao and Kuthong subdistricts showed grouped located with same directional shape (interpretation as hypertension and diabetes mellitus patients have been grouped). The finding of this study explained that GIS application could elucidate DPD of hypertension and diabetes patient knowledge and other related behavior were random pattern of quality of elderly life.

Keywords: Elderly, Diabetes mellitus, Hypertension, Geographic Information System
Health Literacy and Fruit and Vegetable Intake in Rural Australia

Siew Lim

Abstract:

**Background:** Adequate fruit and vegetable intake is important in the prevention of chronic disease. Health literacy is associated with health outcomes, but its role in dietary behaviour has received little attention. **Objective:** The present study investigated the association between a multidimensional measure of health literacy, sociodemographic characteristics, and fruit and vegetable intake in rural Australia. **Methods:** Design: A cross-sectional survey on the intake of fruits and vegetables (servings/d), demographic characteristics and health literacy profile using a nine-scale Health Literacy Questionnaire (HLQ). Associations between health literacy and fruit and vegetable intake were assessed using logistic regression. Setting: A large rural area of Victoria. Subjects: Adults residing in the Grampians region (n 1154; 61% female, mean age 52 (SD 17) years). **Results:** The HLQ scale ‘Actively managing my health’ predicted (OR; 95% CI) fruit (2·31; 1·87, 2·84) and vegetable (1·81; 1·45, 2·26) intake. The scales ‘Appraisal of health information’ (fruits: 1·73; 1·41, 2·13; vegetables: 1·49; 1·20, 1·86), ‘Social support for health’ (fruits: 1·31; 1·06, 1·63; vegetables: 1·40; 1·10, 1·76) and ‘Ability to find good health information’ (fruits: 1·25; 1·05, 1·48; vegetables: 1·36; CI 1·13, 1·63) also predicted fruit and vegetable intake. These associations remained significant after adjusting for age, gender, educational attainment and having private health insurance. **Conclusions:** Health literacy, particularly being proactive, appraising information and having social support for health, is associated with greater fruit and vegetable intake. Future interventions should consider the health literacy needs of the community to improve fruit and vegetable intake.

**Keywords:** Engagement, Lifestyle modification, Postpartum women, Lifestyle intervention, Diabetes prevention
Prevalence of Undernutrition and Its Associated Risk Factors among Children Under-5 Years in Tenom, Sabah

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**Background:** Undernutrition remains to be the underlying cause to the mortality and morbidity of children globally despite being preventable. Undernutrition is the result of complex interplay of factors such as household food security, child care, child feeding practices, nutrition, sanitation and access to healthcare. The objectives of this study is to determine the prevalence of stunting, wasting, underweight and undernutrition based on Composite Index Anthropometric Failure (CIAF) among children under-5 years in Tenom, Sabah and to examine the association of biological, behavioural, socio-economic and physical environment factors with the nutritional status of children under-5 years old. **Methods:** A cross sectional study was conducted in the maternal and child health clinics in the district of Tenom from 1\textsuperscript{st} March to 31\textsuperscript{th} March 2018 which comprises of children aged between 6 and 59 months. Data was collected from mothers via questionnaires and anthropometric measurements were conducted on children using standard techniques. Nutritional status of the children was assessed by the age and sex specific World Health Organization standard growth chart. Bivariate analysis and multivariate logistic regression analysis were conducted. **Results:** Out of the 300 children assessed, prevalence of undernutrition based on composite index of anthropometric failure was 42.3\%, underweight 34.7\%, stunting 33.3\% and wasting 10.0\%. After adjusting for all confounders, childhood undernutrition was significantly associated with unimproved sanitation (aOR 2.98, 95\% CI: 1.082 to 8.225) and frequent illness (aOR 2.07, 95\% CI: 1.015 to 3.274) and therefore were significant predictors of undernutrition among under-5 years children in Tenom, Sabah. **Conclusions:** These findings support the association of biological and physical environmental factors with the nutritional status of children under-5 years old.

**Keywords:** Undernutrition, Malnutrition, Stunting, Wasting, Underweight, Children
Eating Frequency is Not Associated with Obesity in Chinese Adults

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**Background:** The prevalence of overweight and obesity has been increasing globally. Recent studies suggested that eating frequency might be a potential factor influencing the development of overweight and obesity. This study aims to explore the association between eating frequency and obesity in Chinese adults. **Methods:** A cross-sectional study was conducted in Wuhan, China in March-June 2016. Self-administered questionnaire and 24-h diet recall were used to collect data on eating frequency, height, weight, sociodemographic information, lifestyle factors, and nutrition knowledge. Participants were divided into four groups according to eating frequency and timing: traditional time pattern (TTP), traditional time plus late snack pattern (TTPLSP), irregular time pattern (ITP) and all-time pattern (ATP). We performed Chi-square test and multiple logistic regression to assess associations among variables using JMP statistical software version 14.0.0 (SAS Institute Inc., Cary, NC, USA). **Results:** Respondents were Chinese adults (N = 2,290; range 29-74 years; 1,162 men). Lower education level, higher food budget and lower nutrition knowledge were associated with higher likelihood of irregular eating frequency patterns (TTPLSP, ITP or ATP). Men, non-smoker and subjects with less physical activity, lower education level and lower nutrition knowledge score were more likely to be obese. Body mass index distribution had significant difference among eating frequency pattern groups ($\chi^2 = 25.40, p = 0.003$). However, this association lost significance in the regression model adjusted for age, sex, education, smoking, food budget, nutrition knowledge and physical activity. **Conclusions:** Difference of body mass index group among eating frequency patterns was just an artefact of the association among nutrition knowledge, sociodemographic and lifestyle factors and obesity. Eating Frequency is not associated with obesity in Chinese adults.

**Keywords:** Eating frequency, Obesity, Sociodemographic, Lifestyle, Factors, Nutrition knowledge
Relationship between Food Consumption Pattern, Nutritional Status, and Physical Fitness among Football Athletes

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Football is a sport that requires a lot of high energy. This game lasts very fast in a relatively long time. To support the performance, a football player must have a normal Body Mass Index and his food consumption must be optimal. The purpose of this study was to analyze the correlation of factors that affect physical fitness in football athletes. This research was an observational analytic with cross sectional study design. The sample in this research was 22 people taken randomly using simple random sampling method from the Universitas Negeri Surabaya football team. Nutritional status was measured by body mass index, food consumption patterns were collected with a combination of 2x24 hours recall and food frequency questionnaire, physical fitness was measured by Multistage Fitness Test, exercise frequency was collected by using physical activity questionnaire. Data were analyzed with Spearman Rank Correlation Test. The results showed 73% of the athletes have a normal nutritional status, an average energy intake of 2674 ± 243.2 kcal, 86.36% have exercise frequency more than three times a week, 50% have negative energy balance, 50% often used supplements and the physical fitness levels of the athletes, which are classified into the average and above average categories, are at 36.4% and 36.4% respectively. A Rank Spearman test showed that there was a significant relationship between nutritional status (p:0.002), energy intake (p:0.007), energy balance (0.037) and exercise frequency (p:0.005) with physical fitness. There was no significant correlation between supplements intake and physical fitness. Nutritional status, energy intake, energy balance, exercise frequency have a significant effect on physical fitness.

Keywords: Nutritional status, Food consumption pattern, Physical fitness, Football player
The Local Wisdom Perception of Dayak Ngaju Communities on Malaria Disease in Gunung Mas District, Central Kalimantan Province

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Background: Malaria is one of the most communicable diseases in Indonesia. In Gunung Mas District, Central Kalimantan Province, malaria is prevalent and contributing to the endemic status of malaria. The previous study showed that human behavior had a relationship with this disease. The perception of disease incidence that is different from health sciences to date still exists in society; can go down from one generation to the next and can even expand widely. The local communities of this district are the Dayak Ngaju, who still uphold the customs and wisdom of their ancestors. The aim of this study is to describe perception of local wisdom Dayak Ngaju communities on Malaria diseases in Gunung Mas Distrcit, Central Kalimantan. Methods: This research was designed using qualitative and phenomenological approach. Key informants were people understanding about this problem and having experiences with this disease. Located in Gunung Mas District, this study had collected 5 key informants. Results: The result of study showed that local people “Dayak Ngaju” communities tend to manage their problem by using their own local perception and knowledge. While they felt “fever”, for instance, they had their own “diagnostic” for malaria disease. As a culture, they did not thought malaria as a big problem. They called Malaria is “Sahangen”, the process toward a person's maturity or the process of becoming a better human being. Conclusions: This study recommends that the community perception towards malaria have to be changed in order to prevent the occurrence of malaria in Gunung Mas district.

Keywords: Local wisdom, Dayak Ngaju, Perception, Malaria
Research on the Team Construction of China Medical Team – China Medical Team in Zambia as an Example

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Background: China’s development assistance for health (DAH) is regarded as an effective way to promote health system and services in developing countries. The most important way of DAH is the dispatch of China medical team. 2018 marks the 55th anniversary of the dispatch of China Medical Team. There is a high need for studying how to build a team that functions to the most and making sure that everyone on the team is satisfied with their life. China Medical Team in Zambia received a positive reputation among the local ministry of health, local people and national health committee. Objectives: To summarize lessons in the establishment and management of China Medical Team in Zambia, to investigate the 19th batch of team members’ satisfaction with various aspects of life, and to provide suggestions for the establishment of the medical team. Methods: This research uses a literature review and group interviewing to collect materials and information about team construction practices in order to summarize lessons in the establishment and management, and uses questionnaire to collect data about the satisfaction with life in the aspects of eating, housing, transportation and entertainment. Results: In the formation stage, the team leader has the absolute power and each team member has a clear responsibility. In the operation stage, the newly-established rules and regulations can be obeyed by all team members. In the cohesion construction stage, the establishment of common aspiration, the adaptation of motivation measures and cultural construction make sure of the sustainability. The team members’ satisfaction rate for eating, housing, transportation and entertainment were 68.0%, 88.0%, 72.0%, and 44.0% respectively. Conclusions: The construction of China Medical Team should pay attention to the role of the team leader and the building of common aspiration. The members of China Medical Team that strengthens the team building share a high degree of satisfaction with their life.

Keywords: China medical team, Team building, Life satisfaction
Implementation of Lean Thinking in Healthcare Services: Why Is It Importance?

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Background: Indonesia has just implemented National Health Insurance scheme in 2014 and will be targeted to achieve Universal Health Coverage by 2019 through quality improvement and cost containment strategy. In the early implementation, many hospitals suffered loss under due to the absence of efficiency in operational services. In the other hand, few hospitals have implemented lean as an attempt of quality improvement and cost containment in National Health Insurance era. There is not enough evidence in Indonesia to support management tools implementation such as Lean for improving efficiency. This study aims to develop scientific knowledge and beneficience of Lean implementation in healthcare services in many countries and can be used as evidence based to implement lean in Indonesia.

Methods: Method of this study uses systematic review and searched PubMed, Scopus, Clinical key, ScienceDirect, EBSCO, and other related journals from 2008 to 2018 with syntax keywords for each database. Thirty-two articles were included for review.

Results: The result showed that most journals talked about Lean reducing lead time and ALOS to improve patient value and patient safety as well as amount of journal discussed about Lean made cost reduction in healthcare operational to improve efficiency.

Conclusions: Achieving efficiency from Lean implementation should be adopted by Indonesian hospitals as quality improvement and cost containment strategy under National Health Insurance scheme.

Keywords: Lean healthcare, Efficiency, Cost reduction, Waste elimination, National health insurance
Life Experiences of Maldivian Thalassaemia Carriers Who Received Erroneous Thalassaemia Screening Results and Had Children

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Maldives has one of the world’s highest carrier rates with 18.1% of Maldivians being β-thalassemia carriers. Carrier screening was established in Maldives in 1992, but on average 22 new major cases are recorded annually. The complexities and errors in screening are some unfortunate factors that add to the high number of new cases in Maldives. The aim of this study was to explore the experiences of couples who did thalassaemia screening, but received erroneous results and married and had thalassaemia major child/children. A Generic Qualitative approach using face-to-face in-depth interviews was utilized for this study. A total of 15 participants were interviewed in local language and all were translated to English and transcribed verbatim before analysis. Thematic analysis was done to explore the participants' experiences. The results show that most participants tested because their friends were doing the test and many did not receive genetic counselling. Many participants expressed anger and dissatisfaction while most stated that it is the decree of ‘Allah’ and they do not blame the testing bodies. However, most participants stated that they were in denial for some time and many had a decreased trust towards the whole health system due to their experience. The birth of their thalassemia major child had a major impact on their family size and religion played a vital role in accepting their situation, coping and caring for the sick child. Also, some believed that testing body should take responsibility for their sick child. In conclusion, erroneous result was devastating to the families and the impact was life-long; many learned to cope over time, while some struggles throughout their life with denial, anger and dissatisfaction. The responsibilities of the genetic testing bodies is a medical and public health ethics issue that needs to be attended by all concerned parties in the Maldives.

Keywords: Maldives, Thalassemia, Genetic screening, Thalassaemia major child
Ribosome Profiling Reveals Translatome Remodeling in Human Bronchial Epithelial Cells Induced by Short-Term Exposure to Zinc Oxide Nanoparticles

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Background: Given the wide application of zinc oxide nanoparticles (ZnO NPs), the health hazards of these particles have attracted extensive worldwide attention. While ZnO NPs have been reported to affect gene expression at multiple levels including chromatin remodeling and gene transcription, the potential of ZnO NPs to target cellular translatome remains largely unknown. Methods: Here we used ribosome profiling to examine the interplay between transcription and translation under conditions of ZnO NP treatment in human bronchial cells. While transcription of only 200 genes is significantly altered during one hour of ZnO NPs exposure, the translation response affects approximately 3,000 genes. Results: Interestingly, a host of ribosomal genes including RPL22 and RPS27A are translational upregulated during ZnO NPs treatment. The upregulation of ribosomal proteins increases p53 expression by inhibiting its protein degradation. While the ribosomal proteins do not affect cell cycle arrest, they are important for robust p53-dependent apoptosis triggered by ZnO NPs exposure. Conclusions: Together, our data define the landscape of genome-wide regulation of translation in response to ZnO NP exposure and indicate that ribosomal proteins contribute to ZnO NP-induced apoptosis through stabilizing p53.

Keywords: ZnO nanoparticle, Ribosome profiling, Ribosomal protein, P53, Apoptosis
Abstract ID: OR0012OT

**A Study of Acute Physiological and Chronic Health Evaluation (APACHE) Index in Critically Ill Patients in Hospitals Located in Mangalore, Karnataka and Kannur, Kerala, India**

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**Background:** A wide range of mortality models have been proposed over the last 30-38 years for determining their validity in critically ill patients. These models have been evaluated, compared and contrasted to emphasize on the aspects of forecasting the outcome in the severely ill patients. Acute Physiology and Chronic Health Evaluation (APACHE II) scoring system is one of them which has been widely used in different countries for this purpose. APACHE scoring system was developed by Knaus et al. in 1981 to measure the severity of disease. Later it was refined and simplified in 1985 and called as APACHE II, which helped in assessing the probability of death. The Apache II score is in the range of 0-71. Scores above 71 indicate poor prognosis. **Objectives:** This study aims at validating the use of Acute Physiology and Chronic Health Evaluation II (APACHE II) scoring system in the medical intensive care unit (MICU) for prediction of the risk for mortality and to compare the predicted death rate with the observed death rate of the patients with gender and age-wise. **Methods:** A total of 350 patients admitted in the MICU between the ages of 18-57 were enrolled for this study. APACHE II score was calculated in each patient on the day of admission within 24 hours. The predicted mortality was calculated on the basis of this score. **Results:** The mean Apache II score was 9.42±3.4. The ICU mortality rate was 14%. The area under the ROC curve was 0.8 indicating good discrimination. The standardized mortality ratio (SMR) was 0.9. **Conclusions:** The study validates that APACHE II can be a reliable tool in predicting the mortality rate in MICU patients of Indian population within 24 hours of their admission.

**Keywords:** APACHE II score, Discrimination, Intensive care unit, Mortality rate, Prognosis
You Tube: A People-Based Potential for Breastfeeding Promotion

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Background: This presentation will show Breastfeeding Promotion on YouTube is underutilized by major health institutions. The aim is to show “viral videos” on such promotion to strengthen a major competitive advantage over artificial milk/formula feeding in this medium. Some half the world (3,580 million) and about 20% in Africa (213 million) use the internet. You Tube has over a billion users, some one-third of all internet viewers. Growth in watch time is up at least 50% yearly for three straight years. There are over one million videos on breastfeeding (30,000 from Africa). Some 90 videos have more than a million views, which far outnumber results for baby milk formula. Methods: This is a Content Analysis of viral videos (more than one million hits) on You Tube concerning breastfeeding. It features topic, category, date, presenter, channel/organization, duration, number of views, number of likes and dislikes, comments where relevant and URL for reference. Results: Tables and graphics will show the above analyses. Preliminary findings indicate the usual viral video content is brief, specific and educational, such as “How Often Should I Breastfeed My Baby” (60 million views), “What a Breastfeeding Baby Sounds Like When Properly Latched on to the Breast”; “How to Wet Nurse Someone Else's Baby”. Video clips will illustrate highlights. Conclusions: What types of video will be most suitable for Breastfeeding Promotion? How to best study the effect of the video (and related interventions) or features of a viral video: Universal Appeal, Short and Simple, Emotional Content, Actionable, Identifiable and Relatable?

Keywords: Breastfeeding, YouTube, Viral videos, Promotion, Baby milk formula, Institutions
The Factors Associated with Efficiency of District Health Centres in Malaysia: Using DEA Method

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Background: In this study, Data Envelopment Analysis (DEA) methods that consist of non-parametric deterministic mathematical programming were used to estimate the relative efficiency ratio in each decision-making unit (DMU). Objectives: This study aimed to explore the possibility of measuring district health centres (DHCs) performance in terms of efficiency. A cross-country comparison of DHCs performance was made guided by two main objectives namely: (1) to evaluate the relative efficiency of DHCs in Malaysia and (2) to identify the possible factors for efficient performance. Methods: Data for the analysis came from various sources such as the district health centres, public health programs in Putrajaya and Malaysia National Health Account Unit (MNHA). The input parameters used in the model were: number of professional and non-professional personnel, financial budget and assets value. As for output measure, services in DHCs were measured based on the key performance indicator (KPI) achieved by every DHC that included five scopes of services namely Disease Prevention and Control, Family Health Development, Health Infrastructure and Clinical Governance, Health Promotion and Community Enhancement, and Advocacy Research and Planning. Results: According to constant returns to scale (CRS) of DEA analysis, only 6 out of 96 DHCs (6.25%) were relatively efficient (100% efficiency). Tobit regression analysis showed that the relatively efficient DHCs were those with appropriate numbers of personnel both professional (1 MO per 7,069 population) and non-professional (1 staff per 587 population), and financial budget (RM 37.5 per capita per annum). Conclusions: The findings show that DEA analysis is a possible approach to measure the efficiency of DHCs in Malaysia. This cross-country comparison using DEA is an alternative method to measure the DHCs efficiency, compared to the KPI assessment because incorporated both the inputs and outputs to measure the efficiency. This finding is hoped to be of value and relevance for the resources allocation by top government officials, in controlling and distributing the budget pertaining to public health activities at the national level.

Keywords: DEA, Efficiency, Primary healthcare
Awareness of the Role of General Practitioners in Primary Care among Outpatient Populations: Evidence from a Cross-Sectional Survey of Tertiary Hospitals in China

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Background: General practitioners (GPs) are highly underutilized in China with many patients going directly to hospitals when seeking routine care. Multiple countries around the world have successfully used GPs in routine care, and as such, China may benefit from the use of GPs. This study examines the status of, and factors associated with, knowledge related to GPs among outpatient populations from China’s tertiary hospitals.

Methods: This is a cross-sectional survey study. The questionnaires were completed by 565 outpatients from four tertiary hospitals in China in 2016. Convenience sampling on different floors and throughout the outpatient building was carried out. Statistical Package for the Social Sciences (SPSS) version 22.0 for Windows (SPSS Inc., Chicago, IL, USA) was employed to run all statistical analysis.

Results: Overall, 50.27% of respondents said they had never heard of GPs. This was also true among females (AOR=1.57, 95% CI: 1.43-2.71), older adults (AOR 46-65=1.61, 95% CI: 1.39-2.98; AOR >65=2.01, 95% CI: 1.62-3.59), those with lower education level (AOR Bachelor’s degree=0.61, 95% CI: 0.20-0.81; AOR ≥Master’s degree=0.49, 95% CI: 0.23-0.76), rural residents (AOR=1.51, 95% CI: 1.35-2.82), and those with chronic disease (AOR without chronic disease=0.61, 95% CI: 0.22-0.71). In addition, less than one-in-ten (9.03%) outpatients were able to accurately describe what a GP was, and less than 30% of those receiving GPs’ services has accurately described a GP.

Conclusions: Outpatients who could have received less costly health services from GPs in primary medical institutions were more likely to choose costlier specialist physicians in tertiary hospitals, which is likely linked to limited knowledge about GPs. Policymakers should invest in outreach efforts to improve public awareness of GPs, while at the same time conducting continued surveillance of these efforts to evaluate progress towards this goal.

Keywords: General practitioners, Knowledge, Influencing factors, Outpatients, China
Knowledge, Attitudes, and Practices Related to the Establishment of the National Hierarchical Medical System (NHMS) among Outpatients in Chinese Tertiary Hospitals

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Background: The Chinese government is now pushing ahead with the implementation of National Hierarchical Medical System (NHMS), which aims to reallocate the health care resources, and to give primary care medical settings (grassroots medical institutions) more support. To assess the status of, and factors associated with, knowledge, attitudes, and practices (KAP) related to the establishment of the National Hierarchical Medical System (NHMS) among outpatients from tertiary hospitals in China. We aim to find useful information for policymakers in China and other countries considering the establishment of interrelated policy. Methods: A cross-sectional study surveying tertiary outpatients was conducted. This study investigated knowledge, attitudes, and practices concerning the establishment of NHMS among the outpatients from tertiary hospitals, who could have sought medical care from a general practitioner in surrounding primary care medical institutions. Several factors associated with outpatients’ knowledge were identified and included in fully adjusted analyses using logistic regression. Results: Survey questionnaires were completed by 565 outpatients in four tertiary hospitals. Approximately half (51.86%) of the sample was aware of NHMS. Multivariate analysis identified sex, age, education level, and place of residence were significantly associated with knowledge of NHMS, while average monthly income, type of health care insurance, and physical condition were not significantly associated with knowledge of NHMS. Nearly three-quarters (74.69%) expressed positive attitudes towards the establishment of NHMS. However, less than one-quarter (21.95%) were willing to choose nearby grassroots sub-unit hospitals as their first choice when seeking health care. Conclusions: The present study revealed that outpatients might lack knowledge of NHMS, yet most have a positive attitude towards the establishment of NHMS. Even so, there was hesitation in terms of seeking care from NHMS, indicating the need for policymakers to take action to increase public awareness of NHMS-related information to improve the public's KAP on the establishment of NHMS.

Keywords: National hierarchical medical system, NHMS, Knowledge, Attitudes, Practices, Influencing factors
The Productive Efficiency of Township Hospitals in Hubei, China

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Objective: In China’s health system reform, the township hospitals (THs) have gained substantial development in capacity, while their productive efficiency still need to optimize the utilization of healthcare resources. The aim of this study was to analyze the township hospital efficiency and productivity changes in Hubei Province during the 2014-2016 period. Methods: Three-stage data envelopment analysis (DEA) combined with Bootstrap Malmquist DEA were used to examine the relative efficiency and productivity. Results: The descriptive results show that township hospitals had continuously expanded in their capacity and scale. On average the bias-corrected technical efficiency (TE) scores for the 3-year period are 0.767, 0.804 and 0.893, respectively. The average of TE in township hospitals in Hubei Province is 0.821, which has a great space for improvement. Our regression analysis suggests that population density and inpatient compensation ratio of New Rural Cooperative Medical System are positively related to TE. The average annual total factor productivity change (TFPC) had decreased during the study period. Our results show that THs in Hubei Province experienced a decrease in productivity, mainly due to the deterioration of technological changes (TC). Conclusions: Some major suggestions were put forward for improving efficiency. Adopting a systemic approach of measuring efficiency, and government and THs managers should rationalize THs health care supply at county level and consider incentives in THs payment mechanisms as a tool.

Keywords: Township hospital, Total factor productivity change, Technological change, Bootstrap DEA
Socio-Economic Determinants of Unmet Healthcare Needs Due to Economic Trouble in Korea

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Background: In Korea, efforts have been made to improve the accessibility of medical services. However, vulnerable health insurance remains a problem. A high incidence of unmet healthcare needs due to economic trouble means that the healthcare system does not perform its function properly regarding the coverage of the healthcare system. Objective: The purpose of this study was to identify the accessibility of the healthcare by investigating factors that affect unmet healthcare needs due to economic trouble. Methods: In this study, a balanced panel for a total of 4,008 adults who aged 18 and over was set using the annual data of the Korea Health Panel Survey data from 2011 to 2015. A random-effects Panel logit model considering the respondents measured over five years was used to identify the determinants affecting unmet healthcare needs. Statistical analyses were performed by SAS 9.4 and STATA 12. Results: The results showed that out-of-pocket payment were not a significant determinant of unmet healthcare needs in the random-effects Panel logit model while household income quintiles (p<0.01), types of healthcare coverage (p<0.05), private health insurance coverage (p<0.05) and subjective health status (p<0.01) had significant influence on unmet healthcare needs. Conclusions: The results showed that the economic difficulties were still a barrier to medical use in Korea. Economic factors had a significant impact on unmet healthcare needs, but the out-of-pocket payments had no effect. It seems that there was a trade-off effect between experiencing unmet healthcare needs with high medical burden and reducing medical expenses with unmet healthcare needs. In addition, payment ability remains an important factor in medical use. Therefore, it is necessary to make efforts to reduce unfairness of medical use through improvement of medical access to socioeconomically vulnerable classes.

Keywords: Unmet healthcare needs, Economic trouble, Accessibility, Healthcare services, South Korea
Trends of Years of Life Lost in South Korea

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Background: Disability-adjusted life years (DALY) as a single measure of health status (SMPH), which indicates death and illness at the same time, is defined as a sum of the years of life lost (YLL) and years of disability (YLD). YLL represents the difference between the ideal state in which the Korean population maintains a healthy life for the whole life and the actual health condition. This study aimed to estimate YLLs of Koreans from 1997 to 2015 and to determine the trend of health status and disease structure. Methods: We estimated YLLs by age and gender from 1997 to 2015 in South Korea. YLLs were calculated from the sum of each death multiplied by the standard life expectancy at each age (age weight 4%, discount rate 3%). Cause-specific death data obtained from the Korean Statistical Information Service (KOSIS) from Statistic Korea. Results: In terms of disease-specific YLLs, self-harm was the most frequent cause of YLLs (463.8 YLLs per 100,000 population), and self-harm was the leading cause of premature death in Korea since 2003 for both males and females. The second leading cause of YLLs was ischemic heart disease (304.3, 7.1%) followed by bronchial and lung cancer (251.8, 5.8%), hemorrhagic heart disease (251.8, 5.2%), liver cancer (218.3, 5.1%). In male, YLLs caused by cirrhosis has been on the decline, and YLLs caused by lung cancer increased recently. In female, the decreasing diseases were diabetes and stomach cancer, and the increasing diseases were breast cancer and colorectal cancer. Conclusions: Although the YLL in Korea has been declining due to the increase in life expectancy and the development of medical technology, it is necessary to raise awareness of the fact that the YLL due to self-harm is kept at the highest level in both genders.

Keywords: Years of life lost, Mortality, Cause of death, South Korea
Applying a Social Practice Lens to Understand the Practice of Separate Collection of Plastic Waste among Ethnic Minority Group in Rural China

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Background: Improper management of plastic waste is a serious environmental health issue in rural China. Recycling can only be a viable solution if villagers know how to collect waste separately. In the literature, most intervention strategies focus on individual efficacy. Few studies argue the act of separate collection as a practice, being socially practised. The aim of this qualitative study was to understand the practice or non-practice of the separate collection of plastic waste in rural, ethnic-based households and to analyse how the elements (meaning, competence and material) of such social practice are adopted and performed by household villagers.

Methods: A multiple case study nested within a randomised controlled trial on plastic waste management practice was conducted in traditional, Dong-ethnic group Bapa village in an autonomous prefecture in rural Congjiang county, Guizhou in October 2017. Framed under the theories of social practice, local cases were purposively selected based on their practice status of separate collection. Qualitative data on the know-how and meaning of, resource required for such practice were collected from brief case study interviews, non-participant observation notes, elicitation techniques (free-listing and pile sort) and photos of plastic waste. Data were analysed qualitatively by cross-case analysis and logic model. Results: Ten cases were chosen and revealed neutral or positive connotations of the meaning of separation, varied understanding of what to be put in the collection bin and continued use and maintenance of the plastic waste collection bin. The linkage between the three elements varied, which may affect the performance of the practice. Further analyses of possible competitors will be detailed in the presentation. Conclusions: Taking separate collection of plastic waste as a social practice offers an alternative, social lens to explain why, as “practitioners“, and why not households practise it. Implications can be drawn to guide future health promotion effort in rural contexts.

Keywords: Ethnic minority, Plastic waste, Social practice, Recycling, Separate collection, Waste management
Abstract ID: OR0002RI

Medical Volunteerism from the Lenses of Clinicians: The Challenges and the Potential Solutions

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Background: Tokyo Declaration of Universal Health Coverage was initiated by World Health Organisation in 2017 to ensure medical care access to public. Clinicians working in the hospital setting can contribute to this universal goal via medical outreach programme, a simple but yet feasible method. To date there is limited information examining the challenges faced by local medical volunteers during medical outreach in Sabah, Malaysia. The aim of this study is to shed some light on the challenges faced and propose for potential solutions. Methods: Review of records, personal observation, and self-reflection on the experience of involvement in different medical outreach programmes in Sabah were performed to examine the challenges faced by clinicians. Potential solutions for those issues were proposed. Results: The challenges include: 1) Scarcity of resources, i.e. supply of medical equipment, medication and consumable items; 2) Logistic issues, i.e. transport, food, and administrative work; 3) Limited human resources, i.e. experienced coordinators, lack in leadership qualities; 4) Sustainability issues, i.e. lack of enthusiasm from younger generation to take over the baton; and 5) Ethical dilemma, i.e. issues of disperse illegal immigrants. The proposed solutions include: 1) Early intervention at the medical school level to inculcate spirit of volunteerism; 2) More incentives from participation in volunteer work, including contribution to medical registration; 3) More involvement of big medical corporate companies to support medical outreach programmes; and 4) Structured programme to enrol new medical graduates who are still waiting for job placement. Conclusions: The challenges faced in medical outreach programme are modifiable and involvement of policy makers is paramount. More structured evaluation of the efficiency and health economics of the programme will be necessary to maximise the benefit from the limited resources.

Keywords: Universal health, Outreach, Volunteerism, Medical camp, Rural health
Condom Use and Its Associated Factors of Clients in Kaiyuan City, Yunnan Province, China

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Background: Heterosexual transmission is the main way of HIV transmission within China, among which commercial sex plays a key role. Clients of female sex workers (FSWs) are defined as a bridge population as they play an important role linking FSWs with general women. This study tries to understand condom use status with different kinds of sex partners, and associated factors of non-consistent condom use in commercial sex behaviors among clients in Kaiyuan City. Methods: The research subjects were recruited by "outreach personnel recruitment" and "snowball sampling". An interview-type questionnaire was used to collect relevant data. The data were analyzed by SPSS20.0, and the difference of P<0.05 represented a statistically significant. Results: A total of 225 clients were surveyed. The average age of first sex was 18.00 (16.00-20.00) years old. In the participants, 74.22% (167/225) had commercial sex, and 58.22% (131/225) had two or more kinds of sex partners in the past year, of which 32.82% (43/131) reported inconsistently using condoms when engaging in sexual behaviors with two or more kinds of partners. The proportion of clients who reported inconsistently using condoms with fixed sex partners, non-marital sex partners and commercial sex partners in the past year were 82.17%, 59.55% and 27.54%, respectively. Multivariate logistic regression analysis showed that those clients whose marital status were "marriage/cohabitation" (OR=0.412, 95%CI: 0.184-0.920) or living in medium or small cities (OR=0.236, 95%CI: 0.064-0.870) were less likely to use condom inconsistently in commercial sexual behavior in the past year, and those with prostitution behavior more than once per month in the past year were more likely to use condoms inconsistently (OR=4.150,95%CI:1.516-11.361). Conclusions: Measures need to be taken to improve the use of condom among clients, especially those who are unmarried/divorced or widowed, live in the countryside or have a relatively high frequency of prostitution need to be focused.

Keywords: Clients, Sexual behavior, Condom, Associated factors
Quit Smoking Attempts: Factors Associated with Failure to Quit at the Public Quit Smoking Clinics in Malaysia

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Background: Tobacco smoking remains as one of the leading cause of preventable death worldwide. Considering the difficulties in quitting, this study aimed to identify factors associated with failure of quit attempts among smokers who sought care at the public Quit Smoking Clinics (QSCs) in Malaysia. Methods: This was a subanalysis of secondary data from a cluster randomised controlled trial on the effectiveness of a structured behavioural modification program, conducted between July 2012 to June 2013 in Malaysia. Briefly, this study enrolled a total of 502 adult smokers who sought treatment at the 19 QSCs at public hospitals in Malaysia. Patients who had not stopped smoking or lost to follow-up at 24th week were considered as failure to quit. Results: A total of 502 adult smokers were enrolled. Of these, 22.3% had successful quit and 77.7% failed (i.e. 2.6% had not stopped smoking and 75.1% lost to follow-up) at the end of 24th week. The mean age of the study participants was 45.6 (SD 13.5) years and majority (97.4%) were male. Multivariate logistic regression analysis indicated that those with shorter duration of smoking history, smoked more than 20 cigarettes per day, smoked their first cigarette within 30 minutes after waking up, chose to stop gradually and not receiving structured behavioural modification program were significantly associated with treatment failure at 24 weeks. Conclusions: This study found that variables of shorter duration of smoking, smoked more than 20 cigarettes per day, smoked the first cigarette within 30 minutes after waking up, chose to stop gradually and not receiving structured behavioural modification program were significantly associated with failure to quit. By identifying these factors, we hope to optimize and strengthen the existing QSCs and to contribute towards higher quit smoking rate among smokers who attempt to quit.

Keywords: Quit smoking, Failure, Associated factors, Malaysia
Identifying Chemical Constituents in the Rate of Cigarettes Burn Using Regression Analysis

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Background: Tobacco is a green plant grown in warm climates, and its dried leaves are commonly processed as cigarettes, cigars, bidis and others. The most common consumption method is via cigarettes, which are ingested by inhaling the smoke from burning. Cigarette smoking is a strong addiction that is difficult to break. Tobacco leaf also contains many different chemicals. Thus, this study was constructed to determine which chemical constituents in the tobacco leaf which would give the most significant influence on the rate of cigarettes burn. The amount of inhaled smoke will put deteriorating effects on the lungs, and ultimately affect the health of smokers and secondary smokers as well. Methods: Multiple regression analysis was introduced with the rate of cigarettes burn in inches as the dependent variable. Data filtering through factor analysis and data transformation were performed. The filtered data were divided into three partitions for the model-building approach, verification using MAPE, and estimating missing values in data. Four-phase model-building procedures on 140 models were carried out with multicollinearity test based on VIF, and coefficient test based on p-values. The eight selection criteria (8SC) were used in identifying the best model when it had satisfied most of the least values of criteria, and MAPE was calculated to validate the model. Results: Three chemical constituents emerged from best model, which comprised of single independent variable (calcium) and two first-order interaction variables namely, calcium interact with potassium, and chlorine interact with potassium. The MAPE value of estimation efficiency was 7.73% which indicated that model was excellent for estimation. Conclusions: Percentages of chemical constituents in cigarettes burn like calcium is the main contributing single factor, while potassium and chlorine as interaction factors in estimating the rate of cigarettes burn. The estimation efficiency indicates that model is well accepted for estimation.

Keywords: Cigarettes burn, Chemicals constituents, Multiple regression, Model-building procedures, Interaction variables, Estimation efficiency
Smoking at Worship Places: Compliance to the Smoke-Free Law at Worship Places in Bali Indonesia 3 Years after Implementation

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Background: Since 2011, the government of Bali Province has implemented smoke-free law regarding smoke-free area (indoor area) including worship places. Implementation of the law at worship places particularly at Hindu temple face a big challenge since Hindu temple is usually a semi-open building and smoking behavior seems to be a norm in the community and part of Balinese tradition. Hence, the study aims to assess the compliance to the smoke-free law at worship places and determine the factors associated.

Methods: The study was a serial survey. The population was worship places such as Hindu temple, mosque, church, monastery, and pagoda in all 9 districts/cities in Bali. Samples selected using proportional probability to size (PPS). The compliance defined using 7 criteria (no smoking signage, smoking activities, cigarette butts, ashtray provision, cigarette smell, cigarette selling, and cigarette advertisement). The data collected six monthly through observing the area and building, followed by interview.

Results: About 792 worship places succeeded to observe; most of them (70%) were Hindu temple, 12.1% mosque, 11.3% church, 5.6% monastery, and 1% pagoda. The overall compliance was low (18.5%) compared to the target (80%). Hindu temple has the lowest compliance (8.5%), while mosque showed the highest (34%). Moreover, at second semester of 2013 and the first semester of 2014, there was no compliance at all (0%). Eventually, the compliance increased to 3.4% at the second semester of 2014. Then increasing trend continued at first semester (9.6%) and second semester of 2015 (29.2%). The factors associated to the compliance were lack of awareness and knowledge regarding the law and lack of internal monitoring on the implementation.

Conclusions: Long-term compliance to the smoke-free law at worship places in Bali is increasing, although it remains low. Hence, continuous dissemination, supervision through internal monitoring team is needed to achieve the target.

Keywords: Smoke-free law, Compliance study, Worship places, Bali, Indonesia
Pulmonary Tuberculosis and Subsequent Lung Cancer Risk among Smokers and Non-Smokers: A Nationwide Population-Based Longitudinal Cohort Study in Korea

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**Background:** While several studies have shown that lung cancer risk has increased among tuberculosis patients, evidence of the independent association between TB and lung cancer irrespective of smoking is uncertain. The objective of this study was to examine the association between pulmonary tuberculosis and risk of subsequent lung cancer independent from smoking by studying the association among smokers and non-smokers in the general population. **Methods:** We conducted an analysis based on data of 10 million people from the National Health Screening Program data. By identifying all incident cases with TB, TB patients were followed up until December 2016 to detect subsequent lung cancer and classify their vital status among smokers and non-smokers. The incidence and standardized incidence ratio of lung cancer in tuberculosis patients among smokers and non-smokers were also measured. With the vital statistics, a survival analysis was performed and Cox proportional hazards models were used to estimate the risk of lung cancer. We used hazard ratio and 95% confidence intervals after adjusting smoking and other sociodemographic factors. **Results:** From 10 million, a total of 100,000 TB patients were identified from 2005-2016. TB patients had a higher risk of developing lung cancer than those without TB (SIR, 2.67; 95% CI, 1.88-3.79). The incidence of lung cancer was higher in TB patients than in non-smoker TB patients (1.3% vs 0.8%, P<.001). **Conclusions:** Tuberculosis was strongly associated with lung cancer after the consideration of smoking history and other potential confounders. The strength of the association was higher in smoking TB patients, compared to non-smoking TB patients. Furthermore, the strength of the effect for female was higher, compared to male.

**Keywords:** Tuberculosis, Lung cancer, Smoking, Epidemiology
Improving Service Delivery and Utilization for Marginalized Populations in Taiwan

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Background: There has been inefficient delivery of health care services in Taiwan. The lack of understanding regarding the role of family physicians leading to unnecessary service use, or the ill-distribution of medical resources in rural areas making marginalized populations less accessible to services are two main challenges. This study aims to explore the current problems of health service delivery and utilization in Taiwan’s insured populations, especially for the marginalized people. Methods: Using a qualitative study approach, we collected data first through a document review from various written materials including scientific papers, government reports, and media to identify common patterns, issues, and traits from beneficiaries on their use of the National Health Insurance (NHI) services in Taiwan. This was followed by in-depth interviews of ten service users to explore their personal experiences with the NHI in details. Results: Through document review, it was confirmed that health care service utilization can be classified into three levels: 1. factors (individuals - medical institutions - society) 2. delivery and utilization issues (freedom to choose medical location, healthcare system) 3. consequences (cross-level health-seeking, wasteful medical resources, medical disputes and disparity of resources between urban and rural areas). Our analysis of interview data suggests that unifying themes for health care seeking behavior include a) medical equipment and level of facility, b) severity of illness, and c) physicians (professionalism, attitudes, medical ethics). Overall, people have an accurate understanding of the health care and referral systems. Their knowledge of family physicians, however, is insufficient. A theoretical framework is proposed as a result to present possible explanations and interpretations of current issues facing the NHI today. Conclusions: Findings of this study outlined problems of our health care policies. The successful implementation of the referral system requires sufficient education of the public and strengthening the role of family doctors.

Keywords: Health care policy, Service delivery, Service utilization, Marginalized populations, Qualitative study, Taiwan
Assessing the Impact of Community Engagement Interventions on Health Worker Motivation and Experiences with Clients in Primary Health Facilities in Ghana: A Randomized Cluster Trial

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Background: Health worker density per 1000 population in Ghana is one of the lowest in the world estimated to be 2.3, below the global average of 9.3. Low health worker motivation induced by poor working conditions partly explains this challenge, suggesting the need to complement financial incentives with non-financial incentives through a community-based approach. In this study, a systematic community engagement (SCE) intervention was implemented to engage community groups in healthcare quality assessment to promote mutual collaboration between clients and healthcare providers and enhance health worker motivation levels. SCE involves the structural use of existing community groups and associations to assess healthcare quality in health facilities. The purpose of this study is to evaluate the effect of SCE interventions on health worker motivation and experiences with clients.

Methods: The study is a cluster randomized trial involving health workers in private (n = 38) and public (n = 26) primary healthcare facilities in two administrative regions in Ghana. Out of 324 clinical and non-clinical staff randomly interviewed at baseline, 234 (72%) were successfully followed at end-line and interviewed on workplace motivation factors and personal experiences with clients. Propensity score matching and difference-in-difference estimations were used to estimate the treatment effect of the interventions on staff motivation.

Results: Intrinsic (non-financial) work incentives including cordiality with clients and perceived career prospects appeared to be principal sources of motivation for health staff interviewed in intervention health facilities while financial incentives were ranked lowest. Intervention health facilities were assessed by community groups associated positively with higher intrinsic motivation levels of staff (p<0.05).

Conclusions: A Community-based approach to health worker motivation is a potential complementary strategy that needs policy deliberation to explore its prospects. Albeit financial incentives remain critical sources of staff motivation, innovative non-financial approaches like SCE should complement the latter.

Keywords: Community engagement, Health workers, Motivation, Primary healthcare, Ghana
Universal Health Coverage and Early Life Nutrition

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Background: Universal Health Coverage includes ‘promotion and prevention’ and ‘treatment and care’. Nutrition in the first 1000 days of life from conception to age two influences health throughout life. Methods: A systematic review of UHC, infant nutrition and health outcomes. Results: In the first year of life appropriate infant nutrition (exclusive breastfeeding to around six months) reduces infant mortality and hospital admissions by 50% or more. Internationally many cohort studies and animal models that have validated the developmental origins of health and disease hypothesis (DOHAD). In Asia several historical cohorts that have confirmed the long term effects of nutritional deprivation on long term health. Early life nutrition has important influences on childhood illnesses, obesity, cognitive development, hospitalisations and later chronic disease and. When APACPH was established there were globally 12 million deaths annually in children, now reduced to 5 million. It is estimated that a further 800000 lives could be saved by implementing appropriate infant nutrition. APACPH Guidelines for early life nutrition should emphasize on appropriate steady weight gain during pregnancy, for the average sized Asian mother about 12-16 Kg. Throughout the antenatal period extra folic acid, iodine and iron are needed. Vitamin D and calcium are required in some areas. After birth no prelacteal feeds should be without specific medical need. Exclusive breastfeeding until around six months of age results in the healthiest infants. Exposures that would interfere with the establishment of a healthy microbiome should be restricted. The introduction of complimentary foods should begin at about 6 months and include nutritious culturally appropriate foods. In the early years of life regular weighing and recording of growth is important. Conclusions: Appropriate early life nutrition results in healthier infants and children, happier and healthier mothers and savings of billions of dollars in health costs.

Keywords: Universal health coverage, Early life, Nutrition
POSTER PRESENTATIONS
Background: The aging population in Thailand has increased significantly over the past decade. As the population ages, several factors including physical and mental health may decline and impact the quality of life. This study examined the quality of life and its related factors among older adults in the rural area of Northern Thailand. Methods: This cross-sectional study was conducted among 470 older adults aged 60 and over, who lived in Phayao province, Thailand. The study questionnaire consisted of four parts, including socio-demographic data, perceptions of the health status, family relationship, and quality of life (WHOQOL-OLD). The questionnaire was adjusted to meet with the context of the rural community. Results: The majority of the participants (71%) were between 60 and 79 years old. Three-quarters of participants had primary school educational level. Most (74%) were married and no longer work (72%). Most (87%) had a moderate level of the quality of life in all six domains. Six predictors of quality of life include age, gender, education, current employment, health status perception, and family relationship. These factors could significantly predict the quality of life of the older adults by 30%. Conclusions: Healthcare personnel should collaborate with community partners and relevant stakeholders to increase the quality of life of older adults in the rural area through activities which promote their physical and mental activities, the source of income, community involvement, family relationship, and perception of health status.

Keywords: Quality of life, Older adults, Northern Thailand
Abstract ID: PO0002AQ

The Effectiveness of the Customized "Health Prescription" for Senior Citizens in Beitou District, Taipei City

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Introduction: In response to the rapid aging phenomenon, this plan aims to provide group intervention courses of customized "Health Prescription" for senior citizens. Objective: Using comprehensive assessments of physical fitness, reflective health assessments, scale of health-promoting lifestyle, and holistic aging scale, senior citizens' overall health can be significantly promoted through the six fundamental aspects of lifestyles, namely, sports, nutrition, health responsibility, interpersonal relationships, stress coping, and self-realization. Methods: This study produced 31 valid samples with the research design including the single group, pre-test (T1), post-test (T2) and post-posttest (T3, 3 months after the course) that lasts for 6 months. Emphasis was placed on the eight weeks of intervention course (2 hours per week), and its effectiveness was also evaluated before and after the intervention. Results: After administering the standardization of health-promoting lifestyle, the post-test of the six aspects and the aging attitude (the average of T2 and T3) showed a positive increase compared with that of the pre-test (T1). The variances found were as follows: Sports Δ 5.45%, Nutrition Δ 1.63%, Health Responsibility Δ 1.65%, Interpersonal Relationship Δ 7.09%, Stress Coping Δ 4.64%, Self-realization Δ 3.45%, Aging Attitude Δ 2.81%, respectively. When using one-way ANOVA (repeat measure) to analyze the sample variances among the three groups, no difference was found within the group and a statistically significant difference between the groups (p<0.001) was present. Conclusions: The study supports the claim that the implementation and follow-up of "health prescriptions" can effectively enhance the healthy lifestyle of the senior citizens, and its benefits continue even after three months of the courses.

Keywords: Effectiveness, Customized, Health prescription, Senior citizens
Accuracy and Stability of Crossing Motion in Older Adults

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Background: Fall accident occurs so often nowadays due to an increase in the number of elderly people. It can cause a serious physical problem and prolonged bedridden. Fall accident is caused by sudden perturbations; therefore, quick and well-organized stepping responses are needed. Stepping is one of the most important motions for avoiding falls in elderly patients. We sought to analyze foot motion during the volitional steps of older adults and compare it with that of younger adults. Methods: Eighteen healthy older adults (age: 70.8 ± 3.2 years) and 22 younger adults (age: 20.2 ± 0.3 years) were included in this study. The subjects crossed over a lateral obstacle 10 times, keeping the motion as consistent as possible. An infrared reflective marker, placed on the subjects' heels, recorded motion through a three-dimensional motion analysis system. A clinical sensory test for knee proprioception was performed, and the difference between the target and the actual angle of the subjects was calculated using an electrical goniometer. Results: The results of the motion analysis indicated that the trajectories of the heels in older adults were not consistent compared with that of young adults (p< 0.05). Unfortunately, the clinical sensory test and the time-series analysis of knee angle change were unable to detect a decline in the proprioceptive function of the knee. We believe that knee flexor muscles lack coordination in terms of eccentric contractions. This decline of coordination could cause the descending period to extend, which is the time from the top of the trajectory of the heel to the finish of the normalized motion. Conclusions: We also believe that the change in motion may indicate compensatory mechanisms for aging. This information can be useful for designing fall prevention exercises for the elderly population.

Keywords: Motion analysis, Stepping, Elderly population
The Effectiveness of Taipei City's Elderly Health Promotion Plan

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Facing the potential rising issues on daily living and health problems as aged society becomes in Taiwan, it is important to enhance the healthy lifestyle for the elderly and improve their health-related quality of life. For this purpose, the Department of Health of the Taipei City Government commissioned the services of professional organizations to design and conduct the health promotion course for non-frail and/or pre-frail community dwelling adults, who aged 65 and above (or aboriginal individuals aged 55 and above). This course consisted of one-hour education for senior's health care and one-hour exercise program in a week for 8 weeks. In the beginning and the end of course, assessments of physical fitness, health knowledge and behaviors were conducted for the participants. In total 17 health promotion courses, there were 223 elder participants completed assessments at pre- and post-program. We found that female elderly individuals experienced significant improvements on their cardiovascular fitness, upper limb muscle endurance, lower limb muscular strength, lower-body flexibility and agility, while male elderly individuals experienced significant improvements on their cardiovascular fitness, upper limb muscle endurance, lower limb muscular strength, and upper limb flexibility. Furthermore, these elderly individuals also improved their cognitive function and health knowledge significantly after undergoing the course intervention. On average, their level of satisfaction toward the various courses ranged between "Satisfied" and "Very Satisfied." The results revealed that interventions involved physical activity could not only improve the physical fitness, but also cognitive function of elderly individual. Such interventions should be continued for the purpose of achieving active aging.

Keywords: Elderly, Physical activity, Cardiovascular fitness
Abstract ID: PO0006AQ

A Practical Study on the Restructuring Method of Public Traffic for Aging Based on Estimation of the Sharing Traffic in Provincial Cities

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Background: Currently in Japan, the population problem, such as depopulation caused by a declining birthrate and demographic change caused by an aging population, is growing. Especially in provincial cities, public transportations such as buses are forced to reduce or abolish due to those effects. Therefore, it becomes difficult for the people to go shopping or receive a medical/nursing care. In addition, an increase in traffic accidents by elderly people is becoming a social problem.

Methods: In this paper, in order to suppress these problems and to aim at a comfortable environment of the city, we focus on the adjustment of public traffic. We chose Sakura City, a provincial city with a population of 44,009 people (as of March 1, 2017), as sample area. This city has some areas developed as a bed town adjoining Utsunomiya City, a central city of provinces with a population of 520,393 people (as of February 1, 2018), and this increases the population. However, in the city as a whole, it has a super-aging society with population aging rate of 23.8\% (as of 2015). Based on the result date and the several times of field surveys on public transportation such as buses and taxis, we analyzed the frequency of use by residents, the usage area, the usage time, the number of users, and so on, and examined the optimization of the transportation planning in the city.

Results: Through the field surveys, the number of users, the amount of traffic demand for each bus stop, and the current condition of each time zone or areas were clarified.

Conclusions: The optimization of the transportation planning is possible by using the traffic demand, such as the demand of taxi in low demand areas and using the size of the bus corresponding to the demand in high demand area and time zone such as commuting time.

Keywords: Aging, Public traffic, Provincial city, Japan, Restructuring method
An Analysis of Improving the Efficiency of Emergency Transportation by Selecting the Destination Medical Institution Based on Distance Traveled and the Triage

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\textbf{Background:} One of the biggest problems Japan has, in recent years, is that the demand for emergency transport increases due to an increase in the number of elderly. Notably, the generation who resides in the suburbs is aging, and the response time of emergency transportation is extending year by year. As so, it is assumed that it will be difficult to respond to the emergency demand which increases in the whole city. In response to the above situation, it is imperative to review and improve the efficiency of emergency transport operations in many of the local cities in Japan. \textbf{Methods:} In this paper, we proposed measures to improve the efficiency of transportation work including call triage taking into consideration the capacity of the medical institution to be transported. The target area was Utsunomiya City, Tochigi Prefecture, which is a regional city in Japan. Based on the actual data of emergency transportation in 2015, we visualized the dispatching unit, exit site, and the destination of the medical institution on the map and overviewed the relationship between the distance traveled and the destination of the medical institution. Next, based on the travel distance, it was confirmed whether or not the destination of the medical institution was efficiently accepted from the extent of the injury. Finally, we clarified the effects of facility placement and triage on the efficient selection of destination medical institution based on distance traveled. \textbf{Results:} It became clear that the possibility of improving the transportation time can be improved in both methods of triage depending on the degree of injury and facilities location arrangement. \textbf{Conclusions:} It is effective to use appropriate ambulance and placement of medical institutions in local cities in Japan where the number of emergency transportation increases as aging progresses, in order to maintain efficient emergency transportation work.

\textbf{Keywords:} Emergency transportation, Distance traveled, Aging, Actual Data
**Background:** In elderly residence facilities in Japan, care is provided in units through small groups and in private rooms. Caregivers are placed in each unit; nursing care is provided according to the condition of each elderly person. However, how the use of space in buildings of care units affects the caregivers’ feeling of burden has not been reported. In this study, we paid attention to the sense of burden of caregivers, in addition to viewpoint regarding supporting the quality of life of elderly in elderly residence facilities. Additionally, we aimed to examine the type of unit plan and number of residents in the facility, attributes of elderly people, and staff assignment, for reducing caregiver’s feeling of burden. **Methods:** In order to investigate caregivers’ feeling of burden at elderly residence facilities, a questionnaire survey was conducted through mail at special nursing home and healthcare facilities for the elderly. **Results:** First, the influence of caregivers’ feeling of burden and evaluation of the quality of life of elderly people was analyzed using characteristics quantifying facilities plan, however obvious relationships were not found. On the other hand, by creating categories corresponding to the distribution of numerical values, and examining the relationship between the combination and feeling of burden, relations were found among some items. Results showed that when the proportion of rooms facing the hall, which is a shared space, is low, it tended to be advantageous for the caregivers’ feeling of burden and the quality of life of elderly. **Conclusions:** As a design guideline for unit types in Japan, it has been suggested that rooms facing the hall are beneficial. However, this survey showed the opposite result. Therefore, further verification is considered necessary.

**Keywords:** Elderly residence facilities, Unit plan type, Caregivers, Burden-feeling, Questionnaire, Survey
Abstract ID: PO0009AQ

A Fundamental Study on Aggregation and Cooperation of Village from the Actual Condition of Village Function and Nursing Care Service in Depopulated Area

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Background: Currently in Japan, the population structure has undergone significant changes due to the declining of birthrate and the progress of aging in the society. In addition, depopulation has progressed in the middle - mountainous areas and various problems occur in the village, which was the original unit of living. In the village, some activities are jointly carried out, such as festivals, maintenance of farm roads and maintenance of the facilities of villages, which are said to be "Village Functions." It is said that the activity of "Village Functions" is one of the survival factors of the village. Also in the settlements of the middle - mountainous areas where aging has progressed, supply and demand of services in the nursing care and medical care is considered a problem. Therefore, in this research, we aim to obtain knowledge for aggregation and collaboration of villages from the actual condition of village function and nursing care service supply and demand. Methods: Statistics on "Village Functions" from agriculture and forestry census and statistical data on population from the census were organized for each village. The nursing care service actual condition was comprehended from the long-term care insurance benefit actual data of 1 year from October 2015 and compared with the characteristics of the village. Results: There were many facilities in the central city area part of the city, and service was satisfactory, and village activities were active, too. However, in the middle - mountainous areas where a care service did not reach, there were many villages in which village activity degenerates. Conclusions: We clarified the relationship between the supply and demand range of nursing care services and the village activities.

Keywords: Depopulated area, Village, Village function, Nursing care service, Aggregation, Cooperation
“PUSH” program – Effective Promotion of Elders’ Participation in Volunteer Services

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Background: Xinyi District became an “Aged Society” in 2013, with 14.5% of the population being above 65 years old, but only 24% the elderly participating in health promotion activities. The concept of “active ageing” is presented by the WHO to help the elderly retain intrinsic capacity. There is also focus on promoting the participation of the elderly in volunteer services. Methods: Promoting the elderly participation in volunteer services with the “PUSH” program. Partnership and Social participation: Creating a partnership with the community to offer the elderly access to volunteer services and health activities. Upward professional ability: Providing educational training and matching specialties in order to develop personal skills. Service: Developing the diverse and distinctive senior volunteer plans. Honor and Healthy ageing: Enhancing the welfare and honor of the volunteers to recreate the value of the senior. Results: Creating a win-win scenario for elder’s social participation and volunteer services P: All 41 villages in the Xinyi District are organized to promote the localized community service mode. The participation of the elderly is increased up to 32% (31% growth in the past 4 years). 48% of the elderly are willing to do volunteer services. U: Rise of aged above 65 volunteer participation increased by 12%, compared to 2015. S: Develop the 5 creative service programs: (1) The single senior serving other seniors program. (2) Intergenerational nutrition teachers. (3) Photo exhibits of caring about the elderly. (4) Guiding for “Home Safety Experience Hall”. (5) Establishing mental mobile Spirit Mini Troupe. The total served 12,109 hours (9.6% growth). H: Marked A in volunteer team evaluation in 2017, and 13 senior volunteers were awarded. Conclusions: The percentage of senior volunteers in our team is 64.3%. Obviously, the senior volunteers are social empower. Through partnership community establish re-socialization and healthy life support system to create age-friendly cities.

Keywords: Elder volunteer, Social participation
Cross-Domain Collaboration in Reducing Tendency for Depression among Solitary Elderly Population in Shilin District, Taipei

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Background: The current ratio of aged population over 65 years old in Shilin District, Taipei, is 16.67%. Geriatric Depression Scale carried out on solitary seniors aged over 65 years old in 2015 revealed that 22.22% of solitary senior had depression tendencies. To provide the senior community with opportunities for participation, the “cross-domain collaboration model to care for solitary seniors” was established, directing the solitary seniors’ service focus to the community, providing them with access to services without having to go far. Methods: In this study, cross-domain collaboration model was introduced in Shilin district which includes (1) Integrating all kinds of long-term care resources from the local industry, official and academic bodies, and private sector to establish an inter-departmental cooperation platform for elderly. (2) Development of a multidimensional community care scheme for the elderly people, including psychological concern – year-end feast and courses for senior citizens in Shilin, including healthcare, safety, art therapy and more. (3) Training workers to take care of solitary seniors. (4) Establish a work team of collaborators to regular meeting. Results: After 2 year depression tests were carried out on 342 elderly, who are involved in this study. Our results showed that the tendency of solitary senior to get depression was reduced to 3.95%. Compared with the earlier figure, which is 22.22%, it showed a reduction up to 18.27%. The groups of inter-departmental cooperation platform increased from 37 to 40, growing 8.11%. Conclusions: The cross-domain collaboration model to care for solitary seniors is capable of effectively decreasing the depression index of solitary seniors. The cross-domain collaboration model to care for solitary seniors is capable of effectively decreasing the depression index of solitary seniors.

Keywords: Senior community, Cross-domain collaboration
Study on the Setting for the Elderly Care Environment Including End-Of-Life Care – Part 1

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Background: In Japan, which has entered a super-aged society, there is an urgent need to construct a comprehensive regional care system from various perspectives such as elderly quality of life (QOL) and suppression of medical and nursing care expenses. Palliative and hospice care are also regarded as important. There are certain studies on end-of-life care in nursing homes for elderly, elderly caregivers, and paid nursing homes as elderly residences, where individuals can live while receiving nursing care as needed until the end of life. On the other hand, no research has been conducted on different types of cases such as home hospice care, which has been increasing in recent years. Therefore, we considered research using home hospice as a potential format to deliver regional inclusive care in the future.

Methods: In this research, we have investigated the effectiveness of setting up an elderly residential facility that provides daily care, including end-of-life care, for facilities that have demonstrated pioneering efforts among home hospice services that provide nursing care including end-of-life care.

Results and conclusions: The following findings are useful to grasp the state of daily life of tenants living in home hospice, the interaction between residents and family members, how to relate to staff, investigation of tenants’ health, survey of establishment of facilities, and observation survey. 1) In a neighbouring room in a shared space, a bedridden resident requiring high level care can continuously have a relationship with others. 2) Individual living, in which tenants with low-degree care needs are not tied to a shared space, develops. 3) There are cases in which the proportion of the living place is distributed regardless of the degree of care required.

Keywords: End-of-life Care, Home hospice care, Staying place, Environmental evaluation
Study on the Setting for the Elderly Care Environment Including End-Of-Life Care – Part 2

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Background: This paper is the second draft of research on the arrangement of habitations for nursing home residents who receive end-of-life care. Objective: To describe the evaluation and the reason for the place and thing in the facility which is concerned when carrying out everyday life including end of life care using caption evaluation method survey. Methods: Using the results of an environmental survey of nursing home staff, and the conclusions of the first draft of this paper, we have examined the effectiveness of certain habitation arrangements in elderly residential facilities, including for those receiving end-of-life care. Results: We have determined that the following conclusions can be indicated in some cases: 1) In a facility of around five people, residents can get more care and communication. 2) Even residents who cannot move by themselves can establish a relationship with others by connecting the physically impaired resident's room to the common living room and by opening the sliding doors of the room. 3) It is difficult to secure enough space for nursing and medical equipment because the general house has been renovated. 4) From both scale and cost perspective, evacuation routes and disaster prevention equipment are difficult to implement. Also, depending on the characteristics of each facility, there may be changes in the lives of residents. With this in mind, we organize the results for each facility and organize the specific types of habitation arrangements according to the type of floor plan. Conclusions: As a summary, resident rooms connected to a living room or dining room by partitions that can be opened or closed allow for continuous engagement with others for residents who require a high level of nursing care. By doing this, you can live support that does not require long-term care.

Keywords: End-of-Life care, Staying place, Environmental evaluation, Home-hospice-care
Risk Factor According to Braden Scale Following Prevention of Pressure Ulcer (PU) among Acute Hospitalized Elderly using Pharmacologic (Cavillon Cream) Vs. Non-Pharmacologic Alone: A Quasi Experimental Study

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Background: Pressure Ulcer (PU) is a common health problem particularly among the physically limited or bedridden persons and the group most vulnerable to suffer this condition is the frail elderly. Objective: To identify the risk factors using Braden Scale assessment for PU development following PU prevention intervention among test and control groups. Methods: The risk factor for pressure ulcer in this study were looking at the six items based on Braden scale that were the sensory perception, moisture, activity, mobility, nutrition and friction & shear on day 1 and day 3 for test group (added Cavillon cream beside standard prevention as per protocol) and control group. The PU risk factor changes between test and control group were measured based on the score of Braden scale day 3 minus day 1; the higher the mark obtained, the better the outcome. For Braden scale, the higher the score show the lower risk for PU development. Results: The mean different between test and control group was 0.42±0.56. There is no significant different in the risk factor using Braden scale score between experimental and control group with p > 0.005 (0.23), 95% CI of 0.38-0.39. The change in test group was not much different compare to control group. Conclusions: This study shows that the use of Cavillon cream does not improve PU risk factor among hospitalize elderly.

Keywords: Pressure ulcer, Prevention, Braden scale, Cavilon cream, Acute hospitalized elderly
Age-defying Theme Park Promotes Health

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Background: Through social participations, interactive learning and regular activities, the seniors are provided with positive benefits towards health in three aspects, including physiology, psychology and society, thereby accomplishing successful aging. Methods: (1) Just For You age-defying exercise prescription – Design” Personal Workout Prescriptions”. A total of 3 stations (36 sessions) were conducted in the Elderly Activity Centers, with 2,534 participants. (2) Never Old Band Here We Go – Offer an innovative course on African drum. According to the telephone satisfaction survey, 70.5% of the family members generally agreed that the elders participated in the Elderly Activity Centers became "healthier." (3) Super Urchin Tooth-Brushing Fun – Hold a tooth brushing contest for seniors at the center for the elderly. An increase in the average number of oral health care activities in the elderly was conducted through the oral health care scale. Results: Introducing diverse courses, the seniors showed to have positive growth in the control of chronic diseases, physical fitness, body activity and living quality. Conclusions: The seniors in the community actively participated in the health promotion event, which was beneficial in enhancing their independent and autonomous healthy lives, thereby reducing their level of dependence.

Keywords: Age-defying, Physical fitness, Health promotion event
The Influence of Increased Internet Use on Daily Experience of Subjective Symptoms during Adolescence

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Background: An excessive use of the internet from early ages in adolescence might result in a breakdown in lifestyle habits and a decline in communication abilities. The purpose of this study is to examine how the daily experience of subjective symptoms is affected by the time spent using the internet during adolescence. Methods: The study included 549 subjects with 220 men and 329 women whose ages were around 17 years. Their experiences of subjective symptoms in daily life were self-assessed through a 25-item questionnaire. The dependence of a presence/absence of subjective symptoms on the time spent using the internet was studied by logistic regression analyses adjusting for gender. Results: Many subjective symptoms in daily life were dependent on the length of time spent using the internet. Those who spent over 30 min on the internet complained of ‘Poor concentration’ and ‘Decline in thinking power’ in their daily life. ‘Having confused thoughts’ and ‘Feeling shy’ were prevalent for those who spent over 1 hour, and further ‘Feeling heavy in the legs and/or the arms’, and ‘Feeling heavy in the body’ for those over 2 hours. In excess of 3 hours of internet use, people had ‘Wanting to sit down’ and ‘Finding it hard to stand’ in their daily life. In excess of 4 hours, ‘Feeling the need for a nap’ was prevalent. ‘Feeling impatient’ and ‘Being in a down mood’ in daily life were more prevalent in those who spent more time on the internet. Conclusions: Internet use over a long period has great influence on prevalence of subjective symptoms in daily life like mental and physical fatigue. These subjective symptoms were suggested to be dependent on the length of time spent using the internet. Although the internet brings useful information in daily life, an appropriate length of use is needed.

Keywords: Adolescence, Daily life, Internet use, Subjective symptoms, Prevalence studies
Background: Illicit drug use among adolescents can lead to a variety of detrimental consequences. This study was carried out to determine the prevalence of illicit drug use and its associated factors among male school-going adolescents in Malaysia. Methods: Data was obtained from the National Health and Morbidity Survey (NHMS) 2017, a cross-sectional survey targeting Malaysian school-going adolescents aged between 13 to 17 years. A two-stage stratified cluster sampling was applied and data collection was done using a validated self-administered questionnaire adopted from Malaysia GSHS 2012. A total of 27,497 students participated in this survey. A complex sample analysis and Multiple Logistic Regression analysis were applied. Results: The prevalence of male adolescents who ever use illicit drug was 6.6% (95% CI: 5.60, 7.80). The multivariable model shows that younger age (13-15 years) [AOR: 1.43, 95% CI: 1.13, 1.60], rural school area [AOR:1.35, 95% CI: 1.13, 1.62], had problematic marital status of parent (divorce/widow/separated) [AOR: 1.71, 95% CI: 1.39,2.11], current smoker[AOR: 5.92, 95% CI: 4.89, 7.17], ever having sex [AOR: 7.90, 95% CI: 6.52, 9.57], truancy [AOR: 2.23, 95% CI: 1.86, 2.68], involved in physical fight [AOR: 2.53, 95% CI: 2.11, 3.05] and lack of peer support [AOR: 1.26, 95% CI: 1.04, 1.54] were associated with illicit drug use among male adolescents. Conclusions: Health promotion programs should simultaneously address multiple risk behaviours and take into account a wide range of psychosocial characteristics of the students at the individual and family levels.

Keywords: Illicit drug use, Adolescent, School-going adolescents, Malaysia
Abstract ID: PO0003CA

Preliminary Study of Premarital Sexual Behaviors among Street Children Lives in Shelter Homes at Malang District, Indonesia

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\textbf{Background:} Street children’s sexual health has been explored largely by researchers including premarital sexual behaviors which were done by this community. Shelter home was established in order to give a place-like-home for street children and protect them from the health risk problems. This preliminary study is to identify the demographic data of premarital sexual behaviors among street children lives in shelter homes. \textbf{Methods:} A retrospective descriptive study was done using interview based on a semistructured questionnaire. Thirty street children that lived in shelter homes at Malang District participated. \textbf{Results:} The majority of street children was male (67 \%) with aged between 6 and 17 years old (Mean 12,5 years). 40 \% was receive basic education at elementary school and 50 \% having street life since 1 to 3 years. 43 \% children declared they did premarital sexual behaviors including hugging (33 \%), kissing (33 \%), petting (13 \%) and intercourse (21 \%). \textbf{Conclusions:} Shelter home needs to elaborate with the health services to gain mutual collaboration in terms of health education and support to street children from sexual transmitted diseases.

\textbf{Keywords:} Street children, Premarital sex, Shelter home
Predictors of Prehypertension and Hypertension among Adolescents: A Literature Review

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Background: Hypertension is one of risk factors for future development of cardiovascular disease (CVD). Hypertension begins in childhood and adolescence. Family history of hypertension, obesity and life-style are three main factors which commonly associated with cardiovascular disease. The aim of this study was to describe the predictors of prehypertension and hypertension among adolescents. A literature review was conducted to select 13 articles which were published from 2007 to 2017 using data sources from Science Direct, Proquest, SAGE and SpringerLink. The result showed that overweight and obesity have higher association as predictors of prehypertension and hypertension in adolescent. Other factors such as family history, high salt consumption, cigarette consumption and less physical activity were identified to contribute in developing prehypertension and hypertension.

Conclusions: In conclusion, to prevent development of prehypertension and hypertension among adolescents, healthy lifestyle modification is important for them such as reduce body weight, increase physical activity, low sodium consumption, and avoid cigarette consumption.

Keywords: Prehypertension, Hypertension, Adolescents
Abstract ID: PO0005CA

Knowledge of Mothers with Children Under 5 Years about Diarrheal Diseases Affecting Their Children, Attending to Teaching Hospital Anuradhapura

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Background: Diarrhoea is the second commonest cause of death in children under 5 years and the leading cause of malnutrition in the world. Ability of mothers to recognize and manage symptoms of diarrhea is crucial. Objective: The study was aimed to determine the knowledge of mothers about causation, prevention and effective management of diarrhea and association of educational level, occupation, parity and mother’s age with the knowledge. Methods: A cross sectional study was conducted among 390 mothers with children under five years at the OPD and Pediatric wards of Teaching Hospital Anuradhapura, Sri Lanka. Consecutive sampling technique was employed. Data was collected through interviewer administered questionnaires from July 2016 to April 2017. Data was analysed using SPSS software. Results: The mean age of the participants was 30.02 ± 5.93. There are 170 (43.6%) mothers with one child and 220 (56.4%) with two or more. Understanding of the term diarrhoea among the mothers were as; satisfactory 39 (10%), partially satisfactory 254(65.1%) and unsatisfactory 97(24.9%). Bloody diarrhea 305 (78.2%) and tarry stools 266 (68.2%) were identified as uncommon symptoms and needed to seek medical advice. Causes for diarrhea were; contaminated water 355(91%), poor hygienic practices 308 (79%), unhygienic foods 334(85.6%). Majority, 194 (49.7%) suggest to seek medical advice after 3-5 episodes of diarrhea. Breast feeding practices during diarrhea were 38 (9.7%) to stop, 118 (30.3%) feed as usual and 234(60%) to increase the frequency. Only 140 (35.9%) were aware of correct ORS preparation. Maternal age showed a significant relationship with management of diarrhea with ORS (p = 0.001). Conclusions: The overall understanding regarding diarrhoea, its identification and management is satisfactory but is at a state that should be improved. Educational campaigns to mothers especially the young and less educated could lead to more effective management.

Keywords: Anuradhapura, Diarrhoea, Knowledge, Mothers, ORS
The Influence of Learning to Read Al-Qur'an Using the Method At Tartil to the Emotional Problems of Children with Autism

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Autism spectrum disorder is a pervasive developmental disorder with delays and deviations in the development of social skills, language and communication, and behavior. Children with autism have difficulty recognizing certain emotions, and difficulty expressing their emotions. It is estimated that worldwide 1 in 160 children suffer from ASD. The formulation of the problem is whether the provision of learning to read Al-Qur’an by using At Tartil method can affect the emotional problems of children with autism. The purpose of this study is to determine the effect of learning to read Al-Qur’an by using At Tartil method to emotional problems of children with autism. The research method used is literature review. The results of several studies have concluded that reading Al-Qur’an in autistic children can reduce emotional problems because it can create delta waves on the frontal that can provide peace and comfort. Another activity that is considered to reduce emotions in children with autism is to learn to read aloud. Several studies have concluded that learning to read aloud promote the development of children socially-emotionally.

Keywords: Autism, Emotional problems, Al-Qur’an
Level of Physical Activity among 10-19 Years Aged Visually or Hearing Disabled Adolescents in the Western Province of Sri Lanka

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Background: There is a lacuna of data on level of physical activity among hearing or visually disabled adolescents in Sri Lanka. The objective of this study was to determine the level of physical activity among 10-19 years aged visually or hearing disabled adolescents in all special education schools in the Western Province of Sri Lanka. Methods: A descriptive cross sectional study was conducted among 10-19 years aged visually or hearing disabled 376 adolescents in all ten special education schools in the Western Province of Sri Lanka. The Validated Physical Activity Questionnaire – Sinhala (PAQ-S) was used to assess the prevalence of physical activity. Data was analyzed with SPSS 21.0. Significance value of 0.05 and chi square was used. Results: The entire sample responded. The prevalence of physical activity was 38.8%. A significant association was found with the level of physical activity and chronic illness which were deaf or blind (p<0.001). The number of sports clubs participated in last 12 months showed a significant level of 0.02. The level of physical activity found insignificant association with gender (p=0.94), sector (p=0.77) and knowledge on benefits of learning injury prevention (p=0.47). Conclusions: The majority of adolescents were insufficiently active. It is recommended to take measures to promote physical activity.

Keywords: Visually disabled, Hearing disabled, Physical activity, Adolescents
Association between Treatment Adherence and Socio-Demography, Disease Severity, Quality Of Life, Knowledge and Attitude among Adolescents with Asthma in North-Eastern Malaysia

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Background: Asthma is a substantial health problem among adolescents worldwide which may compromise their quality of life. Poor adherence to the prescribed anti-asthma medications leads to high morbidity and possibility mortality. This study was designed to assess the association between treatment adherence and socio-demography, disease severity, quality of life, knowledge and attitude among adolescents with asthma in Kelantan. Methods: A cross-sectional study was conducted among 364 adolescents with asthma in secondary schools in two districts Kota Bharu and Pasir Mas. Multi-stage cluster sampling was used. We included adolescents aged between 13 to 18 years old and diagnosed at least six months prior to recruitment, had recurrent wheeze or breathlessness in the past 12 months and under follow up in the government or private health clinics or hospitals. Adolescents who were illiterate of Malay Languages, had learning and behaviour difficulties, had concomitant health illness and whose parents refused consent were excluded from the study. Self-administered validated questionnaires were used. Multiple logistic regression was used for data analysis. Results: The mean age of participants was 14.9 years old [standard deviation 1.5] with 56.5% of them female. Most adolescents had intermittent asthma (53.8%), had family history of asthma (62.6%) and had history of allergy rhinitis or skin allergy (56.5%). 50.4% had smoker at home. Only 23.7% had been hospitalized due to asthma. The majority of them on inhaled reliever as asthma medication. The non-adherence ranged from 5.7-52.7%. Age and used of oral and nebulizer were found as significant associated factors of adherence to asthma treatment while female and severity score were found as significant associated factors of quality of life among adolescents with asthma. Conclusions: There was poor adherence of asthma medication among adolescents. Knowledge and attitude of asthma should be improved.

Keywords: Adolescent, Asthma, Adherence, Quality of life, Knowledge, Attitude
Exploring the Role of School-Based Education in Preventing Bullying in High Schools in Lombok Island, Indonesia – A Qualitative Study

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Background: The 2015 Global School-Based Health Survey showed that only 20.6% of Indonesian students aged 13-17-year-old were bullied compared to the average of other Southeast Asian countries which was 36.2%. Previous studies found out that school education contributes to the reduction in the prevalence of school-bullying, but no similar study has been done to investigate this phenomenon among public high schools in Indonesia. This research aimed to explore the role of school-based education in preventing bullying in public high schools in Mataram City, Lombok Island, Indonesia. Methods: Focused ethnography was employed in five selected public high schools in Mataram City in 2018. In-depth interviews with principals and focus group discussions among teachers were conducted. Also, participant observations were conducted through interacting with students, other teachers, and support staff during classes and other activities within the school grounds. Data were transcribed and then analyzed using thematic analysis. Results: Two themes emerged in the analysis: (1) School curricula promote accepting other students as who they are; and (2) Toleransi is commonly practiced in Indonesia. The schools provide lessons on religion, Pancasila (Indonesian state ideology emphasizing unity) and civic duties. These also provide opportunities for extracurricular activities such as arts and sports. All these activities promote character-building and self-esteem among students. Furthermore, the school lessons and activities promote Toleransi. This is the practice of respecting others regardless of their religion and other affiliations. Both of these promote bullying prevention in schools. Conclusions: High schools promote character-building, self-esteem and respect for others through class lessons and activities. These contribute to the practice of Toleransi among students. Further studies may elucidate the relationship between these practices and the low prevalence of school bullying in Indonesia.

Keywords: Bullying, School health, Islamic education, Indonesia
Discovering Autism Child Potential Using Autism Parenting Application

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Background: Autism has become prevalent disorder among children nowadays. Parents with autism kid having a high level of stress than other parents. There is some remarkable skill in autism kid that by discovering the skill can make parents to have a better approach or better parenting toward their kid. Autism children are said to have a visual-spatial or good memory power. The problem here is most of the parents cannot discover which skill their kids have. Methods: A study was carried out to produce a mobile application (prototype) for autism parents to discover their child’s remarkable skills. The application will be focusing on testing the memory and visual-spatial skill autism children with aids of parents. Prototyping methodology and mixed method were applied throughout the project. Results: Seven respondents use the application on their child, the results were two of their kids are having memory power, another two kids were having both remarkable skill and remaining three of them have visual-spatial as their skill. Conclusions: The application is expected to help parents to discover their kid’s remarkable skill.

Keywords: Autism, Parenting, Application, Child
Demand of Sexual Knowledge and Sexual Education Situation among Undergraduate Students in Wuhan University, China

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Background: With the increase of age, the school students' sexual physiology and sexual psychology have gradually matured, and the demand for sex education has also been increasing. However, because of the imprisonment of traditional ideas and the imperfect sexual education system, college students are seriously underrepresented in sex education. This study aimed to explore the demand for sexual knowledge and sexual education among undergraduate students of Wu Han University as well as provide evidence for college conducting targeted sexual education. Methods: The subjects were recruited through peer recommendation among undergraduate students of the university. A self-designed electronic questionnaire was used to investigate in anonymously. Results: 463 participants were included, and 28.9% of the subjects reckoned that they had abundant sexual knowledge while 16.5% reckoned they had poor sexual knowledge. The approaches of obtaining sexual knowledge mainly include surfing the Internet (87.3%), communicating with classmates (58.1%), reading books and magazines (33.3%) and receiving school education (29.6%). More than 60% of the recruited students had demands on knowledge of sexual psychology, contraception, love psychology and sexual physiology. Females had significantly higher demands on contraception and self-protection than males ($\chi^2=7.975$, $P<0.05$). 61.3% and 59.0% of the recruited students wanted to get sexual knowledge via relevant lectures and movies, respectively, while 51.4% and 51.0% of the recruited students hoped to obtain sexual knowledge through books and scientific exhibition, respectively. Conclusions: A large proportion of students had poor sexual knowledge, and their demand for sexual education is urgent. The main channel students used to get sexual knowledge were surfing the Internet and communicating with classmates. The school education and family education were insufficient. Therefore, it is necessary and critical for the school to take the initiative to understand the sexual demands of students as well as carry out sexual health education on the targeted populations.

Keywords: College students, Sexual education, Sexual knowledge
Management and Outcome of the Waterpark Burn Disaster Victims in Taiwan

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On June 27, 2015, a powerful explosion of flammable powder in a water park in north Taiwan caused 499 people burns. This is the public safety incident with highest number of casualties in Taiwan ever since. It is also a big challenge for the treatment of such many patients. On July 14, 2015, New Taipei City Government and Central Government established the Case Management Center for Burn Victims (CMCBV) to provide 3-year case service to track the recovery of the wounded. In this incident, the average age of the wounded was 22.6 years old and 41% burns area. The fatality rate was 3% in the first two years. This retrospective study analyzed data from hospital and CMCBV records of casualties who sustained burns injuries in the Formosa Fun Coast Waterpark explosion, on 27 June 2015; the cut-off date for observational follow-up was 30 June 2017. The selection criteria excluded casualties who were not Taiwanese citizens, had 0% TBSA, or who died during the study period. The analytic cohort included all other burns casualties from this incident who were sent to hospital. More than 88% wounded completed the rehabilitation and more than 80% returned to the society. It provides the evidence that the establishment of the Center can offer wounded multiple services, help them to resume normal life as soon as possible and return to society smoothly.

Keywords: Waterpark, Burn, Explosion, Rehabilitation
Factors Related to Household Disaster Preparedness in Myanmar

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Background: Myanmar is a country exposed to varieties of natural disasters. However, there is limited number of studies on household disaster preparedness, socio-demographic predictors, knowledge, and perception towards risk and disaster preparedness among communities in Myanmar. This study explores how well-prepared households from disaster-prone areas are, and identifies influencing factors toward household level disaster preparedness in Ayeyarwady Region, Myanmar. Methods: This was a cross-sectional descriptive study, which involved interviewing 184 respondents from five villages including adult aged 18 to 59 years old, and using self-constructed structural questionnaires to collect data. Pearson’s correlation and multiple linear regression analysis were carried out to find out the associations between related factors and the household disaster preparedness. Results: Our data revealed that 37% of household representatives had a good level of disaster preparedness. The following factors were positively correlated and statistically significant on household disaster preparedness; perception on benefits (β=0.204), perception on barriers towards disaster preparedness (β=0.169), support from community leaders, religious leaders and neighbors on disaster risk reduction (β=0.335) and experiences from the previous two years of the disaster (β=0.248) once all possible cofounders were adjusted (p<0.05). Conclusions: Household level disaster preparedness measures are relatively low. Therefore, strengthening disaster preparedness programs, enhancing public awareness and building community disaster resilience in different sectors, including the public health aspect, is recommended.

Keywords: Disaster, Household, Preparedness, Risk reduction, Myanmar, Risk management
Disaster Mental Health Research in Malaysia: Literature Review and Identification of the Gap of Knowledge

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Background: Disaster poses significant stress on the mental health of a population. Debriefing, a method used commonly in the setting of disaster, has been shown to be harmful instead of helping the victims. Malaysia, just like another country in the world, faces the threat of natural disaster intermittently, including flood, tsunami, earthquake, and landslide. To date, there is limited information on the research that is related with disaster mental health issue in Malaysia. Methods: A review was carried out using the database of Ovid, SCOPUS, and Google Scholar. The truncated keywords used including disaster, mental health, psychiatry, and Malaysia. Any research that is related with mental health, psychiatric or psychological issues in disaster happen in Malaysia is included. The findings of each study are tabulated. Results: Total of four articles was found. First article (2009) was a cross-sectional study on issue of post-traumatic stress disorder symptoms, coping style, and social support for the Tsunami’s survivors; second article (2012) was an exploratory qualitative study of the psychological impact of the flood on cognitive, emotional, and behaviourl aspect; third article (2013) was a mixed cross-sectional and exploratory qualitative study on stress and coping skills among flood victims. All three studies were flood related. Fourth article (2000) was a brief report on an overall proactive response framework for disaster mental health. Conclusions: There is a huge gap of knowledge in the research of mental health issue related with disaster in Malaysia. More studies would assist in understanding of the mental health problem as well as the planning of the mental health management framework during disaster. Prevention is always better than cure.

Keywords: Mental health, Disaster, Psychiatry, Trauma, Flood
Inadequate Support in Japan for Disaster Victims with Children with Disabilities

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Background: In 2011, the Great East Japan Earthquake and Tsunami damaged vast areas and took the lives of more than 15,000 people. Moreover, in 2016, devastating earthquakes in Kumamoto, Kyushu Island, also harmed residents. Since children with disabilities and their families are considered vulnerable disaster victims, supporting them may need special consideration. This study aimed to explore the experiences of parents of children with disabilities, focusing on inadequate support during disasters. Methods: Participants were recruited from parents’ associations of children with disabilities. Parents of children with disabilities (mainly intellectual and developmental disabilities) at the time of the Great East Japan Earthquake or Kumamoto Earthquakes were eligible as participants. Since November 2017, telephone and group interviews with parents of children with disabilities are being conducted. I will present a report made midway through this study. Results: Since the children with disabilities were unable to calm down, most participants could not stay in a shelter and lived in cars or damaged homes. However, depending on individual communities, food and goods were distributed only to victims in shelters, not to those who evacuated to other areas. It increased the feeling of isolation and fear of victims not living in shelters. Besides, even when food and goods were provided to victims, they had to stand in line for a long time to obtain them. Parents of children with disabilities found this was difficult and had to give up on obtaining supplies. Conclusions: This study considered how to provide adequate support for vulnerable disaster victims, and based on this study, a quantitative study would be conducted in the future. This study was supported by the Mitsubishi Foundation and JSPS KAKENHI Grant Number JP 17H02612.

Keywords: Disaster victims, Inadequate support, Japan, Negative support, Parents, children with disabilities
Abstract ID: PO0007DI

Scientific Evidence on Natural Disasters and Health Emergency and Disaster Risk Management in Asian Rural-Based Area

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Disaster epidemiological patterns indicated Asia has the highest frequency of natural disasters. Of which rural communities are heavily impacted and have different health care needs than their urban counterparts. Referencing Asian countries, the objective of this paper is to provide an overview of the current evidence for rural health-related emergency and disaster risk management (health-EDRM) for floods, earthquakes, and typhoons/cyclones. This paper includes 72 published reports and peer-reviewed articles retrieved from PubMed, Embase, Medline, and PsycINFO on the topics of rural disaster and emergency response, relief, health impact, and disease patterns from 2000 to 2018. We found the majority of published literature was related to earthquakes and was set in China despite floods have the highest mortality rate. In addition, rural communities with children, elderly populations, and low-levels of community preparedness have a higher burden on health. However, there are evidence gaps in assessing the impact of health relief programs and addressing specific risks such as higher rates of respiratory illnesses and low rates of literacy.

Keywords: Disaster preparedness, Disaster risk reduction, Rural health, Natural disasters, Asia, Health-EDRM

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Background: We estimated the Disability-Adjusted Life Years (DALYs) of dental caries and periodontal disease in 2015 Korean national burden of diseases project. Due to a difference in data sources and criteria of disease, the result gap between global burden of disease and Korean burden of disease was big. Even though results are not directly comparable, we presumed the burden of dental disease might be underestimated because of the characteristics of the disease and the methodologies. This paper aims to explore how variation of criteria influences DALYs of oral diseases and analyze relative rank. Methods: We estimated DALYs using prevalence-based approaches for calculating 2015 Korean national burden of disease project. Datasets in our study were collected from the National Health Insurance Service (NHIS) that covered 97% of the population. That might strengthen our study. We ran sensitivity analysis after we varied the frequency of attendance at hospital and washout period using data from NHIS. Results: Using the Korean burden of disease criteria, dental caries resulted in 348 DALYs (per 100 000), the periodontal disease was 573 DALYs (per 100 000) in total. After changing the frequency of attendance at hospital 3 to 1, DALYs of dental caries increased 348 to 2483 and DALYs of periodontal disease increased 573 to 9405. Conclusions: After the variation of criteria, a big difference arose in the result. Due to the lack of accurate criteria of disease and limitations in dental epidemiology, the burden of disease may be underestimated. In another way, we suggest that researchers should take action in creating a particular approach to measure epidemiological values in the dental field.

Keywords: Dental, Public health, Burden, Oral diseases, Korea
Factors Related to the Oral Health Care of Patients with Type II Diabetes Mellitus in Khao Sinarin Hospital, Khao Sinarin District, Surin Province, Thailand

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Background: In several studies, oral health behaviour has been found to relate to metabolic control among type II diabetic mellitus patients. This study aims to examine the factors relating to oral health care in diabetic patients in Khao Sinarin Hospital, Khao Sinarin District, Surin Province, Thailand. Methods: This cross-sectional study observed 128 type II diabetic mellitus patients who attended the hospital for their regular follow-up treatment over 4 months. Data was obtained with face to face interview questionnaires using Pearson’s Correlation Coefficient to investigate the relationship between the factors, including demographics and health behaviour. Results: The result showed that most type II diabetic mellitus patients indicated to obesity (BMI 25.00 -29.99), during a period of illness with diabetes of less than 10 years. The behaviour of patients who had never received dental treatment, indicated a high level of knowledge of oral hygiene, attitude towards oral healthcare and practice in oral care. The factors associated with oral health care indicate that 1) age of diabetic patients was negatively correlated with the body mass index and oral care practices, 2) body mass index is negatively correlated with the period of illness with diabetes, but it was positively correlated with sugar blood level and oral health care practices, and 3) knowledge of oral health is positively correlated with attitudes and practices regarding oral health. Conclusions: Health behaviour such as knowledge and attitudes about oral hygiene in diabetic patients was found to be at a high level. However, some affected that need to be concerned with oral health care practices such as the age of diabetics’ patients, BMI level, and attitude towards to oral health care. Therefore there is a need for health education and public concern.

Keywords: Oral health, Behaviour, Care, Diabetics, Type II Diabetes mellitus
Assessment of Long-Term Impact of the Bridging Course on the Nursing Faculty in Cambodia

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Background: The key challenge of faculty development is to ensure the transference of individual learning into the workplace. In Cambodia, obtaining a higher degree from associate degree to bachelor degree in nursing has commenced since 2011. The graduates of the bridging course gained experience in teaching-learning foreign settings. However, they are also faced with challenges such as not being understood by other health professionals and their nursing colleagues at their workplaces. This study aimed to 1) assess the long-term impact of the bridging course on nursing faculty of school teachers and clinical instructors at hospitals, and 2) discuss possible factors influencing the impact. We applied the Kirkpatrick’s four level of learning and training evaluation model. The four levels are 1) reaction evaluation, 2) learning evaluation, 3) behavior evaluation, and 4) results evaluation.

Methods: We conducted evaluations of the latter two levels, behavior and results evaluations, by interviewing 25 course graduates who were working as nursing teachers in the public sector and 11 managers of the teaching and clinical institutions. We analyzed the factors influencing their associated processes in their workplaces. Results: The main impact of the bridging course resulted in the improvement of students’ performance through updating teaching-learning activities. Promoting factors were implementing common tasks and activities by the graduates, such as the preparation of course syllabus and improvement of clinical practice, promotion of the graduates to responsible positions, networking among graduates and being supported by their managers. However, there were issues such as inadequate teaching-learning materials and references, and a lack of capacity development of hospital preceptors. Conclusions: The results of this study showed that faculty development through the bridging course had a favorable effect on nursing teachers at two levels of the Kirkpatrick model.

Keywords: Nursing, Faculty development, Capacity development, Kirkpatrick’s four-level training evaluation, Cambodia
Abstract ID: PO0003ED

Oral Function-Focused Nutritional Care Management for Home-Based Patients or Elderlies in Japan

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Background: The objectives of this study were as follows: to understand the present nutritional status for home-based patients/elderlies people, to clarify the duties of registered dietitians for managing chewing/swallowing disorders for home-based patients/elderly, and to consider educational programs in home nutritional care for registered dietitians. Methods: Utilizing a questionnaire, we interviewed 5 dentists, 20 registered dietitians, and 5 care managers from 3 metropolitan and 2 local areas of Japan during 2014-2018. Results: Several observations regarding the present nutritional status for home-based patients/elderlies were found in this study. The main causes of patients/elderlies returning to the hospital/nursing home were malnutrition, chewing/swallowing disorders, and uncontrollable chronic disease and gastric fistula. Most of the patients/elderlies, their families, and even the care managers lack knowledge on how to prepare their diets. It is important to have knowledge regarding proper oral care in the prevention of malnutrition and aspiration pneumonia, but most of the patients/elderlies cannot care for themselves. There is no plan to add dietitians to home care systems because they do not take precedence over nurses and care workers. Registered dietitians contain indispensable home care knowledge related to clinical nutrition, life stage nutrition, food preparation, and communication and empathy. Conclusions: Treatment by a doctor, nurse, or care worker takes precedence over nutritional care by a dietitian in home-based care. Therefore, it is not easy for dietitians to join home-care teams as a member of staff. Moreover, when freelance dietitians provide good nutritional care in homes, they operate as volunteers as there is no charge from the medical/nursing care insurance systems. Any registered dietitian should pose the knowledge, faculty, and skills for empathizing with patients/elderlies. The government should stress that nutritional care in hospitals, nursing homes, and homecare is a role for professional registered dietitians.

Keywords: Nutritional care, Elderly, Home based patients
The Current Undergraduate Public Health Education in the University of Health and Allied Sciences in Ghana

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Background: Health professionals are critical to improve the quality of health services of a country. Quality health services improve the health status of populations and the state at large. The university seeks to raise the quantitative and qualitative healthcare workforce to ensure health system reinforcement. Therefore, it is necessary to develop a high-level curriculum for students. This study aims to analyze the current status and situation of School of Public Health (SPH) at the University of Health and Allied Sciences (UHAS) in Ghana. Methods: Data for the study was collected by reviewing available documents on the school’s website and interviews faculty members of SPH in UHAS. The analysis was done by using a comparative analysis model regarding four main categories which are objective, structural, content and operational perception. This analysis showed the current curriculum status of SPH. Results: Firstly, UHAS has a vision on educational achievements which concentrated on community services. Secondly, the current curriculum of SPH is organized with discipline-based learning and applied lecture-based approach. Moreover, the linkages of the theoretical, practical and vocational training program are not clear. Finally, there is a lack of a system for curriculum development. Conclusions: This study reports on the necessity of curriculum development and also provides essential data to improve its future strategies. Furthermore, it provides a framework for health education analysis for further research in future on similar studies.

Keywords: Curriculum development, Education, Public health professionals, Curriculum analysis
The Evaluation of Toluene and Acetone Exposure Affecting Work Ability among Toll Collectors at Tolling Stations in Bangkok

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Background: Toll collectors are exposed to exhausted smoke and carbon deposit from vehicles which stimulate allergy from various chemicals and affected their health. The objectives of the study were to evaluate toluene and acetone exposure in the atmosphere and in urine and work ability among toll collectors at tolling stations in Bangkok. Methods: An Organic Vapor Monitor (3M 3500) was used for collecting air samples adhered to the toll collectors at the level of breathing, and the collection of urine in 20 cc. plastic bottles. Results: Mean age of the cases was 36.86 years old, whereas 32.97 years old for the controls. Ten percent of the subjects always used respiratory protection; however, most of them only used cotton masks (59.3%). Most of them had workability at a moderate level (58.9%). Collecting of personal organic solvent exposure was conducted using “Organic Vapor Monitor (3M 3500)”, attached to the lapel of each of the cases (n=90). Results of average toluene and acetone concentration of 28.93 ± 32.048 ppb, 15.03 ± 27.828 ppb, respectively. Results of toluene in the urine 0.14± 0.249 µg/l and acetone in the urine 1.27± 2.533 µg/l. The average comparison of toluene and acetone concentration was significantly different between the study and control groups at 0.05 significant level (p < 0.001, p < 0.001, respectively). The average comparison of toluene and acetone in the urine concentration was significantly different between the study and control groups at 0.05 significant level (p=0.019, p=0.011, respectively). However, the relationship between toluene, acetone in the atmosphere and in the urine and work ability among the study group were not significant. Conclusions: Based on the results of this study, toluene exposure among toll collectors was detected. Health promotion and protection programs should be emphasized. Respiration protective equipment should also be provided.

Keywords: Toluene, Acetone, Toll station, Bangkok
Safety Behavior of Migrant Pregnant Labors at Work in Samutsakorn Province, Thailand

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Background: Pregnant labors are vulnerable to health and safety hazards in the workplace. Objectives: The aims of this research were to study safety behavior and variables that can predict safety behavior among 347 migrant pregnant workers. Methods: A cross-sectional study was performed during Jan-June 2015. Selection criteria for participants included being pregnant or giving birth not more than 1 year and breastfeeding, nationality of Myanmar, living in Samutsakorn Province for at least 6 months and agree to sign consent form. Subjects were interviewed of personal and work information, health status, safety knowledge and perception, health benefits and safety behavior at work. Data were analyzed by using descriptive statistics and multiple linear regression. Results: The findings indicated that most pregnant worked in factories and construction sites during pregnancy. Approximately 70% of them did not receive safety training and 45% did not receive personal protective equipment. The average score of safety behaviors and perception of health benefits were at a high level while knowledge and awareness of pregnant workers showed at low levels. Factors predicting safety behaviour were income, career and antenatal care, respectively. Conclusions: The results suggested that government and enterprise should jointly organize safety training program which lead to safe work practices, especially in the informal sectors and cleaning jobs.

Keywords: Migrant labor, Pregnant women, Safety behavior
The Evaluation of Toluene and Xylene Exposure, Exhaled Nitric Oxide and Symptoms among Traffic Policemen in the Eastern Region, Thailand

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Background: Traffic policemen are exposed to toluene and xylene on a daily basis from the petrol used in the combustible engines. The objectives of the study were to evaluate toluene and xylene exposure, its metabolites, exhale nitric oxide and symptoms of traffic policemen. Methods: Organic Vapor Monitor (3M 3500) was used for collecting air samples adhered to the traffic policemen at the level of breathing, and the collection of urine in 20 cc. plastic bottles. NIOX MINO was used for measuring of exhaled nitric oxide. Results: The study group of 148 traffic policemen had a mean age of 46.09 years. In the study group, 46.3% worked between 11-12 hours per day. Out of all responses, 24.3% always used respiratory protection; of those who used protection, only cotton masks were used. When the traffic policemen finished working for the day, more than 50% of the study group showed symptoms of adverse health effects including headache, body fatigue, fatigue only in arms and legs, sore knee, dizziness, lacking concentration and coughing. Results of Toluene level of 132.27 ± 23.438 ppb and Xylene 278.57 ± 42.905 ppb. Results of urine samples (n=148) showed average ± SD level of Hippuric acid at 448.31 ± 440.252 mg/g creatinine, and Methylhippuric acid was 32.71 ± 26.493 mg/g creatinine. Exhaled nitric oxide was low level (<25 ppb) (82.4%) and average ± SD 17.46 ± 9.415 ppb. The relationship of toluene and xylene exposure and exhaled nitric oxide between the study and comparison groups showed significance (p<0.001). The relationship between toluene and xylene and hippuric acid, methylhippuric acid and exhaled nitric oxide in the study group showed to be not significant. Conclusions: The author recommends that correct, and suitable respiration protective equipment should be used while operating traffic with petrol engines.

Keywords: Toluene, Xylene, Symptoms, Traffic police, Exhaled nitric oxide
Quality of Drinking Water and Utilization: A Census from Chronic Kidney Disease Prone Community in Rural Sri Lanka

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Background: Safe drinking water is a scares resource in Sri Lankan dry Zone. Hardness of water also makes it unsuitable for consumption and fear of chronic kidney disease make it further complicated. As a solution, reverse osmosis (RO) filters were instituted and 20 litres of drinking water is provided per day for a household. Aim of this study was to determine the current practices of water utilization in a dry zone community. Methods: A census was carried in two adjacent villages in dry zone employing a cross sectional design. A house to house survey was done using an interviewer administered questionnaire. Chief householder was interviewed. Electoral register was the census frame. Results: Of the 219 households surveyed, majority (84.9%) use water from RO filter for drinking. However, for cooking it drops below 16.0%. 15% households, still does not use water from RO filter. Over 40% of households have to spend over 30 minutes to collect water for daily needs. Most household (67.6%) an adult male collects water. Majority (78.5%) use the same container to store water and 82.2% does not treat water before consumption. Only 53.9% cleaned the container before fetching water while 10% clean only when it is dirty. Majority (92.2%) believe water of RO filter is safe and 90.9% is satisfied with the current quality of drinking water. The use of RO filtered water was not significantly associated with education level or the comprehension ability of the chief householder. Conclusion: Establishment of a RO filter in the area has changed the water utilization pattern of the community. However, restricted supply has only allowed to use RO filter water for drinking purposes while cooking and other requirements made through unsafe sources.

Keywords: Sri Lanka, Chronic kidney disease, Quality of water, RO filter, Rural Community
Job Satisfaction and Occupational Stress: Comparison among Surface Ship Personnel and Submariners of the Royal Navy

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Background: Job satisfaction and occupational stress among Navy personnel has been less studied although presumed to be stressful due to its work nature. This study was aimed to compare between navy personnel working on surface ship and those working in the submarines in terms of job satisfaction and the stressors. Methods: A cross-sectional comparative study was conducted among Royal Navy personnel working as surface ship crew and submariners in Sabah in 2017 using convenience sampling method. Respondents have to answer the self-administered questionnaire developed by NIOSH (USA) called ‘NIOSH Generic Job Stress Questionnaire’ and results were calculated according to the scoring key. The job stressors variables include conflict at work, employment opportunity, job requirements, mental demand, physical environment, work hazard, workload and work responsibility. All data were analysed using SPSS version 22.0 with t-test and linear regression. Results: Ninety eight Royal Malaysian Navy (RMN) personnel consisted of 50 submariners and 48 surface ship personnel from age 23 years to 42 participated in this study. Response rate was 98% among those who fulfilled the inclusion criteria. The mean score for job satisfaction among the submariners was higher at 9.26 (sd. 2.45) compared to the surface ship crew 9.17 (sd.2.20) although not statistically significant (p=0.66). The job stressors such as conflict at work was statistically significantly higher (p=0.03) among the submariners, however the job requirements as stressors was found to be lower (p=0.01) among submariners compared to surface ship crew. Association studies using simple linear regression between job satisfaction and job stressors only found mental demand as statistically significant at p<0.001. Other variables were not significant. Conclusions: The results of this study are preliminary in nature but provide some insights that can be considered as intervening elements of occupational stress and job satisfaction issues in the military context especially in the Navy setting.

Keywords: Navy, Submariners, Job satisfaction, Stressors, Occupation
Effects of hOGG1 Gene Polymorphisms on Genetic Damage Induced by Chromate

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Background: Most diseases especially caused by environmental hazards, result from the interaction between environmental exposures and genetic variants. Occupational chromium exposure may induce DNA damage and lead to lung cancer and other work-related diseases. hOGG1 polymorphisms, which can alter the efficiency of DNA repair, and may contribute to genetic damage with chromate exposure together. Objective: The current study was aim to explore the association between hOGG1 polymorphisms and genetic damage in chromate exposure population. Further, evaluating whether the gene-environment interactions among blood chromium and hOGG1 effected genetic damage. Methods: A total of 136 chromate exposed workers were recruited as exposure group, and 155 non-chromate exposed workers were recruited as control group in a chromate production plant. The questionnaire survey and physical examination were conducted to collect basic information, lifestyle, occupational history, etc. The blood chromium (WB-Cr) level was measured by ICP-MS to assess the internal exposure of chromate. Urinary 8-OHdG and micronuclei frequency (MNF) of peripheral blood lymphocytes were used as genetic damage index. 4 single nucleotide polymorphisms (SNP) of hOGG1 were genotyped by the matrix assisted laser desorption ionization/time of flight mass spectrometry. Results: The urinary 8-OHdG and lymphocyte MNF were significantly higher in chromate exposed group. Both 8-OHdG and MNF were significantly positively associated with occupational chromate exposure. In chromate exposure group, the urinary 8-OHdG concentration was positively associated with rs29379 (additive model: $\beta=1.001$, $P=0.013$, recessive model: $\beta=-1.576$, $P=0.017$) and rs13096551 (additive model: $\beta=1.875$, $P=0.017$), while negatively associated with rs3219008 (additive model: $\beta=-1.505$, $P=0.025$). The interaction of chromate exposure with rs29379 had significant effect on urinary 8-OHdG concentration (additive model: $\beta=1.199$, $P=0.015$, recessive model: $\beta=4.462$, $P<0.001$). Conclusions: Multiple SNPs of hOGG1 associated with the chromate induced genetic damage. A significant gene-environment interaction of chromate exposure and rs293796 can affect urinary 8-OHdG in chromate exposed population.

Keywords: Chromate, Genetic damage, hOGG1 gene, Gene-environment interaction effect

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Background: In recent years, population decline, declining birthrate and aging have become obvious in Japan, and maintaining the urban functions necessary for comfortable living of people is an issue. Some municipalities are promoting wide area cooperation to coordinate with neighboring municipalities to maintain necessary urban functions. In the field of environmental hygiene, many of garbage disposal facilities are currently being maintained by multiple municipalities through wide area cooperation. In this study, we estimate the cooperative model of incinerator plants with population decline by focusing on garbage disposal facilities which aims at the improvement of the environment of the city. Methods: In this study, Tochigi prefecture was selected as an example of areas where population decline, declining birthrate and aging population are progressing. This prefecture has a population of 1,961,963 people, a total area of approximately 6,408.09㎢, and an aging rate of 27.3% (as of October 1, 2017). Location and processing capacity of garbage disposal facilities and municipalities that have garbage disposal facilities are analyzed based on the garbage disposal plan of Tochigi prefecture. Population estimates will be analyzed based on census data. Results: In 2045, in Tochigi prefecture, population decline was caused remarkably in the area of the western part and the central part. Moreover, garbage incineration facilities less than 50% of rates of operation increased. In some parts of the western part and the central part, broader cooperation is also required. Conclusions: In this study, population transition of the processing range and the processing range was arranged based on the processing capacity of incinerator plants. In light of the geographical conditions, we clarified the current situation surrounding incinerator plants in Tochigi Prefecture, and showed the future of wide area cooperation.

Keywords: Securing urban environment, Garbage disposal facilities, Population decline, Wide area cooperation
A Study on Maintenance Method of Public Housing – Focusing on the Center City Area and Suburban Area in Provincial Town

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Abstract ID: PO0013EO

**Background:** Public housing is where local public entity leases house with cheapness rent to poor household or low-income people. In Japan, in order to improve the housing shortage after the war, public housing was institutionalized and constructed nationwide. As a result, housing supply gradually surpassed the total number of households, and the housing shortage as an entire nation was improved according to the statistics. At present, these buildings are becoming old, and efficient and smooth renewal of many old public housings that are facing renewal period is pointed out. Therefore, this paper aimed to quantify a relationship between the changes in the number of households which live in public housing and future demand for public housing focusing on revenue standard and demonstrate a future transition of public housing from the point of population decline and aging population.

**Methods:** In this paper, the number of households by income, room planning, and living resources by region were calculated and analyzed using GIS and statistical data. It revealed the interrelation between the number of households in house ownership based on revenue standard and future demand for public housing by Census date.

**Results:** This paper demonstrated a maintenance method of public housing based on the analysis data of the number of households in the public housing class, which focused on income standards, and the public housing satisfaction rate in Utsunomiya City, Tochigi Prefecture in the center city area and Nikko City, Tochigi Prefecture in the suburban area.

**Conclusions:** This paper showed a cross-sectional plan of the city at public housing by comparing the center city with the suburb. In the future, by utilizing the analysis results, further analysis in a wider range of areas is expected.

**Keywords:** Low-income housing, Public housing reproduction, Old and decaying building, Depopulation, Aging society
Association between Night Shift Work and Abnormal Fasting Plasma Glucose among Workers in Two Large Organizations in Bangkok, Thailand

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Background: Night shift work is related to circadian rhythm disruption and may adversely affect glucose metabolism. The purpose of this study was to examine the association between night shift work and the incidence of abnormal fasting plasma glucose (IFG) among the workers in two large organizations in Bangkok, Thailand.

Methods: This retrospective cohort study was conducted among 5,947 workers (4,647 female and 1,300 male) aged ≤ 60 years old of the Thai Red Cross Society and Chulalongkorn University, Bangkok, Thailand. The participants must have normal fasting plasma glucose level (< 100 mg/dL) at baseline and had at least two health check-up results during 2009-2016. The night shift work exposure was assessed by using a self-administered questionnaire and fasting plasma glucose levels were measured annually. The association between night shift work and abnormal fasting plasma glucose was analysed by Cox proportional-hazard models to estimate multivariate hazard ratios (HR) with 95% confidence interval (95%CI).

Results: The median follow-up period was 4.5 years for non-night shift workers (n=4,694) and 7 years for night shift workers (n=1,253). During 2009-2016, 1,135 and 335 new IFG cases had developed among the non- and night shift workers respectively, with the corresponding incidence rates of 52.7 and 50.7 per 1,000 person-years. However, after adjusting for potential confounding factors, the night shift workers had a significantly increased risk of abnormal fasting plasma glucose (HR 1.34; 95%CI, 1.17-1.55), as compared to the non-night shift workers. Conclusions: This study demonstrated that night shift work is associated with increased risk of abnormal fasting plasma glucose. Further investigation is needed to determine whether this effect also leads to the increased type 2 diabetes risk.

Keywords: Night shift, Abnormal, Fasting plasma glucose, Workers, Thailand
Association between Occupation Category and Cancer in Taiwan through Hierarchical Generalized Linear Modeling and Data Mining

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Background: In Taiwan, malignancy has been the leading cause of death in recent years, and the incidence of cancer is unceasingly increasing. To understand the risk factors associated with cancer is essential. However, there is a lack of nationally representative research on occupation category and cancers in Taiwan. Therefore, this study aimed to investigate the association between occupation category and cancers through hierarchical generalized linear modeling.

Methods: This retrospective cohort study employed one million randomly sampled beneficiaries recorded from the 2002-2013 National Health Insurance Database, which included 653,567 adult individuals (aged 20-64 years) with employment. Those who had Tumors diagnosis were defined by ICD-9-CM code 140.xx-239.xx, which used ICD-9-CM codes 140.xx-208.xx was malignancy. The occupation categories were divided into six categories and 27 items of insurance coverage. The main statistical method was hierarchical generalized linear modeling, Statistical analysis was performed in SAS 9.4; and used the data mining software PASW Modeler 13 to discover potential information, which included Decision Tree (C5.0) and Association Rules (Apriori).

Results: The total of 242,905 had tumors (37.17%) and 33,213 had malignancy (5.08%); 2,614 had lung cancer, 3,827 had liver cancer, 4,327 had colorectal cancer, 2,668 had oral cancer, and 19,867 had other types of cancer. The occupations significantly associated with higher odds of cancers included public employment (OR=1.57), public institution (OR=1.31), employees from non-profit organization (OR=1.23), federation business unions (OR=1.25), agriculture professionals farmers (OR=1.28), fishermen associations (OR=1.43). The other risk factors of cancers included gender, age, insurance premium, NHI branch, urbanization, comorbidity, and propensity for use of cancer-causing drugs.

Conclusions: The authorities should take priority in patients with cancer, especially those with high-risk occupational hazards, such as formulate cancer prevention policies, conduct appropriate supervision and intervention, or strengthen cancer screening at the beginning of their occupations that can reduce the incidence of cancer.

Keywords: Cancer, Occupation, Hierarchical generalized linear model, Multilevel analysis, Data mining, Prevention
Abstract ID: PO0020EO

Intention to Practice for Proper Solid Waste Disposal among Medical Students

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Introduction: Increasing global human population leads to increasing solid waste production. In order to reduce the threat of solid waste increment, 3 Rs strategy; to reduce, reuse and recycle the solid waste is being implemented globally. Health talk or lecture increases the knowledge of attender but it cannot ensure the proper practices. An intervention is necessary to adopt healthy practices. Aims: This study aimed to explore the influence of mass media over the practice of solid waste disposal among the medical students in Malaysia. Methods: In this study, 120 fourth-year medical students from a private medical institution in Malaysia were recruited. Two sets of survey questionnaires were used before and two-weeks after the intervention, i.e. educational video followed by lecture. The data were analyzed by using PASW 18 trial version. Results: The students’ emotion response for the danger of improper solid waste disposal on living animals had shown that 85% and 91.7% of participants felt sad and guilty before and after watching the video respectively. The students’ current practice and intention to practice appropriate solid waste management were categorized according to their total scores. Before the intervention, their practices were 25.8%, 67.5% and 6.7% for good, acceptable and poor practice categories respectively. After the media intervention, their intention to practice had progressed to 40%, 56.7% and 3.3% for good, acceptable and poor intention to practice in future respectively. Conclusions: In this study, mass media educational video intervention had effects on the awareness, emotional drive and the intention to practice proper waste disposal in future among the medical students in Malaysia. It is recommended to incorporate the media intervention in the waste management educational programs.

Keywords: Solid waste management, Reduce-reuse-recycle, Mass media intervention, Solid waste disposal practice
Influence of Job Related Factors on Occupation Health Related Issues among Jaffna Municipal Council (JMC) Workers in Sri Lanka

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Introduction: Occupational safety and health has evolved gradually and continuously in response to social, political, technological and economic changes. There are so many issues related to waste management programs at various levels and indicated the necessity. Objective: To study on association of work related factors on occupational health and health and safety practices among waste management labourers in Jaffna Municipal Council (JMC) Sri Lanka. Methods: The study population was defined as all the waste management labourers presently working either permanently or temporarily for more than a year at JMC to carry out the waste and sewage collection, disposal and recycling. Total number of workers was 452 which include 302 permanent workers and rests of them are temporary labourers. Interviewer administered questionnaire was used and data were analysed by using SPSS. Ethical clearance was obtained from Ethical Review Committee at Postgraduate Institute of Medicine, Colombo Sri Lanka. Results: Out of total respondent of 427, 86.9% of respondents were males with the age range of 22-59 with the median age of 38 years. Majority 284 (67.5%) were involving in drainage cleaning and 268 (67.0%) were working more than 45 hours per week. Most of the workers complained backache (92%). Around 19% of respondents never had medical checkups. Most of them (91%) had no immunization. Type of work and service durations were significantly associated with getting the backache. Conclusions: JMC workers are needed more occupation health related support for the various level of prevention of job related health problem.

Keywords: Occupational Health, Municipality workers, Jaffna, Sri Lanka
Assessment of Occupational Health and Safety Conditions of Health Care Workers in Barangay Health Centers in a Selected City in Metro Manila

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Background: Workplace of health care workers (HCWs) is considered one of the most hazardous settings due to the nature of their work. In the Philippines, this problem is aggravated due to oversight on programs and services on occupational health and safety (OHS). Existing information gap on OHS is one of the most compelling reasons which limit data comparability, effective monitoring, as well as intervention assessment. Methods: To assess the OHS conditions of HCWs in their workplace in Pasay City in Metro Manila by determining the hazards present in the barangay health centers, determine the most common self-reported medical problems, and describe the OHS system elements based on the six building blocks of a health system. Assessment was done through walk-through survey, self-administered questionnaire, and key informant interview. Results: Results revealed health hazards present in the workplace particularly biological hazards, physical hazards, chemical hazards, safety hazards, and ergonomic hazards. The most commonly self-reported chronic diseases among HCWs (N=336) included hypertension (20.24%, n=68) and diabetes (12.50%, n=42) alongside infectious diseases such as URTI (21.13%, n=71) and UTI (15.48%, n=52). Top commonly self-reported symptoms were colds (66.07%, n=222), cough (63.10%, n=212), headache (55.65%, n=187), and muscle pain (50.60%, n=170). In terms of OHS system, a general policy on OHS was found to be lacking thus, an absence of health and safety committee. Absence of specific allocation for OHS programs and services was also found as a limitation. Consequently, no OHS personnel, trainings/seminar, and information system for OHS were identified. In conclusion, health and safety hazards were observed to be present across the barangay health centers visited in Pasay City. Conclusions: Specific medical conditions and medical symptoms among HCWs were reported. Select general components of the six building blocks of the health system were also found to be lacking.

Keywords: Health hazards, Occupational health and safety, System, Safety hazards
National Awareness towards Occupational Health and Safety of Major Companies in the Republic of Korea

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**Background:** The importance of corporate social responsibility (CSR) regarding large company has increased. This study aims to investigate the national awareness of major activities of large companies for worker's health and safety and figure out the priority requirements of the admired company. **Methods:** A total of 3,277 participants aged 20~59 were recruited for our online panel survey from November 7\textsuperscript{th} to 20\textsuperscript{th} in 2017. Quota sampling was performed, adjusting for age and sex, to select by various geographic regions. A large company is defined as the manufacturing company rank in top 10 sales accounts and has more than 3 subsidiaries. The questionnaire is based on a 7-point Likert scale (1: strongly disagree, 7: strongly agree) and the main questions are as followed; Q1) company’s action for worker’s industrial accident, Q2) priority improvement area in legal and institutional system of workers’ health and safety, and Q3) priority improvement area to be an admired company. **Results:** In Q1, the national awareness on the safety level of domestic workplaces in the large companies is 3.72 and 2.82 in the small and medium-sized enterprises. In Q2, the first priority area in legal and institutional system was to increase coverage for industrial accident (5.87) and the second was to reinforce health and safety law (5.82). In Q3, the most important index to evaluate an admired company is the corporate social responsibility (38.3%). The second and the third index are the ability to attract and retain talent (30.9%) and the management ability (22.9%). **Conclusions:** In order to be an admired company, it is necessary to reorganize the current health and safety system. Particularly, the increase of coverage for industrial accident and the health and safety law should be more reinforced as the aspect of the CSR.

**Keywords:** Corporate social responsibility, National awareness, Online panel survey, Occupational health and safety, Republic of Korea
Abstract ID: PO0026EO

Quality of Life and Coping Strategies among House Officers in Kelantan

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Background: In Malaysia, the Medical Act 1971 defines ‘Housemanship’ as a period of structured and supervised practical training upon completion of medical school. In recent years, the dilemma and life crisis experienced by house officers in Malaysia have been widely broadcasted over all means of the local media. Therefore, in the year 2011, the Malaysian Ministry of Health introduced the Flexi Hour Shift System (FHSS) which was described to help improve the quality of life among them. This study aims to describe the quality of life and coping strategies among house officers after the implementation of FHSS. Methods: A cross-sectional study using WHOQOL-Bref and Brief COPE was conducted among 370 house officers working in Kelantan. Results: Majority of them (57.8%) perceived their overall quality of life as ‘neither poor nor good’. Using Cummins’ norm of 70%, we found that these house officers were far from achieving the threshold score for physical health (44%), psychological health (56%) and environmental health (63%) but were barely borderline for social relationships (69%). The most frequent coping strategies used by these house officers were religion, acceptance and positive reinterpretation. Conclusions: This study found that the quality of life among house officers is still far from a satisfactory level despite the implementation of FHSS. Therefore, further detailed probing of this matter might be required in the future.

Keywords: Quality of life, Coping strategies, House officers, Flexi hour shift system
Occupational Hazard and Injury Occurrences among Food Services Employees in the Hotel Industry in Kota Kinabalu

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Background: Foodservice industry has many potential hazards that can cause various kinds of health and safety hazards that may lead to occupational related injury. It also has an impact on financial burden through medical expenses related to it. The objectives of this research was to determine the risks for physical, chemical, biological and psychosocial hazard that are related to occupational health and safety as well as to determine the type of injury that mostly occur among foodservice employee. Methods: Questionnaire was distributed to 128 foodservice workers from several hotels in Kota Kinabalu, Sabah. Results: Result found that psychosocial hazard (3.29±.96) was more likely to occur whereas chemical hazard (4.13±.74) was less likely to occur. ANOVA analysis showed physical and psychosocial hazard have significant difference (p≤0.05). The post hoc test using Scheffé shows only chemical and biological hazard have equal mean of hazard. For the type of injury, emotional stress occur the most (3.63±1.15) whereas electrocution occur the least (1.37±.64). Independent T-test indicated that burns (P≤0.05), cuts and laceration (P≤0.05) and dermatitis (P≤0.05) showed significance difference in term of occurrence frequency between kitchen and service staff. Conclusions: As conclusion, attention should be given to the physical and psychosocial hazards and injury associated with it as it shows a higher risk of occurrences.

Keywords: Occupational health, Occupational injury, Occupational hazard, Foodservice industry, Hotel industry
Assessment of Forestry Worker Hydration Status in Matang Mangrove Forest, Perak

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Forestry workers are generally exposed to unfavorable environmental conditions, especially chainsaw users, are required to wear protective clothing that imposes a significant thermal insulation. The consequences of environmental heat stress include a reduction in safety due to impaired concentration, a decreased work capacity, and heat illness. The objectives of this study were to determine the physical workload of workers, to determine whether forestry workers are performing high risk and manually demanding tasks in a hypo-hydrated state and to evaluate hydration status of forest workers in Matang Mangrove Forest Reserve, Taiping, Perak and their preferred fluid replacement. A total of 8 different working environments were chosen. In this study, 30 workers were assessed through direct methods of assessment and also by questionnaire. There are four parameters such as respondent background, information of type of work, water consumption and impacts of dehydration on health were highlighted in the questionnaire. Urine color was used as an indication of hydration levels. Fluid intake was assessed to support the urine color method in order to determine the hydration status of workers. Based on findings, fifty percent of workers were found to be inadequately hydrated. Study also recorded, most were hypo-hydrated at the commencement of the shift, and fluid intakes were average only 1-2 liter per day, in general, well below those required to replace fluid losses.

Keywords: Forestry, Workers, Hydration, Mangrove, Perak
The Impact of Meteorological and Environmental Factors on Daily Asthma Emergency Room Admissions of Children in Seoul, Korea

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Background: Asthma is a disease with high socioeconomic burden, affecting nearly 300 million people worldwide. Environmental factors, including air pollution and aeroallergen, are believed to contribute to the deterioration of asthma, which shows strong seasonality. This study aims to investigate the seasonal effects of environmental factors on the asthma-related emergency room (ER) hospitalization of children in Seoul, Korea.

Methods: This study was conducted utilizing the daily ER visit data of children (aged 0-5) for 2009-2014 in Seoul. As for environmental factors, daily pollutant concentrations (PM$_{10}$, SO$_2$, NO$_2$ and O$_3$) and pollen density (Weeds, Trees) were set as variables of interest. In order to analyze the non-linear associations between the factors, generalized additive model with spline function was applied.

Results: The baseline models were constructed with meteorological factors including temperature and humidity, holiday effect, and time trend. The delayed effects were considered with current to seven-day lags. The seasonal analysis was conducted in modeling in consideration of both single- and multi-environmental factors. The daily number of ER hospitalized children in Seoul was 2.2. Autumn was the season with the most frequent visits followed by spring. The correlation between the levels of each factors were high as well as with the number of ER admission for asthma. In the single environmental factor model, PM$_{10}$ (RR=1.10, 95% CI=1.02-1.19) and ozone (RR= 1.51, 95% CI=1.08-2.12). In spring, NO$_2$ (RR=1.35, 95% CI=1.04-1.75) and weed pollen (RR=1.38, 95% CI=1.77-1.62) in autumn were more significant for the increase in ER admission. Considering multi-factor model, the magnitude of risk became even larger with better significance.

Conclusions: The study shows that the seasonal environmental factors were associated with increased risk of asthma-related hospitalization in various ways. These results suggested that associations of seasonal environmental factors on asthma exacerbations should be considered in asthma-related health policy decisions.

Keywords: Asthma, Emergency room, GAM, Air pollution, Pollen, Seoul
Obesity Prevention and Weight Management Plan for Taoyuan City

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Objective: Taoyuan City has adopted obesity prevention and control measures for different age groups, including maintenance of health through diet and exercise. Methods: 1) Education from early years: Lectures on diet were given in elementary schools, with dietitians providing information on balanced diets and developing correct knowledge. Catering operators around the campuses were instructed to prepare healthy (low-oil and low-sugar) meals. 2) Achieving healthy weight in adults: Cooperating with schools, workplaces, and communities, 144 healthy stations were set up, with physical fitness teachers leading exercise programs. A weight management plan was implemented, with 3 months of lifestyle training (increasing activity and nutritional knowledge) combined with health checkups to make people aware of their own conditions. 3) Comprehensive health promotion: Certain catering operators were instructed to make healthy box meals, avoid high-calorie dishes, and indicate the calorie content and ingredients of each meal. The free “Taoyuan Healthy Food Plate APP” helps track meals, as well as record weight, waist size, and body fat. Finally, the “Taoyuan City Health Exercises” were developed to increase flexibility, correct posture, and strengthen the lower extremities. Results: In 2017, overweight and obesity rates (based on BMI) in Taoyuan City were 36.9% (a drop of 5% from the previous year), and the amount of citizens participating in sports activities was 84.1%. Ninety-nine catering operators around the campus were instructed to prepare healthy meals. The weight management plan held 324 courses involving 399 participants, with an average waist size drop of 2 cm and significant difference in blood triglyceride and high-density cholesterol data. Conclusions: Through the adjustment of diet and exercise habits, a healthy lifestyle was developed and an environment supportive of healthy weight was provided.

Keywords: Health promotion, Healthy body management, Waist
Parenting Style based on Mother’s Self-Efficacy and Attachment to Solve Child’s Feeding Difficulty

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Self-efficacy is defined as people’s judgement of their capabilities to organize and execute courses of action required to attain designated types of performances. It is one’s combined sense of competence and confidence for a given task in a given domain under condition of uncertainty, ambiguity, unfamiliarity and/or stress. Bowlby’s Attachment Theory claimed that mothering is almost useless if delayed until after three years and for most children, if delayed till after 12 months (critical period); this relationship disruption could result in long term cognitive, social and emotional difficulty. The mother’s competency in child feeding absolutely needs the understanding of child’s hunger-sign besides the skill of feeding. This study was based by fact that child’s feeding difficulty was still an everlasting problem regardless of the exclusive breastfeeding related to “close relationship, high-educated mother related to “smart mom” and un-working mother that related to “plenty of spare time”. The preliminary study conducted in 10 mothers showed that they only had limited mental preparation and knowledge about infant/child feeding that caused stress and depression. The aim of this study is to prove that mother’s competency, readiness and willingness are important factors but rarely, even never, realized in successful feeding process and ability. The method in this study is quantitative study with in-depth interview. The data will be analysed with SEM (Structural Equation Modelling) analysis to identify indicators that affect the competency, readiness, and willingness, also to identify the relation of all those factors at once.

Keywords: Self-efficacy, Attachment, Feeding difficulty, Parenting
Health-Promoting Behaviors of Middle-Aged and Older Japanese Staying Long in Philippines and Thailand

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Background: This study aimed to clarify the health-promoting behaviors of middle-aged and older Japanese staying long in the Philippines and Thailand, and to obtain the findings to consider the health support for them. Methods: A questionnaire survey was conducted on 104 people (41 in Cebu, Philippines, 63 in Chiang Mai, Thailand) aged 50 and older who were members of the local Japanese Circles and who agreed to participate in the research. As controls, we used a database (n = 379) conducted in A City, Japan. The Health-Promoting Lifestyle Profile II (HPLP II) was used for evaluating health-promoting behaviors. Results: Participants in the Philippines were 31 males and 9 females (1 no-answer) with an average age of 63.2 years. Those in Thailand were 38 males and 23 females (2 no-answer), and the average age was 69.8 years. Controls matched to participants in the two countries were consisted of 126 males and 64 females, with an average age of 67.0 years. Among the six subscales of HPLPII, there were no significant differences in the scores of Health responsibility, Spiritual growth, Interpersonal relationships and Stress management among the three groups. The average scores of Physical activity were 2.46 points in the Philippines, 2.45 points in Thailand, and 2.06 points in the controls. Both scores of participants in the Philippines and Thailand were significantly higher than that of controls. Nutrition was significantly higher in the descending order of participants in Thailand, controls and those in the Philippines: 3.08 points in Thailand, 2.83 points in the controls, 2.82 points in the Philippines. Conclusions: Middle-aged and older Japanese staying long in the two countries conducted health-promoting behaviors mainly on physical activities. Nutrition may be influenced by the food situation of the residential area.

Keywords: Japanese resident, Middle-aged and older, Health-promoting behavior, Philippines, Thailand
Relationships between Specific Medical Checkup, Health Promotion Lifestyle, Health Literacy and Social Capital

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Background: This study is aimed to examine if the behavior to undergo specific medical checkup is related to health promotion lifestyles, health literacy (HL) and social capital (SC) by gender and health coverage. Methods: The person who had undergone a medical checkup more than once in the past two years was defined as “Consultation.” An anonymous self-administered questionnaire was mailed to 1,048 inhabitants, aged from 40 to 74, in A City, Japan. The health promotion lifestyles were evaluated by Health Promotion Lifestyle Profile (HPLPII). The HL was measured by 14-item HL Scale. The SC was evaluated by 6-item questions. Results: The effective response rates were 34.4% in males, and 39.6% in females. In males covered by National Health Insurance (NHI), the consultation ratio was significantly lower in those who had no spouse living with than in those who had. In males covered by social insurance, the score of Nutrition, one of the subscales of HPLPII, was significantly higher in those who had no consultation. The number of neighborly companionship in the questions of SC was larger in males covered by NHI than in ones covered by social insurance. In females covered by NHI, the score of Physical Activity, one of the subscales of HPLPII, was significantly lower in those had no consultation. In females covered by social insurance, the score of Health Responsibility, one of the subscales of HPLPII, was significantly lower in those had no consultation. The score of Functional HL was lower in females covered by NHI than in ones covered by social insurance, regardless of consultation or not. Conclusions: There were relationships between the behavior to undergo the specific medical checkup and health promotion lifestyles, HL and SC except males covered by NHI.

Keywords: Specific medical checkup, Health promotion lifestyle, Health literacy, Social capital, Gender, Health coverage
Abstract ID: PO0009HP

Fruits and Vegetables Consumption among Adults Attending Family Health Clinic in a Malaysian Tertiary Center

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Background: Fruits and vegetables are vital components of a healthy diet and human health. There are many vitamins, minerals and other substances in the fruits and vegetables that provide required excellent nutrients to the body. Adequate consumption of fruits and vegetables can prevent major chronic diseases. This study was to identify the consumption of fruits and vegetables among adults, their knowledge and attitude and factors associated with the consumption. Methods: A cross-sectional study was undertaken among 291 respondents attending the Family Health Clinic in Hospital Universiti Sains Malaysia. Convenient sampling was applied. The data regarding the socio-demographic profile, fruits and vegetables consumption, knowledge and attitude was collected using a standardized self-administered questionnaire. Multiple logistic regression was used for multivariable analysis. Results: The majority of the respondents were female, married, employed and had high education level. More than half of respondents ate both fruits and vegetables yesterday. Most of the respondents had good attitude towards eating fruits and vegetables. Regarding knowledge on the nutritional content and health benefits of fruits and vegetables, there were scopes for improvement. The associated factors of vegetables and fruits consumption were age 50 and above (adjusted odds ratio (AOR)=3.3, 95% confidence interval (CI): 1.5, 7.4), household income for more than RM3000 (AOR=5.1, 95% CI: 1.8, 14.0), had diabetes (AOR=2.9, 95% CI: 1.0, 8.2), consumed beef (AOR=1.9, 95% CI: 1.1, 3.5), consumed healthy food (AOR=1.9, 95% CI=1.0, 3.4) and self-home cooking (AOR=2.8, 95% CI=1.3, 5.7). Conclusions: The majority of the respondents who attended Family Health Clinic, Hospital USM ate both fruits and vegetables previous day. Older people, higher household income, history of diabetes, consumed beef, healthy foods and self-home cooking were more likely to consumed fruits and vegetables. Regular health promotion on healthy diet is needed to enhance its consumption.

Keywords: Vegetables, Fruits, Family health clinic, Knowledge, Attitude
ToyBox Study Malaysia: An Exploratory Study of Physical Activity Habits among Mothers and their Preschool Child in Klang Valley, Malaysia

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Background: Understanding the physical activity habits of preschool children and their mother’s perspective and habits will guide planning of obesity prevention interventions. This study used focus group discussion (FGD) to explore the perception of mothers’ own and their preschool child’s physical activity habits. These FGD findings are part of needs assessment prior to implementation of ToyBox Study Malaysia.

Methods: Fourteen mothers of preschoolers attending kindergartens in Kuala Lumpur and Selangor participated in two FGD sessions conducted by a trained moderator using a study-specific semi-structured interview guide. The FGD sessions were audio-recorded and notes taken by a co-moderator. The data were transcribed verbatim, coded and analysed (NVIVO 11 software) by at least two researchers and verified by a senior team member.

Results: Participants were able to comprehend and express their own and their child’s physical activity habits. Typical activities that mothers reported were household chores, jogging, and brisk walking. Three participants mentioned doing structured activities, e.g. Zumba class, hockey training, dancing, either at home or the recreational park. Children of two participants were enrolled in formal classes, e.g. hockey club and physical activity class at school. However, half the participants regularly watched television with their children during leisure time, especially in the evenings. Children were involved in physical activity such as playing games of tag, running, cycling at school at least once a week. Participants perceived that their children were not as active as recommended by guidelines, and agreed that their own physical activity influenced their children’s physical activity habits.

Conclusions: We conclude that parents and children need education and support to understand sedentary behaviours and to be more physically active in daily life. Hence, an adaptation of the European ToyBox Study may be useful in disseminating the message on sedentary behaviour and physical activity to children as well as their parents.

Keywords: Childhood obesity, Focus group discussion, Need assessment, Physical activity, Preschool children
Abstract ID: PO0015HP

Normal Weight Obesity is a Risk Factor for Metabolic Syndrome in Korean Adults – A Five-Year Longitudinal Health Checkup Study

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Background: Obesity, usually defined with body mass index (BMI), is closely associated with metabolic syndrome and cardiovascular morbidity/mortality. Recently, subjects with normal BMI but increased amounts of body fat have been reported to have metabolic dysregulation compared to subjects with normal BMI and normal amount of body fat. In this study, we explored the impact of body fat amount on the development of metabolic syndrome (MetS).

Methods: 9,817 performed health check-up both in 2012-2013 and in 2017 at the Korean health check-up center. After excluding MetS subjects in 2012-2013, a total of 4,430 subjects were finally included and categorized into under-weight (UW, BMI < 18.5), normal weight non-obesity (NWNO, BMI 18.5 to 25.0 with body fat (BF) ≤ 23.1% for male, ≤ 33.3% for female), normal weight obesity (NWO, BMI 18.5 to 25.0 with BF > 23.1% for male, > 33.3% for female) and overweight (OW, BMI ≥ 25.0). Metabolic syndrome was defined based on NCEP ATPIII guideline.

Results: Prevalence of UW, NWNO, NWO, OW subject in 2012-2013 was 5.6%, 52.7%, 17.3% and 24.4%. The overall incidence of MetS at 5-year follow-up was 5.8%. Higher incidence of MetS (UW 0.4%, NWNO 2.7%, NWO 5.0%, OW 14.3%, p for trend <.0001) was reported for higher body weight and more obesity. Most importantly, after adjustment, both NWO and OW were independent risk factors for the development of MetS (NOW, odds ratio 1.83, 95% confidence interval 1.21 - 2.76; OW, odd ratio 5.21, 95% confidence interval 3.80 - 7.15) compared to NWNO.

Conclusions: NWO individuals carry a higher risk of future metabolic syndrome development regardless of other clinical risk factors. Thus, identification and risk factor management for those population would be important for MetS prevention in public health.

Keywords: Body mass index, Body fat, Normal weight obesity, Metabolic syndrome
Frontline Staff Motivation Levels and Health Care Quality in Rural and Urban Primary Health Facilities: A Baseline Study in the Greater Accra and Western Regions of Ghana

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Background: The population of Ghana is increasingly becoming urbanized with about 70% of the estimated 26.9 million people living in urban and peri-urban areas. Nonetheless, eight out of the ten regions in Ghana remain predominantly rural where only 32.1% of the national health sector workforce works. Doctor-patient ratio in a predominantly rural region is about 1:18,257 compared to 1:4,099 in an urban region. These rural-urban inequities significantly account for the inability of Ghana to attain the health-related Millennium Development Goals (MDGs) before the end of 2015. To ascertain whether rural-urban differences exist in health worker motivation levels and quality of health care in health facilities accredited by the National Health Insurance Authority in Ghana. Methods: This is a baseline quantitative study conducted in 2012 among 324 health workers in 64 accredited clinics located in 9 rural and 7 urban districts in Ghana. Ordered logistic regression was performed to determine the relationship between facility geographic location (rural/urban) and staff motivation levels, and quality health care standards. Results: Quality health care and patient safety standards were averagely low in the sampled health facilities. Even though health workers in rural facilities were more demotivated by poor availability of resources and drugs than their counterparts in urban facilities (p < 0.05), quality of health care and patient safety standards were relatively better in rural facilities. Conclusions: For Ghana to attain the newly formulated sustainable development goals on health, there is a need for health authorities to address the existing rural-urban imbalances in health worker motivation and quality health care standards in primary healthcare facilities. Future studies should compare staff motivation levels and quality standards in accredited and non-accredited health facilities since the current study was limited to health facilities accredited by the National Health Insurance Authority.

Keywords: Staff motivation, Rural, Urban, Quality care, Health facilities, Ghana
Perspective of Hospital’s Public Health Orientation: A Literature Review

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Introduction: Hospitals as one of the health facilities that provide health services to the community have a very strategic role in accelerating the improvement of public health status. Therefore, hospitals are required to provide quality services in accordance with established standards and can reach all levels of society. Objective: The research provides an overview of the hospital’s public health orientation. Methods: This research includes the type of literature study research by finding reference theory relevant with Hospital’s Public Health orientation and problems found. The type of data used by the authors in this study is secondary data that is data obtained from journals, documentation books, and internet. The data have been obtained then analyzed by descriptive analysis method. Descriptive analysis method is done by describing the facts which then followed by the analysis, not merely deciphering, but also provide sufficient understanding and explanation. Results: There is an important public health agenda in hospitals for promoting health and an environment that encourages community partnership. Public health skills have a key role in ensuring high-quality, safe and evidence-based health care. Epidemiological support for hospitals can promote a much-needed culture of monitoring and evaluation of health services. A public health approach to planning of secondary care services can encourage a more objective and strategic assessment of health needs and how these are best met. Conclusions: The role of public health in hospitals at this time is quite high then the hospital institutions should provide public health opportunities to further contribute in improving the quality of services in hospitals.

Keywords: Hospital's public health orientation, Literature review
Physical Activity and Its Related Factors of Japanese at Middle and Older Age, Staying in the Asian Area: Survey in Philippines and Thailand

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Background: Few studies have clarified the physical activity of Japanese staying abroad for disease prevention and health promotion. This study aimed to clarify the factors related to physical activity of the Japanese, at middle and older age, staying abroad and to get findings on what kind of health education and information service are necessary. Methods: Participants were members of a Japanese circle aged 50 years and more in Philippines and Thailand. An anonymous survey was designed to collect information on physical activity, attributes, health literacy, social environmental factors, and medical support from Japan. Physical activity was evaluated using the Health-Promoting Lifestyle Profile II (HPLP II). Multiple linear regression analysis was performed with the stepwise method to find the factors related to the score of Physical activity. Results: Total number of participants was 104 people (average response rate, 34.7%). Those who had no inconvenience in daily life were 37 (37.0%), and who had the ability to greet or so were 43 (43.0%) for English proficiency. The score of Physical activity ranged from 1.0 to 3.5 points, and its mean was 2.48 ± 0.66 points. Four factors were selected as the independent factors related to the score of Physical activity. They were Communicative literacy, obtaining information on health management on site before leaving Japan from the websites of government agencies, having the history of hypertension and having no problem in daily life for English proficiency. Conclusions: To live a healthy life abroad, the education to enhance the Communicative literacy, and to create the higher access of health information, such as using the reliable websites, the encouragement for patients suffering the lifestyle-related diseases to perform more physical activity and the help to enhance the English proficiency are preferable.

Keywords: Japanese, Physical activity, Related factor, Middle and older age, Asia
Improving Plastic Waste Management in Rural China: Randomised Evaluation of Long-Term Effects of Threat and Efficacy Messages for Village Households

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Background: Given waste burning is common in rural China, villagers who lack the awareness of "white pollution" (i.e. plastic waste pollution) are most susceptible to its adverse health effects. To counter the upward trend of plastic waste disposal and thus its burning, emotional appeal can be an effective strategy for intervention. This study assessed the message effects, crafted by extended parallel processing model, in the long run on plastic waste management practice. Methods: A single-blinded, household-based randomised controlled trial was conducted in traditional yet transitional Bapa village (number of households: 284) in rural Guizhou between February and March 2017. Follow-up assessment was made in October 2017. Households, stratified at sub-village level, were randomly selected. Intervention group was provided with door-to-door interpersonal persuasion alongside printed health education leaflets concerning harms of plastic waste burning and benefits of separate collection of plastic waste. Control group only received the leaflets with brief instructions. Message reception and maintenance were assessed by risk behaviour diagnosis (RBD) scale. RBD Scores were analysed respectively by parametric tests for within- and between-subject effects. Statistical significance was set at 0.05 level. Results: The trial recruited 70 (24.6%) of the households. Of those recruited, 68 (97.1%) were followed up. More than 6 months post-intervention, no statistical significance was noted in the differences of health message retention between intervention and control group. However, efficacy-related message effects (p<0.01) were maintained among participating households at follow-up. Compared with baseline, more villagers were perceived to be in danger control (i.e. with high efficacy and high threat) while substantially fewer in fear control (i.e. with low efficacy and high threat) at follow-up. Conclusions: Addition of interpersonal communication may provide no further benefits than printed health education material with brief instructions alone and efficacy messages show longer-term effects of maintenance. Both of which provide strategic implications for persuasive message design.

Keywords: Emotional appeal, Interpersonal persuasion, Message maintenance, Efficacy, Separate collection, Plastic waste management
ToyBox Study Malaysia: Kindergartens’ Readiness for the Implementation of an Obesity Prevention Programme

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Background: Malaysia has the second highest prevalence of obesity among children in Asia. Therefore, it is important that early measures be taken to overcome this phenomenon, such as implementation of obesity prevention programmes targeting the preschool-aged children. This is a needs assessment study aimed at evaluating the readiness of kindergartens to implement the ToyBox Study Malaysia programme. Methods: Thirty-three KEMAS kindergartens in Kuala Lumpur and Selangor were assessed for their readiness to implement four components of the Toybox Study Malaysia; namely (1) increasing physical activity, (2) reducing sedentary behaviour, (3) healthy snacking, and (4) drinking water. Data were collected from teachers via observation and using an interviewer administered questionnaire conducted by the research team. Results: There are 6 (18.2%) kindergartens that did not supply drinking water for the children. All kindergartens are equipped with a kitchen, and meals are prepared based on KEMAS standard menu to ensure healthy food for the children. All kindergartens have designated time for physical activities of between 20 and 60 minutes every day. Although all kindergartens have the basic equipment to conduct physical activity classes, they do not have suitable flooring to conduct movement activities in class. However, most (78.8%) kindergartens have access to a playground either within or nearby the school compound. Conclusions: In addition to basic facilities available in KEMAS kindergartens, additional equipment and materials, such as soft mats and drinking water station, will need to be supplied to the selected kindergartens to ensure that all modules of the ToyBox Study Malaysia programme can be implemented properly throughout the intervention period.

Keywords: Toybox study Malaysia, Readiness, Preschool, Physical activity, Diet
Implications for Developing Countries of Thailand's Basic Level Health Education

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Background: The health level of the people in Thailand has improved significantly in recent years and their experience is worth exploring for other countries. By focusing on basic level health education in rural areas of Thailand, this study aims to investigate the patterns and experiences of basic level health education in Thailand, and provide reference for specific implementation of the health education in other developing countries. Methods: Literature review and field survey were used in the study to understand the pattern and current status of the implementation of basic level health education in Thailand, and the field survey is through an exchanging program supported by the Integrated Community Development Training at Mahidol University in Thailand. The strength, weakness, opportunities and threats of the basic level health education were analyzed by SWOT methods. Results: Investigation shows that the basic level health education in Thailand is very popular, the pattern of health education is very interesting; both government and non-governmental organizations are widely involved, and social participation is of high level. The contents of health education mainly focus on guiding residents' lifestyles, strengthening villagers' understanding of diseases, improving living habits, and encouraging them to participate in physical training. According to the results of literature review and SWOT analysis, some challenges about basic level health education in developing countries were found mainly in human resources, organization, funding. Conclusions: The basic level health education in Thailand can greatly improve the people's health literacy, and the way that they mobilize the entire society to participate is a good example for other developing countries to learn.

Keywords: Thai, Health education
Industrial and Occupational Categories and Anxiety Symptoms: A Cross-Sectional Study

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Background: Mental illness is a growing public health concern. The incidence of mental disorders in Taiwan is increasing, especially anxiety. Prior research has indicated that industrial and occupational categories were associated with anxiety symptoms. However, there is a dearth of research exploring the relationship by using comprehensive industrial and occupational categories. Therefore, this study aimed to investigate the associations between industrial and occupational categories and anxiety symptoms. Methods: This cross-sectional study used a well-established structured questionnaire: the Hospital Anxiety and Depression Scale (HADS). Primary data of 881 valid samples were collected at the family medicine outpatient clinics in five teaching hospitals of northern, central, and southern Taiwan. The seven items of anxiety were measured on an original 0-3 point Likert-type scale, with a summed score of 0 and 21 indicating the lowest and highest levels of anxiety symptom. Conforming to the norm of HADS, the presence of anxiety symptom was defined by a sum equal to or higher than 8. Industry comprises 19 subcategories, whereas occupation includes 10 subcategories and 39 divisions. Single-level analysis used General Linear Model (GLM) for industrial categories. Hierarchical Linear Modeling (HLM) was used as the multi-level analysis for occupational categories. Data analyses were performed in SPSS 23.0 and SAS 9.4. Results: The prevalence rate of anxiety symptoms was 23.4%. GLM results indicated that industrial categories were not significantly associated with mean differences in anxiety symptoms. HLM results revealed that occupational categories strongly associated with higher odds of anxiety symptoms included the sixth subcategory “Health Professionals” (β=1.577, P=0.019) of the second category and the thirty-seventh subcategory “Refuse Workers, Sweepers and Related Workers” (β=9.588, P<0.0001) of the ninth category. Female, middle age and elderly, high work seniority, low education level, low income, poor health status, and presence of chronic diseases were the risk factors significantly associated with higher odds of anxiety symptoms. Conclusions: Certain occupational subcategories are more susceptible to anxiety symptoms. Health and labor authorities and health care institutions should implement psychological health intervention measures by targeting psychiatrically vulnerable occupational groups using the risk factors identified by this study and by collaborating with occupational unions. Psychological health examination should be included in routine employee health checkup for the aforementioned high-risk occupational categories, to advance the psychological well-being of laborers.

Keywords: Industrial categories, Occupational categories, Psychiatric disorders, Anxiety symptoms, Multilevel analysis
The Challenges of Healthy City Implementation in Banjar South Kalimantan Indonesia

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Background: Healthy City was initiated by WHO in 1986 to prepare a basic base in implementing WHO's principles strategy "Health for All" and Ottawa Charter for health promotion. In the context of Indonesia, the concept of healthy city is referred to as healthy districts/cities. The Healthy City Program in Kabupaten Banjar begins in 2017 and will be assessed for the first time in 2019, so there needs to be studies to find out the challenges faced in its implementation in order to prepare to achieve standardized indicators. To identify the challenges faced in the implementation of the Healthy City Program in Kabupaten Banjar South Kalimantan Methods: Qualitative research with descriptive narrative type conducted in Kabupaten Banjar South Kalimantan. The number of participants were seven stakeholders in Healthy City Program in Kabupaten Banjar. Data collection was conducted with in-depth interview. Data were analysed using Miles and Huberman Model, i.e. data reduction, data presentation and conclusion. Results: The challenges faced today in implementation of Healthy City Program in Kabupaten Banjar were obtained three major themes, namely: poor understanding about Healthy City from stakeholder and general public, lack of community participation, and public policy does not support yet for implementation of Healthy City Program. Conclusions: The challenge in the implementation of Healthy City Program in Kabupaten Banjar requires effort to overcome it, for example with massive socialization about Healthy City to community, also need commitment from stakeholders in Kabupaten Banjar to achieve Healthy City in 2019.

Keywords: Challenge, Healthy city, Banjar-South Kalimantan
Fast Food Consumption and Intervention among Overweight and Obese Children: A Current Review

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Overweight and obesity in children are likely to cause social, psychological and health problems in their adulthood if there is no effective early intervention service available. Thus, early intervention is necessary to slow or even to reverse the growing obesity epidemic throughout the world. The objective of this review is to describe the available studies on fast food consumption and interventions among overweight and obese children. A search of three databases (PubMed, CENTRAL and Google scholar) was conducted for published studies from the year 2010 to 2017. Search terms used were “fast food” and (“children” or “childhood”), crossed with the term “obesity” or “overweight”. Thirteen articles were selected for review. Six studies reported on the association between fast food consumption and obesity. Meanwhile, seven intervention studies reported on the implementation of various types of intervention strategies such as a science inquiry-based to enhance motivation, an integrated nutrition and parenting education, and the energy and traffic light labelling. Findings suggest that nutritional and peer-assisted interventions had an impact on individual eating habits. Food prepared at home was healthier than over-the-counter packaged foods or meals bought outside the home. In conclusion, more comprehensive public health initiatives targeting a variety of behavioural antecedents are possibly required to reduce energy consumed from fast foods. A peer-assisted behavioural intervention is recommended for promoting healthy food choices in children.

Keywords: Overweight, Obesity, Fast-food, Intervention, Children
Community Health Promotion: Investigating Cycling Motivation

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Background: Cycling has been reported to be fun and accessible form of activity that, as a moderate intensity physical activity, has been shown to decrease risk of mortality, improve cardiovascular performance, lower cholesterol, and lower risk of heart attack and produce favourable effects on body mass gain and waist circumference. Encouraging cycling is an important way to increase physical activity and health in the community. Objective: The purpose of this study is to identify participation motive, understand the main effects and association between demographic and motivation. Methods: The Cyclist Motivation Instrument (CMI) questionnaire was distributed to 59 cyclists (aged M = 21.73 ± 2.30, 29 males and 30 females) who participate in UMS FUN Ride Program. The data was analysed by using Multivariate analysis of variance (MANOVA) and a point-biserial correlation. Results: Analysis showed all participation motive are at the high level. Embodiment is the highest meanwhile self-presentation is the lowest participation motive. Result also showed that level of cyclist is a factor to social component with weak positive correlation. Conclusions: Differences in cyclist motivation factors can help to improve public health.

Keywords: Psychological characteristics, Health promotion, Cyclists, Motivation, Social ecology
Adherence to the Artemisinin-Based Combination Therapy in a Rural Area of Savannakhet Province in Laos

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Background: Medication adherence to the 3 days regimen of artemisinin-based combination therapy (ACT) is recommended in order to not promote or expand artemisinin resistance. The objectives of this study were: 1) to examine the patients' adherence to ACT, and 2) to understand the healthcare workers' perception and the contents of their instructions for malaria patients, in the endemic districts of Laos. Methods: A prospective observational study on patients and a questionnaire survey on healthcare workers were conducted. In the patient study, malaria patients of 18 years of age or older and prescribed ACT at outpatient department between October 2016 and August 2017 were included. They were interviewed after consultation (day 0). On day 3, the remaining of the ACT were counted at their home or interviewed by phone call. In healthcare worker study, those who had ever instructed malaria patients, working at all the health facilities of study areas in May 2017 were included. This study was conducted under the SATREPS Project for Parasitic Diseases, Laos. Results: Of the 55 patients, 94.5% (52/55) were adherent. The reason of non-adherent was that they had been getting better. In healthcare worker study, although approximately 90% of the healthcare workers perceived that poor adherence to ACT could cause drug-resistant malaria, most of the healthcare workers did not always confirm the patients' understanding of medication instruction, such as how to take the medication appropriately or how important it was to complete the treatment. Conclusions: The adherence level was slightly higher than the previous studies in Asia. Even though most of the healthcare workers perceived the importance of managing adherence to ACT, they did not give medication instructions completely. Education training of the healthcare workers to promote their ability in making their patients understand is a key to improve the patients' adherence to ACT.

Keywords: Malaria, Medication adherence, Artemisinin-based combination therapy, Allied health personnel, Laos
A Spatial Analysis of Tuberculosis Incidence and Socio-Environmental Risk Determinants in Medan, Indonesia

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Background: The incidence of tuberculosis in Medan City remains high. Socio-environmental factors play a role in the incidence of tuberculosis. This study aims to spatially analyze tuberculosis cases and determine the impact of socio-environmental factors on the incidence of tuberculosis. Methods: The study was conducted in Medan Marelan and Medan Helvetia sub-districts, which had the highest tuberculosis incidence sub-districts in Medan. Geo-coordinated captures of tuberculosis cases and controls were conducted using Geographic Positioning System. Spatial analysis used ArcViewGIS 3.3 to display distribution, SaTScan to analyze clusters, and GeoDa to determine the relationship between socio-environmental risk factors and the incidence of tuberculosis. Results: The result showed that the most likely cluster of tuberculosis cases was in Medan Helvetia sub-district (RR 2.97; radius 3.7 Km) and secondary cluster was in Medan Marelan sub-district (RR 1.93; radius of 4.29 Km). GeoDa analysis showed that housing density and slum houses were associated with the incidence of tuberculosis with r square 80.7%. Diffusion analysis showed that the highest incidence of tuberculosis was in April 2017 at the most likely cluster area. Conclusions: Slum houses and housing density were associated with the incidence of tuberculosis. It was recommended that people should maintain quality of air circulation in the home with good ventilation and avoid contact with patients.

Keywords: Spatial analysis, Tuberculosis, Incidence, Determinant, Socio-environmental
Macaca fascicularis and Simian Malaria Parasites: How Far is Their Relationship?

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Background: Recently a simian P. cynomolgi infection has been reported in patient from East Coast Malaysia. Monkeys have been known to be a reservoir to malaria parasite with more compelling evident of zoonotic transmission from simian to human especially with P. knowlesi. Since the report of increasing number of P. knowlesi and newly re-emergence of other Plasmodium spp. such as P. brasilianum and P. simium infection worldwide, it is important to study the distribution of simian infection in our local monkeys. The aim of this study is to determine the prevalence of the malaria parasite in Malaysian monkeys. Methods: Monkeys were trapped in selected areas where human cases of P. knowlesi and P. cynomolgi were detected. Blood samples were collected for simian malaria parasite species detection by microscopy and molecular studies. Results: Results showed that P. cynomolgi was the most prevalence among the Malaysian monkeys (67.6%) followed by P. knowlesi (38.6%), P. coatneyi (38%), P. inui (19.3%) and P. fieldi (18.6%). Although 51.1% infections were single infection either with P. knowlesi, P. cynomolgi, P. inui, P. coatneyi or P. fieldi, mixed infection with double, triple, quadruplet and all 5 species were also detected in their blood samples. Conclusions: The existence of the human cases, positive monkeys and the vectors in the same proximity need to be addressed seriously since the number of zoonotic transmission reported is increasing which will give the negative implication toward malaria elimination programme.

Keywords: Malaria, Plasmodium, Zoonotic, Simian malaria parasite
Molecular Characterization of Dengue Virus in Sandakan and Kudat, Sabah

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Background: Dengue virus (DENV) has 4 serotypes (DENV1 to DENV4). DENV5 was detected in serum taken in 2007 from a dengue case of Sarawak, Malaysia. 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 and genotypes of dengue viruses circulating in these two sites and to investigate its genetic relatedness to other dengue viruses of the world. 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. One-Step Reverse transcriptase PCR and Nested PCR were performed using C-prM amplimers at the FPSK, UMS followed by sequencing the PCR products. Phylogenetic trees of dengue sequences were constructed together with sequences from GenBank using the Neighbor-joining (NJ) method with bootstrapping in MEGA version 6 software. Results: Out of 200 sera tested, 130 were PCR positive. DENV1-4 serotypes were detected and the DENV1 was the predominant serotype in both study sites. Sixty five patients were infected with single DENV serotype and the other 65 were co-infected with multiple serotypes. Phylogenetic analysis showed C-prM gene sequences of DENV1, DENV3 and DENV4 belong respectively to the genotype IV, genotype I, and genotype II, and are genetically closely related to Asian Southeast Asian and Pacific dengue strains. There was co-circulation of DENV1-4 in Sandakan and Kudat. DENV-1 was the predominant serotype. Half (50%) of the cases were co-infected with multiple serotypes. Conclusions: DENV1, DENV3 and DENV4 detected in this study are genetically closely related to Asian, Southeast Asian and Pacific dengue strains.

Keywords: Dengue virus, Sabah, Serotypes, Co-circulation, Genotypes
Abstract ID: PO0006ID

Molecular Epidemiology of Mumps Virus Outbreak among Medical Students in Malaysia

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Background: Mumps is characterized by fever and swelling of the parotid glands. Generally mumps is caused by mumps virus (MuV), however other viruses are also responsible. There are 12 mumps genotypes, A-N. This study was performed to identify the virus and its genotype during an outbreak of mumps among medical students in Malaysia. Methodology: In October 2016 there was a mumps outbreak at the students’ dormitory. On the 27th October 2016, a medical team from State Health Department and University Malaysia Sabah investigated the outbreak. Saliva samples were collected from two cases. After RNA extraction, RT-PCR was performed to amplify the entire SH gene. Nucleotide sequences of amplicons were performed, BLAST was done to identify the virus and genotype. The phylogenetic analysis was done by neighbour-joining method. Results: The first case was a 21-year-old third year student who developed fever and bilateral painful salivary gland swelling on 16th October 2016. Other than a recent travel to a village he was basically confined within university’s campus and nearby areas. On October 18th, his roommate (second case) and on 19th the third case developed symptoms. The fourth and fifth cases developed symptoms on 21st October. Two (2.5%) of them had unilateral and two (2.5%) had bilateral painful salivary gland swelling respectively. Fourth cases had testicular pain and swelling. All resolved spontaneously without complications. RT-PCR and sequencing confirmed the presence of MuV in one of two samples tested. The strain had 95.9–96.8% identity with genotype F strains. Conclusions: Genotype F has been prevailing in mainland China only. This is the first report of genotype F circulating outside China. Extensive surveillance is necessary to find out the genotype distribution of MuV in Sabah and other states of Malaysia as this is the first report of MuV genotype determination in Malaysia.

Keywords: Mumps virus, Outbreak, University, Malaysia, Epidemiology
Serology and Serotyping of Dengue Outbreak in Kudat, Sabah Malaysia (2016-17)

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Background: Dengue virus (DENV) is a single-stranded RNA virus which is transmitted by the bite of Aedes mosquitoes. Dengue occurred in tropical and subtropical regions of the world particularly in urban and semi-urban areas and currently it is spreading to the rural areas all over the world. This study was carried out to detect the serology and circulating serotypes of dengue viruses and to investigate the age, gender and monthly distribution of dengue cases at Hospital Kudat, Sabah during dengue outbreak. Methods: Between September 2016 to December 2017, 156 dengue NS1 antigen, IgG, IgM+IgG and IgM antibody rapid test positive sera of dengue patients’ from Hospital Kudat were collected. RNA was extracted from serum using QIAamp RNA Blood Mini Kit. PCR was done using one-step RT-PCR kit, HotStart Taq master mix kit with the primers of the dengue C-prM gene. Results: Eighty eight sera were PCR positive, 48 were infected with single serotype and 40 were infected with multiple serotypes. All four DENV serotypes were co-circulating during the study period and DENV-1 was the predominant serotype. PCR was positive in 69.23% of NS1 antigen positive cases and 51.85%, 48.93% and 50% of IgG positive, IgM+IgG positive and IgM positive cases respectively. Highest number of dengue affected was 10-19 year old group. The youngest age affected was 8 months and the oldest was 83 years. Male cases were 81(52%) and female were 75(48%). High number of PCR positive cases were seen in December 2016 and, February and May 2017. Conclusions: There was co-circulation of all 4 dengue serotypes. Dengue outbreak might be due to switching of predominant serotype from DENV 4 to DENV 1 in the year 2016-17. Teenagers were the most affected age group. Male were affected slightly higher than the female.

Keywords: Serology, Serotype, Dengue, Outbreak
Abstract ID: PO0009ID

**Incidence of Concurrent Infection of Multiple Serotypes in Patients with Dengue from a Tertiary Care Hospital in Sabah, Malaysia**

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**Background:** Dengue is a human arboviral disease with major public health importance in endemic Asia Pacific countries. It is a single-stranded, positive-sense RNA virus with four antigenically distinct serotypes namely, DEN-1, DEN-2, DEN-3 and DEN-4. Several cases of patients with concurrent infections of more than one dengue serotypes (in the same individual) have been reported in various parts of the world. However, the clinical features associated with these simultaneous infections are lacking and not well understood. This study aims to determine the presence of concurrent infection of mixed serotypes in the serum of dengue positive cases.

**Methods:** All the suspected dengue samples were obtained from the Sabah Woman and Children Hospital at Likas, Sabah, from February 2016 to February 2018. Patient's serum was initially examined for positive dengue infection using the NS 1 test kit. NS1 positive samples were then screened for concurrent dengue serotype infections using multiplex Real-Time-polymerase chain reaction (qPCR) assay.

**Results:** We identified twelve serum specimens with more than one DENV serotypes. There were four cases (33.33%) of DEN-2 & DEN-3, three cases (25%) of DEN-1 & DEN-3, and two cases (16.66%) of DEN-1 & DEN-2 (16.66%) concurrent infection, respectively. We also identified three individual samples with DEN-1 & DEN-4, DEN-2 & DEN-4, DEN-2 and DEN-4 concurrent infection, respectively.

**Conclusions:** The data obtained allows for future investigations into the severity of concurrent infection caused by different dengue serotypes in clinical samples. Furthermore, the result shows that the multiplex Real-time PCR (qPCR) protocol used in this study is effective in detecting concurrent DENV infections and can be used as an epidemiological surveillance tool as concurrent dengue infection may have profound clinical significance and consequences.

**Keywords:** Serotypes, Concurrent, Dengue, Multiplex real-time-polymerase chain reaction, qPCR
Epidemiologic Characteristic of Human Middle East Respiratory Syndrome in Saudi Arabia, 2015-2017

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Background: To estimate the incidence and mortality of human Middle East respiratory syndrome (MERS) cases by demographic characteristics, regions and sources of infection in Saudi Arabia. Methods: MERS cases and their characteristic were extracted from two data sources; World Health Organization and Ministry of health, Saudi Arabia. The incident and mortality rates per 100,000 were calculated by age, gender and region. We also compared epidemiological characteristics by source of infection. Results: Total 829 cases from 2015 to 2017 were recruited in this study. Incidence of MERS infection was 1.44, 0.65, and 0.54 case/100,000 populations for 2015, 2016 and 2017 respectively. The mean age of cases was 55 years, highest incidence rate was founded among age group 50-59 years old (22.5%), and lowest incident in age group ≤ 19 years. Male gender is more likely to be infected with 73.5% of all cases. Majority of incident rate was reported in Riyadh region (50.36%), and minority was in Jazan region (0.12%). The generation of infection was determined from three main sources: primary infection was 24.16% (camel contact and/or consumption of their raw milk), secondary infection was 38.34% (hospital acquired 92.16% and community acquired 13.48%) and unidentified source 37.5% of all cases. MERS infection caused 368 death among 829 cases (case fatality rate CFR = 44.4 %) for all the period. The mortality rate according to the source of infection was; un-identified source (44%), secondary infection (32.6%, including 97.5% hospital acquired), and primary infection (23.4%). Conclusions: Incident and mortality rates were found significantly decreased from 2015 to 2017. Age group and source of infection demonstrated high risk population. Identification of MERS epidemiological characteristics support the control plan and preventive measures for improving public health impact in Saudi Arabia.

Keywords: MERS, Incident rate, Mortality rate, Age group, Region, Infection source
Serotypes of Dengue Viruses Circulating in Malaysia

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Background: Dengue is the most prevalent infectious disease in Malaysia with an increase in the number of reported cases from 43346 in 2013 to 120836 in 2016. The number of death cases also rose from 92 to 373 in the respective years. Dengue viruses are antigenically distinct from one another through four serotypes (DENV-1 to DENV-4). Institute for Medical Research (IMR) is currently supporting the Ministry of Health of Malaysia in carrying out surveillance programme on circulating dengue virus serotype. In this study, dengue virus serotypes circulating in Malaysia for the past five years from 2013 to 2017 were investigated.

Methods: Virology Unit, IMR have received and tested 2007 specimens such as serum (84.5%), CSF (6.7%), plasma (2.8%), liver (2.6%), spleen (0.8%), blood (0.7%), brain (0.4%), heart (0.4%), lung (0.4), kidney (0.2%), tissue (0.2%), stool (0.1%) and urine (0.1%) from a total of 1911 patients. Dengue serotyping was performed on viral RNA extracted samples by using real time RT-PCR.

Results: Dengue virus genome was detected in 46.1% of the patients. Most of the patients were found infected with DENV-1 (16.9%), followed by DENV-3 (15.2%), DENV-2 (11.4%) and DENV-4 (1.5%). Apart from that, between year 2014 and 2017, 0.58% of patients have dengue serotypes co-infection of DENV-1/DENV-2, DENV-1/DENV-3 (0.3%), DENV-1/DENV-4 (0.2%) and DEN-2/DENV-3 (0.1%) in several states of Malaysia.

Conclusions: DENV-1 serotype is the most predominating dengue serotype, followed by DEN 3, DEN2 and DEN 4 circulating in Malaysia between 2013 and 2017. Apart from that, co-infection of two serotypes is an alarming new trend for dengue epidemiology in Malaysia. Therefore, the identification of circulating serotypes of dengue is critical for dengue outbreak prediction as well as minimising the risk of severe forms of dengue that may spread in population.

Keywords: Dengue virus, RT-PCR, Serotyping
Burden of Infectious Diseases in Malaysia, 2014

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**Background:** With increased public awareness towards non-communicable diseases, risk factors and prevention, it is easy to lose sight of infectious diseases that still cause a significant impact on national health systems. This is especially so for developing countries undergoing epidemiological transition, such as in Malaysia. The aim of this study was to determine the burden of infectious diseases in Malaysia for 2014. **Methods:** Burden of disease was calculated based on the methodology described by the Global Burden of Disease (GBD) study. The mortality burden, calculated in Years of Life Lost (YLL), was based on mortality data obtained from Department of Statistics Malaysia. The morbidity burden, in Years Lost due to Disability (YLD), was estimated based on surveillance data from Ministry of Health, national surveys and other sources. The total burden of a particular disease was the summation of YLL and YLD and described in Disability Adjusted Life Years (DALYs). **Results:** Infectious diseases contributed towards 5.10% of the total burden of disease in Malaysia for 2014. Almost 61% of the burden of infectious diseases was contributed by the mortality component. Tuberculosis was the leading contributor of YLL for both males and females, while HIV/AIDS was the leading contributor of YLD among males and diarrheal diseases among females. Diarrheal diseases, tuberculosis and HIV/AIDS were the top 3 leading cause of DALYs in infectious diseases, each contributing more than 20% of the total infectious disease burden. Dengue contributed towards 6.70% of infectious disease burden in Malaysia for 2014. **Conclusions:** Efforts need to be intensified to improve preventive measures, early disease detection and treatment of tuberculosis, HIV/AIDS and diarrheal diseases in Malaysia. Media attention often highlights dengue and acute infectious respiratory diseases. However, public awareness on tuberculosis, HIV/AIDS and diarrheal diseases needs to be given higher priority to reduce the burden of infectious diseases in Malaysia.

**Keywords:** Infectious disease, Disease, Burden, Malaysia
Sexually Transmitted Infections among HIV-Positive Men Who Have Sex with Men in Sabah

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Background: Sexually transmitted infections (STIs) have been associated with HIV transmission risk and disease progression among people living with HIV. In Sabah, the prevalence of HIV among MSM has been increasing in trend based on the findings of two IBBS surveys (2012 and 2014). Estimating the prevalence of STIs in HIV positive MSM can therefore provide information for targeting and planning interventions to reduce the HIV transmission in Sabah. This study aims to estimate the prevalence of self-reported STIs and associated risk factors among HIV positive MSM in Sabah. Methods: We conducted a cross-sectional study among HIV positive MSM recruited from Community-based support program in Kota Kinabalu, Sabah. Participants were interviewed using questionnaire on demographics, sexual behaviour, drugs and alcohol use, and STIs. Results: We found out that 73.4% (80) of participants had been sexually active ever since diagnosed HIV. For the entire sample, 24.8% (27) reported ever being diagnosed with STIs. Reporting STIs was significantly associated with engaging in group sex, alcohol consumption and drug methamphetamine (Syabu) use before having sex. Conclusions: The estimated prevalence of self-reported STIs among adult HIV-positive MSM supports the needs for further studies to confirm the prevalence of STIs using clinical laboratory tests. The significant associations between self-reported STIs and substance use and engagement in group sex indicate the needs for promoting safe sex practices and tackled sex-related drug and alcohol use among this community.

Keywords: STIs, Sexually transmitted infections, HIV, Human immunodeficiency virus, MSM, Men who have sex with men
Abstract ID: PO0016ID


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Background: This study aimed to examine whether spatial–temporal patterns of dengue can be used to identify areas at risk of dengue hemorrhagic fever. A longitudinal study among 23,982 people in urban areas in the Federal Territories of Kuala Lumpur and Putrajaya from 2014 to 2016 studied spatial and temporal determinants for recent dengue cases.

Methods: Data related to dengue cases in the Federal Territories of Kuala Lumpur and Putrajaya was obtained from the Ministry of Health Malaysia. Geospatial analysis was applied to further study the spatio-temporal patterns of dengue fever cases in the data set, including hot spot/cold spot analysis and geographically-weighted regression models.

Results: Spatial and temporal variation of dengue cases was observed in the geographic areas affected by dengue cases. This study demonstrated that locally-acquired dengue cases have exhibited a spatial and temporal variation over the past twenty years in the tropical climate of our study areas. There is clear evidence of the existence of statistically significant clusters of dengue and occurred at an average distance of 278.91 meters.

Conclusions: These findings enabled us to detect and target dengue clusters over time for. The use of geospatial information can assist the health authority in planning dengue control activities and it would allow for better design and more accurate timing in implementing of dengue management programs.

Keywords: Healthcare, Hospital accessibility, Geographic information system, GIS
Assessing the Need for National Deworming Program to Reduce Morbidity of Soil Transmitted Helminthiases

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Soil-transmitted helminth (STH) is one of the neglected tropical diseases (NTDs), listed in the WHO Western Pacific Region health concerns. Implementation of national deworming program for STH is expected to reduce morbidity in high risk group. However, in Malaysia the burden of STH is not well informed as compared to other diseases. Therefore, objective of this study is to estimates morbidity of STH in Malaysia among high risk group, in order to determine the need for re-implementation of deworming program. Formalin ether concentration was performed to examine the STH ova in 1642 stool samples collected from seven different Orang Asli locality in Terengganu, Pahang and Selangor. Samples were collected by study team from Parasitology unit, Institute for Medical Research, Kuala Lumpur during year 2004 until 2017. STH ova found were Ascaris lumbricoides (ALO), Trichuris trichiura (TTO) and Hookworm (HWO) ova with single or mixed infection. However, ALO, HWO and TTO infection showed no significant trend but the infection persists over the years. School children between ages 7 to 12 are the highest risk group as compared to others whereby health campaign should focus more on this targeted group. There are also infected cases among children below the age of one year. This could indicate hygiene among child handlers is not properly maintained. The burden of intestinal parasites infestation among aborigines in Malaysia indicates that the infection still remain despite the change of time. Proper planning and successful implementation of deworming program will result in reduction of morbidity from STH.

Keywords: Soil transmitted helminth, Deworming program, Public health
Abstract ID: PO0019ID

Tuberculosis in Melaka from 2011-2015: Situational Analysis

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Background: The notification rate of Tuberculosis (TB) in Melaka has increased gradually from 53 to 73 per 100,000 populations between 2004 and 2014. This study was conducted objectively to describe TB situation in Melaka during the Millennium Development Goal 2011-2015 for better planning in achieving the Sustainable Development Goal 2016-2030. Methods: a Cross-sectional study was conducted using all TB cases registered in the National database MyTB from 2011-2015 and was verified with case note for incomplete data. MyTB data was downloaded into Excel and analysed using SPSS software for descriptive analysis of TB cases, TB death, defaulter and TB contacts. Results: Among 3 districts, notification rate was the highest in Alor Gajah followed by Melaka Tengah and Jasin from 2011-2015 except in 2014, Melaka Tengah showed the highest burden of TB cases (80.1/100,000 populations). Ethnic-specific notification rate was highest among other ethnicity and immigrants (843.1 and 384.4 per 100,000 populations accordingly). The mean (SD) age of TB cases was 43.59 (17.96) and TB death 55.15 (18.11). The prevalence of TB cases is high among the secondary level of education (43.5%) and TB death more among smokers (47.0%). Annual treatment success rate for TB cases among Malaysians were 81.4% (2012), 79% (2013), 83.7% (2014) and 79% (2015). The main factors for incomplete treatment were TB death (8.6%) and defaulter (2.76%). Defaulter cases highest among smokers (67.6%). TB contact tracing ratio increased from 1:0.01 (2011), 1:0.4 (2012), 1:6 (2013), 1:5 (2014) to 1:8 (2015). Conclusions: The increase in TB notification rate particularly in 2014 was contributed by the introduction of Fluorescence Microscopy method and TB screening among prisoners in Melaka Tengah. Systematic TB screenings must be targeted on high-risk groups involving old age, smokers and immigrants as well as strengthen aggressive defaulter, contact tracing and DOTS programs to tackle incomplete treatment. Active involvement of all stakeholders is needed to achieve SDG 3.

Keywords: Tuberculosis, Melaka, 2011, 2015, Situational analysis
The Diagnostic Utility of GeneXpert MTB/RIF® in the Diagnosis of Pulmonary Tuberculosis (PTB) among HIV-Infected Prisoners in Malaysia

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The Xpert MTB/RIF assay has been developed to improve tuberculosis detection. A Cochrane Review estimated the pooled sensitivity of the assay to be 89% and the specificity to be 99% for the detection of tuberculosis. Sensitivity was lower in people with HIV infection (79%) than in those without HIV infection (86%) and the aim of this study is to investigate the diagnostic accuracy of Xpert® in a large Malaysian prison with high TB and HIV burden. The surveys were conducted among prisoners to Kajang Prison from 2012 to 2015. Consent and interviewed prisoners were asked to submit two sputum specimens, irrespective of clinical presentations. One sputum specimen was examined using Xpert® and the remaining was sent for smear microscopy and culture examination at reference laboratory. The sensitivity, specificity and predictive values of Xpert® were assessed against the gold standard tool, TB culture, using OpenEpi software. The difference in the Xpert® sensitivity between HIV –infected and HIV –uninfected participants was assessed using McNemar Test. From 1285, a total of 906 (80.7%) were HIV –infected. The majority were men (83.3%), ethnically Malay (51.6%), mean age of 37.5 (SD 8.7) years, 55.6% had previously injected drugs with 70.5% use heroin. The overall sensitivity of Xpert® was 74.2% [CrI 64% to 82%] and specificity of 98% [CrI 97% to 99%], while the positive and negative predictive values were 73.3% and 98%, respectively. The sensitivity of Xpert® was significantly lower among HIV –infected compared to HIV –uninfected (58.8% versus 77.8%, p=0.01, respectively). Xpert® outperformed smear microscopy with significantly shorter time to reach the diagnosis (median of one day compared to standard smear/culture algorithm of 62 days). The new technology performed well in the diagnosis of active TB compared to the conventional tools but careful interpretation of results among HIV-infected individuals is required.

**Keywords:** Tuberculosis, Genexpert, HIV, Prisoners
Prevalence of Leptospiral DNA among Cockroaches from a Selected Area in Kuala Lumpur Malaysia


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Background: This study has attempted to isolate pathogenic Leptospira spp. from body swab and body surface of cockroaches in the selected areas of Kuala Lumpur by culture technique, then confirmation by Real Time PCR. Methods: Body swab and body surface wash were collected from cockroaches of Chow Kit and Datuk Keramat, cultured in EMJH media, examined under x40 dark field microscope for the presence of motile Leptospira spp. DNA extraction was performed on all positive samples by culture technique prior to Real Time PCR. Results: Sixteen out of 80 samples of body swab and body surface wash taken from cockroaches were positive for Leptospira spp. by culture method. Out of these 16, 10 isolates showed Ct values ranging from 16.12 to 35.28 by Real Time PCR. Five samples from each Chow Kit and Datuk Keramat produced positive Ct values when LipL32-286R and LipL32-45F primers were used to amplify targeted region of LipL32 gene, and LipL32-189P was used as probe to detect the pathogenicity. Conclusions: Leptospira spp. isolates collected are pathogenic and the cockroaches have the potential to be the vector for Leptospira spp. in the study areas.

Keywords: Cockroaches, Leptospira spp., Real time PCR, LipL32
Assessment of Nurses' Confidence for Shifting the Task of Following Up ART Patients to Primary Care Facilities, After Training Program in Chiang Mai, Thailand

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Background: An increasing number of patients receiving antiretroviral therapy (ART patients) prompted a community hospital (CH) in northern Thailand to shift the task of follow-up with primary care facilities (PCFs) under its jurisdiction. Our previous study found that ART patients at PCFs were less satisfied than those at CH. Nurses at PCFs who follow up ART patients expressed a need to update knowledge and skills about HIV-related services, and to systematize referral of ART patients between CH and PCFs. To address these needs, we implemented JICA Grassroot Project “Strengthening community-based health services for people living with HIV in northern Thailand.” We report the initial assessment results of the training program the project organized for the nurses.

Methods: A project working group, consisting of HIV experts and health professionals in Chiang Mai and university lecturers, developed a curriculum with technical inputs from Japanese HIV experts. Topics covered in the program were basic knowledge of HIV/AIDS, laboratory tests, opportunistic infections, HIV and NCDs, stigma and patient privacy, ART, and adherence and monitoring. At the end of the program, conducted from May 30 to 31, 2018, we assessed changes in participants' knowledge about HIV and confidence in treating ART patients.

Results: Twenty-two nurses attended the program. Overall, they were satisfied with the program. Every participant increased their knowledge across all topics. The average level of confidence in treating ART patients at PCFs significantly increased from 4.6 (SD=1.4) to 8.4 (SD=1.0) (lowest=0, highest=10, p<0.01).

Conclusions: The 2-day training program facilitated and increased the participants' knowledge about HIV/AIDS and in their confidence in providing ART services. After participation in a short practicum, CH will start referring ART patients to PCFs. We need to investigate if the program has an impact on the satisfaction of ART patients in future.

Keywords: HIV, Antiretroviral therapy, Task-shifting, Primary care, Thailand, Training program
Current Perspective and Emerging Trends in Health Care Associated Infections (HAI) Caused by *Clostridium difficile*

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**Background:** Health care–associated infections (HAIs) are an important public health issue and a major threat to patient safety which causes significant morbidity and mortality. HAI includes central line-associated blood stream infections (CLABSI), catheter-associated urinary tract infections (CAUTI), ventilator-associated pneumonia (VAP), surgical site infection (SSI), *Clostridium difficile* infection (CDI). *Clostridium difficile* is a gram positive, anaerobic, spore-forming emerging pathogen causing antibiotic associated diarrhoea (AAD) in hospitalized patients due to increase use of broad spectrum antibiotics. Though CDI has been considered a hospital acquired infection, however, recent studies have shown that approximately one-third of all patients with *Clostridium difficile* infection do not have any history of hospitalization indicating presence of the organism outside of the setting. The epidemiology of CDI in North America and Europe are well documented. CDI are rarely studied in Malaysia and many other Asia Pacific countries. We were interested to know the changing epidemiology in this region.

**Methods:** We reviewed the publish report on *C. difficile* infection and update the current trends of *C. difficile* infection as well as epidemiology in the health care settings and community.

**Results:** Recent analysis of *C. difficile* using genome sequencing shows CDI were genetically distinct and not transmitted by recent asymptomatic carriers in the hospital environment. Therefore, strains circulating in Asia, as in other regions, have the potential to spread in internationally. CDI symptoms include mild diarrhoea to severe colitis, intestinal perforation, sepsis and death.

**Conclusions:** This review summarizes the epidemiology, clinical presentation, risk factors, laboratory diagnosis, prevention and treatment option of CDI. We will focus on the recent progress in the understanding the disease process of CDI. Despite its increasing incidence, the transmission dynamic of CDI is not well understood to date.

**Keywords:** *Clostridium difficile*, Health care–associated infections (HAIs), Current trends
Abstract ID: PO0024ID

Risk Factors for Tuberculin Skin Test Positive in Pulau Gaya

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Background: Tuberculosis (TB) is one of the most common worldwide infectious diseases with largest cause of death. TB has been declared as "global emergency". About one-third of the world's population is infected with mycobacterium TB and at risk. Literature showed that people with good knowledge and positive attitude toward TB tended to engage in preventive activities for TB. There was no study done in Pulau Gaya to show this attitude and knowledge of this disease. The purpose of this study was to identify the risk factors for positive Tuberculin Skin Testing (TST) and the knowledge and attitudes toward TB for people with TST positive and negative in Pulau Gaya, Kota Kinabalu, Sabah. Methods: This cross-sectional study and convenient sampling from population of Pulau Gaya. Questionnaire regarding risk factors of TB and Knowledge and Attitudes Questionnaire was used to explore the participants' knowledge and attitudes toward TB. Tuberculin test was administered and measured during the study. Data collection was conducted between March and May 2017. A total of 197 participants were recruited, including 91 people with TST positive and 106 people with TST negative. Results: The average ages of the participants with TB and without TB were 39.00 and 31.84 years, respectively. There was significant difference in knowledge of TB between the participant with and without TB. The participants with TST negative had higher knowledge scores than the participants with TST positive. There was no significant difference in attitudes. Conclusions: This study showed the prevalence of TST positive, risk factors associated with tuberculin test positive and baseline information on knowledge and attitudes towards the TB for people with TST positive and with TST negative in Pulau Gaya. It also showed that when a population do not have enough knowledge about TB it could bring potential barriers in the prevention.

Keywords: Prevalence, Risk factors, Knowledge, Attitude, TST, Pulau Gaya
Abstract ID: PO0025ID

Immunohistochemical Evaluation of Protection Provided by VCUSM21P Vaccine

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Background: Late of 1992 large outbreaks of cholera began in India and Bangladesh that were caused by a previously unrecognized serogroup of Vibrio cholerae, designated O139, synonym Bengal. The disease then spread rapidly to other countries and has now been reported from 10 countries in South Asia. Ultrastructural study showed that the V. cholerae O139 strain is the most dangerous strain, causing extensive damage to the intestine. Methods: In our previous study, complete protection was observed in rabbit immunized with \(1 \times 10^{10}\) CFU of live attenuated VCUSM21P vaccine against challenge with \(1 \times 10^9\) CFU V. cholera O139. In the present study, we investigated whether the vaccines can effectively protect immunized animals from any pathologic changes using histological, immunohistochemical and ultrastructural techniques. Results: Comparison of the histological lesions in the intestine of unvaccinated-challenged and vaccinated-challenged rabbits indicated that the vaccine-induced immunity provided full protection against challenge WT. Conclusions: The data presented do show that VCUSM21P vaccine would provide a complete protection against V. cholera.

Keywords: Cholera, Vibrio cholera, Vaccine
Abstract ID: PO0026ID

Innovation of TB Control through Understanding of Social - Cultural Environmental Factors in High Risk Population in Kota Kinabalu, Sabah

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Background: One of the SDG targets for 2030 is to end the global TB (Tuberculosis) epidemic. In mid-term review of Malaysia National Strategies and Policy for TB (2011-2015) recommended that intensify case finding need to be stepped up and active screening of high-risk group need to be strengthened and to empower the people with TB and community by collaboration with high risk places to reduce delay diagnosis and treatment. The report shows that there were significantly more cases of tuberculosis in foreigners than expected. Objective: The aim of this study is to describe the psychosocial, cultural and environmental factors in the currently arbitrary high risk TB population in Kota Kinabalu, Sabah. Methods: A community based cross sectional quantitative study was conducted from June 2017 to June 2018 in high risk TB Hot spots areas in KK, Sabah with random sampling from State health Department annual screening and case detection by using mobile CXR and GeneXpert with sample size of 1760 people in high risk population. Quantitative data from questionnaire was integrated and descriptive analysis was done by using frequencies and association was tested by Chi square test. Results: Prevalence of positive TB cases in study population is 0.7%. Among TB positive cases 76.9 % are non-Malaysians. Almost all of positive TB cases are symptomatic and no history of previous TB. 38.46% of cases have been in prison. Majority of TB cases are smokers and associated with COPD. Most of them are construction workers and only half of them have proper water supply. Only 27% have income of more than RM1000 and majority have less income.53.9% have not employed. Conclusions: The study results show that the non-Malaysians TB positive cases have barriers to seek quality TB health care and their transmission is associated with low socio cultural and environmental factors.

Keywords: TB control, High risk population, psychosocial cultural environmental factors, WHO TB targets, Sabah
Demographic and Clinical Characteristics of Mortality Cases among TB Patients in Upper Interior Region of Sabah

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Background: Despite global TB mortality rate decreasing per year, TB mortality rate in upper interior region of Sabah is rising. This study sought to explore the demographic and clinical characteristics of TB mortality cases in the region. Methods: A retrospective case review was conducted on all TB patients of upper interior region of Sabah from 2013 to 2017 who were registered in Sistem Maklumat Tibi (MyTB) online database. Those with treatment outcome recorded as ‘died’ were subjected to descriptive analysis. Results: There were 214 TB patients who died during the time period. Demographically, most of them were males (145/214, 67.76%), citizens (176/214, 82.24%), rural dwellers (199/214, 92.99%), and unemployed (167/214, 78.04%). More than two-fifth of them had no formal education (94/214, 43.93%) and died at age above 65 years old and above (86/214, 40.19%). Clinically, majority were newly diagnosed (186/214, 86.92%) and TB pulmonary cases (158/214, 73.83%). Almost two-third showed positive sputum smear result (122/214, 57.01%) and 90 cases (42.06%) showed moderately advanced TB on CXR. Most of them were non-diabetic (193/214, 90.19%) and non-smoker (150/214, 70.09%). Only 15 (7.01%) cases were confirmed HIV positive. Conclusions: Most documented causes of death were not due to TB (156/211, 73.93%), while 50 (23.70%) cases due to TB.

Keywords: Tuberculosis, Mortality, Factors, Sabah
Hepatitis B and Hepatitis C Screening among High Risk Groups: A Systematic Review

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Background: Worldwide, approximately 240 million and 71 million people have chronic hepatitis B (HBV) and chronic hepatitis C virus (HCV) infection, respectively. In Malaysia, approximately 4,067 cases of viral hepatitis were notified in year 2000 with hepatitis B and hepatitis C virus are among the most common causes. These viral infection are frequently asymptomatic and the sequelae often takes few decades to develop thus screening is deemed paramount in line with WHO’s goals to eliminate viral hepatitis as a major public health threat by 2030. Objective: To review the evidence on HBV and HCV screening among high risk groups.

Methods: Systematic search was performed from databases; Medline, EBM Reviews, Pubmed and INAHTA. Relevant studies were critically appraised and evidence graded according to the US/Canadian Preventive Services Task Force. Data were extracted and summarised in evidence table.

Results: From 782 titles identified, three systematic reviews (one for effectiveness, two for economic evaluations), one RCT, two retrospective cohort studies, two cross-sectional studies, one cost-utility analysis and one cost-effectiveness analysis were included. Fair level of evidence suggested that universal HBV screening in pregnant women was associated with almost complete vaccination coverage for newborn infants. Programmes with pre-screening selection based on HCV risk profile were associated with high HCV prevalence. Universal screening did not detect significantly more women with HCV infection than did targeted screening. For underprivileged people, HBV and HCV screening in shelters had higher screening completion rate than referral to screening centres. Based on the cost analyses, HCV screening of drug users and universal HBV screening of pregnant women and migrants were cost-effective interventions while HCV screening of pregnant women and all STD-clinic attendees was probably not cost-effective.

Conclusions: Based on the above review, high risk approach screening for hepatitis B and hepatitis C is appropriate and recommended in Malaysia.

Keywords: Hepatitis B screening, Hepatitis C screening, High risk groups
Effectiveness of Malaysian Autocidal Trap (MyMAT) As a Tool to Control Aedes Mosquitoes in Taman Ayer Keroh Heights, Malacca

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**Background:** Studies have showed that modified ovitrap similar to Malaysian Autocidal Trap or MyMAT can reduce density for larvae and adult mosquitoes. However no studies focusing specifically on My MAT have been published. Hence, this study was to evaluate the effectiveness of MyMAT as a tool to control Aedes population and reduce dengue cases in Malacca.

**Methods:** This is an intervention study comparing the mosquito density (ovitrap index (OI) and dengue cases (during pre and post intervention) in the study area Taman Ayer Keroh Heights compared to the control area Taman Saujana Seksyen 3, Melaka. MyMAT was installed for 37 weeks from March till November 2016. Data of dengue cases and OI scores 12 weeks prior and after the intervention in the study area was compared to data in the control area. Data analysis was done using SPSS version 21. A paired sample t test was conducted to evaluate the impact of the intervention on OI scores and mean number of cases.

**Results:** The study area showed a significant mean decrease in Ovitrap index scores (paired t-test = 5.84, p<0.05) and in dengue cases (paired t-test=2.67, p<0.05) compared to the control area.

**Conclusions:** MyMAT is an effective device for trapping and controlling Aedes population and can be an effective component of integrated vector management in dengue control.

**Keywords:** Autocidal ovitrap, MyMAT, Dengue
The Government’s State Budget Role in Determining TB-MDR Treatment’s Success in Indonesia: A Literature Review

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Tuberculosis still remains a huge public health concern in Indonesia. According to WHO, Indonesia was ranked second with the largest number of TB in the world. Indonesia is also burdened not only by TB but also MDR-TB and TB with HIV, with the number of MDR-TB keeps increasing. This pushed Indonesian government to accelerate TB elimination. The target of the commitment is to reach 70% success rate of MDR-TB treatment in 2017 by increasing financial budget for TB treatment program. This study aims to observe the potential association of national budgetary with successful MDR-TB treatment. This literature review study observes the association of government’s state budget’s percentage for TB treatment and the success rate of MDR-TB treatment in each province in Indonesia. Out of the 34 provinces in Indonesia, there were only 16 provinces that have high and high rate of successful MDR-TB treatment. Furthermore, only Central Kalimantan Province achieved the target of successful MDR-TB treatment with 85.7% MDR-TB treatment success rate. The magnitude of state budget percentage for TB treatment did not show potential positive correlation to the success of MDR-TB treatment. This was shown by Nusa Tenggara Barat Province that possessed highest state budget percentage for TB treatment program, as high as 72.2%, but only achieved 50% success rate on MDR-TB treatment.

**Keywords:** Tuberculosis, MDR-TB, MDR-TB Treatment, TB Elimination, National budget
Potential Typhus Vectors from Wildlife Hosts in the Kinabatangan Wildlife Sanctuary, Sabah

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**Background:** The Malaysian state of Sabah is a biodiversity hotspot and a growing ecotourism destination. People seem to be more involved in outdoor activities in rural or remote areas, which may increase the contact with vector-borne pathogens such as ticks and mites. Typhus (a vector-borne Rickettsial infection) ranked fourth out of 547 identifiable causes of systemic febrile illness in returned travellers from Southeast Asia. Cases of Rickettsial disease have been reported in Malaysia since 1927 but none in the Kinabatangan District, a popular travel destination. Moreover, no research or database on the ectoparasites and rickettsiae in the Kinabatangan area has been performed. Ectoparasites have been collected opportunistically through Danau Girang Field Centre’s projects in the Lower Kinabatangan Wildlife Sanctuary (LKWS) from a variety of hosts (civets, rats, squirrels, monitor lizards, reticulated pythons and nocturnal primates). The first aim of this study is to identify the ectoparasites species and their prevalence in the wildlife hosts. This will lead to the identification of the species and prevalence of rickettsia in the ectoparasites collected from such hosts. The ectoparasites will be morphologically identified to the species level by using morphological criteria within standard taxonomic keys based on Khols, 1957. Molecular techniques using genetic markers will be done to identify cryptic ectoparasite species using genotypic traits. For molecular detection of rickettsia species, nested PCR will be done targeting the 16s RNA, 17kDa surface antigen, ompB, and sca4 genes. Amplified DNA product will be sequenced for rickettsia species identification. **Conclusions:** A database of rickettsia and ectoparasites in wildlife hosts residing in the LKWS will be created, thus benefiting wildlife and people living and visiting the area.

**Keywords:** Sabah, Vector-borne pathogens, Wildlife hosts-animal, Ticks, Mites, Rickettsia
Seroprevalence of *Helicobacter pylori* Infection in Kota Kinabalu, Sabah

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**Background:** *Helicobacter pylori* (*H. pylori*) infection is related to the development of chronic gastritis, peptic ulcers, mucosa-associated lymphoid tissue (MALT) lymphoma and gastric cancer. Recurrence of peptic ulcers can be significantly prevented by the eradication. Significant geographic variation exists in the incidence of peptic ulcers and gastric cancer due to the variation of *H. pylori* among different populations. Malaysia is a multiethnic society with a heavy burden of peptic ulcers and gastric cancer. Although there are some studies in other parts of Malaysia, studies are scarce in Malaysian Borneo despite of multiethnic structure. Therefore, to obtain a clear picture of ethnic distribution of *H. pylori* this study was done in Kota Kinabalu in Sabah Malaysia. **Methods:** We performed a cross-sectional study on serum obtained from voluntary blood donors during August 2016 and July 2017. A total of 440 serum samples were tested using an antibody determination kit (E-Plate Eiken *H. pylori* antibody II, Eiken Chemical Co., Ltd., Tokyo, Japan). **Results:** Ninety Bajau, 50 Dusun, 100 Kadazan, 100 Chinese and 100 Malays samples were selected. In total, 25.5% (112/440) showed positive for the antibody; ethnic distribution showed that 30.0% (27/90) of Bajau, 38.0% (19/50) of Dusun, 39.0% (39/100) of Kadazan, 13.0% (13/100) of Chinese and 14.0% (14/100) of Malay were positive. **Conclusions:** We found that the seroprevalence of *H. pylori* in people living in Sabah is lower particularly among Chinese compared with people living in west Malaysia. However, the seroprevalence rate among Malays was similar in both parts of Malaysia. This difference is likely to be environmental in origin, an infection which requires close contact for transmission and spread during early childhood. Further large scale population-based studies are needed to better determine the role of these potential sources of transmission of *H. pylori* in Sabah.

**Keywords:** *Helicobacter pylori*, Epidemiology, Seroprevalence, ELISA, Kota Kinabalu
Evaluation of Commercial Real Time PCR Assay Kit (abTEST™ Malaria 5 qPCR II) for Detecting *Plasmodium knowlesi*

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**Background:** *Plasmodium knowlesi* is a monkey malaria increasingly reported to infect humans across Southeast Asia. *P. knowlesi* is now the most common cause of malaria in Malaysia, including Sabah where it accounts for more than 95% of malaria cases, and can cause severe disease and death. Human-only malaria species such as *P. falciparum* and *P. vivax* have been successfully reduced by public health programs in Sabah to the point these species are aimed to be eliminated by 2020. However, microscopy is unreliable in differentiating *P. knowlesi* from other human malaria, and may not detect infections with very low parasitaemia. As part of ongoing state-wide malaria surveillance in Sabah to evaluate accurate long-term trends in malaria case reporting, the abTES™ qPCR kit (AITbiotech, Singapore) targeting the *P. knowlesi* 18SrRNA gene has been used for definitive diagnosis at the state reference laboratory (MKA) since the beginning of 2016. However, no independent evaluation of its diagnostic accuracy has been reported in the literature. This study aimed to evaluate the diagnostic accuracy of the abTES™ qPCR kit for detecting endemic *Plasmodium* species (*P. knowlesi, P. falciparum, P. vivax* and *P. malariae*) in Sabah. **Methods and results:** Real time PCR was performed on 136 clinical samples including 49 with molecularly confirmed *P. knowlesi*, 25 with *P. vivax*, 25 with *P. falciparum*, 11 with *P. malariae*, and additional negative controls. The median parasite count for the *P. knowlesi* clinical samples was 10,634/uL (IQR 7608-14529) [range 5340-35873]. Results showed that the sensitivity and specificity for *P. knowlesi* detection was 100% (CI95 0.93-100) and 100% (CI95 0.94-100) respectively. Additional diluted samples demonstrated a limit of detection for *P. knowlesi* of 0.125 parasites/uL (3/3 replicates). **Conclusions:** The findings from this study support the use of the abTES™ qPCR kit by relevant public health laboratories in reliably identifying *P. knowlesi* in routine malaria surveillance.

**Keywords:** *Plasmodium knowlesi*, Malaria, PCR
Uses of Zingiberaceae in the Indigenous Health

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**Background:** Zingiberaceae is a ginger family which is very popular species in diet and healthcare. People nowadays, especially the indigenous community is still relying on medicinal plants due to the continuous offer from the market, easy access, and the cultural inheritance. The purpose of this paper is to describe the uses of Zingiberaceae in the Indigenous health. The information presented in this paper is based on survey from selected local market, so called tamu in the West Coast Sabah. In total, seven species of ginger were recorded, namely Alpinia galanga, Boesenbergia stenophylla, Curcuma longa, Etlingera coccinea, Kaempferia galanga, officinale and Zingiber officinale var. rubrum. Most of the use of ginger is to prevent and treat cold-related illnesses including fever and cough. The way to use is in many ways, either for external use or to be taken orally, but most often used as a bath material. **Conclusions:** Generally the study shows that ginger species are still relevant in the natural community health system in developing areas such as the west coast of Sabah.

**Keywords:** Uses, Zingiberaceae, Indigenous health, Cultural inheritance
Plants Used by the Bugis Women for Health: Case Study among Border Community in the Sebatik Island

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Background: The aim of this paper is to describe plants species that commonly used by the Bugis women in the Sebatik Island for health purposes. Information presented in this paper is based on preliminary study conducted via survey and interviews with selected key informants among from Kampung Sungai Aji Kuning, Indonesia and Kampung Sungai Melayu, Malaysia. These study sites are located at the border land between the country of Malaysia and Indonesia in Borneo. A total of ten species were listed to be describe, namely Sida rhombifolia, Curcuma domestica, Cassia alata, Aloe vera, Allium cepa, Cocos nucifera, Cucurbita sp., Morinda citrifolia and Manihot esculenta. Most of the species were utilized for skincare and common illness such as fever and cold. Conclusions: Not much research on the use of medicinal plants from the study area. Hence this is a good start to understanding the culture of utilizing of plants for health purposes in this society.

Keywords: Plants, Women, Health, Border community, Sebatik Island
General Perception of TCM among Year 1 Medical Students in Universiti Malaysia Sabah

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Background: Due to lack of data, it is pertinent to study the general perception of Traditional and complementary medicine (TCM), or Complementary and Alternative Medicine (CAM), among medical students. CAM or TCM is said to be the practices based on the beliefs indigenous to different cultures used in the treatment of illness. However there is a dire lack of information about the risks and benefits regarding CAM/TCM which is generally not science-based medicine and is devoid of any genuine scientific evidence for their claims. In Malaysia, CAM is usually referred to as TCM. Various studies have been conducted in various parts of the world assessing the comprehension and perception of medical students regarding CAM. In Malaysia, the numbers of such studies are still small and varied. Methods: As a preliminary study it was decided to carry out the study among year 1 medical students at Universiti Malaysia Sabah (UMS) a public sector tertiary institute in the State of Sabah. A pretested, self-administered questionnaire was used to collect the data from 93 participants. Results: Respondents were questioned on 12 statements regarding their perception about CAM use; for example one statement was as follows: “CAM treatments generally include high-quality clinical studies, including large, controlled and randomized trials.” Descriptive analysis was used, and Chi-square test was used to test the association between dependent and independent variables. From 93 students, 83 students responded producing a response rate of 89.2%. Conclusions: The study revealed that for these medical students, their attitudes and perceptions were relatively negative.

Keywords: Traditional, Complementary, Alternative, Medicine, Medical students, Perception
Incidence of Fatal Road Transportation Accidents in Kota Kinabalu from 2009 to 2011

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Background: Injuries on roads, at homes and in the workplace have increased due to lack of safety-related Policies and programmes. The newly adopted 2030 Agenda for Sustainable Development has set an ambitious target of having the global number of deaths and injuries from transportation crashes by 2020. Without sustained action, transportation crashes are predicted to become the seventh leading cause of death by 2030. Transportation injuries in developing countries mostly affect pedestrians, passengers and cyclists as opposed to drivers who are involved in most of the deaths and disabilities occurring in the developed world. This paper aimed to determine the incidence of fatal road transportation accidents in Kota Kinabalu from 2009 to 2011 and to identify areas for intervention and prevention.

Methods: Data collections were done from autopsy records (QEH1) and obtained result of alcohol from Jabatan Kimia Malaysia Kota Kinabalu, Cawangan Sabah.

Results: Among total 262 cases, males were 73% and majority were with the age of 20 to 49 years and they were car drivers and motorcyclists while the victims at the age group of 1-19 and 50-89 year-old were mostly pedestrians. In terms of time of accident, over 50% of the cases were occurred during 6:01 pm to 11:59 pm. Out of 262 cases, alcohol consumption was found in only 32.5%. Other contributing factors were the road condition, facilities, tiredness and falling in sleep of driver.

Conclusions: Education to the public is needed through the use of news media and television programme and should encourage the wearing of seat belts. Life support training given to the public would be very useful.

Keywords: Transportation accidents, Road safety, Fatal transportation injuries
The Reason Behind Shuttle Drivers’ Speeding Behaviour

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Background: Shuttle is one of the public transportations that gain mass interest nowadays. The high usage of shuttle must be followed by high safety measures. Driver factor, one of the road safety factor, depends on the driver's behaviour in handling the vehicle, especially speeding behaviour because vehicle speed has a direct and strong effect towards crash risk and injury severity. The study aimed to explore the underlying reason for shuttle drivers' speeding behaviour based on Theory of Planned Behaviour (TPB).

Methods: This study was done in descriptive, cross-sectional and qualitative study design. Prior to the in-depth interview with 12 drivers of Bandung-Jatinangor route shuttle, their vehicles' speeds were observed directly with 80km/h speed limit on highway road. In-depth interview was done in the TPB framework.

Result: The drivers mainly had negative attitude toward speeding due to the safety and comfort of the passengers. However, despite negative attitude, many drivers had wrong perception of the speed limit. The driver thought 100km/h speed was still in safety range and not dangerous if unaccompanied by unsafe overtaking practices ('zig-zag'). The urge to arrive faster to pick up the next passengers and have longer spare time became the main reason for speeding. Speeding behaviour was also influenced by normative subject, mainly by passenger request. The perceived barrier was formed by the sense of responsibility toward the passengers' life, vehicle factor and environmental factor like heavy rain and bad road condition. The low vehicle volume became the strongest perceived facilitated factor. Speed limit signs were not giving significant impact, and several drivers’ thought the maximum speed limit was too low. Conclusions: This study can explore the underlying reasons for the shuttle drivers' speeding behaviour, which include attitude, subjective norm and perceived behaviour control.

Keywords: Qualitative study, Shuttle, Speeding, TPB
External Factors Influencing Non-Seat Belt Usage Behavior on Public Minibus ‘Angkot’ Drivers in Bandung, Indonesia

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Background: ‘Angkot’, a form of minibus for public transportation, is popular among public transportation users due to its paratransit trait and its inexpensive cost. More than 80% of Angkot drivers in Bandung, Indonesia do not wear seat belt while driving, which can increase the road traffic injury risk. It made such a concern knowing the minibus could contain up to 14 passengers, putting their lives at risk. This study aimed to know the underlying external factors that influence the drivers not to use the seat belt while driving. Methods: This study was conducted using a cross-sectional qualitative research design. Fifteen ‘Angkot’ drivers in Bandung were in-depth interviewed with open-ended questions to elaborate external factors that influence their non-seat belt use behavior. Prior to the interview, we observed their seat belt use behavior. All these drivers were observed not wearing the seat belt at that moment. The data were coded and analyzed using QSR NVIVO 10. Results: The most commonly stated factor is the poor law enforcement, as they never got a ticket from not using the seat belt while driving in the city. Some of them suggested that there was discrimination of the law enforcement between public and private transportation drivers. Peers’ behavior also influenced them to perceive it "normal" to not wear seat belt. Frequent stops and low speed driving in the city due to its paratransit trait made them assume it was useless to use seat belt while working. Poor quality and no seat belt facilitation in the vehicle itself also contributed to their non-seat belt use behavior. Conclusions: The qualitative study identified several external factors that influence non-seat belt use behavior in public minibus ‘Angkot’ drivers. Finding solutions to eradicate these factors may increase ‘Angkot’ drivers’ seat belt use rate in Bandung, Indonesia.

Keywords: Angkot, External factors, Public transportation, Qualitative study, Seat belt use
Regulatory Framework Development on Health Professionals in Cambodia and Vietnam

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The regulation of health professionals is necessary to optimize the quality of health services, and ultimately to protect the public. For this, a comprehensive regulatory framework should be developed. Mutual Recognition Arrangement (MRA), signed by member states of the Association of Southeast Asian Nations in 2006, aims to facilitate the mobility of professionals including those in the health sector within the region. To meet the MRA, each country is required to establish an appropriate regulatory framework for qualified professionals. This study aimed to 1) explore the progress of the regulatory framework development on particularly nursing professionals since 2000 in Cambodia and Vietnam, and 2) discuss possible factors affecting the process. We applied the regulatory function framework comprising seven regulatory functions and five progressive stages, beginning with a stage in which capability is low and ending with a stage in which it is high. The seven functions are 1) developing nursing legislation, 2) registration and use of registration data, 3) licensure, 4) scope of practice, 5) continuing professional development, 6) accreditation of pre-service programs, and 7) professional conduct and discipline. The advancement of the stages was confirmed in most regulatory functions both in Cambodia and Vietnam. For instance, in these countries, the progress of licensure moved from Stage 1 (licenses not required to practice) in 2000 to Stage 2 (renewal of license is required) in 2017. Coordinating committee for implementing the MRA stimulated countries which needed the development of regulatory framework. Relevant laws were constituted after 2010. The constitution and enforcement of the laws could be attributable to the MRA and contribute to the stepwise development of regulatory framework. The implementation of these laws is more likely to accelerate the advancement of the Stages.

Keywords: Law and legislation, Health professional development, Nursing, ASEAN
An Analysis of the Ethics of Clinical Trials on Human Subjects

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Background: Clinical trials without informed consents have already been banned and documents been released to protect subject. However, clinical trials are still far more risky and uncertain than we thought and gradually become a global issue. We conducted this review to summarize the roles that law and regulation system function in the clinical trial concerning its design, approval, subjects enrollment, implement and supervision, hoping to provide evidence for further research on legislation and clinical trial design in the future. Methods: We searched the PubMed database for English studies on clinical trials and ethics from the establishment of the database to March 2018. An outline view was made to summarize and deduce how and in what aspects clinical trials are against global health ethics, and analysis was done through consequentialist, deontological and virtue-based approaches. Besides that, economic factors were evaluated by modeling. Results: Based on different perspectives of the stakeholders involved in a clinical trial, including the subjects, the potential beneficiaries, the relevant government and institutions and the researchers, we found five major concerns on ethical problems which include whether a trial should be launched at the beginning, overseas trials and discrimination problems, compensation problems, coercion problems and the dilemma between doctor's obligation and researcher's integrity. Moreover, a guideline for setting net payment is given for better solution towards monetary ethical problems. Conclusions: Clinical trials are ethically acceptable only when they are under safety verification and sufficient supervision, especially for the trials done in developing countries by developed countries. Besides, the researchers should provide subjects with appropriate reimbursement, compensation and rational incentives. Moreover, researchers should adopt reasonable enrollment policy and exclusion criteria, and follow well-recognized instructions and authorized guidelines.

Keywords: Clinical trials, Informed consent, Ethics, Medical ethics, Global health ethics
Medication Error from Medico Legal Perspective

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Introduction: Medication error is known to be one of the major events that can compromised the quality of services provided by the Ministry of Health (MOH). Medication error is common in healthcare and may result in significant harm to the patients. Medico Legal Section has received complaints pertaining to medication error for which an inquiry was held to investigate the complaints. The objective of this study is to analyse the contributing factors to medication error which could help to prevent the reoccurrence of medication error in the future. Methods: Retrospective and descriptive analyses were conducted to identify the contributing factors that lead to medication error. 12 cases of medication error reported to Medical Practice Division from year 2015 to 2017 were analysed. Results: This study demonstrates that 66.7% of the contributing factors are personnel related while 33.7% involved the services. Non-adherence to the policies and guidelines accounted for 46.2% of the personnel related factors while communication, documentation, ethics and number of staff contributes for the remainder. Conclusions: Medication errors are preventable events. The non-adherence to policies and guidelines is the main contributor to medication error. All personnel should be aware of the existing policies and guidelines in their clinical practice. The facility management and the head of department also play an important role in implementing and monitoring adherence to the policies and guidelines. Health system improvements, capacity building and enhancing teamwork are needed to ensure quality healthcare deliveries and prevention of mishaps.

Keywords: Medico legal, Medication error
Mental Health of College Students in Northern Thailand

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Background: Studies have found that there is an increase in the severity and frequency of mental health issues among college students globally. With limited mental health research among the Asian population, especially college students in rural areas like Northern Thailand, more studies are needed to be done to understand their mental health issues, problems, and needs. Objectives: The aims of this study were (i) to measure the prevalence of depression, anxiety, and stress among college students in Northern Thailand and (ii) to understand the associated factors for depression, anxiety, and stress among these students. Methods: This cross-sectional survey study was conducted on 1,539 college students in Northern Thailand using stratified random sampling for students from different fields of study. The average age of participants was 20.58 years old (SD = 1.06). There were 993 female and 546 male participants. Volunteer students took part in the anonymous survey that included sociodemographic data and 3 instruments: Depression, Anxiety, Stress Scale; Rosenberg Self-Esteem Scale; Connor-Davidson Resilience Scale. Results: Independent sample t-test indicated significant gender differences in depression, t(1537) = 4.65, p < 0.001 and anxiety, t(1537) = 3.18, p < 0.01, with male college students being significantly more depressed and anxious than female students. Factors that significantly predict depression among college students in Northern Thailand include resiliency, self-esteem, gender, body image, and relationship with others. Factors that significantly predict anxiety include resiliency, self-esteem, gender, relationship with others, educational level, and medical problem. Lastly, factors that significantly predict stress include resiliency, self-esteem, gender, relationship with others, medical problems, and body image. Conclusions: With increasing mental health issues among college students globally, more efforts are needed by the colleges to help their students, especially with depression, anxiety, and stress. The specific target includes male college students who have significantly higher depression and anxiety than female college students.

Keywords: Mental health, College student, Northern Thailand
Abstract ID: PO0005MH

Mortality in Partners with Functional Disability among Elderly Japanese: The Ohsaki Cohort 2006 Study

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Background: Japan has the highest population of aging rate, and 17.8% of the elderly require assistance with daily living activities. Caregiving burden is known to affect a partner's health negatively. Given the important role of physical and mental stress in mortality, a higher caregiving burden may be associated with an increased incidence of fatal events. However, previous studies on the effects of the partner's caregiving on mortality have shown inconsistent results. Thus, the purpose of the longitudinal study was to determine if there is an association between a partner's functional disability and mortality in the older Japanese population. Methods: The baseline survey was conducted between December 1st and December 15th, 2006. Subjects comprised of community-dwelling individuals aged 65 years or older. We analyzed the data on 8,047 couples, where the information on the date of the functional disability, death, or emigration was retrieved from Ohsaki City Government. Functional disability was defined as receiving certification for long-term care insurance in Japan. After a follow-up of a maximum of 7.3 years, 1,410 of the participants died, and Cox regression analysis with adjustment for confounding factors was used to assess mortality after the incidence of functional disability in a partner. Results: The multivariate-adjusted hazard ratio (95% confidence interval) for mortality was 1.79 (1.53–2.09, P < 0.01) in those whose partners had functional disabilities compared with those with partners who did not have functional disabilities. The mortality was consistently higher, irrespective of age group or sex (P for interaction ≥ 0.05). Conclusions: These results imply that caregiving burden might increase stress responses and lead to increased mortality; therefore, enhancement of support systems, including long-term care, housing, and livelihood support services for the disabled patients and their partners, might be important to prevent deaths and the devastating consequences of functional disability.

Keywords: Longitudinal study, Mortality, Functional disability, Partner
Psychoanalysis on Interdisciplinary Referral in Hospital Setting: What Does a Hospital Manager Need to Know?

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Abstract:

Background: Defence mechanism is employed by everyone in order to deal with internal conflict, as part of the ego function. Day to day interdisciplinary referral of cases for consultation involves interpersonal interaction that potentially triggers significant friction, which might jeopardize patients care as a result of communication breakdown. As a manager at different level in the hospital, understanding the dynamic process of the referring process will help to identify the source of problem and managing the communication difficulty. To date there is not much literature examining the defence mechanism involved in the process of interdisciplinary referral in the hospital.

Methods: Psychoanalysis is used to examine the dynamic of interdisciplinary referral, for both referring doctor as well as the receiving doctor. Focus is given to defence mechanism and the explanation on it. Different simulated case scenarios were used to illustrate the mentioned psychodynamic process.

Results: All defence mechanism can happen in day-to-day medical practice. Different type of defence mechanism will trigger different psychological and behavioural reaction in the counterpart, which can be either positive or negative. Less adaptive defence mechanisms were usually identified when there was communication breakdown.

Conclusions: Identification of the psychodynamic process of the referral can aid the hospital managers at different level to better manage their staffs. Mature defences will facilitate healthier working environment and should be encouraged. Recognition of maladaptive defence mechanism on time is necessary to foster more productive hospital environment.

Keywords: Defence mechanism, Hospital management, Interdisciplinary, Psychodynamic, Psychoanalysis, Referral
Abstract ID: PO0009MH

**Social Capital and Mental Health in Pregnancy in Sri Lanka**

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**Background:** Social determinants of health identified a key factor of equity in maternal health. Maternal suicides being a leading cause of maternal deaths in low & middle income countries (LMIC) social capital is rarely assessed in relation to maternal mental health LIMC. The objective of this study was to determine the association of social capital to anxiety and depression during pregnancy. **Methods:** We conducted a descriptive cross sectional study on 472 pregnant women in Anuradhapura district Sri Lanka. The sample was selected to represent urban, rural and resettled population. Social capital was assessed using the self-administered Social Capital Assessment tool for Mental Health in Low and middle income countries (LSCATMH).Edinburgh postpartum Depression Scale (EPDS) was used to assess the mental health status of pregnant women. **Results:** Of the 472 pregnant women who participated in the study, 439 provided complete data for analysis. Mean age of the study sample was 27.9 years (SD+/− 5.3 years).The mean social capital score was 92.4/120 with a SD=8.83. The median EPDS score was 5 (SD+/− 4.23). Prevalence of maternal anxiety and depression was 16% (n=69). Suicidal ideation was reported by 22 (4.6%) of pregnant women. Mean social capital score of each community was shown to be significantly different with 90.3, 92.7, and 95.2 in urban, resettled and rural areas respectively. We found a weak negative but significant (p=0.000) negative correlation (0.269) between social capital and mental health in pregnancy, indicating that mothers with poorer mental health report less social capital. Of the social capital dimensions extracted cognitive bonding social capital showed the highest negative correlation to EPDS score (P=0.000). Social contribution had a positive correlation to total EPDS score (p=0.000). **Conclusions:** Poor social capital is associated to anxiety and depression during pregnancy. Cohort studies are recommended to determine the causality of social capital to maternal mental health.

**Keywords:** Social capital, Mental health, Pregnancy, Sri Lanka
Abstract ID: PO0010MH

Psychosocial Distress and Associated Factors among Women of Reproductive Age (15 Years to 49 Years) in Northern part of Sri Lanka

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Background: Psychosocial problems have become a major health concern for women worldwide. Despite it being a leading cause of health-related disability in reproductive age groups, the mental health needs of reproductive age (15-49 years) women are still neglected and marginalized. The present study was conducted to describe the psychosocial distress and factors associated with it among the reproductive age women (15-49 years) in a district of the Northern part of Sri Lanka.

Methods: A descriptive cross-sectional study was conducted among 507 reproductive-age women, in the Northern part of Sri Lanka. A two-stage cluster sampling method was applied to select eligible participants. An Interviewer administrated questionnaire was used to assess the dependent variable.

Results: Overall prevalence of psychosocial distress among these women was 29.2%. A statistically significant association with psychosocial distress were observed with lower level of education (p<0.001), higher income (p<0.001), traumatic life events and inadequate family support (p<0.001). Likewise, social factors such as low social class (p<0.005), inadequate social support (p<0.03), residing in a rental house (p<0.03) and poor access to healthcare (p<0.001) also showed a statistically significant association with psychosocial distress. Conclusions: The overall prevalence of psychosocial distress among women of reproductive age in conflict-affected Northern part of Sri Lanka is high. Therefore, reproductive health programs need to acknowledge the importance of mental well-being of the reproductive age women, especially in the conflict-affected areas.

Keywords: Mental illness, Psychosocial, Reproductive age
Factors Influencing for Stress in Stroke Patients, Nakhon Phanom Province, Thailand

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Background: Stress is one of the important factors that affect the mental health of all patients and may result in more severe illness including stroke’s patients. This study aimed to identify the factors that were aroused for stress in stroke’s patients in Nakhon Phanom Province, Thailand. Methods: This cross-sectional study examined 512 stroke patients by applying questionnaire in three parts: 1) factors of demography, 2) factors of illness and 3) factors of economy. The statistics were employed with frequency, percentage, mean, standard deviation, median, interquartile, minimum, maximum and multiple linear regression. Results: The results revealed that stroke’s patients have average of age 62.62 years old (S.D. = 11.46), most older more than 60 years old (64.1%), most are farmer (52.5%), have an average monthly income about 1,500 baht a month, containing of illness about 3 years, living with a physical disability (64.5%), still living with normal activities of their life (35.4%), 70.3 percentage lived in single family. The factors influenced for stress in stroke patients were illness in term of activities of daily living were significantly and economy of indebt at significantly 0.001. Conclusions: Health care for stroke patients should be aware of the factors that affect stress because stress can be effect the health and illness. Especially, healthcare authorities should engage more suitable ways to compromise with stress for better quality of life.

Keywords: Stress, Stroke, Patients
The Changes in the Fathers' Awareness about Their Schizophrenic Sons

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\textbf{Background:} There is no research to strategy how to reduce care stress such as difficulty, burden, depression and anxiety of fathers who live with schizophrenia patients. The study aimed to provide an understanding of how fathers of male schizophrenia patients handle their son’s behaviors and acute symptoms prior to diagnosis and their changing medical conditions and behaviors. \textbf{Methods:} Semi-structured interviews 60 to 90 minutes per session with an interview guide were conducted to fathers of schizophrenia patients who attend the family support program in a psychiatric hospital. The fathers talked freely about course of disease, mental burden, difficulty and life experience with family. The interview data were described, and comparative Institutional Analysis was conducted with the use of Modified Grounded Theory Approach (M-GTA). \textbf{Results:} Four fathers (average age of 76 years old) participated in the study. The average age of their sons was 43 years old, average treatment duration was 20 years, and the average duration of untreated psychosis was 5.3 years. Analysis revealed 5 categories. Results showed mutual correlations among: (1) denial of the fact; (2) the difference of opinion with his wife; (3) escape from reality; (4) a concern for the future of his son and; (5) finally to face with his son. \textbf{Conclusions:} These results show that it is important that health care provider is not only treat patients but also support the entire family including the patient’s fathers.

\textbf{Keywords:} Schizophrenia, Patient's fathers, M-GTA
Background: Despite the increase in prevalence and burden of mental health problems among adolescents, studies have shown that a large number of this population are reluctant to seek help for their mental health problems. This study aims to better understand the barriers to seeking professional help among adolescents in Selangor, Malaysia. Methods: A qualitative approach, using in-depth interview was conducted with adolescents aged 18 to 19 years (total n=22) in secondary schools. The interview data were transcribed verbatim and analysed using content analysis with the assistance of NVivo Pro 11 software. Results: The findings revealed that friend and family were the main sources of help when adolescents experience mental health problem. Barriers to seeking professional help included concern about being judged or labelled; logistics barriers; negative experience with healthcare providers; concern about age and gender of professional; confidentiality and trust; and self-reliance. Conclusions: The explorative approach helps in understanding the reasons why adolescents do not seek professional help for their mental health problems. Strategies are needed to increase adolescents’ help-seeking behaviour from professional sources by addressing the barriers and providing adolescent-friendly mental health services.

Keywords: Barriers, Professional help, Mental health, Adolescents
Background: Youth mental health problem is becoming a major issue in Malaysia and they have unique knowledge and beliefs towards the matter. The aim of the study was to assess the awareness of depression which aid Malaysian youth’s recognition and prevention among postgraduate students from public universities.

Methods: Two focus groups of five persons between the ages of 22 to 27 were formed to capture the knowledge and beliefs on depression of participants. The study was conducted in two public universities in urban areas of Selangor and Kuala Lumpur. The semi-structured researcher facilitated discussions covered recognition of symptoms, risk factors and prevention of depression.

Results: Most of the participants were aware about identification of depression. In terms of factors that contribute to depression, participants believed that overworked, substance abuse, family and relationship issues were the main risk factors. Participants emphasized that social support from friends and sharing problems using social media could help in preventing depression.

Conclusions: Conclusions drawn from the study were, overall awareness of depression of the youths attending public universities was found to be fairly adequate but not satisfactory in the area of risk factors. Hence, health care professionals should work together to disseminate scientific knowledge about symptoms, causes, risk factors and prevention of depression.

Keywords: Youth, Awareness, Depression, Focus group discussion
The Stressor Analysis of Pulmonary TBC Patient’s Families Measured by Confirmatory Factor Analysis

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Background: A Global Tuberculosis Report in 2016 indicated that Indonesia had taken the second biggest position in the number of TBC patients. Stress is a state of feeling experienced by an individual when he/she encounters a major pressure, whereas stressors are factors in human life that may cause individuals to respond stress. Objective: The aim of this study was to investigate the dominant indicators of stressor levels in the pulmonary TBC patient’s families conducted at Puskesmas (Primary Care Unit) at Jagir in Surabaya measured by Confirmatory Factor Analysis (CFA). Methods: This study used an observational analytic design with cross sectional approach in 43 families of TBC Patients. The samples were selected using simple random sampling technique. Results: The stressor indicators tested showed an adequate fit based on RMNSA, CMIN/DF, TLI, CFI and yielded dominant factors in terms of: family issues (0.96), finance (0.68), occupation (0.60), and transitions (0.60). Conclusions: The study implied that the stressor indicators were consistent and valid to measure stressors in pulmonary TBC patient’s families.

Keywords: Stressor, Family, Pulmonary TBC, CFA, GoF
Being Resilient in Rural Community: Lessons Learned from Earthquake

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Being resilient means as returning back to the original forms and recovering from the impact of stress and adversities. This study utilised the fact that Indonesia is one of the most prone areas to earthquakes due to its location on the Pacific "Ring of Fire". Rural areas have different housings construction and mostly are built directly in the farming soil. The aim of this study is to explore the phenomenon of being resilient in rural community after an earthquake. The method in this study used an interpretive phenomenological approach (IPA). Six experienced community members who lived in rural areas were interviewed in this study to uncover the phenomenon of being resilient in rural community after an earthquake. Data was analyzed using Interpretive Phenomenological Approach (IPA). Subsequently, two common themes emerged: ‘feeling more comfortable’ and ‘surviving with natural resources’. The first theme consisted several subthemes including accepting reality, peaceful living and being aware with the risks. The second theme included experiencing economic growth and living with natural resources. In conclusion, being resilient means as accepting reality to have a peaceful living with all resources. Natural resources are likely to ensure the sustainability of community resilience in rural areas.

Keywords: Being resilient, Rural community, Earthquake
Development of a Model of Shared Decision Making Suitable for the Malaysian Psychiatric Setting

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Introduction: Shared decision making improves outcomes in healthcare. Models of shared decision making have been created in other cultures, but these may need to be modified for Malaysia. Objective: To create a model of shared decision making suitable for Malaysia. Methods: Fifty three interviews and focus groups were conducted with patients, carers, hospital staff, primary care staff and other community members that help our patients in 2013. A grounded theory approach was used to analyse the data. “Collaboration” was one of two core categories extracted. This analysis was used to create a model of shared decision making suitable for the Malaysian context, which was compared to other models in the literature. Results: The model of shared decision making included five stages: 1. Inviting into the process of collaborative decision making, 2. identifying stakeholders and making decisions at the optimal time, with stakeholders present if possible, 3. sharing knowledge, concerns and opinions, 4. incorporating all opinions into the final decision, including opinions of people not physically present or not able to make decisions. 5. Implementing the decision and making clear that the decision can be reviewed. Conclusions: Our model differed from others, firstly because it needed to take into account the greater sense of hierarchy and that more people are involved in decisions than only doctor and patient. Doctors need to be more explicit in inviting patients to take part in decision making and make it clear that the plan can be reviewed. Secondly, decisions often involve more than just the doctor and the patient, and the opinions of other people should be discussed even if those people are not physically present.

Keywords: Shared decision making, Collaborative practice, Communication skills, Interprofessional practice, Malaysia
Mental Health and Well-Being of University Students in Okinawa

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Background: World Health Organization estimated that 264 million people globally were diagnosed with anxiety, with 43% from Asia-Pacific region; additionally, half of the 322 million people worldwide that have been diagnosed with depression were from the Asia-Pacific region. Within Western Pacific region, Japan had the second highest number of cases for depressive and anxiety disorders. Globally, university students faced unique set of mental health challenges. There have been limited studies on mental health issues among university students in Japan, especially in Okinawa. This study examined factors that impact the mental health of university students in Okinawa.

Methods: A total of 441 undergraduate students from 3 universities participated in this cross-sectional study. Average age of participants was 20 (SD = 2.6). Paper-based surveys were distributed in the classrooms and students who volunteered for the study completed the anonymous survey that included demographic data, Depression, Anxiety, Stress Scale (Cronbach’s alpha = .92, .88, .91, respectively), Connor-Davidson Resilience Scale (Cronbach’s alpha = .95), and Rosenberg Self-Esteem Scale (Cronbach’s alpha = .84).

Results: For university students in Okinawa, there were no significant differences in gender, university attended, and place of upbringing when levels of depression, anxiety, and stress were compared. Four factors that significantly predicted depression among university students in Okinawa included resiliency, self-esteem, family income, and year in school ($R^2 = .37$). Two factors that significantly predicted anxiety included self-esteem and family income ($R^2 = .26$). Three factors that significantly predicted stress included self-esteem, family income, and year in school ($R^2 = .28$).

Conclusions: From the results of this study, universities in Okinawa could help students with mental health issues by providing programs and services that help improve their self-esteem and resiliency. Additionally, targeted program based on student’s year in school could also be beneficial as they go through various developmental stages.

Keywords: Mental health, University students, Okinawa
Mental Health Initiatives in Malaysia

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Depression is one of the most commonly diagnosed mental conditions and these mental conditions have been increasing in Malaysia. The Malaysian National Health and Morbidity Survey, mental health problems among adults showed an increasing trend from 10.7% in 1996 to 29% in 2017. Therefore, the objective of this presentation is to identify the initiatives on mental health in Malaysia, based on secondary data. So far, the government has launched the second edition of ‘Standard Operating Procedures for Assistant Medical Officers in Psychiatry’. The revised book played a fundamental role in continuous quality assurance for the psychiatric patients in Malaysia. This served as a guide to meet the standards of care and professionalism set by the Health Ministry required in the Mental Health Act 2001(revised 2016) and Mental Health Regulations 2010. On the state level, Sarawak government launched World Mental Health Day 2017 Celebration. Other initiatives are conferences related to Mental Health such as Muslim Mental Health 2018 Conference organized by UPM and 50th Asia-Pacific Academic Consortium for Public Health Conference by Universiti Malaysia Sabah (UMS). In the private sector, AIA Bhd (2017) aims to help employers identify effective interventions so that a healthier environment could be created for Malaysia’s workforce and to encourage companies to measure the health of their workforce. Asian Pacific Economic Corporation (APEC) Mental Health Initiative Report on Strategic Needs in Mental Health concluded that Malaysia focused heavily on increasing employment opportunities and inclusion for those with mental disabilities; developing research for detecting workplace stressors; and a heightened need to respond to the psychological traumas of natural disasters. Based on these initiatives, it can be concluded that there is an increasing effort by both public and provide sectors to deal with mental health issues in Malaysia.

Keywords: Mental health, Health initiatives, Mental wellbeing
Health Seeking Behaviour of Myanmar Migrant Workers in Penang, Malaysia

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Introduction: Rapid development of socio-economic status in Malaysia becomes driving force to increase the influx of foreign migrant workers (FMW). Since the equity to access to healthcare is crucial for them, the Malaysia government has set up the policies to provide the equality of treatment for the registered migrant workers. Aim: This study aimed to explore the health seeking behaviour of Myanmar migrant workers in Malaysia by identifying the common illness, types of accident occurred types of health care provider sought and factors influencing healthcare seeking behaviour. Methods: The cross-sectional survey was conducted in Penang, Malaysia in 2017. After sample size calculation was done with the help of openEpi, 245 participants who provided informed consent were recruited using convenience sampling method. Participants were interviewed by using the pre-tested questionnaire. The data were analysed by using SPSS version 24.0. Results: The commonest form of illness they suffered from were common cold (27.2%), aches and pain (25.7%) and indigestion and stomach aches (18.32%). Minority of them (14.7%) reported accidents where the commonest cause of it was the domestic accident (77.8%). The proportion of workers who sought health services at Public hospitals and clinics when they fall sick was 54%. Factors that were statistically and significantly associated with the health seeking behaviour were education (p = 0.027) and type of occupation (p = 0.036). Conclusions: Workers with education below secondary level and those working in factories were likely to seek hospital and clinic health services. There is a need to explore the barriers to health seeking behaviour in Myanmar migrant workers community.

Keywords: Migrant workers, Health seeking behaviour, Healthcare access, Myanmar workers
Applying the [4P MODEL] to Immigrant Service

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**Background:** Taiwan’s demographic structure has been changed with the purposes taking care of the family and continuing the family tree through cross-border marriages. Cross-year studies show women are the majority of foreign and mainland spouses aged from 25 through 44. The proportion of Taiwanese spouses (nationals) with secondary marriage of Mainland China's spouses is slightly higher, which accounts for 25.9%. The birth rate of foreign and Mainland spouses living in Taipei is relatively lower than that in other regions. Foreign and Mainland spouses have the highest demands for life adaption guidance. Three Dar-Wo Retired Veterans Dormitories in the Xinyi District offer residence to veterans, who are married to Mainland women to live with them and to care for their home. Some of the new widowed immigrants are challenged with unprecedented social and economic pressure.

**Methods:** Applying the [4P MODEL] to immigrant service and constructing Perfect Guidance Program for new immigrants.

**Results:**

1. **People:** Services aimed for life adaption and related counselling are offered. 231 interpreters recruited for medical interpretation for 330 hours with up to 99%.
2. **Process:** New immigrant visiting, prenatal diagnosis referral and checkup, and prenatal exam support to uninsured pregnant women are offered.
3. **Product:** Produce Vietnamese, Indonesian, Thai and English language textbooks to provide healthcare information.
4. **Promotion:** Photo exhibitions focusing on elderly immigrants to arouse the public to concern about social issues of elderly immigrants are designed. Inheritance, promotion, and interchange of multicultural development are strengthened for the social participation.

**Conclusions:** Combinations of civil resources provide diversified new services for immigrants, which breaks language and culture barriers to provide better care. For new developments, the promotion of respect for and acceptance of new immigrants to accustom themselves to the life in Taiwan is on the way.

**Keywords:** New immigrant, Care guidance
Analysis on the Utilization of Health Services for Internal Migrants in Hubei, China

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Background: To analyze the status of the establishment of health records and participation in medical insurance, and to explore the influencing factors. Methods: The data was from the 2017 National Migrant Population Dynamic Monitoring Survey in Hubei Province. Analysis of the present situation by descriptive statistics. Logistic regression were used to estimate the influencing factors of utilization of health records and medical insurance. Results: Among the 5000 migrants, only 1986 (39.7%) were self-reported to establish health records in the local areas. There were 3235 (64.7%) respondents had medical insurances. Logistic regression indicated that education level of middle school and below (OR= 1.37, 95% CI= 1.01-1.86) comparing to education level of undergraduate and above, family monthly income below 3000 RMB (OR= 1.27, 95% CI= 1.01-1.60) comparing to family monthly income above 8000RMB were significantly related to unestablished health records. In addition, male (OR= 0.83, 95% CI= 0.73-0.95), in marriage (OR= 0.65, 95% CI= 0.51-0.84), Household Register from rural and urban areas (OR=6.19, 95% CI= 5.16-7.42), education level of high school (OR= 0.71, 95% CI= 0.60-0.83) comparing to education level of undergraduate and above, family monthly income below 3000 RMB (OR= 0.74, 95% CI= 0.57-0.95) comparing to family monthly income above 8000RMB were significantly related to not having medical insurance. Conclusions: The utilization of health records among migrants in Hubei Province is inadequate. The female migrants, not in marriage, with either low or high education level and low or high family income should be provided more public health services.

Keywords: Public health services, Chinese migrants, Health records, Medical insurance
Toward Improving Access to HIV Testing and Treatment among Non-Japanese Residents in Japan: The Result of the Seminar for Producing Medical Interpreters Functional for HIV Infections

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Background: New HIV cases among non-Japanese, especially men who have sex with men, have been increasing in Japan. Previous studies indicated that non-Japanese residents with low Japanese language proficiency had difficulties of receiving HIV test and treatment early. Medical interpreters may be able to lower the language barrier, but interpreters who have a good understanding of HIV infections and sexuality are still scarce in Japan. Thus, we organized a seminar to familiarize medical interpreters with HIV. This study investigated changes in their knowledge toward HIV after they participated in the seminar. Methods: We organized a one-day seminar that covered topics such as HIV infections, testing and treatment, sexuality, the role of public health centers in HIV testing, and a basic technique for interpretation. We conducted the same self-administered questionnaire for pre- and post-seminar. We used the Fisher's exact test to analyze changes in their knowledge. Results: Of 39 participants, there were 19 interpreters for Chinese, eight English interpreters, four Nepalese, three each for Pilipino and Spanish, and one each respectively for Portuguese, Hindi, and Vietnamese. Four (10.3%) had served as an interpreter for people living with HIV. The proportion of the participants who answered correctly to the following questions was significantly increased after the seminar: Relationship between CD4 and AIDS 20.7% vs 97.4% (p<0.001), opportunistic infections 30.8% vs 65.9% (p=0.002), ART 41.0% vs 70.7 (p=0.013), Prognosis 38.7% vs 94.9% (p<0.001), Route of infection 79.5% vs 100.0% (p<0.01). Conclusions: The seminar improved the participants’ knowledge about HIV infections. The seminar may be useful for producing medical interpreters functional for HIV cases. The next step is to devise strategies to use their skills to improve access to HIV-related medical service among non-Japanese residents.

Keywords: Migrants, HIV, Medical interpreters, Japan
Factors Associated with Antenatal Visits at Ministry of Health Facilities in Malaysia

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Background: Ministry of Health has recommended antenatal visit of 10 and 8 visits throughout pregnancy for primigravida and multigravida respectively. However, the pattern of utilisation is increasing over the years. Objectives: This study aimed to identify the pattern and factors associated with the number of antenatal visits. Methods: This is a cross-sectional study designed using secondary quantitative data collected in 2016 from the clinic copy of maternal health registry. Stratified random sampling method was employed to select 6 primary healthcare clinics in the state of Negeri Sembilan. This study involves 369 pregnant women who utilized maternal care services with a minimum of 7 antenatal visits at the selected MoH facilities. Results: The mean antenatal visit was 15.7 (95 % CI: 15.2 – 16.2) visits per patient per antenatal care. There was no significant difference in the mean of visit among different pregnancy related issue. The main provider was by a nurse with 11.7 (95 % CI: 15.2 – 16.2) visits per patient per care, followed by a medical officer with 7.5 (95 % CI: 7.2 – 7.9) visits per patient per care and by a family medicine specialist with 1.5 (95 % CI: 1.3 – 1.7) visits per patient per care. Mean antenatal outreach visit was 2.7 (95 % CI: 2.5 – 2.9) visits per patient per care. Regression analysis showed that the mean antenatal visit was associated with the type of facilities and pregnancy related issue. There was no significant difference in the mean of visit among different ethnicity, nationality, marital status, education status and employment status. Conclusions: Mean antenatal visit almost double compared to the national recommended antenatal schedule by the Ministry of Health Malaysia. This indicates the presence of inefficiency in delivering the service; excessive utilisation as well as non-standard care across different facilities in the state of Negeri Sembilan.

Keywords: Factors, Antenatal visit, Malaysia
Report on HPV Vaccination in Middle School Girls in Taoyuan City and Pap Smear Tests in their Mothers in 2016

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Background: Female caregivers (mothers) of girls aged 13 to 19 years in Taoyuan City were called to understand the vaccination status of the group and Pap smear test status of the mothers and to explore the correlation between HPV vaccination service of the daughters and Pap smear tests of their mothers. Methods: Stratified random sampling method, telephone interview survey, and statistical analysis with SAS and SPSS software. Results: Approximately 73% of the girls aged 13 to 19 years with household registration in Taoyuan City were inoculated with cervical cancer vaccines, 95.5% of whom were provided with free vaccines by the municipal government. The policy awareness was 96%, overall satisfaction with the policy was 93%, and 95% of the respondents agreed that the government should continue this vaccine policy. Among the 1031 mothers surveyed, 96% had Pap smears before, among whom 67% underwent the test more than twice or were regularly examined. Seventy-five percent of the respondents said they had increased willingness to accept smear tests after they knew the government's free HPV vaccination policy. Among them, 76% of the respondents had undergone Pap smear tests after they learned of this policy. The cross-analysis revealed that in the mothers whose daughters had been inoculated with cervical cancer vaccines, the proportion “willing” to undergo Pap smear tests and the proportion that had undergone Pap smear tests after they learned of this policy were significantly higher. Conclusions: In general, although Taoyuan City was not the first to promote free cervical cancer vaccination services, the parents’ awareness and acceptance of the policy were very high, indicating that the policy education achieved expected results. Cross-analysis showed that the promotion of free cervical cancer vaccine policy also appeared to indirectly improve the willingness and action of the surveyed mothers in undergoing Pap smear tests.

Keywords: HPV Vaccination, Middle school, Girls, Pap smear, Mothers
Parents’ Lived Experience with Preterm Infants before Transition from Hospital to Home: A Qualitative Study

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\textbf{Background:} Though facing the challenges, parents want to take their preterm infants home as soon as possible. Many studies have identified parents’ caring experience and needs in the neonatal intensive care units (NICUs) in developed countries. Cultural characteristics and NICU design have a great effect on parents’ experience. Therefore, this qualitative study was conducted to explore the lived experiences, needs of parents when their infants were ready to be discharged from the hospital to their home in China. \textbf{Methods:} A qualitative phenomenological approach was utilised to obtain a deep understanding of parents’ lived experience and needs. A purposeful sample of 12 participants was recruited from the NICUs and interviewed. Each interview was audio recorded in a suitable room and data were collected using semi-structured, in-depth interviews. Data were analysed using Colaizzi’ S phenomenological analysis method. \textbf{Results:} Three main themes emerged from the data, each with subthemes. (1) Parents experienced mixed emotion; (2) parents required a broad of needs from healthcare providers; and (3) parents’ support system and uncertainty. \textbf{Conclusions:} In the study, the parents were satisfied with the healthcare process in the NICUs, though the care did not meet their requirements or expectations. Nurses in the NICUs should present positive perception towards parental participation in infant care before discharge and provide specific care guidance for parents. Meanwhile, NICU design needs to be improved to promote parental involvement in the NICU care.

\textbf{Keywords:} Lived experience, Preterm infant, Qualitative study
Knowledge and Awareness of Cervical Cancer Screening among Women and Their Spouses in Kudat, Sabah

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Background: Cervical cancer is the second commonest cancer in women worldwide and in Malaysia. Pap smear is an effective tool for detection of precancerous state and control of cervical cancer. In Malaysia, Pap smear screening was introduced in 1981 and extended to all women in 1995. National HPV Immunization programme had introduced in Malaysia since 2010. Despite screening programme, cervical cancer remains the third leading cancer among Malaysia women. It is assumed that the public is not aware the benefits of the screening. This study was aimed to assess the knowledge and perception related to cervical cancer screening among rural women and their spouses. Methods: A cross-sectional interview-based study was conducted for total of 236 couples aged 20-65 years from August 2015 to September 2016 in Kudat, Sabah. Results: Out of the 236 participating women, 125 (53%) wanted a Pap smear test. 111 (47%) of participants did not want to have the test and 71 (30%) were not aware of Pap smear, 32 (14%) fear of pain and 28 (12%) felt embarrassed. Out of the 236 participating spouses, 120 (51%) wanted their wives to have a Pap smear test. 164 (69.5%) spouses allowed their wives to go for screening. 189 (80.1%) and 203 (86%) spouses encouraged their wives and willing to pay for any tests, respectively. Conclusions: This study also reported a significant linear relationship between the spouses’ level of cervical cancer related knowledge and practices to encourage wives for screening. Husbands’ emotional support and decision making practice are essential in encouraging wives to have screening for early diagnosis of cervical cancer.

Keywords: Knowledge, Awareness, Perception, Cervical cancer, Pap smear
Abstract ID: PO0010MR

**Adverse Birth Outcome and Air Pollution – A Brief Pathophysiology**

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**Background:** The role of environmental factors in diseases development has long been evident from epidemiological studies, as one of the causes of gene mutation that causes disease, and this becomes fundamental implication for primary prevention. The environmental factors that cause a significant public health problem, responsible for a growing range of health effects resulting in a large number of epidemiological studies have shown that air pollution from traffic emissions are linked to morbidity and mortality. Maternal exposure to air pollution can affect the developing fetus, resulting in adverse birth outcomes. This report was written to summarize the pathophysiological correlation between air pollution limited to particulate matter 2.5 (PM₂.₅), Ozone (O₃), Natrium Dioxide (NO₂) with adverse birth outcomes. **Methods:** The search in this review study was conducted through searching in PubMed database only. Search terms used MeSH headings for (1) PM₂.₅, O₃, NO₂ and (2) Adverse birth outcome, or preterm birth, or low birth weight, or small of gestational age or congenital anomaly. **Results:** PM₂.₅, O₃, NO₂ become the oxidative stress that leads to inflammation of the maternal body. **Conclusion:** There are links of maternal exposure to ambient particular matter, ozone, and nitrous dioxide and the effect to birth outcomes by inducing systemic oxidative stress and inflammation resulting adverse birth outcomes.

**Keywords:** PM₂.₅, Air pollution, Ozone, NO₂, Birth defects, Adverse birth outcomes
Identifying Risk Factors for Carcinoma of Breast in UMS Students

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Background: Cancer is a major public health problem and the third leading cause of death in Malaysia. Breast cancers are the first most common cancer among women in Peninsular Malaysia. Assessing the hereditary risk factor, total 12.34% gives positive result for history of breast tumour in first degree relatives. An overall mutation frequency of 2.3%, in woman who had at least one first-degree relative with breast cancer diagnosed at age <50 years. The lifetime risk of breast cancer among female mutation carriers was 82% for BRCA1 and 23% for BRCA2 mutation carriers. Risk-reducing options are available to women with a strong family history of breast cancer. These options include high-risk screening, chemoprevention, and prophylactic surgery. Our aim was to assess the risk factors in healthy young adult female students from UMS and results would act as an input for further prevention of most deadly breast cancer. Methods: A total 278 of medical and nursing students from the Faculty of Medicine and Health Sciences participated in this study. Results: In our study, 63.7% did not meet the WHO recommendation for Metabolic Equivalent Task (MET) and remaining 36.3% met the WHO recommendation. By using International Physical Activity Questionnaire (IPAQ) Score protocol, only 2.6% 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% were inactive. Conclusions: Primary prevention through behavioural and life style modification is a cost-effective means of preventing the large burden breast cancer that has on world-wide societies.

Keywords: Risk factors, Carcinoma breast, BRCA1, BRCA2
Meta-Analysis of Psycho-Education in Reducing Childbirth Fear in Pregnant Women

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Background: Studies have showed that about 80% of pregnant women have different degrees of childbirth fear. Childbirth fear will increase the risk of caesarean section, postpartum fear and depression. Therefore, reducing childbirth fear is extremely necessary. However, current pregnancy care focuses on screening and diagnosis of prenatal diseases. There is a lack of concern about childbirth fear. Some studies have explored the effects of psycho-education on childbirth fear, but the results vary greatly. This study evaluated the effect of psycho-education in reducing childbirth fear of pregnant women. Methods: The randomized controlled trials and quasi-experimental design studies about the effects of psycho-education on childbirth fear were searched by retrieving Cochrane Library, PubMed, EMBASE, Web of Science and CNKI. The retrieval time was from inception to February 2018. After two researchers screened the literature, extracted information and evaluated the included literature independently, the RevMan 5.3 software was used for Meta-analysis. 13 literatures were included in this study. Results: Meta-analysis showed that psycho-education could reduce childbirth fear (SMD -1.03, 95% CI -1.85 – -0.20), the rate of caesarean section (RR 0.74, 95% CI 0.61 – 0.89) and the planned caesarean section (RR 0.64, 95% CI 0.44 – 0.94). It improved the experience (MD -7.96, 95% CI -12.63 – -3.28) and self-efficacy of delivery (MD 23.83, 95% CI 11.89 – 35.77). Finally, it did not have significant effect on reducing postpartum depression (MD 0.12, 95% CI -1.32 – 1.57) and improving satisfaction of delivery mode (RR 1.30, 95% CI 0.79 – 2.13). Conclusion: These results showed that psycho-education was beneficial to reducing childbirth fear, the rate of cesarean section and planned caesarean section. It could also improve the experience and Self-efficacy of delivery. But it did not have significant effect on improving the satisfaction of delivery mode and reducing postpartum depression.

Keywords: Psycho-education, Childbirth fear, Meta-analysis
A Review of Cultural Influence on Maternal Near Miss in the Developing World

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\textbf{Background}: Maternal near miss (MNM) refers to women who are almost dead but survived complications that occurred during pregnancy, labor or within 42 days after pregnancy. Maternal near miss has a process similar to maternal death. This study identified previous studies that examined the effects on culture on maternal near miss. Methods: A review of literature from online journal database search through free articles in PDF form through: Pubmed, Proques, Google Scholar and EBSCO, National Library of Indonesia. Other sources came from Textbooks, National Health Reports, South Sulawesi Health Profiles and Research Reports and other sources. Setting: Developing country with high maternal mortality rate. Participant: pregnant women, childbirth and after 42 days after delivery, traditional birth, family members, baby nurses, health care social, and community leaders, religious leaders and stakeholders. Measurement and finding: review, qualitative research and mix methods have identified cultural components that had a direct impact on near miss. Cultural examples were given in the text and were categorized according to the manner in which they affected maternal death. Results: Cultural habits, practices, beliefs and pro values were found to influence female behavior during the perinatal period and in some cases in the near miss probability of pregnancy, labor and 42 days after delivery. Three delays by Thaddeus and Maine (1994) where the first stage delay is closely related to maternal near miss. Conclusions: Findings allow deeper understanding, specifically on how the culture around pregnant women, childbirth and after 42 days contributes to maternal near miss. These may assist doctors, midwives and other health workers in providing culturally competent care and to design effective programs to help reduce maternal mortality, especially in developing countries. Interventions designed without regard to cultural factors tend to be ineffective in reducing maternal mortality.

\textbf{Keywords}: Cultural, Maternal near miss, Developing countries
Methodology for an Assessment of Risk of Iodine Deficiency among Pregnant Women in Sarawak: A Cross-Sectional Study

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**Background:** Worldwide, iodine deficiency disorders (IDD) is a major public health problem which affect human from early foetal life throughout to adulthood. Pregnant women (PW) comprise one of the most vulnerable high-risk groups for IDD. In 2005, a Sarawak state-wide IDD study among PW indicated that this group were at risk of IDD. Thus, a further assessment is warranted. This paper describes the methodology for a comprehensive assessment of IDD prevalence, the current nutritional iodine status and the impact of universal salt iodization among PW in Sarawak. **Methods:** A total of 30 maternal child health care clinics (MCHCs) were selected using probability proportional to size (PPS) sampling technique. It involved four steps: i. listing the clinic to be sampled, ii. writing the population size, iii. cumulating this size, and iv. taking systematic random sample of the required size from the cumulated list. The PW sample size was calculated based on 95% confidence interval (CI), relative precision of 5%, design effect of 2, anticipated IDD prevalence of 65.0% and non-response rate of 20%. Thus, the total sample size required was 750 and the WHO Expanded Programme on Immunization (EPI) surveys approach will be used to randomly select the first respondent and subsequent respondents are chosen until the number of PW required are met. A questionnaire adopted from National IDD Survey 2008 was used to obtain relevant information such as socio-demographic, dietary iodine intake, clinical assessment (thyroid size and hyper/hypothyroidism) and biochemical analysis (urine iodine and blood serum). Quality controls will be instituted to ensure collection of high quality data. The methodology used in this study was based on international guidelines which may provide state’s estimates. All the necessary steps will be taken into consideration to ensure valid and reliable findings on current iodine status among PW.

**Keywords:** Iodine deficiency disorders, Pregnant women, Iodized salt, Sarawak
Factors Influencing the Implementation of Prenatal Classroom Programs in Improving Early Detection of High Risk of Pregnancy

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Early detection of high risk of pregnancy by the community is still below the 80% target. Early detection ability of pregnancy risk can be obtained through prenatal class program. But it is still not running optimally. The purpose of this study is to analyze the factors influencing the implementation of prenatal class program in improving early detection of high risk pregnancy in Surabaya. The research was conducted by observational analytic with cross sectional approach. The subject of the research is the responsible of prenatal class program 52 people. Data collection was done through interviews and observations using structured questionnaires. Data analysis uses path analysis uses path analysis on Lisrel program. The results showed the implementation of maternal class program by PHC in Surabaya City area related to the willingness of resource 0.069, Communication 0.37, PHC support character of 0.64, understanding of standards and objectives 0.274, Attitude of respondents 0.14 positive / support maternal class program. The results of the model structure test show that there is a significant joint effect of the understanding of standard and policy targets, inter-organizational and / or public communications, and the characteristics of the implementing agency, on the implementation of maternal class programs in the early detection of high risk pregnancies. Availability of resources and attitudes/dispositions of implementers did not significantly affect the implementation of maternal class programs in early detection of high risk pregnancy. It is recommended that the Surabaya City Health Office establish and inform all PHC that the prenatal class program is mandatory and the target minimum standart applies to all primary health centers, and improves the provision of resources and conducts periodic supervision. PHC are advised to develop strategic plans and conduct internal monitoring.

Keywords: Early detection, High risk, Implementation, Prenatal class program, Pregnant women
Pregnancy Outcome and Offspring Intelligence Development in Women with Hypothyroidism during Pregnancy Treated with Levothyroxine Sodium

Wei Zhao

Objective: To investigate the effects of levothyroxine sodium tablets on pregnancy outcome, intelligence and development of offspring in pregnant women with hypothyroidism. Methods: Fifty pregnant women with hypothyroidism using levothyroxine sodium tablets were treated as observation group and 50 pregnant women normal thyroid function pregnant women were selected as the control group. Prenatal care manual and medical records in hospital were collected and studied with retrospective comparison. The two groups were compared in terms of anemia, Pregnancy-induced hypertension and preterm birth, as well as fetal distress, low birth weight, malformation, and stillbirths, were observed and compared at 12 months and 24 months of intelligence and development in infants and young children. Results: Compared with the control group, the observation group had a higher anemia, and premature birth incidence (P<0.05). and hypertension disease proportion slightly higher than the control group, but there were no statistical difference between the two groups (P>0.05), and fetal distress rate between the two groups, the percentage of low birth weight and 12, 24 months between intelligence and 24 months of development index had no statistical difference (P>0.05). However, there existed no statistically significant differences in the incidence of fetal distress, the percentage of low birth weight, the intelligence and development indexes at 12,24 months and the 24 months development index in infants and young children (all P>0.05). Conclusions: It is necessary to paying attention to thyroid function screening pre-pregnancy and in the first trimester of pregnancies; timely detecting of hypothyroidism and treating with thyroxine. Then we could reduce the risk of adverse pregnancy outcomes and affect the offspring’s intelligence and dysplasia.

Keywords: Hypothyroidism, Pregnancy outcome, Levothyroxine
Perceptions of Filipina Mothers Regarding Breastfeeding in Public

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Background: Exclusive breastfeeding is recommended for the first 6 months of a child’s life. In the Philippines, breastfeeding initiation is high, but exclusive breastfeeding is not maintained for 6 months. Based on literature, refusal or embarrassment about breastfeeding in public can affect infant feeding decisions. This study aimed to describe the perceptions regarding breastfeeding in public of mothers in an urban community in the Philippines. Methods: The study implemented a qualitative study design. The target population consisted of Filipina mothers with an infant younger than 1 year-old, who brought their child for vaccination to the local health center. Each mother who consented to participate was interviewed regarding her perceptions and experiences regarding breastfeeding in public. Interviews were continued until data saturation was attained. Results: Twenty-nine mothers were interviewed. Overall, 19 out of the 29 mothers had ever experienced breastfeeding in a public place, including at malls or restaurants (16 out of 29), around the health center (15 out of 29), and at lactation rooms (3 out of 29). Among the respondents, only 5 mothers felt it was normal, and already acceptable to breastfeed in public places. Seven mothers felt it was uncomfortable and embarrassing, and would have preferred to breastfeed at home. Seven mothers avoided breastfeeding in public altogether, and opted to shift to bottle feeding instead. They perceived that other people would not be happy or comfortable seeing this practice. Conclusions: Avoidance of breastfeeding in public was one reason for termination of breastfeeding among mothers because of the perception that it was embarrassing and uncomfortable, both for the mother and for other people. Interventions to promote breastfeeding should include promotion of the acceptability of breastfeeding in any public place.

Keywords: Breastfeeding, Public, Perception, Determinants, Philippines
Mlijo (Vegetables Itinerant Lady) as Hunters of High Risk Pregnant Woman in Sempu, Banyuwangi, East Java to Actualize Zero Maternal Mortality Rate

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Background: Maternal Mortality Rate (AKI) in Indonesia has increased significantly in 2012 to 359 cases per 100,000 live births, increased 57.45% from 2007. In 2015, AKI decreased to 305 cases per 100,000 live births, especially in sub-district of Sempu. Mlijo is an innovative utilization of human resources using vegetables itinerant lady to hunt high risk pregnant women. This program was implemented in 2013 by Sempu’s Public Health Center in order to achieve zero AKI. This paper used literature study employing secondary data from Ministry of Health Data Center Information, Central Bureau of Statistics, and literature review. Methods: This study analyzed the impact of Mlijo to reduce AKI. Mlijo as an agent was given facilities such as banners containing information on 13 criteria of high risk pregnant women, boots and smartphones. During buying and selling activities, Mlijo would proactively ask questions to buyers to find targets in their area. Target identities, especially the name, husband’s name, and the address would be reported through Whatsapp instant messaging service to the midwife. Midwives would visit them and checked the validity of the information. Positive targets would be given intensive assistance from midwives and obstetrician-gynecologists. If necessary they would be referred to the hospital. Results: The results showed that high risk pregnant women attended by Mlijo produced an impact in reducing AKI in the sub-district of Sempu within two years, decreasing from seven cases in 2013 to five cases in 2014, and achieved zero AKI in 2015. Conclusions: In conclusion, the use of Mlijo in a high risk pregnant women hunter program is effective in reducing AKI. The success of this program can be recommended to the government in order to realize the target of SDGs at 2030 in reducing AKI to below 70 cases per 100,000 live births.

Keywords: Maternal mortality rate, Mlijo, High risk pregnant woman, Zero AKI
Low Birth Weight (LBW) and Its Associated Factors in Malaysia: A Part of Nutrition Landscape Analysis

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Background: The global prevalence of low birth weight (LBW) among newborn in 2017 was 15.5%. A LBW infant is prone to have serious health problems in the early stages of life as compared to normal weight infant. Therefore, this study aims to determine the prevalence and identify the predictors of LBW among children under 5 in Malaysia. Methods: A nationwide cross-sectional study on Maternal and Child Health has been carried out in 2016 by National Health & Morbidity Survey (NHMS). The target population was both children under five years and their mothers. Multistage stratified random sampling was applied and birth registrations list from the National Registration Department were used as the sampling frame. Data were harmonized according to Multiple Indicator Cluster Surveys (MICS) method before analysed descriptively and inferentially using SPSS version 23. Results: A total of 17,330 children aged 12-23 months and 1,550 infants below 6 months were selected as respondent. The prevalence of LBW among children below 6 months and 12-23 months was 10.6%. The prevalence to had LBW children was highest among under 19 years old mother (23.0%), maternal stature below 145cm (23.9%), underweight mother (21.5%) and Indian in ethnicity (22.0%). Multiple logistic regression found mother from rural area (OR: 1.303), not employed (OR: 1.254), being underweight (2.364), low in stature (<145cm, OR: 3.247; 145-149cm, OR: 1.599; 150-159cm, OR: 1.292), do not received antenatal care in the first trimester (OR: 1.473) and Indian (OR: 3.175) were associated with LBW children. Whilst, male infant (OR: 0.726) found to have a protective effect against LBW. Conclusions: About a tenth newborn baby in Malaysia was categorised as LBW. Therefore, effective and holistic action should be done to counteract this important public health indicator.

Keywords: Low birth weight, Under five, Children, Maternal, Child health, Malaysia
**Proportion, Knowledge, Attitudes and Correlates of Advanced Maternal Age among Pregnant Women, Attending Ante Natal Clinics in the Colombo Municipal Area**

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**Background:** Advanced maternal age (AMA) shows an increasing trend at present. In many literatures it has known to significantly increase the risk of maternal and fetal morbidity and mortality. Reasons for childbearing in later part of the reproductive years can be diverse and influenced by various factors. Aim of the study was to estimate the proportion, assess the knowledge on risk factors, attitudes on child bearing in AMA and correlates of AMA among pregnant women attending antenatal clinics in Colombo municipal area. **Methods:** A descriptive cross sectional study was conducted with a sample of 427 pregnant women. Two stage systematic sampling was used to select the participants from 14 antenatal clinics. Pretested interviewer administered questionnaire was used. Knowledge score was calculated on a 0-10 scale. Total marks were converted into a percentage. Responses on attitude were put on a 5-point Likert scale. Statistical association of correlates was evaluated using χ² test. **Results:** The proportion of women in AMA (35 years and older) was 14.4%. Majority (51.5%) of the participants had ‘very good’ ‘good’ or ‘satisfactory’ level of knowledge on the risks of AMA. Positive attitude was observed among 67.1% of the respondents while 22.5% had negative attitude towards child bearing in AMA. Pre-existing medical conditions (p<0.001), antenatal morbidities (p<0.001), failure of family planning methods (p<0.001) and history of cesarean sections (p<0.001) were significantly associated with advanced age. However, ethnicity, religion, education level, income, occupation, number of living children and sex of the index child did not show any significant associations with AMA. **Conclusions:** Though majority were knowledgeable about the risks associated with AMA, they didn’t perceive bearing children in an advanced age as a problem. Therefore with Public health interventions for behavioral change, targeting females of the reproductive age group, this high risk pregnancy could be reduced to some extent. **Keywords:** Advanced maternal age, High-risk pregnancy, Proportion, Knowledge, Attitudes, Correlates
The Effect of Internal Locus of Control and Adherence Using Poedji Rochjati Score Card (PRSC) for Detection of Preeclampsia on Midwifery Performance

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Background: Preeclampsia is leading causes of maternal mortality in Indonesia. Early detection of preeclampsia would prevent further development of disorders as well as the complications. Poedji Rochjati Score Card was an instrument for detection of high risk pregnancies as well as prevalence of preeclampsia. The purpose of this study was to identify the effect of internal locus of control and adherence using Poedji Rochjati Score Card (PRSC) for detection of preeclampsia on midwifery performance. Methods: A simple random sampling was used to select 86 midwifery of “Bidan Delima” in Jombang, East Java, Indonesia. A questionnaire was used to measure internal locus of control, adherence and midwifery performance. Data was analyzed by using classical assumption test (multicollinearity test, heteroscedasticity test and normality test) with regression coefficients and binary linear regression test. Results: The results showed that internal locus of control and adherence has a significance level at the 95% (α=0.05) with p value 0.003<0.05. The test statistic for F-tests revealed F value 11.86 with p value 0.000<0.05. This means internal locus of control and adherence had a significant effect on midwifery performance. Based on binary linear regression test, internal locus of control had strong influence on midwifery performance with coefficient value 0.46 (46%). Conclusions: In conclusion, internal locus of control and adherence using Poedji Rochjati Score Card (PRSC) had an effect on midwifery performance.

Keywords: Internal locus of control, Adherence, Performance, Preeclampsia
Local Wisdom Application: Turmeric as the Topical Excretion Accelerate the Initial Time of Breast Milk Excretion

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Background: Commonly the initial time of breast milk excretion is late, i.e. the second day of postpartum. According to the local wisdom of Dayak community in Central Kalimantan, compressing the turmeric on the breast is considered to be efficacious to accelerate the initial time of breast milk excretion, but the verification through research is needed. This study measured the level of success of turmeric as the topical excretion in accelerating the initial time of breast milk excretion. Methods: The type of the study was true experiment posttest only control group design. A total of 50 postpartum mothers who gave birth spontaneously and have normal breastfeeding, were the research sample which then divided into two groups of control and intervention. Compressing breast using turmeric was conducted for 6 hours on the intervention group then all samples were counted the initial time of breast milk excretion. Result: The average of the initial time of breast milk excretion of postpartum mothers compressed with turmeric for 6 hours were 509.96 minutes (8.5 hours) and in control group was 1573.76 minutes (26.2 hours). There was significant (P = 0.023) effect on the initial time of breast milk excretion with about 1063.8 minutes or 17.73 hours. Conclusions: Compressing turmeric on the breast of postpartum mothers may accelerate the initial time of breast milk excretion.

Keywords: Turmeric, Initial time, Breast milk, Excretion
Research on the Construction and Application of Maternal and Child Health Manual APP Mobile Platform

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Background: The purpose is to integrate the health management of mothers and children in the whole reproductive cycle, and to improve maternal and children’s health and quality of life. Methods: Based on the regional maternal and child health management information network, the interconnection and intercommunication of health information is implemented, the Maternal and Child Health Manual APP is developed and improved, and intelligent health care, contract interaction and health education are carried out. Results: Within 10 months after the launch of the Maternal and Child Health Manual APP, the number of clicks reached 2,339,677 and the number of bound users reached 110,582. In addition, after using the Maternal and Child Health Manual APP, the system management rate of permanent maternal increased from 88.3 percent to 90.6 percent, the contract signature and service rates of health care physicians for maternal and children reached 52 percent and 43.9 percent respectively, and the degree of service objects’ satisfaction reached 94 percent. Conclusions: The Maternal and Child Health Manual APP is an effective carrier to implement the maternal and child whole-process health management. Pregnant women and children’s parents can get better services through the APP and their user experience increases significantly. The Maternal and Child Health Manual APP is a new mode of maternal and child health management in the present period.

Keywords: Mother and child health, APP, Application
Abstract ID: PO0030MR

Relationships between Mental Health, Nutrient Intake and Menstruation of Nursing Students

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Background: A menstrual cycle reflects a woman’s health. Basal body temperature (BBT) is widely measured for ovulation, its period, and ovarian function. Women who were having normal menstrual cycle decrease, while women with an abnormal menstrual cycle such as amenorrhea, polymenorrhoea and oligomenorrhea increase year by year. The irregular menstrual cycle indicates women's physical and psychosocial problems. This study aimed to identify relationships between mental health, dietary intake, and menstruation among the nursing students.

Methods: Subjects were 87 nursing students. The analysis was performed on 163 menstrual cycles obtained from 87 nursing students. The BBT was classified according to the Matsumoto’s Classification. Dietary intake was analyzed using the Brief-type self-administered diet history questionnaire (BDHQ). Mental health was analyzed using the General Health Questionnaire 28 for Japan (GHQ).

Results: Number of subjects having a normal cycle was 125 (78.1%), while oligomenorrhea was 13 (8.1%), and polymenorrhoea was 22 (13.8%). Most of those having oligomenorrhea and polymenorrhoea were experiencing anovulatory menstrual cycle. Depressive tendencies by GHQ were significantly high in the menstrual cycle abnormality. The number of subjects having normal menstrual duration was 140 (85.9%), prolonged menstruation was 10 (6.1%), and menstruation with shortened duration was 4 (2.5%). Most of the prolonged menstruation and menstruation with shortened duration were luteal insufficiency. Most of the underweight (BMI < 18.5kg/m²) students had the abnormal menstrual duration. The association between nutrient intake and menstruation was not significant. However, students had lower energy but higher lipid intakes.

Conclusions: We found that abnormal menstrual cycle among the nursing students was mainly anovulatory menstrual cycle, and the abnormal menstrual phase was mainly caused by luteal insufficiency. Our study suggests that it is necessary for students with menstrual abnormalities to measure BBT while being careful about their mental health and dietary habit.

Keywords: Menstruation, Basal body temperature, Mental health, Nutrient intake, Nursing student
Abstract ID: PO0033MR

There is a Living Soul in My Immature Womb: Why and What is the Outcome?

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**Background:** Adolescence is a challenging transition phase from childhood to adulthood. The word adolescent and teenage are often used interchangeably. Adolescents are vulnerable to risk-taking behaviours and they tend to seek and explore without knowing the consequences. Sexual activity is one of the area they tend to explore, hence often resulted in unwanted teenage pregnancy, with either favourable or unfavourable outcome. It was seen, in urban area that teenage pregnancy is increasing in trend and it becomes a burden not only to the individuals and families involved, but also to the health care providers. **Methodology:** This research was done to study the sociodemography of teenage pregnancy in an urban district of Kuala Lumpur and factors associated to unfavourable outcome among them. A retrospective study involving all teenage pregnancy was conducted in Cheras Health District Office using antenatal records from 2013 until 2017. Data was collected and analyzed using SPSS Version 20. Descriptive and inferential statistics were done. **Results:** A total number of 128 cleaned data of teenage pregnancy were obtained. In this study, most teenage mothers had favourable outcome (65.6 %), while the rest had unfavourable outcome (34.4%). Study population mostly comprised of Malaysians (91.4%). Majority were Malays (62.5%), Muslims (69.5%), middle age adolescence group (56.3%), attained secondary education level (91.4%), late bookers (71.9%), had premarital conception (64.8%), while some had history of substances abuse (10.2%). Unfavourable outcome factors among teenage pregnancy in this research were Malay ethnic (OR = 2.48, 95%CI=1.11-5.55), Muslim (OR = 2.63, 95%CI=1.10-6.38), and residing in low cost housing area (OR = 2.28, 95%CI=1.08-4.79). **Conclusion:** Residing in urban area does not guarantee awareness and knowledge regarding teenage pregnancy among its population. Thus, more holistic intervention programs need to be conducted among adolescents in urban area to prevent the uprising trend of teenage pregnancy.

**Keywords:** Teenage pregnancy, Adolescent, Urban, Unfavourable outcome, Kuala Lumpur
Abstract ID: PO0035MR

**Trends in Birth Defect Incidence after the Cessation of the One Child Policy: Hospital Based Data Analysis in Zhejiang Province, China**

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**Background:** Birth defects are an important public health problem as they cause lifelong disability imposing a high burden on health services. As many can be prevented it is important to monitor trends. **Objective:** To explore whether the increase in the number of elderly pregnant women after the change in the one child policy to allow a second child has affected the occurrence of birth defects. **Methods:** The study was undertaken in the largest maternal hospital in Zhejiang Province. All births with a recognizable congenital defect born within the period 2015 - 2017 from 12 gestation weeks to 7 days after birth were registered according to national birth defect survey guidelines. **Results:** There were 57366 births and 1625 with congenital defects. The prevalence rate was 28.3/1000 births and higher in males than females (P < 0.01). The death rate in infants with congenital defects was 25.6%. The highest incidence of defects occurred in mothers aged less than 24 and particularly less than 20. The average age of mothers has increased between 2015 and 2017 and the incidence of defects over 35 years old has risen slightly. The five most common categories of defects were heart disease, urinary tract disease, polyphalangia, cleft lip and palate and hypospadias. During this period there were 997 women had terminations before 28 weeks gestation because of a defective fetus. **Conclusions:** The average age of pregnant women increased after the implementation of the second child policy. The total birth defect rate has not changed, which may be related to the application of comprehensive prevention and improvement of prenatal diagnosis techniques.

**Keywords:** Birth defects, Population policy, Survey, Prevention
Predictors of the Emotion Parenting Practice among Pre-Schoolers’ Parents in Selangor, Malaysia

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Background: Emotion parenting practice is the most influencing domain in parenting types. If the parents are confident enough and they are happy being a parent, they will be able to give the best parenting skill that they have. A parent with positive emotion such as happy and confident in parenting will able to produce child with competent emotional development. Allowing the child to express their emotion either negative or positive will simultaneously produce effective relationships. However, to understand other people’s feelings, the parents should be able to control and manage their own feelings. Therefore, this study aims to determine the factors associated with emotion parenting practice among parents of pre-school children in Malaysia.

Methods: A cross sectional study design was conducted in nine districts of Selangor. The sampling frame was a complete list of parents with registered pre-school children. Parents were selected through a simple random sampling and were asked to answer a self-administered questionnaire. Data was analyzed using IBM SPSS 25.0. Bivariate and Multivariate analyses were computed. Results: There was a significant relationship between socio-demographic of parents (age, income and occupation). Parents with poor knowledge of parenting had 3 times (COR=2.527, p<0.05) more likely to practice poor emotion parenting while those with poor attitude towards parenting had twice odds in practicing poor emotion parenting (COR= 1.929, p<0.05). Parents with negative childhood experienced were noted to have twice odds of getting poor emotion parenting (COR=1.838, p<0.05). Among these variables, only parents’ age (aOR=1.743, p<0.05) and parents’ low knowledge (aOR=4.77, p<0.05) were the predictors of poor emotion parenting. Conclusions: Younger parents and not having prior knowledge on parenting predicts poor emotion parenting. Many interventions can be targeted to these groups in future through serial of training and health education.

Keywords: Parenting practice, Emotion, Pre-schools, Parents
How Different Sources of Social Support Relate to Sense of Coherence among Japanese Mothers of Children with Disabilities?

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Background: Sense of coherence (SOC) is considered as an important factor in moderating stress and increasing well-being among mothers of children with disabilities. Previously, it was found that SOC and social capital were directly and indirectly related to maternal mental health and positive change among Japanese mothers of children with intellectual disabilities. Thus, ways to enhance SOC in practice should be considered in the next step. This study aimed to explore the factors related to SOC among mothers of children with disabilities in Japan, focusing mainly on the source of social support and its role. Methods: From January to March 2016, with cooperation from associations of parents of children with disabilities throughout Japan, 2,311 self-administrated questionnaires were distributed to mothers of children with disabilities. Of these, 1,133 were returned (return rate = 49%), and 1,012 mothers of children with disabilities aged under 20 were selected for the current study. Results: Mothers' SOC was positively associated with a better financial situation, obtaining support from one's own parent/sibling, obtaining support from a child without a disability, and higher levels of social capital and was negatively associated with difficulty managing the child's behavior. Considering the three components of SOC, obtaining support from one's own parent/sibling was most strongly associated with manageability while obtaining support from a child without disability was most strongly associated with meaningfulness. Conclusions: Although support from a child without disability may be important for mothers' SOC, expecting such a role may burden a sibling of a child with disability. Future studies should consider why fathers' support was not related to maternal SOC and how to increase fathers' support.

Keywords: Japan, Mother, Sense of coherence, Sibling, Social support, Children with disabilities
The relationship between Depressive Tendency and Resilience among Women Three Months Postpartum

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Background: The purpose of the study was to compare depressive tendency and resilience status of women three months postpartum who gave birth by normal (vaginal) and abnormal (vacuum extraction and cesarean section). It also aimed to explore how women who underwent abnormal delivery are supported to foster resilience status. Methods: The survey was conducted among 137 postpartum women (48 had abnormal delivery and 79 women had normal delivery) in three hospitals in Okinawa, Japan. A total of 66 eligible participants (23 had abnormal delivery and 43 had normal delivery) were assessed longitudinally at three-time points (early postpartum period, one and three months postpartum) regarding their depressive tendency (using the Edinburgh Postpartum Depression Scale, EPDS) and resilience (using the Sukemune-Hiew Resilience Test). Results: The EPDS scores at one (p=0.008) and three (p=0.008) months postpartum of the abnormal delivery group were significantly higher than the normal delivery group. Analysis showed negative correlations between EPDS and the Resilience Score both in abnormal delivery and normal delivery groups. The data showed correlations between EPDS and the score of the sociability factor of the resilience of abnormal delivery group, EPDS and the score of the social support factor of the resilience of normal delivery group, and EPDS and the score of self-efficacy factor of the resilience of both groups. Conclusions: Fostering sociability is vital among women with abnormal delivery. Collaborating with others and improving self-efficacy during an early postpartum period will help them address depressive tendency. Support mechanisms on parenting and enhancing self-efficacy are also deemed essential.

Keywords: Abnormal delivery, Resilience, Depressive tendency, Parenting support
Male Partner Involvement in Skilled Delivery Care at the North Dayi District of Ghana: A Qualitative Study

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Background: With more than half of the global maternal deaths occurring in sub-Saharan Africa, skilled birth attendance during delivery is essential to ensure safer births and reduced maternal mortality. Considering that societal ascriptions of gender roles strongly influence utilisation of skilled care by women, male partner involvement in skilled delivery is essential. We explored male partner involvement in skilled delivery at the North Dayi District of Ghana. Methods: This qualitative study interviewed 14 mothers and their male partners, as well as two health professionals. The participants were purposively recruited using in-depth interviews. Data collected were manually, but thematically. Result: Male partners had inadequate knowledge on childbirth and the skilled delivery process as well as possible complications arising during delivery. Even though the male partners demonstrated a positive perception towards skilled delivery and their involvement in the process, we realised that their actual involvement in skilled delivery care was generally low. Factors which inhibited most of the male partners from getting involved in skilled delivery care were health facility non-conduciveness and occupation. The few of them who got involved were, however, motivated to do so by marital commitment and sense of responsibility, past experience, nearness to health facility, and safety and survival of partner and baby. Conclusion: An implication of the low male partner involvement realised in this study is that Ghana may not be able to meet the Sustainable Development Goal Three target of reducing her maternal mortality ratio from 216 to below 70 per 100,000 live births by the year 2030. To forestall this, stakeholders in Ghana’s health industry need to develop male accommodating skilled delivery policies and approaches to promote male involvement in skilled delivery care.

Keywords: Male partner involvement, Skilled delivery care, SDG, Ghana, North Dayi
Who Decides Women’s Use of Maternal Healthcare Services in Rufisque, Senegal? – A Quantitative and Qualitative Study

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Background: Numerous studies have reported the use of maternal healthcare services as a key strategy to improve maternal health. However, not much is known about decision-makers in women’s use of maternity services in Senegal. This study aims to examine who among women’s family members decides the use of obstetric services in Rufisque District, Senegal, as well as identify these decision-makers’ knowledge level about maternal healthcare. Methods: A cross-sectional mixed methods approach was used in this study. A total of 133 participants completed an individual survey and participated in six focus group discussions in September 2017. The respondents were 111 women, aged 15-49 years, who had a live birth in the 3 years prior to the survey, and 22 husbands from the same families. Results: This study found that husbands had a strong influence on women’s use of maternal healthcare services. Most of the surveyed women (56.8%) and husbands (63.6%) reported that husbands were the most influential decision-makers on women’s use of obstetric care. Additionally, 49.5% of women reported that their husbands encourage the use of maternity services. The qualitative findings showed that husbands tended to consider pregnancy support as a female role. Finally, results indicated that more than 50% of husbands lacked proper knowledge of obstetric care, particularly of the recommended timing of antenatal care. Conclusions: Despite husbands’ influential decision-making power, they have incomplete knowledge of obstetric care. Husband involvement in education about maternal healthcare should be encouraged in order for them to gain more supportive attitudes towards maternal healthcare. Future studies should include more husband samples in order to generate further insights on how their decision-making power influences women’s use of maternity services. Additionally, how use of maternal healthcare services differs when a woman makes her own decisions can be studied.

Keywords: Health decision-making, Maternal health, Husband, Senegal
Analysis of Antenatal Care Experiences among 15-49 Years Old Women in Dakar, Senegal

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Background: Antenatal care (ANC) service is an essential part of maternal health, but there are still marginalized women do not meet the guideline of ANC services recommended by the World Health Organization (WHO). Thus, this study aims to identify the utilization of ANC services among women of childbearing age and to find ways to improve ANC services in Dakar, Senegal. Methods: Using the quantitative research method, a total of 111 women aged between 15 and 49 years from seven health posts in Rufisque District were recruited for the cross-sectional study. The respondents who had last pregnancies within the past three years were orally interviewed. Results: The respondents who received ANC services were 94.6%. Percentage of women who had experiences in the first ANC within the first trimester was 80.2%. Among the participants, 77.9% received ANC more than four times. During ANC counselling, 78% of the respondents were encouraged to receive postnatal care (PNC) services. The main reasons to receive ANC services were ‘feeling pain’ (73.8%), ‘family suggestion’ (23.3%), ‘advice by community health worker’ (11.7%), and ‘regular check-up’ (9.7%) in multiple choices. The positive correlation was observed in respondents who received ANC and PNC (0.538, p<0.001). Conclusions: Considering the answers from the respondents, ANC is perceived as a way of treatment rather than the necessary part of pregnancy. ANC is also considered one of the major factors to encourage the utilization of PNC service after childbirth. Thus, it is crucial to encourage pregnant women to visit health post for ANC check-up not only for the reason of feeling pain. Besides, the emphasis on PNC during ANC counselling will lead to the increase of PNC utility. The limitation of our study is a small number of respondents at a few health posts. Therefore, further study needs to be followed including a more significant number of participants from various health facilities.

Keywords: Maternal health, Antenatal care, Cross-sectional, Quantitative method, Senegal
Is the Place of Delivery Associated with Mother’s Satisfaction with Childbirth? – A Cross-Sectional Study in a Rural District of the Lao PDR

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Background: The Lao health sector has promoted facility-based deliveries to improve the maternal and infant mortality. In some high-income country, satisfaction with childbirth was higher in mothers who chose a home-delivery than in mothers who chose a facility-based delivery. The objective of the study was to assess whether the place of delivery is associated with childbirth satisfaction among mothers in a rural district of the Lao PDR. Methods: A community-based survey was implemented in the randomly selected 21 villages in Xepon district, Savannakhet province, between February and March 2016. Questionnaire-based interviews were conducted with 254 mothers who experienced a delivery in the past two years prior to the survey. Satisfaction with childbirth on most recent delivery was measured by the Satisfaction with Childbirth Experience Questionnaire. For analyses, the mothers were dichotomized, according to the median of the satisfaction score. Logistic regression was used to assess the association, adjusted for possible confounders. A mixed-effects model was used to account for clustering. Results: Of a total of 229 mothers who were included in data analysis, 138 (60.3%) delivered at a health facility and the remaining 91 (39.7%) delivered at home. The mothers who delivered at a health facility were significantly more likely to have a higher level of satisfaction with childbirth, as compared to the mothers who delivered at home (adjusted odds ratio: 5.99, 95% confidence interval: 2.79 to 12.90). Conclusions: The place of delivery was significantly associated with childbirth satisfaction among the mothers in Xepon district of the Lao PDR. Although the present study was unable to establish the cause-effect relationship between the place of delivery and satisfaction with childbirth, there is a possibility that satisfaction with childbirth is improved if a mother changes the place of delivery from home to the facility.

Keywords: Childbirth satisfaction, Place of delivery, Facility delivery, Laos, Maternal health
Developing a Scale to Evaluate How Well Mothers with Infants Build Relationships with People in Their Communities

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Background: The goal of this investigation was to develop the Scale to measure how well mothers with infants can foster relationships with people in their communities to avoid solitary child-rearing. Methods: To prepare the Scale, we created a questionnaire, conducted a preliminary investigation, and then completed the procedures of the primary investigation. Regarding the drafting of items, interviews were conducted with 24 mothers with infants to qualitatively and descriptively reveal the recent state and internal structures of their relationships with people in their communities. From these interviews, a pool of 42 items was created. In the preliminary investigation, 400 public health nurses answered a self-report questionnaire regarding the scale's suitability. For the main survey, from August to October 2016, 1,182 mothers with children aged three years or younger were given a self-report questionnaire. Item analysis, exploratory factor analysis via maximum likelihood promax rotation, computation of the reliability coefficient, and confirmatory factor analysis via model fit verification were conducted to analyze the data. This investigation was approved by the ethics review board of the Faculty of Health Sciences, Hokkaido University. Results: The main survey obtained valid responses from 721 (61.0%) mothers. Fourteen items were removed by item analysis. Subsequently, a draft of the Scale including 17 items and four factors was created via exploratory factor analysis. The four factors were "confidence in interacting with people met through child-rearing," "positive perception of childrearing conditions in the environment," "interest in interacting with people in the community through children," and "benevolent sentiments toward other parents." The reliability coefficient of the whole scale was α= 0.870. Confirmatory factor analysis yielded goodness of fit index of 0.95. Conclusions: The reliability and validity of the Scale have been verified. The next course of action is to continue researching the practical applications of the scale by investigating its criterion-related validity and cut-off value.

Keywords: Parenting support system, Social support, Social competency, Scale development
Abstract ID: PO0054MR

Characteristics of Health Status Using Oriental Medical Scale by Generation among Female Nurses in Okinawa, Japan

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Background: About 70% of nurses report chronic fatigue and 60% of nurses felt anxious about their health. Especially for female nurses, it is pointed out that job is influenced indefinite complaints by a menstrual cycle or an ovarian hypofunction on menopause. Therefore, it is necessary to pay attention to health management according to each generation. In order to improve female nurses’ health status, this study planned to evaluate the nurses’ indefinite complaint by age group. Methods: Anonymous self-administered questionnaire survey was performed for nurses during Nov 2016 to Feb 2017 in Okinawa, Japan. The questionnaire used in this study consisted of demographic characteristics, Health-Promoting Lifestyle Profile Japanese version (HPLP II) and The Five Viscera Score version 2 (FVSv2) as classification of symptoms in traditional Chinese medicine measurement scales.

Results: 2564 nurses were recruited from 10 hospitals. Of which 822 nurses participated in this study. The median score of FVSv2 was 6.0 for spleen, 5.0 for heart and liver, 3.0 for kidney and lung in all participants. Statistical significance was observed in the FVSv2 high median score of the lung as visceral symptoms in their 20s, and liver as general symptoms of the 40s age group. The HPLP II subscale of spiritual growth affected the symptoms reduction of the heart, spleen, lung and kidney in their 20s by Logistic Regression Analysis. Moreover, 5 of 6 HPLP II subscale affected the symptoms reduction of the liver, heart, spleen and kidney in their 40s.

Conclusions: The major finding in this study was the presence of characteristic of symptoms by generation. To improve female nurses’ health status, it is suggested that utilization of appropriate health promoting lifestyle is important.

Keywords: Female nurse, Health status, Health promoting lifestyle
Abstract ID: PO0058MR

**Intention to Breastfeed: The Role of Social Support**

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**Background:** The current breastfeeding rate in China is much lower than the WHO standard. However, factors that affect women’s breastfeeding intentions have not been adequately examined. The purpose of this study was to explore the relationship between breastfeeding intention and a range of variables including demographics, breastfeeding history, and social support among puerperal women in Hubei, China. **Methods:** A cross-sectional survey was conducted from December 2017 to March 2018. 1246 women who delivered at 3 public hospitals in Hubei, China were asked to complete a self-administered questionnaire before their discharge. Characteristics of women who intended to exclusively breastfeed for ≥6 months were compared to those who did not. **Results:** Among the 1138 eligible women, 80.4% intended to exclusively breastfeed for at least six months. Multivariate binary logistic regression analysis showed higher odds of intending to exclusively breastfeed for ≥6 months among women who had achieved higher education level, reported longer maternity leave, and had breastfeeding experience. Support from family members, friends and health professionals were also positively associated with the breastfeeding intention. **Conclusions:** Majority of puerperal women intended to breastfeed for ≥6 months. Strategies to improve breastfeeding rate should emphasize the role of women’s social networks and health professionals.

**Keywords:** Breastfeeding intention, Social support, China
Abstract ID: PO0059MR

Antenatal Knowledge among Married Women in Sikuati, Kudat, Malaysia

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Background: Antenatal (AN) care is vital for all pregnant women and for reduction of maternal mortality and morbidity. AN care knowledge and specific AN care practices are some of the crucial components of what determines effective AN care. In developing nations, the health of pregnant women can be even more sensitive to these factors. Objectives of this study was to determine the socio-demographic characteristics, of ever married women aged 15-49 years old having at least one pregnancy experience, residing in villages of Sikuati area, Kudat and to investigate the knowledge of AN care among studied population. Methods: Methodology was cross-sectional analytical study, non-probability convenient sampling method was used and 150 eligible participants were interviewed through face to face interview by trained interviewer using semi-structured questionnaire and their knowledge of AN care were recorded during March to December 2015. Results: 99% of all the women received AN care. The study revealed that overall knowledge amongst the women with good knowledge was 48% and low knowledge was 52%. There was no significant association was found between knowledge score on AN care and age, married life time, husband’s occupation and respondent’s occupation. There were statistically significant association between education level and knowledge score (p = 0.025), income and knowledge score (p=0.01). As income increased, good knowledge score also increased. There was also significant association between number of parity and knowledge level. Conclusions: Health education interventions should be emphasized to low knowledge level of antenatal mothers of this area was recommended.

Keywords: Knowledge, Antenatal care, Evermarried women
Relationship of Central Obesity with Menstrual Cycle Irregularity on Preclinical Students of Faculty of Medicine, Pattimura University in the Year of 2017

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Background: Irregularity of menstrual cycle is a condition where the distance between one menstrual cycle and other menstrual cycle is less than 21 days or more than 35 days. The disruption of the menstrual cycle can be influenced by various factors such as excessive abdominal circumference or central obesity. This study aims to ascertain the relationship of abdominal circumference with the irregularity of menstrual cycle in preclinical students of Faculty of Medicine, Pattimura University.

Methods: The approach used is cross-sectional undertaken at Faculty of Medicine, Pattimura University in May-July 2017, with the number of respondents in the study is 134 female students taken with total sampling technique. The abdominal circumference of respondents is discovered by measurement using measuring tape, while the age variable, menstrual cycle, stress level and diet are known from the questionnaire. The bivariate analysis used is Chi-square test. Results: The results showed that 39 people (29.1%) have irregularity of menstrual cycles, respondents who have abdominal circumference of 19 people (14.2%) and 10 of them have irregularity of menstrual cycles. According to bivariate analysis results gained a significant relationship between excessive abdominal circumference with irregularity of menstrual cycle, with value of p=0.015 and OR = 3.295 (95% CI = 1,219-8,904).

Keywords: Abdominal circumference, central obesity, menstrual cycle
The Distance, Alternative Modes of Transportation and the Decision-Making Time to Health Facilities for the Poor Mother in Remote Area: A Case Study in Central Sumba District, East Nusa Tenggara Province, Indonesia

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Background: Maternal health still becomes a major factor of continuity of poor family life. Pain and helplessness of the mother are factors that should be prevented. For pregnant women, the number and types of quality of service it receives a decisive improvement of health by being able to hit the high rate of maternal and child mortality through responsive action and take action immediately check their health when ill or pregnant. Methods: The study was used by cross-sectional design. The population are mothers in Central Sumba sub-district with restrictions to the mother of the poor and near-poor families who have baby under five and live in remote area. Samples were drawn based on the cluster with the smallest unit is the village. Respondents totalled 360 mothers spread over 5 districts and 15 villages. Results: The majority of women have distance to the health facility is far, alternative modes of transportation by walk and when they have any health problems spent time to wait and not respond directly to treat and seek help. The distance allows a mother to consider the time delay of 2 to 5 days for treatment and utilize the services at the health facilities available given the long distance and must be reached by walking. When the mother and pregnant women have any risk to get incident or medical emergency. Conclusions: The long distance to the health facility and lack alternative of modes of transportation available is the reason driving the length of the mother determines the choice to seek treatment and health services available.

Keywords: Distance, Health facilities, Remote area, Transportation modes
Midwives’ Knowledge, Attitude and Practice Towards Umbilical Cord Blood Donation in a Chinese Population

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Background and aims: Umbilical cord blood (CB) offers potentially many advantages over the traditional methods of stem cell collection in that it poses no risk and discomfort to the donor. Despite developments in stem cell therapies, CB is not well promoted. Previous studies have examined the views of pregnant women but few have examined the attitudes of front line health care providers such as midwives.

Methods: This is a cross-sectional survey study conducted between January and April, 2017 aiming to assess the knowledge, attitude and practice of registered midwives in Hong Kong towards umbilical CB donation and investigate factors that promoted umbilical CB donation. Using convenience sampling, 147 public and private sector midwives completed self-administered questionnaires to assess the knowledge, attitudes, history of recommending CB donation and future intent to recommend CB donation.

Results: Respondents demonstrated moderate knowledge of CB (mean knowledge score: 19.9 (out of 26) and positive attitude towards CB donation (mean attitudes score=30.5 (out of 40). However, higher knowledge was not associated with intention to recommend CB donation. In the adjusted analysis, higher education level and employment in public sector hospitals were associated with greater willingness to recommend CB donation and provide CB information to patients. Lack of formal protocol was cited as the major barrier for recommending CB donation to their patients. Only 10.2% of midwives reported that they had ever received formal CB training.

Conclusions: Midwives may require formal CB training and work protocol in order to promote CB donation in Hong Kong.

Keywords: Midwives, Obstetrics, Stem cells, Hong Kong, Policy
Research on DALYs of Stroke in China: Indicate the Main Risk Factors of Stroke

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\textbf{Background:} Currently, researches related to stroke disease mainly focused on the physiological and pathological mechanism, ignoring its great significance in the field of public health. From the perspective of the crowds, we study the distribution and development of the disease to discover the major factors of stroke and provide a reliable basis for prevention control of stroke, thus, reducing the incidence rate, morbidity rate, mortality rate and recurrence rate effectively, plus reducing the social cost. \textbf{Methods:} Descriptive epidemiological methods were used to analyze the distribution of stroke risk factors. The incidence rate, prevalence, mortality rate and disability-adjusted life years (DALYs) were used to reflect the correlation between risk factors and stroke.

\textbf{Results:}
1. Air pollution and environmental hazards: outdoor PM\textsubscript{2.5} 21.9 years, indoor solid fuel combustion 16.25 years;
2. Dietary factors: high salt 30.72 years, low fruit diet 41.26 years;
3. Physical activity: low physical activity 5.82 years;
4. Tobacco: smoking 25.04 years, second-hand smoke 2.39 years;
5. Physiological factors: hypertension 72.92 years;
6. Age: the prevalence of stroke has an increasing tendency with increasing age, regardless of gender;
7. Sex: although the stroke mortality changes between male and female are basically the same, the mortality of the former is always higher than that of the latter;
8. Social, economic factors: the better the social and economic conditions are, the more optimistic the stroke outcomes are./better social and economic conditions result into more optimistic stroke outcomes

\textbf{Conclusions:} Proposals were put forward according to the analytic results of stroke risk factors. The proposals include reducing the combustion of chemical fuel and green travel, taking some reasonable exercises and having a healthy lifestyle.

\textbf{Keywords:} Stroke, Risk factors, DALY
The Chinese Version of the Self-Care of Coronary Heart Disease Inventory (SC-CHDI): Translation and Validation

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Background: The incidence of coronary artery disease (CAD) is in a growing trend worldwide. Medical treatment of CAD in hospital mainly alleviates acute conditions, which cannot remove the aetiology of CAD. Patients after discharge still have risks of re-stenosis of coronary arteries and recurrence of cardiac events. Therefore, long-term self-care of CAD is indispensable. A growing number of studies focuses on self-care in patients with CAD. However, no instrument is available in China to measure self-care related to CAD. The objective of this study was to translate and validate the Self-Care of Coronary Heart Disease Inventory (SC-CHDI) in Chinese patients with CAD. Methods: SC-CHDI was translated into Chinese using standardised methods. Then it was psychometrically tested in a convenience sample of 365 adult inpatients with CAD in Wuhan, China. Exploratory factor analysis (EFA) was performed to detect the factorial structure. Available factor solutions were compared based on model fit indices, and the number of factors was determined based on the solution with the best fit. The Coronary Self-Management Scale (CSMS) was used to assess the criterion-related validity. Based on results of EFA, Cronbach’s alpha coefficient or composite reliability (CR) was chosen to assess the internal consistency reliability. Results: A two-factorial structure of the self-care maintenance subscale (“consultative behaviours” and “autonomous behaviours”) was established. The CRs for each factor were 0.884 and 0.712. The self-care management subscale was also revealed as a multidimensional structure with two factors: “early recognition and response” (CR=0.687) and “delayed response” (CR=0.714). The self-care confidence subscale showed an undimensional structure (Cronbach’s α=0.840). All three self-care subscales significantly correlated to CSMS (r=0.617, 0.337 and 0.469 respectively). Conclusions: The Chinese version of the SC-CHDI was a valid instrument with acceptable psychometric properties in Chinese patients with CAD.

Keywords: Coronary artery disease, Self-care, Validation
Identifying Risk Factors for Metabolic Syndrome and Insulin Resistance in Adolescents

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Background: Prevention of metabolic syndrome is a major concern in public health practice. Adolescents living in rural communities are relatively less accessible to the health care facilities. Self-awareness of one’s health conditions and seeking medical advice can prevent future complications of metabolic syndrome such as diabetes, hypertriglyceridemia and hypertension. Insulin resistance in adolescents is caused by lifestyle factors and can lead to diabetes with complications in adult life which can give increased mortality. Practicing healthy life style in adolescent life can influence their future morbidity. Methods: In this study adolescents from the villages in Sabah were included and their body mass index, waist circumference, hip circumference, waist hip ratio and blood pressure were examined. Fasting serum insulin and plasma glucose level were determined and insulin resistance and percentage of β cell mass were assessed by using the Homeostasis assessment model for insulin resistance (HOMA-IR). The relationships between fasting insulin level, fasting blood sugar, BMI, waist circumference, WHR, HOMA IR were studied. Results: Insulin resistance (HOMA–IR) was found in 3% of study population and 5.7% of female study population. Females had higher risk of insulin resistance compared to males. It was found that insulin resistance had positive association with waist hip ratio. In this study, pancreatic β cell function ranged from 7.78 to 252. Conclusions: This study provides valuable information on the status of insulin resistance, and their relationship with body mass index, blood pressure and blood sugar levels. This study detected the risk factors for insulin resistance and metabolic syndrome in adolescents and provided preventive measures in susceptible groups to improve the quality of life of adolescents.

Keywords: Metabolic syndrome, Insulin resistance, Risk factors, Adolescents
Factors Associated With Medication Adherence among Patients with Type II Diabetes Mellitus in the Poor Urban Areas of Cambodia: A Cross-Sectional Study

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Background: In Cambodia, the age-standardized prevalence of diabetes mellitus (DM) has increased. The main objective of this study is to identify factors associated with medication adherence among patients with type II DM in the poor urban areas of Phnom Penh, Cambodia. Methods: A cross-sectional study was conducted in 2017 using a structured questionnaire for face-to-face interviews by trained interviewers. The participants were selected from a list of patients with type II DM who were the members of peer educator network and lived in the poor urban areas. Medication adherence was measured using the four-item Morisky Medication Adherence Scale (MMAS-4). Adherence levels were reclassified into two groups: 0 (high adherence) and from 1 to 4 (middle and low adherence). Sociodemographic characteristics, medical history, accessibility to health services, state of health management, and knowledge, attitude, and practices related to type II DM were examined. A multiple logistic regression analysis was conducted to identify the factors independently associated with high medication adherence, which were adjusted for sex, age, marital status, and education status. Results: Data from 773 patients who consented to this study and had no missing answers were included in the analysis. Of the total, 49.3% had a high medication adherence. After adjustment, high medication adherence was associated with higher family income (>50 USD per month) (Adjusted odds ratio [AOR]=5.00, 95% confidence interval [CI]=2.25–11.08); absence of DM-related complications (AOR=1.66, 95% CI=1.19–2.32); use of health facilities, including the home of a peer educator, more than once per month (AOR=2.87, 95% CI=1.64–5.04); following special diet for DM (AOR=1.81, 95% CI=1.17–2.81); and absence of alcohol consumption (AOR=13.67, 95% CI=2.86–65.34). Conclusions: The proportion of participants with high medication adherence was almost half. High medication adherence was associated with healthy behaviors, whereas low medication adherence was associated with poor family economic conditions.

Keywords: Type II diabetes mellitus, Medication, Adherence, Self-management, Cambodia
Abstract ID: PO0010NC

Prevalence, Selected Associated Factors, and Productivity Loss Due to Migraine among Medical Students of Rajarata University of Sri Lanka

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Background: Despite the high risk to manifest migraine among medical students only few studies have been done. This study determined the prevalence, selected associated factors and productivity loss due to migraine in medical students of Rajarata University of Sri Lanka. Methods: We conducted a descriptive cross-sectional study, based on a self-administered questionnaire among the first, second and third year medical students. The questionnaire was formed according to International Headache Society criteria and migraine was identified using Identification of Migraine (ID MigraineTM) criteria, with questions including the Migraine Disability Assessment test (MIDAS). Results: The study sample included 532 students; 30.3% (n=161) were males and 69.7% (n=371) were females. Mean age of the population was 23 + 4.95. In the study sample 31.4% (n=167) reported recent headaches. Prevalence of migraine was 5.8% (n=32, 95%CI 4.06-8.07) and only 51.6% (n=16) were on prophylaxis. Commonest presentation of migraine was bilateral headache behind the eyes (n=14, 45.16%). According to MIDAS of the students with migraine, 48.4% (n=15) had no disability, 22.6% (n=7) had mild, 29% (n=9) had moderate disability. Of the students with migraine, 48.4% (n=15) had no disability, 22.6% (n=7) had mild, 29% (n=9) had moderate disability according to MIDAS. Of the students with migraine 19.35% (n=6) and 58.1% lost at least one day or half a day of academic work during the attacks respectively. Students with migraine had higher disability than those with other headaches (p<0.005). Females (p<0.018) and positive family history (p<0.000) had significant associations with migraine. Perceived stress 25 (80.6%), disrupted sleep 20 (64.5%), certain foods 10(32.3%) were common triggers. Conclusions: Prevalence of migraine among medical students of Rajarata University is lower than what is reported elsewhere. More than half the students with migraine have considerable disability with perceived stress as the commonest triggering factor.

Keywords: Disability, Migraine, Medical students, Triggers
Abstract ID: PO0011NC

Challenges of Kidney Transplantation in Malaysia: Key Informants’ Perspective

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Background: Kidney transplantation (KT) is the preferred treatment for end-stage renal disease (ESRD). It provides a better survival rate and quality of life as well as a cheaper alternative compared to other renal replacement therapy. Despite countless evidence demonstrating its superior outcome, KT rate in Malaysia is consistently low considering that the rate of ESRD exponentially increases every year. This gap indicates a general lack of evaluation of the KT process in Malaysia. A qualitative study was undertaken to investigate the underlying reasons for the disproportionality between ESRD and KT rates by understanding the challenges to access KT in Malaysia. Methods: In-depth one-to-one interviews were conducted between March and April 2018 among eight key informants in KT in Malaysia. These interviews were digitally audio-recorded and transcribed verbatim. Transcripts were coded and analysed using thematic data analysis method following the socio-ecological model framework to allow for systematic evaluation and identification of issues at each level. Results: The key informants unanimously considered ESRD as a serious and increasing problem in the country, primarily due to the failure in preventing lifestyle diseases such as diabetes and hypertension. Rich accounts were given by the experts on various aspects of the KT process that prevents its development. Five key factors represented as sub-themes were identified as important conditions for the establishment of successful transplantation program under the main theme of personal, interpersonal, community, organisational and legal framework. These were: inadequate infrastructure and resources; training of healthcare providers; cultural values and religious beliefs; knowledge, attitude and perception towards KT; and structural access to healthcare. Conclusions: This study exposed many of the practical considerations and challenges associated with KT. Key informants’ experience in the transplantation process provided important information on their perceived barriers to access KT. The implications of these findings could prompt a policy change for a better health service delivery model.

Keywords: Kidney transplantation, Qualitative study, Key informants, Healthcare system
Sex-Specific Relationship between Serum Uric Acid and Risk of Renal Progression and Chronic Kidney Disease

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Background: Many epidemiological studies have suggested that serum uric acid is more closely related with cardiovascular events, metabolic syndrome, and kidney failure in women than in men. Hyperuricemia has been associated with incident kidney disease. However, gender differences in the serum uric acid in patients with renal progression and CKD are unknown. We investigated gender differences in the relationship between hyperuricemia and the renal progression and CKD.

Methods: This prospective cohort study enrolled 1728 adult patients without CKD and 1980 with early-CKD from eight hospitals in Taiwan in October 2008 to February 2016. Demographic characteristics were collected using structured questionnaires. The renal progression was defined as a decline in the eGFR by more than 25% according to the baseline eGFR. The definition of hyperuricemia was a serum uric acid level of ≥6.0 mg/dL for women and ≥7.0 mg/dL for men. Multivariate Cox regression models were used to study the associated between hyperuricemia, renal progression, and CKD.

Results: Of the 3708 patients, 1852 (49.95%) and 1856 (50.05%) were male and female, respectively. When patients without hyperuricemia, female patients were had higher risk for renal progression compared with the male patients (adjusted hazard ratio (HR) 1.92 [95% CI, 1.34–2.76]); female patients were also had higher risk for CKD compared with the male patients (adjusted HR 2.41; 95% CI, 1.67–3.48). When patients with hyperuricemia, female patients were also had higher risk for renal progression compared with the male patients (adjusted HR 2.41; 95% CI, 1.30–3.52); female patients were also had higher risk for CKD compared with the male patients (adjusted HR 4.01; 95% CI, 2.15–7.47).

Conclusions: Hyperuricemia was associated with renal progression and CKD more strongly in women than in men. These results suggest that there are gender differences in the association of uric acid level with the renal function.

Keywords: Gender, Uric acid, Renal progression, CKD
Predicting 24-Hour Sodium Intake among Malaysia Population Using Spot Urine Sodium Excretion

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Background: High dietary sodium is a risk factor for elevated blood pressure, stroke and chronic kidney disease. Calculation of sodium intake from 24-hr urine collection is the ‘gold standard’ of monitoring mean sodium intake, however the implementation can be difficult. Objective: The objective of this study was to predict sodium intake from 24-hr urine from a spot urine concentration. Methods: Data on 24-hr urine, spot urine specimens and anthropometry data from 800 eligible respondents were obtained from the Malaysian Community Salt Survey (MyCoSS) that was conducted from October 2017 – March 2018. To collect 24-hour urine, the respondents discarded the first urine of the day in the morning and collected all urine for the following 24-hour. The spot urine was obtained from early morning urine specimen on the subsequent day. A predictive equation to predict sodium level in 24 hour urine from the spot urine and anthropometry measurements were performed using the stepwise multivariate linear regression analysis. The sodium level predicted from the predictive equation was compared with the 24-hour urine measurement. Assessment of the correlation, Bland-Alman plot, and probability of area under curve (AUC) with a receiver-operating characteristic (ROC) to predict high sodium intake (>2 g sodium /day) by using the estimated formula was performed. Results: The mean bias in predicting 24-hour sodium ranged from -0.839 to 6.561. The correlation between estimated and measured sodium was r = 0.457 (p < 0.001). The ROC curve with cutoff point > 2 g/ day yielded an area under the curve of 0.710, sensitivity of 0.72 and specificity of 0.60. Conclusion: Sodium intake was predicted based on the single spot urine method. Establishment of the formula needs to be validated internally and externally.

Keywords: high sodium, spot urine, spot urine sodium equation, MyCoSS, Malaysia
Consumption of Foods with Different Levels of Glycaemic Index Foods among Elderly with and Without Diabetes Mellitus in Surabaya, Indonesia

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Background: Diabetes Mellitus is a metabolic disorder that characterized by elevated blood glucose levels accompanied by decreased of carbohydrates, fats and proteins metabolism. Elderly were among vulnerable group to develop DM because their susceptibility to carbohydrate metabolism disorders. The purpose of this study was to analyze differences in eating behavior of elderly patients with Diabetes Mellitus and non-Diabetes Mellitus against the selection of foods with high glycemic index. Methods: This was a case control study with involving 78 elderly with 39 cases of DM and 39 control of non DM in Puskesmas Jagir Surabaya. Data collected by using questionnaires, anthropometric measurements including weight and height, food frequency questionnaire, and 2x24 hour food recall questionnaire. Data were analyzed using independent-samples t test. Results: The results of this research showed that the level of knowledge among DM and non DM group was similarly low related to glycaemic index, hence there was no significance difference was observed. However, there was significant difference in consumption behavior of high GI foods, such as fast food (p = 0.017), moderate GI foods such as bread (p = 0.005) and low GI foods such as tempeh (p = 0.045) and tofu (p = 0.041) in the DM group with non DM group. Conclusions: The conclusion of this research is there were significant differences in the elderly’s behaviour towards consuming high GI foods. Therefore, it is necessary to educate the associated glycemic index of food to the elderly in order to help elderly control blood sugar levels through food to be consumed.

Keywords: Elderly, Diabetes mellitus, Glycaemic index
Abstract ID: PO0018NC

Is miR-206/133b Cluster a Weapon against Lung Cancer?

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Background: Lung cancer is one of the most deadly malignant diseases where methods for early diagnosis and effective cure remain badly in need. MicroRNAs (miRNAs) are a group of non-coding RNAs involved in various biological processes. Recently, miR-206/133b cluster has been verified to be dysregulated and plays a crucial role in lung cancer. We conducted this review to summarize the roles and mechanisms of miR-206/133b cluster functioned in lung cancer, hoping to provide evidence for further research on biomarkers for diagnosis and clinical application in the future. Method: We searched the PubMed database for studies in English on lung cancer and miR-206 as well as miR-133b from the establishment of the database to July 2017. An outline view was made to summarize and deduce the probable relationship between lung cancer and miR-206/133b cluster. Result: MiR-206/miR-133b cluster could promote cells apoptosis, repress cells proliferation, block tumor angiogenesis, and inhibit cells migration as well as invasion in lung cancer. It could boost drug-resistant and radio-resistant lung cancer cells to be resensitive via various target genes and molecular pathways, such as MET, EGFR, STAT3/HIF-1α/VEGF signal pathway. Conclusions: MiR-206/133b cluster acted as a suppressor in lung cancer through targeting diverse genes and related molecular pathways, which might provide evidence for clinical applications and further study in the future. Upregulation of these miRNAs might be beneficial for lung cancer patients’ prognosis and survival.

Keywords: Lung cancer, microRNA, miR-206/133b cluster, miR-206, miR-133b
A Qualitative Research of Factors Influencing the Treatment Compliance of Type-2 Diabetes Mellitus Patients in China: From the Perspectives of Community Health Care Providers

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Background: Poor treatment adherence of T2MD patients is a serious problem in China which gives rise to the high prevalence of complications. This study aims to analyze the factors influencing the treatment compliance of T2DM patient from the perspectives of community health care providers and to give suggestions on improving community-based T2DM management. Methods: This study was conducted in Shandong province, China. Focus group interview was used to collect data. From August to October in 2017, eight focus group interviews were conducted with 6-8 community health care providers in each group in eight cities in Shandong. Nvivo 11 was used to code and analyze qualitative data. Results: We identified three factors that were associated with treatment compliance of T2DM patients, which were patient-related factors, provider-related factors and health system-related factors. Patient-related factors included insufficient knowledge, bad health awareness and life habits and poor economic status of patients. Provider-related factors included the lack of knowledge and skills, heavy workload of provider and poor service coordination between providers. Health system-related factors included insufficient provision of diabetes management services, unreasonable drug use restriction and incorrect reimbursement of health insurance. Conclusions: This qualitative study showed that the factors influencing the treatment compliance of T2DM patients in China were complicated. Future community-based diabetes management should pay more attention to adjustment of the key elements in health system which may be useful for improving the continuity and coordination of service.

Keywords: T2MD, Qualitative research, Treatment compliance, China
Perception towards People with Disability among the Community in Suburban Ipoh, Perak

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Background: Increase in the incidence of chronic diseases and its complication and improved in health care services in maintaining life has led to increase in the number of survivors with different degree of impairments. Socioeconomic pressure of daily living has made the population to be inward looking and ignore the disabled. The study was conducted by a group of medical students to fulfil their Field Residential Training (FRP) to determine the perception of the community towards people with disability in the Suburban area of Ipoh, Perak. Methods: A total of 159 households out of 440 houses in the Taman Meru 3C and Taman Meru Jaya were selected using the simple random sample. Perception of the residential area and the caregiver towards disability were assessed utilizing the global assessment Attitude to Disability Scale (WHOQOL-DIS). Altogether 159 families responded to the questionnaire. Results: Among respondents, 34% aged 60 years and above, mainly Malays (92.2%), 60.4% had secondary education and more than 80% earned more than RM1000 per month. It was found that only 57.2% of the respondents aware about the existence of people with disability (PWD) in the community. 28.3% felt that PWDs were a burden to the community, 59.7% felt PWDs were discriminated and many has taken advantage of them. 41.5% believed that people tend to mistreat the PWDs of which they were of greater risk to be sexually abused. 42.1% of respondents did not believe in the future potential of the PWDs. Conclusions: The study has shown the indirect impact of social development in the life of the unfortunate in the suburban population. The perception to the PWDs needs to be improved and corrected to safeguard the society value and loving culture.

Keywords: People with disability, Perception, Community, Perak
One Nation to Halt Hypertension: Addressing Hypertension
One Community at a Time

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From 2014 to 2016, hypertension consistently occupied a spot in the top five leading causes of morbidity in a community in Pasay City, Metro Manila. An added problem to this is the poor health seeking behavior of the patients with hypertension evidenced by the barangay health records indicating low follow-up rate of patients with hypertension. Key informant interviews suggested that this behavior is rooted from different factors especially on the patients’ knowledge on hypertension and experiences such as long lines in the health center and lack of alternative means to follow up on patients. To address the issues and improve poor health-seeking behavior of residents with hypertension in the community, a health intervention package was conducted from February to August 2016. This intervention included the development of a mobile application called HALTapresyon, conduct of seminars, and conduct of training programs to improve the knowledge and skills of both the residents and community health workers in managing hypertension. Through the seminars and trainings, residents indicated a 25.3% improvement in terms of knowledge on hypertension and self-care management. All trainees (n=70) passed the return demonstration on aneroid and digital sphygmomanometer use. The mobile application on the other hand allowed patients to input personal information and record daily important health data such as blood pressure and pulse rate and featured an alarm clock that can remind patients to drink medicines on time. In conclusion, the health intervention package enabled patients with hypertension practice self-management through capacity-building and mobile application.

Keywords: Hypertension, Mobile application, Self-care management
Factors Influencing Diabetes Self-Care Behavior among Adults with Type 2 Diabetes in Rural Area, Jember, Indonesia

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Background: Self-care is essential factors that contribute to prevent diabetes complications and improve the quality of life. From the literature review, the factors affect self-care behavior are knowledge, self-efficacy, distress, and family support. The purpose of the study was to examine self-care behaviors and related factors in adult with type 2 diabetes (T2DM). Methods: Descriptive analytic study with cross sectional design was performed on adults with T2DM who referred to the Patrang Public Health Center, Jember between January and April 2018. A total of 60 T2DM patients were enrolled in this study by using purposive sampling technique. Data were collected through interviews using Spoken Knowledge in Low Literacy in Diabetes Scale (SKILLD), Diabetes Self-Management Efficacy Scale (DSMES), Hensarling Diabetes Family Support Scale (HDFSS), Diabetes Distress Scale (DSS) and The Summary of Diabetes Self-Care Activities Measure (SDSCA). Data were analyzed using multiple linear regression test with 95% CI. Results: The mean score of self-care behavior in patients was 15.133±4.883, indicating moderate self-care. The score of self-care behavior showed a statistically significant correlate with score of knowledge of diabetes (r =0.399), self-efficacy (r=0.355), distress (r=-0.532) and family support (r=0.897). The multiple linear regression showed, R Square value=0.852 and Adjusted R Square = 0.841; Anova test, showed F value = 89.753 (p=0.000). The result of the research indicated that self-care behavior affected by knowledge of diabetes, self-efficacy, family support and distress diabetes. Enhancing knowledge of diabetes, self-efficacy, and family support will enhance the self-care behavior, while enhancing of distress will decrease the self-care behavior. Conclusions: These study shows the importance of knowledge, self-efficacy, family support, and distress diabetes in determining self-care behaviour for adult T2DM and serve as references for future studies of self-care behaviour in T2DM patients.

Keywords: Diabetes self-care, Knowledge, Self-efficacy, Distress, Family support
Optimal Classification and Regression Tree Analysis on Coronary Heart Disease

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Background: Heart failure is a growing world-wide epidemic in the developed world. Social and behavioural habits like smoking and voracious eating may indeed cause adverse health effects, such as, coronary heart disease (CHD). Hence, there is a need to identify contributing factors to heart failure and coronary heart disease so that preventive measures can be taken. The aim of this study was to use Classification and Regression Tree (CART) analysis as a fast clinical diagnostic tool on new patients seeking treatment for coronary heart disease. Methods: Six independent variables: age, systolic blood pressure, diastolic blood pressure, level of cholesterol in blood, number of cigarettes, and body mass index (BMI) with the presence of coronary heart disease (CHD) as the dependent variable were used for CART analysis. The procedures involved four basic steps namely, tree building, stopping tree building, tree pruning and optimal tree selection and were analysed using the MATLAB software. Cross-validation of tree was performed so that best tree size could be estimated, and not strongly affected by outliers and other artefacts of data set. Results: Thirty-five models were obtained from the optimal tree with 15 models profiled for the presence of CHD, while 20 models were profiled for no presence of CHD. Conclusions: Optimal CART was created, which could be used in the diagnosis and evaluation of new patients seeking treatment, so as to know whether patients have the possibility of having CHD or not.

Keywords: Coronary heart disease, Epidemic, Behavioural habits, Optimal tree, factors, Classification and regression tree
Metabolic Syndrome with Primary Infertility – A Case Report

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Background: Metabolic syndrome is characterized by obesity, diabetes, hypertriglyceridemia and hypertension. Prevalence of metabolic syndrome keeps rising over the years mainly due to the lifestyle and dietary habits. There is a direct correlation between obesity and infertility especially among the females. To evaluate the possible rare metabolic syndrome associated with infertility and Pickwinian syndrome.

Case Presentation: A 39-year-old Malay woman, diabetic, hypothyroidism and hypertension for last three years, married with primary infertility was referred for echocardiography to the clinic. Clinically she was diabetic for 3 years and was on metformin 500mg BD and glicazide 80mg BD. Her HbA1c was 11.4mg%. Urine protein was 2+ and fasting sugar was 9.7mMol/L. She had dyslipidemia, liver enzymes were increased and ultrasound showed fatty liver. She also reported per vaginal bleeding on and off. She was referred to dietician and was advised low caloric and low purine diet. Her BP was under control and BMI was 51.79, however there were no signs of Cushing’s syndrome such as abdominal striae. Dexamethason suppression test was normal. 24 hr urine cortisol was high and FSH and LH were normal. TSH was higher, renal functions blood urea and creatinine were normal. Triglycerides were high. Echocardiography showed 81% EF, dilated left atrium and slightly dilated right ventricle. On evaluation, medications were changed to Galvusmet 1050mg BD, glycazide 80mg BD, losartan 50 mg BD, simvastatine 20mg on and salbutamol inhaler prn. Conclusions: She was advised for sleep apnoea studies and follow up with an obstetrics and gynecologist for primary infertility. She was advised to reduce weight. This shows metabolic syndrome with a possible Laurel Moon BLDL syndrome and Pickwinian syndrome.

Keywords: Metabolic syndrome, Primary infertility, Obesity
Predictors of Knowledge, Attitude and Acceptability of Colorectal Cancer Screening among Insured Workers in Kuantan District, Pahang, Malaysia

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Background: Colorectal cancer detection at an earlier phase is integral in improving survival rate and productivity among insured workers. However, there is still a concern regarding the level of knowledge, attitude and acceptability of its screening options in countries with poor screening uptake and late detection. Thus, the study was done to determine the predictors of knowledge, attitude and acceptability of colorectal cancer screening. Methods: A parallel, two arm, single blind, cluster randomized trial utilizing block randomization was done. A total of 15 workplace clusters and 166 participants were recruited. Intervention group received health education module comprising of group education, practical session and WhatsApp group follow-up, while control group receives standard brochure. Both groups received a validated questionnaire containing participant's background characteristics as well as knowledge, attitude and acceptability of colorectal cancer screening. Outcomes were level of knowledge, attitude and acceptability at 12 weeks follow-up. Generalized Estimating Equations was used to look for predictors of the outcomes. Results: Total knowledge score increased for each increment of total attitude score (B= 0.54, 95% CI= 0.11, 0.97, P<0.05) and total acceptability score (B= 0.80, 95% CI= 0.48, 1.12, P<0.001). Total attitude score was improved significantly by total acceptability score (B= 0.68, 95% CI= 0.54, 0.82, P<0.001), total knowledge score (B= 0.09, 95% CI= 0.04, 0.13, P<0.05) and per rectal bleed (B=4.21, 95% CI= 0.67, 7.7, P<0.05). Whereas, total acceptability score was predicted by total knowledge score (B= 0.06, 95% CI= 0.02, 0.10, P<0.05) and total attitude score (B= 0.47, 95% CI= 0.35, 0.60, P<0.001). Conclusions: Colorectal cancer screening acceptance is increased by having adequate knowledge, the right attitude and cues to action. Organizational health policy and continuous health promotional activities can play a big role in facilitating early colorectal cancer screening.

Keywords: Colorectal cancer screening, Knowledge, Attitude, Acceptability, Predictors
Prevalence of Overweight/Obesity and Its Associated Factors among University Students in Sabah, Malaysia

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Background: Overweight/obesity is one of the major public health issues that occur worldwide, preventable yet the prevalence is increasing by decades. Overweight/obesity is a multifactorial disease and a major risk factor for the NCDs which is debilitating and the most preventable cause of death. The study determined the prevalence of overweight/obesity and its associated factors among university students in Sabah, Malaysia. Methods: A cross-sectional study was conducted in May 2018 among 349 students in UiTM Cawangan Sabah. Information regarding sociodemographic, socioeconomic, nutritional knowledge and dietary habit were gathered by a pre-tested pre-designed questionnaire adapted based on validated questions from previous studies and weekly physical activity level was assessed using the Short Form of International Physical Activity Questionnaire (IPAQ) and anthropometric measurements were measured. Results: Based on WHO BMI International Classification, 27.5% of students were overweight/obese (17.8% overweight, 9.7% obese). The overweight/obese students had good nutritional knowledge and attitude related to healthy eating habits but low percentage of good practice related to healthy eating. Nevertheless, these associations were not significant. The knowledge on type of carbohydrate food (p=0.04) and carbonated drink/sweet drinks intake were significant risk factors associated with overweight/obesity (p=0.04). Frequency of breakfast, snacking behaviour and supper were not significantly associated with overweight/obesity. Peers had greater influence of daily eating habit among the overweight/obesity group and it was statistically significant. Female students had significantly low and moderate level of weekly physical activity (p< 0.05). The overweight/obesity students had moderate level of weekly physical activity. Conclusions: The overall prevalence of overweight/obesity among the university students in UiTM Cawangan Sabah is much lower as compared with the overall prevalence of national studies based on the WHO International Classification BMI cut-offs but higher among the overall prevalence of university students in 22 countries. The prevalence of overweight/obesity among university students in this study is comparatively higher than the overall prevalence of overweight/obesity among university students in Malaysia based on Asian BMI cut-offs. Therefore, it is suggested to improve on the level of awareness on healthy eating and its impact on the health and body weight. Further studies should be carried out on the role of exercise facilities in the prevention of overweight/obesity.

Keywords: Overweight/obesity, University students, Prevalence rate, Associated factors
Salt Intake in the Malaysian Population: Methodology of the Malaysian Community Salt Survey 2017-2018 (MyCoSS)

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Background: Scientific evidence links excessive consumption of salt with high blood pressure, cancer and other cardiovascular diseases. Thus, the Malaysian Community Salt Survey (MyCoSS) was designed to assess the magnitude of salt intake, its sources, and the knowledge, attitude and practice (KAP) on dietary salt intake among Malaysian adults. Methods: This population study was a cross-sectional household survey on Malaysian citizens aged 18 years and above. National representativeness was determined using multi-stage stratified sampling. Sample size was calculated to cover both urban and rural areas for every state in Malaysia, with an estimated sample size of 1,300 participants. Each state’s sample size was calculated proportionally to its population size, and list of living quarters was provided by the Department of Statistics Malaysia. Data collection was conducted from October 2017 to March 2018. Face-to-face interviews were carried out at the respondent’s home by trained data collectors using mobile devices based on the application developed for this study. Estimation of salt intake was done using the gold standard of 24-hour urine collection. Salt sources were identified using a local food frequency questionnaire (FFQ), and respondents were also interviewed on KAP related to salt intake. Weight, height, waist circumference and blood pressure were measured using calibrated equipments. Results: MyCoSS was conducted to provide data on salt intake, its sources, and knowledge, attitude and practice related to salt intake in Malaysia. About 1335 eligible living quarters were visited, and 1047 respondents were interviewed (78% response rate). A total of 797 completed urine samples, 1034 FFQs and 1047 KAP questionnaires were analysed. Conclusions: This study was designed to obtain valid and reliable findings for national, and urban and rural comparison of salt intake in Malaysia. MyCoSS is methodologically sound and will provide vital information for the local salt reduction programmes.

Keywords: Salt intake, 24-hour urinary sodium, Sodium sources, KAP, Population study, Malaysia
High Sodium Intake and Its Relationship with Body Mass Index (BMI) of the Malaysian Adults: Findings from Malaysian Community Salt Survey (MyCoSS) 2017-2018

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Background: High sodium intake is associated with the increase of Body Mass Index (BMI) and obesity among adults globally, especially in developing countries. This survey aimed to explore the possible relationship between high sodium intake by urinary sodium excretion and BMI of adults in Malaysia. Methods: A cross sectional study was conducted among Malaysian adults aged 18 years old and above from October 2017 to March 2018 using a multi-stage stratified sampling method. Respondents’ 24-hour urine were collected and measured for sodium. World Health Organization (WHO), 1998, defined underweight (17.5 kg/m² to 18.4 kg/m²), normal (18.5 kg/m² to 24.9 kg/m²), overweight (25 kg/m² to 29.9 kg/m²) and obese (above 30 kg/m²). High sodium intake was defined as more than 2000 mg/day. Weight, waist circumference (WC) and BMI were measured two times using validated anthropometric equipment. Simple logistic regression analysis was done using SPSS version 22.0. Results: Overall, 1047 respondents were interviewed and 797 respondents completed the 24-hour urine collection (76.0% response rate). Prevalence of high sodium intake was 74.2%. By gender, female showed higher prevalence of sodium intake (70.1%). Prevalence for underweight, normal weight, overweight and obese were 4.4%, 35%, 36.0% and 24% respectively. Mean sodium, mean BMI and mean WC were 3166 (95% CI: 2987, 3346) mg per day, 26.56 (95% CI: 26.04, 27.08) kg/m² and 89.90 (95% CI: 88.67, 91.13) cm respectively. Simple logistic regression showed that obese group were two times more likely to consume high sodium intake [OR: 2.07 (95% CI: 1.32, 3.22)]. Conclusions: There was a relationship between sodium intake measured by the 24-hour urinary sodium excretion and BMI of adults in Malaysia. It showed that excessive intake of sodium may potentially lead to obesity related health problems and in need for further study.

Keywords: High salt intake, sodium intake, BMI, MyCoSS 2017-2018
Factors Associated with High Sodium Intake among Malaysian Adults: Findings from Malaysian Community Salt Survey (MyCoss) 2017-2018

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Background: Excessive sodium intake is one of the main risk factors for cardiovascular diseases. Sodium excretion in 24-hour urinary sample is considered the gold standard for determination of dietary sodium intake. This study aims to investigate factors associated with high sodium intake based on 24-hour urinary sodium excretion from the MyCoSS study. Methodology: Data was obtained from the MyCoSS, a cross-sectional study using multi-stage stratified sampling method was used to ensure national representativeness in Malaysia which includes adults aged more than 18 years old. A single 24-hour urine was collected from the participants. Sodium was measured using indirect ion-selective electrode (ISE) method. Samples with no missing urine and more than 500 ml were included in analysis. A descriptive analysis and multiple logistic regression analysis were done using SPSS version 21.0. Results: A total of 797 participants had a complete 24-hour urine collection with 76% response rate. Mean sodium was 3166 (95% CI: 2987, 3346) mg per day. This finding was higher than World Health Organisation (WHO) recommendation which 2000 mg/d of sodium. Logistic regression revealed that male gender [aOR: 2.028 (95% CI: 1.189, 3.456)], participants in urban areas [aOR: 1.658 (95% CI: 1.109, 2.480)], overweight [aOR: 1.994 (95% CI 1.253, 3.173)] and obese [aOR: 2.422 (95% CI: 1.460, 4.016)] were associated with high sodium intake. Conclusions: Malaysian adults of male gender, urban area, overweight and obese were associated with high sodium intake. Hence, reduction of salt consumption should be emphasized to lower the risk of cardiovascular diseases.

Keywords: 24-hour urine sodium, Malaysian adult, Salt Survey
Knowledge, Attitude and Practice Towards Salt Intake by Gender and Education Level: Result from Malaysian Community Salt Study (MyCoSS)

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Background: The causal link between salt intake and cardiovascular disease (CVD) is well established. Reducing dietary salt at the population level is one of the most cost effective ways to reduce CVD risk and improve public health status. The aim of this study was to investigate the knowledge, attitude and practice (KAP) of Malaysian adults towards salt intake with respects to gender and education level. Methods: Data was extracted from the Malaysian Community Salt Survey (MyCoSS), a nationwide cross sectional study using multi-stage stratified sampling method. Adults aged 18 years and above were interviewed using a adapted questionnaire to assess their KAP towards salt intake. Differences in proportions between categorical variables were tested using chi-square statistical analysis in SPSS version 21.0. Results: A total of 1032 participants completed the KAP questionnaire with 98.5% response rate. There were more women compared to men reported adding salt during cooking (p<0.05). No significant difference was observed between women and men on perception how much salt they thought they had consumed and action taken regularly to control salt intake. Participants with higher educational status had better knowledge of the high salt effect on serious health problems and mentioned lowering salt intake in diet is very important compared with lower educational status (p<0.001). More participants with higher educational status reported avoid/ minimize processed food and buy low salt alternatives compared with lower educational status. Conclusions: Findings of this study showed that gender and educational level may contribute to the KAP towards salt intake among Malaysian adults. Identifying key knowledge gaps regarding salt and attitudes towards high salt consumption may help in planning future interventions in changing behaviour to reduce salt intake in the population.

Keywords: Salt, Knowledge, Attitudes and Practices (KAP), MyCoSS
Nutrition and Food Safety Knowledge among Food Handlers in Samarahan Division

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Background: The knowledge on nutrition and food safety among food handlers are very important as these both aspects are inextricably linked in achieving the growing consumer demand nowadays for a wider variety healthy and safe food choices. This study aims to evaluate the level of knowledge among food handlers in Samarahan Division regarding the aspect of nutrition and food safety and its associated factors. Methods: A cross sectional study was conducted using random sampling method whereby data was collected using self-administered questionnaires and analyzed using SPSS 16.0. Results: Total of 109 subjects were consisted of 42.4% Malays, 13.8% Chinese and 22.9% Bumiputera Sarawak. Overall, 71.6% food handlers were categorized as having good knowledge on nutrition and food safety, 25.7% moderate and 2.8% poor. The highest percentage of good and poor nutrition and food safety knowledge were scored by Bumiputera Sarawak (76%) and Malays (69.1%) respectively. More male (72.7%) than female (70.7%) has good nutrition and food safety knowledge. However, only level of education factor showed that there was a significant correlation with nutrition and food safety knowledge in Chi Squared test (p<0.05). Conclusions: In conclusion, continuous nutrition and food safety education is recommended to improve the shortcomings of nutrition knowledge among food handlers.

Keywords: Nutrition, Food safety, Knowledge, Food handlers
Relationship between High Blood Pressure and Anthropometric Indices in Malaysia: Findings from MyCoSS Study

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Background: Hypertension is strongly associated with chronic diseases and high blood pressure (HBP) is often associated with overweight and obesity. This study aimed to assess the factors associated with HBP among adults in Malaysia. Methods: Data was extracted from the Malaysian Community Salt Survey (MyCoSS), a cross sectional study applying multi-stage stratified sampling method. Malaysian adults aged 18 years and above were eligible to participate. Anthropometric indices (body weight, body height and waist circumference) were measured by trained data collectors. Classification of body mass index was based on WHO 1998 guideline. Blood pressure was measured three times. HBP was classified as persistent systolic blood pressure (SBP) elevation ≥140mmHg, and/or diastolic blood pressure (DBP) ≥90mmHg. Complex sampling and multiple logistic regressions were used to determine factors associated with HBP. Analysis was done using SPSS version 23. Results: A total of 1047 participants with mean age 48.8 ± 15.6 years joined the study. The prevalence of underweight was 4.3%, normal weight was 34.7%, and overweight was 36.6% and obese was 24.5%. The prevalence of HBP was 42.0%. There was no significant difference in the HBP prevalence by sex. Multiple logistic regression analysis showed that overweight (aOR: 1.54, 95%CI: 1.12, 2.12) and obese (aOR: 2.72, 95%CI: 1.89, 3.91) respondents were more likely to have HBP. Respondents aged >65 year was twelve times more likely (aOR: 12.17, 95% CI: 1.89, 3.91) to have HBP compared with younger counterparts. Conclusions: Findings indicated that only BMI and age were significantly associated with HBP. Therefore, approaches to reduce the risk of HBP may include prevention or reduction of overweight/obese among adults.

Keywords: Keywords: Anthropometry, blood pressure, MyCoSS, Malaysia
Glycaemic Response to Fruit (Papaya) Consumed Before and After a Carbohydrate Rich Food (White Bread)

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Background: Effect of consuming fruit before or after a carbohydrate rich food/meal on blood glucose is of public health interest but there are limited data regarding this. Methods: This randomised cross-over designed study aimed to determine and compare glycaemic response to ripe papaya consumed before and after white bread in ten healthy subjects who fasted overnight (Mean values ± SD: Age, 24.2 ± 0.63 y; BMI, 20.9 ±1.90kg/m2, non-smokers). Established recommended protocol for glycaemic response testing was employed. Test foods contained 50g of available carbohydrate. Capillary blood glucose was measured at 0 minutes, and at 15, 30, 45, 60, 90 and 120 minutes after subjects started to eat. The incremental area under the curve (iAUC) for blood glucose was calculated using the trapezoidal method. Results: The glycaemic response (iAUC) for the meal of papaya and white bread was 26.6% lower (p-value for paired t-test, 0.031) when papaya was consumed before white bread than when papaya was consumed after white bread. Conclusions: In conclusion, eating papaya before white bread elicited lower blood glucose response compared to eating papaya after white bread. These results provide preliminary evidence for dietary advice to eat papaya before rather than after white bread to minimise postprandial glycaemia. Future studies are required to provide evidence for the effect of the sequence of eating other types of fruit and carbohydrate containing foods on postprandial blood glucose.

Keywords: Glycaemic response, Fruit, Carbohydrate, Papaya, White bread
Body Image Perception and Its Association with Nutritional Status and Physical Activity

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Background: Body image perception and anthropometric assessment of nutritional status play an important role in future programs of nutritional surveillance. This study aims to evaluate body image perception and its association with nutritional status and physical activity. Methods: This is a cross-sectional study which involved 155 female staff from Universiti Malaysia Sabah. Data were collected using questionnaires and physical measurements were taken using standard procedures. Body image perception was assessed using Figure Rating Scale. Body dissatisfaction was determined by the silhouette discrepancy score, calculated as the absolute value of the difference between current and preferred silhouette scores (current - preferred = discrepancy). Indicators of nutritional status were body mass index (BMI), waist circumference and body fat percentage. Physical activity was estimated using International Physical Activity Questionnaire. Results: A majority of participants (89.7%) were found to be dissatisfied with their body image of which 76.8% of them wished to reduce their body silhouettes while 12.9% of them wished to increase their body weight. The mean (SD) of absolute value of the discrepancy score was 1.82 (1.16). The mean score of current and preferred body image were 5.32 (1.58) and 3.85 (0.96), respectively. Comparative analysis showed that the body image dissatisfaction group had significantly higher mean BMI (MD=3.47, t=2.73, p=0.007), waist circumference (MD=6.71, t=2.43, p =0.016) and body fat percentage (MD=3.73, t=3.21, p =0.002) than the body image satisfaction group. However, the mean of total physical activity was equal in both groups (Z=-0.497, p=0.619). Correlation analysis revealed a significant positive association between absolute value of discrepancy scores with BMI (r=0.54, p <0.001), waist circumference (r=0.47, p <0.001), and body fat percentage (r=0.52, p <0.001) but not with physical activity (r=0.029, p =0.723). Conclusions: In conclusion, body image dissatisfaction exists in women across adulthood and is influenced by nutritional status.

Keywords: Body image perception, Nutritional status, Physical activity
The Relationship between Knowledge and Family Income of Chronic Energy Deficiency on pregnancy in Buhu Health Center, Gorontalo Regency

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**Background:** In Indonesia, the problem of chronic energy deficiency in pregnant women is still very high at 46.6% in 2014 according to RISKESDAS. Similarly in Kabupaten Gorontalo the prevalence rate of Chronic Energy Deficiency in pregnant women in 2015 reached 13.8%. **Methods:** This research was conducted in Buhu Health Center, Gorontalo Regency. Objective of this research was to elaborate the relationship between knowledge and family income and chronic energy deficiency on pregnant mothers in Buhu Health Center Gorontalo Regency. **Results:** This research applied observational analytic method which is a type of research that explains correlation between variables through hypothesis testing with cross sectional study approach that involved sample of 41 respondents. Technique of sampling of this research was cluster sampling. **Conclusions:** Based on chi-square test of data processing with level of signification $a = 0.05$ it is concluded that there is relationship between knowledge and chronic energy deficiency with $p$ value $= 0.008 < 0.005$ and there is relationship between family income and deficiency energy chronic with $p$ value $= 0.001 < 0.005$.

**Keywords:** Knowledge, Family income, Chronic energy deficiency
Effect of *Morinda citrifolia* Extract on Cytokine IL-6 and TNF-α in White Rats Wistar Strain Induced Pirazinamide, Levofloxacin and Etambutol

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Second line drugs TB is a drug for MDR TB that causes many side effects. Side effects increase when they disturb normal cells involving immune and inflammatory responses. That inflammatory process protects the host from the offending agent, but on the other hand, it also damage to host cells. One of the inflammatory mediators is cytokines. *Morinda citrifolia* is one of the plants that have benefits and high nutritional value for health and have anti-inflammatory effect. In this research we try to know the effects of *Morinda citrifolia* extract and cytokine expression of IL-6 and TNF-α. This study was conducted on rats Wistar strains induced by Pyrazinamide, Ethambutol and Levofloxacin drugs and induced several doses of *Morinda citrifolia* extract. The results of this study showed the effects of *Morinda citrifolia* extract on the expression of IL-6 and TNF-α.

**Keywords:** *Morinda citrifolia* extract, IL-6, TNF-α
Association between Emergency Room Visits for Acute Viral Gastroenteritis and Meteorological Factors in Seoul

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Background: Gastroenteritis continues to be a significant cause of morbidity and mortality worldwide. Meteorological effect for gastroenteritis should be evaluated by causing agents and age groups. This study is aimed to evaluate the association between emergency room (ER) visits for acute viral enteritis and meteorological factors in Seoul, Korea. Methods: Daily ER visit data and meteorological data from 2009 to 2014 in Seoul were extracted from National Emergency Department Information System and Korea Meteorological Administration, respectively. ER visits for acute viral enteritis were defined by A08 of KCD-7 code. The association between acute viral enteritis and meteorological factors were evaluated using generalised additive models. Results: The ER visits caused by acute viral enteritis decreased by 2.94%, 2.51% for every 1°C rise in average temperature (95% CI: -3.07, -1.96%; 95% CI: -3.27, -2.61%) for under 5 and 5-12 age group, respectively. We found a 2.84% increase in ER visits for viral gastroenteritis (95% CI: 2.05, 3.65%) with every 1MJ/m² at under 5 age group whereas a 1.89% decrease in ER visits for viral gastroenteritis (95% CI: -3.74, -0.01%) was observed at 13-18 age group. 19-64 age group showed a 3.04% increase (95% CI: 1.10, 5.02%) with every 1MJ/m² in solar radiation under 13MJ/m², but it became 3.45% decrease (95%CI: -4.86,-2.02%) with every 1MJ/m² when solar radiation is above 13MJ/m². Conclusions: Effects of meteorological factors were different by age group. The association between meteorological factors and gastroenteritis should be investigated by causing agents and age groups.

Keywords: Viral gastroenteritis, Meteorological factors, Emergency room visit, Climate factors
Triaging System in the Enhanced Primary Healthcare (EnPHC) Initiative

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Abstract: Triaging is commonly identified with Emergency Department in hospitals. The current Enhanced Primary Healthcare (EnPHC) initiative implemented the triaging system in primary healthcare clinics as one of its many interventions. The primary triage is intended to effectively channel patients according to their service need, while the secondary triage has two functions; (1) early non-communicable disease (NCD) screening and risk identification, and (2) ensuring NCD patients care continuity. Process evaluation was concurrently executed to evaluate EnPHC implementation process, looking into feasibility, adoption, fidelity, and benefit. Methods: All twenty EnPHC intervention clinics were evaluated using the mixed method approach. Data are collected via self-reported forms, structured observation with checklist, and in-depth interviews at each clinic to clarify information gap between self-report and observation, and to explore implementation issues. Results: At the point of evaluation, ground implementers largely understood their roles for the triaging system. Implementation-wise however, found that while clinics are fully able to deploy the secondary triage, primary triage deployment were challenged by physical infrastructure issues. It should be noted that EnPHC was implemented without additional resources. Infrastructurally challenged clinics, with no space for expansion, creatively rearranged the existing patient waiting area to accommodate the triage counter(s). Some clinics multi-tasked the triage counters as counters for patients to take registration number, arranging appointment dates and information dissemination. Human resource was a common issue for both triages; clinics were challenged in deploying personnel with the right set of skills, as the skilled personnel were either inadequate in numbers or have other multiple existing responsibilities. Despite all this, early benefits were reported in which clinics were able to manage emergency and infectious disease cases more effectively. Conclusions: The EnPHC program planners and developers should reconsider the clinics’ infrastructure readiness and skilled personnel availability before prospectively scaling up the EnPHC initiative nationwide.

Keywords: Triaging, Primary healthcare, EnPHC, Non-communicable disease
Inter-Facility Referral System in the Enhanced Primary Healthcare (EnPHC) Initiative

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Background: Primary healthcare clinics need to maintain a close relationship between all the levels of health system. This linkage between primary healthcare services and hospitals is crucial in ensuring continuity of healthcare for the people of any country. Continuous collaboration between healthcare personnel at primary healthcare level and the facilities receiving the referrals is very essential. One of the interventions in the Enhanced Primary Healthcare (EnPHC) initiative is the establishment of a new referral mechanism from primary healthcare clinic to the hospital using a new workflow. Process evaluation of this new mechanism was executed in parallel to evaluate its feasibility, adoption, fidelity, and benefit.

Methods: Mixed method evaluation was done on all twenty EnPHC intervention clinics via self-reported forms, structured observation with checklist, and also in-depth interviews to clarify any information gap, and to explore implementation issues.

Results: During time of evaluation, it was found that there is a lack of standardisation in practice, in which it was implemented based on each clinics’ understanding of the new workflow. Clinics were found to have variance in practice when referring a patient. Each specialist clinic within the hospitals receiving referrals was also reported to have their own set of standard on referral information required. The counter-referral workflow from hospitals to clinics also appeared to be not clearly defined. Regardless of these issues, early benefits have been reported where (1) hospitals allocated appointment slots to receive referrals from the EnPHC clinics, and (2) the communication between clinics and hospital are much better than it was.

Conclusions: Deploying an intervention that cuts across clinics and hospitals was expected to be a huge challenge, and will take time to mature. However, by doing so, it has opened up a communication channel among them that would be a promising bridge for future collaboration efforts.

Keywords: Referral, Primary healthcare, Hospitals, EnPHC, Communication
Pre-Implementation Assessment of Healthcare Providers’ Perception on Enhanced Primary Healthcare (EnPHC)

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Background: The National Health and Morbidity Survey found that the prevalence of non-communicable diseases (NCD) is increasing at an alarming rate despite the good distribution of primary healthcare clinics throughout Malaysia. The Enhanced Primary Healthcare (EnPHC) initiative is designed to address the NCD challenge. In order to ensure EnPHC’s success, healthcare providers’ (HCPs) current activities in the clinics were assessed prior EnPHC implementation. Method: This is an exploratory qualitative study, with purposive sampling of clinics and respondents. Twenty focus group discussions and three in-depth interviews were conducted amongst healthcare providers using a semi-structured interview guide; consent obtained prior the interviews. Interviews were audio-recorded, transcribed verbatim and data were analysed thematically. Results: The study revealed four challenges in the HCPs current day-to-day activities that will affect any future proposed change; (1) increase in population served, (2) perceived lack of quality in services provided, (3) screening monitoring, and (4) role clarity. It was found that there has been very minimal manpower increase in the clinics; which severely affected the aforementioned challenges. The study found that patient attendances have been steadily increasing due to local population growth (e.g. opening of new housing areas) and population border-crossing due to proximity reasons. The increase subsequently led to crowding in clinics, causing undesirable implications (as perceived by HCPs interviewed) on the consultation time and quality spent with the patients. The workload also negatively affected the clinics’ monitoring of community NCD screening activities. Besides that, the HCPs seemed to believe that the patients viewed government health clinics only for curative purposes and not preventive measures. Conclusions: The findings showed that the existing workload among HCPs in the primary healthcare services will be a challenging tension for change, which might probably be a critical success factor that needs to be addressed to ensure EnPHC’s success.

Keywords: Pre-implementation assessment, Healthcare provider, Primary healthcare, Qualitative, Malaysia
Are Malaysian House Officers Responsive?

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Background: Responsiveness of house officers was a concern raised by the supervising consultants, with issues of being not available, not contactable and not responding fast. This study aims to identify the responsiveness level of Malaysian house officer across universities and specialties. Methods: This study analysed secondary data from the Malaysia Medical Council (MMC). Assessment form was designed to assess house officers within the first month of their internship training. One of the domains was the responsiveness level in three areas: being readily available at the work place, contactable and speed of response from supervising consultant’s viewpoint. Items for this domain were measured using a 5-point scale, from “not at all”, “occasionally”, “irregularly”, “usually” and “always”. “Usually” and “always” were considered as adequate. All evaluation done during the period of June 2009 to September 2011 was retrieved and data analysed using STATA v11. Results: There were 1868 forms available for analysis from 37 hospitals and consisted of local, public and private, as well as foreign graduates. Out of 1868, 85.4% (CI: 83.8-87.0%) were readily available at place of work, 85.6% (CI: 84.0-87.1%) rated easily contactable and the 79.5% (CI: 77.7-81.3%) were deemed to have a speedy response. Local graduates were found to have higher responsiveness levels compared to foreign graduates. Graduates had their posting at paediatrics department were rated as the most responsive while those who were posted first to obstetrics and gynaecology department were rated as least responsive. Conclusions: Responsiveness reflects both actions taken by house officers, as well as the expectations of specialists, towards delivering health care service to the patients. Although this is perceived responsiveness rated by clinical supervisors, there is room for improvement as this is the core element towards becoming a good and reliable doctor.

Keywords: Internship training, Responsiveness, House officer
A National Health Survey Instrument: Refinement Methods

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Background: National health surveys are carried out to monitor population health and provide essential community-based data. They gather health indicators and information that are not collected by means of statistical records. With the current epidemiological transition and changing patterns of demand for quality healthcare, there is a need to revisit the area concerning population’s healthcare demand and utilisation. We describe here, methods used to refine a national health survey instrument for healthcare demand, particularly in assessing the changing patterns of demand and identifying new areas for inclusion. Methods: We reviewed existing instruments. Electronic databases and web search were undertaken to identify potential areas from national and international household and general population surveys. An inventory of questions was developed based on the Behavioural Model of Health Services Use. These items were then mapped to facilitate expert panel and stakeholder discussions. During the discussion sessions, we gathered stakeholders’ views on relevant content areas and item construct for the survey. Results: We gathered instruments from 47 countries, of which majority were from Organisation for Economic Co-operation and Development (OECD) member countries. Majority focused on perceived health, health related behaviour and the use of healthcare. These surveys also covered health topics such as disease-specific morbidity, chronic conditions, use of medicines and others. Stakeholders identified new areas such as exploring the perception of pain, the use of community pharmacies and informal caregiving among the population. Conclusions: International comparisons at a national level allow identification of potential areas for improvement of health measures or surveys. Similarities and differences in patterns of measuring demand for health care across countries create opportunities to learn from other countries’ initiatives to improve health care quality. This will in turn produce more comparable, comprehensive, and updated health measures or surveys.

Keywords: National health survey, Instrument, Healthcare demand, Utilisation
Current Status of Artemisinin Resistance in Malaysia: A Preliminary Study

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Background: Artemisinin combination therapy (ACT) is widely used as first line anti malaria treatment for all malaria species especially in the drug resistance epicentre such as the Greater Mekong Subregion (GMS) since 2008. In Malaysia the deployment of ACT started later in 2013 to treat uncomplicated malaria including the zoonosis \textit{P. knowlesi}. The objective of this study is to investigate the ACT drug resistance molecular marker, Kelch 13 (K13) gene in blood samples infected with \textit{P. falciparum}, \textit{P. vivax} and \textit{P. knowlesi}. Methods: Blood samples used were archived diagnostic samples collected from year 2008 to 2016 by Parasitology Unit, Institute for Medical Research. A total of 726 blood samples of Malaysian infected with \textit{P. falciparum}, \textit{P. vivax} and \textit{P. knowlesi} positive cases were selected for Kelch 13 (K13) gene amplification by PCR. Only samples successfully amplified for K13 propeller region were sequenced. Results: Two single amino acid substitutes, P553L and A675V were found in 2 out of 64 \textit{P. falciparum} samples which the mutation sites has been correlated with delayed parasite clearance. No mutations were detected in \textit{P. vivax} and \textit{P. knowlesi} blood samples. Intriguingly, some new point mutations that have been identified and some mutations were similar with other as reported previously by other researchers. Conclusions: This preliminary data suggest that \textit{P. falciparum} in Malaysia remain free of C580Y, R539T, I543T, and Y493H. Meantime, there is still no sign of ACT resistance for \textit{P. vivax} and \textit{P. knowlesi} so far.

Keywords: Malaria, \textit{Plasmodium}, Drug resistance, Molecular marker, Kelch 13
Creating a Community Medication Safety Network Based on Community Care Sites

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Background: To overcome the geographical characteristics and unequal distribution of pharmacy service resources in Taoyuan City, we integrated the city’s community care sites and held 152 “one base and one pharmacist” events in the community. We provided the elderly with medication safety education to increase medication safety awareness. After the events, 97.67% of the elderly said that they understood the concept of medication safety completely, and 97.31% said that they were willing to share the medication safety knowledge. Through feedback sharing from the elderly, the community medication safety network was shaped to improve the quality of life for the elderly.

Methods: Community care sites were set up to combine community care sites and pharmacists in Taoyuan City, and medication safety education was promoted through “one site and one pharmacist” approach to deliver knowledge conducive for improving medication safety, such as medication safety of traditional Chinese medicine and chronic disease medications. A correct medication concept was formed among the elderly, and they were encouraged to serve the community by sharing this concept.

Results: In 2017, 152 medication safety education events were held at community care sites, with 6,972 participants. Among them, 97.67% of the elderly said that they understood the correct concept of medication safety completely, 95.72% felt that the course was in line with their actual personal needs, and 97.31% said that they would apply the course contents to their daily life and share the knowledge with others. Moreover, overall satisfaction with the course reached 92.10%.

Conclusions: Through professional education on medication safety as well as the care and interaction provided by the sites, a correct medication concept was internalized. Medication safety methods were promoted to form a community medication safety network.

Keywords: Combine community care sites, Pharmacists
Predicting the Occurrence of Patients with Conjunctivitis in Korea Using Google Trends

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**Background:** In order to verify the possibility of using big data as medical data, we try to conduct a prediction research on the number of patients with conjunctivitis using Google Trends. We propose a preprocessing method and analysis method of Google Trends, and discuss how to find patterns of nonlinear data by applying machine learning. This will confirm the possibility of introducing big data as medical data. **Methods:** We collected Google trends data for keywords extracted from literature review. The multicollinearity of the independent variables was verified through the VIF and correlation coefficients for the collected variables, and the variables were integrated and removed. The results of the regression analysis are summarized as follows. First, the linear regression analysis, the support vector regression analysis, the decision tree regression analysis, the random forest regression analysis, and the gradient regression analysis are analyzed. $R^2$ and RMSE were used to measure the fit of the estimated model. **Results:** We confirmed that the random forest shows the best performance with $R^2 = 0.64$ for all cases. We confirmed the predictability of the number of patients with conjunctivitis through Google Trends. We also confirmed gradient boosting ($R^2 = 0.51$), and Decision Tree ($R^2 = 0.41$). The element importance of random forest regression analysis confirms that yellow sand and swimming pool have the greatest influence on the prediction of the outbreak of conjunctivitis. **Conclusions:** In this study, it was proven that nonlinear medical statistical problems such as prediction of patient numbers could be solved through utilization of big data such as Google trends and machine learning without medical statistical data.

**Keywords:** Big data, Machine learning, Conjunctivitis, Google trends, Prediction
The Actual State of Symbiotic Community and Common Spaces in Multigenerational Symbiosis Housing

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Background: Japan is witnessing an increasing number of cases where people who are not family members live together. Multigenerational co-residency is an arrangement of mutual understanding and assistance across generations. This study investigates the actual situation of multigenerational symbiosis in joint (group) housing to obtain and consolidate knowledge of its advantages and associated tasks. Methods: Research methods included an Internet search and interviews. From 108 cases obtained on the Internet, 15 were extracted and organized in a database according to number of buildings, shared space, and support. Architectural forms were organized into three types: single dwelling, village, and city. Residents of single dwellings are diverse and include students, couples, singles, families, and elderly people. Results: Residents-only common spaces occur in 61% of cases, while in 67%, staff and others support exchanges among residents, implying thriving interaction and mutual assistance within the houses. In the village type, older people and families constitute over 80% of cases, and residential buildings with medical and welfare support for the elderly are planned on the same site. In 80% of village-type and 35% of single-dwelling cases, living support and care for children and the elderly is provided. Also, subdividing city-type cases according to type of house, resident attributes, and common spaces revealed features of both the single dwelling and the village type. Based on the above, the architectural form is organized as follows: 1. village type, as a combination of single dwellings and external support such as living support/nursing care, and 2. city type, as a village type with single dwellings based in a specific area. Conclusions: The differences between such architectural forms affect common spaces and interactions between users. Interviews revealed that exchange events between residents occur at a frequency of 2–3 weeks. In some cases, residents also contribute to regional base through similar exchanges.

Keywords: Multigenerational, Symbiotic community, Common spaces, Assistance across generations, Regional bases
Abstract ID: PO0017OT

**Structural and Functional Analysis of Small Heat Shock Protein from Antarctic Yeast for Therapeutic Intervention against Human Diseases**

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**Background:** Small heat shock proteins (sHSP) function as the gatekeepers of cellular homeostasis across species. Not only as molecular chaperones, but the impairment of sHSP has been associated with neurological disorders, cancer malignancies and age-related diseases. **Objective:** To perform comparative structural analysis between HSP20/α-crystallin family of *Glaciozyma antarctica* Sgt1 (GaSgt1) and human Sgt1 (hSgt1) and functional study of Sgt1 protein from *G. antarctica*. **Methods:** In our study, we did comparative structural analysis and functional study of Sgt1 protein from *G. antarctica*. **Results:** We found that the HSP20/α-crystallin family of *G. antarctica* Sgt1 (GaSgt1) and human Sgt1 (hSgt1) share the same three-dimensional folding and show a pattern of conserved residues with some residues substitutions which possibly contribute to the ability of GaSgt1 to prevent protein aggregation and denaturation in extreme environments. We discovered that the GaSgt1 is able to protect *Escherichia coli* IpBA/B mutants from total death when exposed to lethal temperatures which were 0°C and 50°C. Without GaSgt1, native luciferase was completely denatured when exposed to 43°C for 7 minutes. Interestingly, GaSgt1 was able to protect native luciferase from total denaturation and retain up to 60% of luciferase activity although after the exposure to luciferase-denaturing temperature. **Conclusions:** Our findings point out possible residues in the protein architecture which most probably are responsible for the protein’s ability to display chaperone activity in extreme environments. A better understanding of the sHSP protein structure and their roles in stress physiology creates a better opportunity for disease prevention and treatment to become more apparent.

**Keywords:** HSP20, α-crystallin, Small heat shock proteins, Aging, Neurodegeneration, Cancer
**Abstract ID: PO0018OT**

**Aedes aegypti Vulnerability Status of Insecticide in the Province of Southeast West Nusa**

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**Background:** Dengue haemorrhagic fever (DHF) case in West Nusa Tenggara province in 2015 is 25.8 per 100,000 inhabitant. **Methods:** East Lombok region has the highest number of DHF cases, with 670 cases followed by West Lombok region (519.689 cases), Mataram city (450.599 cases) and Central Lombok (282 cases). The use of insecticide, as one of the prevention efforts that has continued for a while in West Nusa Tenggara can lead to insecticide resistance. Therefore, the aim of this research was to know the susceptibility status of *Aedes aegypti* in West Nusa Tenggara. **Results:** The result of the research showed the kind of container that had been found and positive in research region in tub whether the location was outside or inside the house. Susceptibility status in research region showed *A. aegypti* had been resistant toward insecticides malathion 0.8%, cypermethrin 0.05%, deltamethrin 0.025% and lamdasihalothrin 0.03% with death level 0-5%, 3.33%-10%, 28.3%-50% and 13.3%-20%. **Conclusions:** The restraint of the insecticide usage controlled and directed, the change of chemical insecticide usage which has shown the resistance, and the raising of society awareness in effort to eliminate mosquitoes breeding place and keep the cleanliness and the health is the key of the success of DHF prevention in society.

**Keywords:** Susceptibility status, *Aedes aegypti*, Insecticide, West Nusa Tenggara
Role of Socio-demography, Lifestyle and Use of Complementary and Alternative Medicine (CAM) on Cognition in Patients Suffering from Parkinson Disease

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Parkinson's disease (PD) is a neurodegenerative disorder that develops gradually and characterized by resting tremor, bradykinesia and muscle rigidity. PD could be more complicated by non motor symptoms (NMS) such as olfactory dysfunction, sleep disturbances, constipation, neuropsychiatric disorders and cognition problem. Cognitive impairment, which includes working memory, attention shift and visuospatial dysfunction could present in the early stage of PD affecting the quality of life of PD patients. Objective of this study was to find out the role of demography, lifestyle and use of complementary and alternate medicine (CAM) on cognition in patients suffering from Parkinson disease (PD). The study was conducted at Perak Parkinson's Association Centre and Hospital Rajah Permaisuri Bainun, Ipoh, Perak, Malaysia. 51 patients participated in study and were tested by Mini-Mental State Examination (MMSE) and by a structured questionnaire. The study was conducted from 6th November 2017 till 13th of April 2018, which included the period of proposal development, proposal submission, ethical clearance and approval by National Medical Registry. Data collection and MMSE evaluation was conducted from 19th of March till 7th of April. Patients suffering from idiopathic Parkinson's disease aged between 40 and 85 were included in the study. Universal sampling method was adopted. The data was analyzed by SPSS version 21 and p<0.05 was considered statistically significant. Patients who were younger in age (<60 years) had better MMSE compared to their elderly counterpart (p=0.07). Those who attained at least secondary level of education were found to be at lower risk of cognitive impairment (p=0.047). Those with younger age of onset of PD (20-44 years old) had less risk of cognitive impairment (p=0.048). Duration of PD (p=0.040), use of traditional Chinese medicine (TCM) (p=0.009) and practice of Tai Chi (p=0.04) also had significant association with cognition.

Keywords: Parkinson disease, Cognition, Demography, Lifestyle, CAM
Introducing 3D Printing Technology in Prosthetics Healthcare System in Post-Conflict Region in Sri Lanka

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Background: Twenty-six years of civil war in Sri Lanka has left approximately 160,000 amputated. Whilst upper limb prosthetics are available their functionalities and funding remain a problem and lower limb prosthetics are more available. More expertise, facilities and research and development in prosthetics and orthotics to suit the needs of the various amputations is needed. Herein was born the idea of introducing 3D printing to serve the local needs of amputee clients. Although requiring different skill sets, it would allow for innovative design, speedier manufacturing and hopefully at an affordable cost. Through this project, hopefully, the move towards capacity building in the field of rehabilitation, prosthetics and orthotics can be further developed. To introduce 3D printing technology as an alternative and adjunct part of prosthetics management in northern part of Sri Lanka.

Methods: The program started in September 2017 with a ‘proof of concept’ workshop attended by a multidisciplinary team of prosthetists, physiotherapists and engineering students with the support of Government of Malaysia. Attendees were taught on 3D printing followed by prostheses provision to two upper limb amputees. Its success has led to the funding provided by Ministry of Rehabilitation and Reconciliation of Sri Lanka to set up the Centre for Prosthetics within the Faculty of Engineering, University of Jaffna in Kilinochchi. Results: Center is started to function. Research projects have been undertaken. Eight prosthetics technicians from Ministry of Health and local NGOs are already involved in manufacturing using traditional methods. Networking among the stakeholders was established for patients referral. International networking established with various international institutions for knowledge technology transfer. Few challenges were faced to get adequate resources. Conclusions: The introduction of new technology in a postwar situation is successful and a learning experience. Further training and research will make the centre to provide services at full capacity.

Keywords: Post conflict, Rehabilitation, Prosthetics, 3D printing, Technology
An Assessment of the Use of Rotary Wing Aircraft for Primary and Medical Emergency Care Service – Sabah State Experience

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Background: Rotary wing aircraft (RWA) has been used in Primary Health Care and Medical Emergency Services in the state of Sabah since the 70’s. The use of RWA (helicopter) obviously has distinct advantages for such purpose in terms of speed, ability to access remote areas such as hills, mountains and islands. The transport of patients to tertiary care is also an important function. These activities were carried out using only single engine aircrafts for the last forty odd years which has now been replaced with twin engine aircraft. The objective of this study is to compare the different type of rotary aircrafts which was in use and the suitability of these machines for health and hospital purpose in Sabah. Methods: A detailed analysis and comparison of manufacturers’ specifications which include the performance, size, the number of power plant, passenger capacity, safety track record, aircraft manufacturer's support, maintenance and operational costs of different types of RWA available in Sabah was done. The current and future demands as well as functional requirements specific to the health and medical services, including the geographical need of the state of Sabah and the capability of the aircraft service providers were also taken into account. Results: The analysis of the different type of RWA has shown their advantages as well as disadvantages. The choice of aircrafts depends on the type of service and its suitability. From the comparison, a single engine rotary winged aircraft would be adequate to support the current and future need in Sabah over the twin engine counterpart. Conclusions: An adequate technical knowledge in choosing the type of aircraft to provide an effective health and medical service is vital. This also contributes to the cost effectiveness of the program and significantly determines efficiency of the service and the interest of the rural people with poor accessibility to health care and the long term continuity of the service.

Keywords: Rotary wing aircraft, Rural, Emergency, Health service
Phytochemical Constituents, Antioxidant Activity and Antibacterial Activity of Alpinia galanga and Kaempferia galanga for Therapeutic Intervention against Human Diseases

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Background: Various biochemical processes in human body may produce by-products like free radicals and reactive oxygen species. To overcome these free radicals, antioxidants are required. Natural antioxidants are preferable since synthetic antioxidants exhibit serious toxicity and higher manufacturing costs. Thus, plants are the potential source of natural antioxidants especially medicinal plants and herbs. In conjunction, two medicinal plants, Alpinia galanga and Kaempferia galanga, from Zingiberaceae family is chosen to study the phytochemical constituents, antioxidant and antibacterial activities of different crude extracts; hexane, ethyl acetate and methanol, from dried rhizomes. Methods: The extracts were prepared from low polarity to high polarity by maceration. Antioxidant and antimicrobial activities were determined by DPPH and agar disc-diffusion assay, respectively. Phytochemical screening for both plant exhibits all tested phytochemicals; saponins, phenols, flavonoids, tannins, steroid and terpenoids with methanol extracts having the highest number of phytochemical constituents. Results: The antioxidant test showed that when gradually increasing the samples concentration there was an increase in the absorbance. Therefore, the antioxidant activity of both plant was in the order of methanol > ethyl acetate > hexane extract. A. galanga methanol extract has highest antioxidant activity at 1 mg/mL (82.05%) with IC50 of 0.364 mg/mL meanwhile K. galanga methanol extract has highest antioxidant activity at 1 mg/mL (83.21%) with IC50 of 0.424 mg/mL. For antibacterial activity, the crude extracts were tested on four bacteria strain; two gram positive (S. aureus and B. cereus) and two gram negative (S. thyphimurium and V. cholerae). Gram positive bacteria were more susceptible to antibacterial activity. For both plant, the non-polar extracts (hexane) exhibits greater antibacterial activity than that of polar extracts (ethyl acetate). However, there was no antibacterial activity observed in methanol extract for both plant. Conclusions: Overall, A. galanga and K. galanga could serve as potential sources of antibacterial and antioxidant agents and this can be used as therapeutic intervention against human diseases.

Keywords: Alpinia galanga, Kaempferia galanga, Antioxidant, Antibacterial
Background: Treatment seeking behaviour (TSB) is defined as a sequence of remedial actions which are influenced by many factors that individuals undertake to rectify perceived ill-health. While not many studies have been done to date on men’s TSB, those that have been done seem to be inconclusive and tend to give contradicting findings among one another. To identify the current status of men’s TSB and also various factors associated with men’s TSB in Kelantan, Malaysia.

Methods: A cross-sectional study was conducted using a self-administered TSB questionnaire among 90 male government employees in Kelantan from February-April 2018. Three government agencies in Kelantan were pre-determined and 30 male respondents fulfilling all inclusion and exclusion criteria were chosen using simple random sampling to represent each agency. Data was analysed using IBM SPSS Software Version 24.

Results: We found that the percentage of men with appropriate TSB was 29.4%. Using Multiple Logistic Regression, we found that the factors associated with appropriate TSB were level of education, financial status, individual, cultural and family, situational and healthcare provider factors. All associated factors had a p-value of less than 0.05.

Conclusions: Therefore it can be concluded that TSB among male civil servants in Kelantan is still poor and inappropriate. The reasons for this poor TSB are multi-factorial which involves all levels of the community from the individual level right up to the major stakeholders in Malaysia. Corrective actions need to be taken to address this issue as men’s health should not be ignored as it will have a great impact on our society and economy. A womb to tomb approach needs to be taken as positive attitude and behaviour towards health needs to be cultivated from a very young age.

Keywords: Treatment seeking behaviour, Men’s health, Government employees
Seasonal Dermatoses

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Background: Myanmar has a population of 52.89 million (2016) with 100 ethnic groups; has a tropical monsoon climate with three distinct seasons; hot, cold, dry and rainy seasons with high humidity which is quite uncomfortable. North Okkalappa Township is at the eastern part of Yangon, with a population of 333,293. Seasonal variations results in skin problems hence, various Dermatoses or skin problems were addressed in the study. Methods: This was a cross sectional retrospective study done from February 2014 to March 2015 at Out-patient Department (OPD) of Dermatology, North Okkalappa General Hospital (NOGH), Yangon. The sample size was 95 patients out of total 6680 patients. Conveniet sampling was used. Selection criteria: Inclusion criteria: All ages, both sexes, newly diagnosed, confirmed and treated cases related to “Environmental Dermatoses” who attended the OPD of Dermatology. Patients with consent participated in the study. Exclusion criteria: Pregnant and nursing women, old and infirm who could not come for regular follow-ups. Data collection: by clinical examination, confirmed diagnosis by skin biopsy. Unpaired t-test was done to compare the means and Spearman-rho was done to identify the correlation between the diseases and different seasons using SPSS for Windows version 22. Results: The outcome of this study is that 95 patients out of 6680 patients (1.4%) attending the Out Patient Department (OPD) in 2015 were found to be affected with skin problems related to seasonal-changes and weather such as photosensitive dermatitis, atopid and seborrheic dermatitis, acne vulgaris, astematotic dermatitis, psoriasis vulgaris and irritant contact dermatitis. Conclusions: This study has given insight to the relationship of certain skin problems to the effects of weather and season. It serves to highlight the importance of possible unforeseen skin changes due to weather and climate changes.

Keywords: Dermatoses, Environmental, Hot, Cold, Wet, Seasons
Visualizing the Burden of Disease and Injury in Malaysia

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**Background:** Burden of disease measures are helpful in determining resource allocation within health systems. It quantifies the difference between living to old age in good health, and the situation in which healthy life is shortened by illness, injury, disability and early death. The Malaysian Burden of Disease (MBOD) estimates were first produced in 2000, followed by 2008, and was most recently compiled for the years 2009-2014. This poster presents a graphical overview of how different disease groups contributed towards the total burden of disease in Malaysia for the year 2014. **Methods:** Burden of disease is expressed in DALYs, or Disability-Adjusted Life Years, which was calculated for each of the 112 disease and injury categories in MBOD. DALY is the sum of Years of Life Lost (YLL) and Years Lost due to Disability (YLD). YLL was calculated by summing the number of deaths for the disease, multiplied by the remaining life expectancy for the specific age group. YLD was calculated by multiplying the prevalence estimates of the disorder with its disability weight. The total DALYs for each category was further processed using data visualization software and are hereby individually represented to scale in a giant bubble chart. **Results:** The total burden of disease in Malaysia in 2014 equalled 4,992,646 DALYs, with the top 5 contributors being cardiovascular and circulatory diseases (20.8%), unintentional injuries (11.9%), malignant neoplasms (9.4%), diabetes mellitus (7.8%), and mental and behavioural disorders (7.2%). **Conclusions:** A visual representation as such is effective in helping the general public – aside from planners and policy makers – get a better idea of the contribution that different diseases, conditions and injuries make to the total burden of disease in Malaysia. This in turn helps with making transparent, informed, and well-supported decisions about where prevention and service activity should best be focused. **Keywords:** Disease burden, Disability adjusted life years, DALYs, Data visualization
Estimating Cost-Effectiveness of Pneumococcal Vaccine among Malaysian Hajj Pilgrims

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Background: The Hajj is an annual Islamic pilgrimage to Mecca, Saudi Arabia, the holiest city for Muslims. Each year, millions of Muslims from all over the world including Malaysia converge in Mecca and its surrounding areas to perform the Hajj pilgrimage. Due to overcrowding condition during this period, pneumococcal disease is one of the commonest ailments among Hajj pilgrims and contributed to a substantial burden to the healthcare. To estimate the cost benefit of introducing the 23-valent polysaccharides pneumococcal vaccine (PPV23) among Malaysian Hajj pilgrims.

Methods: A total of 40,837 Malaysian pilgrims in the year 2017 were included in this study. An economic evaluation was carried out by comparison of two cohorts – no vaccination and vaccinated with PPV23 – using a decision tree model to simulate the benefits, costs and health outcomes of introducing PPV23. The model was programmed to include pilgrims who had a one-off exposure to mass congregation for a one-year cycle length, with no further follow-up evaluation. The model framework incorporated data on epidemiology, disease incidence, vaccine efficacy and cost inputs that were retrieved from the Lembaga Tabung Haji, Malaysia, literature review of a similar population and intervention characteristics. The perspective of this study is from the Ministry of Health, Malaysia. Results: The universal PPV23 strategy showed cost-savings for inpatient and outpatient care costs. The cost averted was estimated to be between RM0.9 to 1.2 million. The hospitalization and outpatient visit rate per cohort will be reduced from 67 to 23 cases and from 1,633 to 571 cases, respectively. Herd immunity and quality of life will also be gained as intangible benefits. Conclusions: The findings from this evaluation could inform policymakers, health care managers and relevant stakeholders in decision and policy-making on pneumococcal vaccine to improve the health status of Malaysian Hajj pilgrims.

Keywords: Cost-benefit analysis, Costing, pneumococcal vaccine, PPV23, Hajj, Pneumonia
Strategy to Improve Cancer Screening Notification in Taipei City

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Background: Cancer is the leading cause of death among Taipei City residents, as well as an important public health issue for the city. In 2014, Taipei City introduced a new management approach centered on the application of a strategy map and a balanced scorecard (BSC), and utilized lean management in its cancer prevention policy to improve processes and reduce costs. The effectiveness of this health policy was assessed using key performance indicators (KPI). In order to establish a feasible cancer prevention and control policy, the department first sorted (by level of importance) the important and difficult issues that will affect the policy's implementation at the grassroots level, and then incorporated implementation strategy themes, achieved organizational consensus, and integrated inter-unit resources.

Methods: For the purpose of implementing its strategy map, the Department of Health of the Taipei City Government continued with the application of management methods such the balanced scorecard (BSC) and refined project approaches; cooperated with the Department of Information Technology of the Taipei City Government, system administration authorities, and the academic community; and utilized the streaming and output of information flow to improve repeat cancer screening notifications, such that personalized cancer screening notifications can be provided for individuals who fit the screening criteria but have not yet been screened.

Results:
1. Repeat notification time was reduced by 97.30%.
2. Repeat notification cost was reduced by 11.2%.
3. The notification accuracy rate for individuals whose households are registered in Taipei City was raised to 100%.

Conclusions: Management methods such as the strategy map, BSC, and lean management approaches were utilized, and an information flow and visual management policy (based on customer values) was applied to raise the effectiveness of cancer prevention and screening policies, reduce expenditures and time costs, improve the notification accuracy rate, and thus achieve cancer prevention objectives.

Keywords: Cancer prevention, Strategy Map, Lean management, Visual management
The Influence of Leadership, Organizational Climate and Workplace Culture on Nurses’ Professional Behavior

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Background: Responsibility and accountability are the cornerstones of professional nursing practice. Nurses are being responsible and accountable for ensuring safe and effective nursing care. Level of professionalism of nurses is at low level displayed by direct care that clients receive while they are hospitalized. Previous study showed that leadership factors, organizational climate, workplace culture have correlations with nurses’ professional behavior. This purpose of this study was to analyze the influence of leadership, organizational climate and workplace culture on nurses’ professional behavior. Methods: This research was a cross sectional study design. A random sampling technique was applied to select 162 professional nurses based on inclusion criteria. Data were collected using instrument and analyzed by a binary logistic regression. Results: The findings showed that 75.3 percent of respondents reported having a democratic leadership, 42.5 percent of respondent showed a good organizational climate, 46.2 percent of respondent have a comfortable workplace culture, 55.8 percent of respondent revealed excellent professional behavior. Statistical analysis using SPSS version 20.0 showed that leadership has significant contributions for improving nurses’ professional behavior. Statistical analysis showed that a good leadership are 2.077-fold more likely to increase nurses’ professional behavior. Conclusions: In conclusion, a nurse manager could utilize a good leadership style for increasing nurses’ professional behavior, in hospital. Further study was recommended to examine the effect of transformational leadership, organizational climate and workplace culture on nurses’ professional behavior.

Keywords: Leadership, Organizational climate, Workplace culture, Nurses, Professional behavior
Healthy Indonesia Program with the Family Approach (PIS-PK) as Efforts to Make a Healthy Community

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**Background:** Healthy Indonesia Program with Family Approach (PIS-PK) is a health activities focusing on the family, prioritizes promoting and preventive. Formerly, implementation PIS-PK in 2016 had obstacles from personnel, infrastructure, budget and policy support outside the health sector so it needs assistance. **Objectives:** Research aims are to get the implementation models and provide input for policy improvement. **Methods:** Operational research with Participation Action Research (PAR), conducted on 1 village at 4 selected puskesmas in South Lampung. Activities include; 1) collection of family health profile data, 2) health promotion as prevention effort, 3) referred to medical treatment if necessary 4) utilize all information from family health profile for community empowerment and puskesmas management 5) periodic monitoring and evaluation. **Results:** Obstacles that occur in the implementation of the PIS-PK had been overcome. Human resource issues had been overcome by job training, university cooperation and periodic refreshment by the Health Department team. A healthy family coverage booklet was generated for use as a report card and educational tool for the community. Local policy support such as Bupati Regulation, Head of Healthy Family Coach Team Team in South Lampung District has been realized and all puskesmas are required to implement PIS-PK by District Health Office. The funding support was obtained in addition to special operational assistance in the health sector, capitation funds, as well as other sources (CSR, village budget, community self-help). Socialization increased the knowledge of the community and cross sectors. **Conclusions:** Implementation of PIS-PK will running well if supported by local government, cross-sector and community; fulfilment of human resources, funds and infrastructure. PIS-PK increases coverage of puskesmas programs and number of contacts as indicator of SHI service commitment. Healthy Family Index (IKS) result and PIS-PK indicators coverage are very useful for planning the activity of puskesmas and the village.

**Keywords:** Family approach, PIS-PK, Health community
Acceptability of the WHO “Best Buys” for Reducing Harmful Drinking and Perceived Consequences among Hong Kong Adults: A Population-Based Study

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Background: To reduce the harmful effects of excessive alcohol use, the WHO recommended a set of “Best Buys” strategies, calling for alcohol taxation, availability restriction, and marketing regulation. Hong Kong has adopted few alcohol control policies despite its recently increasing drinking prevalence and alcohol-related problems. Since public perceptions toward policies are important in political decision-making, this study aims to examine public acceptability of the WHO “Best Buys” and perceived consequences of adopting these harms-reduction measures. Methods: An anonymous, cross-sectional telephone survey of Hong Kong Chinese residents aged 18-74 (n=3790) was conducted from January to April, 2018. Acceptability of strategies was described by the percentage of supportive respondents. Respondents were asked about perceived consequences on alcohol-related harms, local economy and lifestyles of these various harms reduction strategies. Multivariable logistic regression was performed to identify factors associated with endorsement of strategies. Results: The most strongly supported interventions were ID checks for alcohol purchases (84.7%), introduction of moderate alcohol taxes (74.4%), and restriction on time of retail alcohol sales (56.5%). By contrast, sponsorship bans on high-publicity events such as concerts and sporting events (20.6%) and bans on public drinking events (such as Hong Kong Wine Festival) (20.8%) were the least popular. Non-drinkers (OR 1.25-2.33), women (OR 1.36-1.60), and older people (OR 1.66-2.53) were significantly more supportive of most WHO “Best Buys” strategies (p<0.05). Strategies perceived to be effective in mitigating alcohol problems showed higher level of endorsement. Generally, older people (OR 1.8-2.3) had more positive expectances of reducing social harms whereas the younger (OR 1.25-1.43) were concerned more about economy freedom and lifestyle infringement (p<0.05). Conclusions: To improve public support and reduce barriers to implementation of various alcohol harms reduction strategies, it is necessary to strengthen the public’s belief on the effectiveness of strategies and minimize the perceived negative economic and lifestyle consequences, especially among the young generation.

Keywords: Alcohol, Policy, Attitudes, Public perceptions, Hong Kong
Forecasting Estimation of the Effect of Population Inducement by the Location Normalization Plan for Efficient Supply of Social Services

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Background: In many provincial cities of Japan, there has been decentralization of urban functions due to the expansion of urban area and suburbanization, and changes in demographic structure due to further ageing of society with fewer children. For that reason, it is an urgent matter to secure the living base of residents based on life services such as medical care and nursing care. In Japan, as a solution to such a situation, promotion of planned city reduction is promoted by the location normalization plan institutionalizing the concept of compact city. Specifically, it aims to consolidate city facilities such as medical care, welfare, commerce, and such, to form the bases of the city, and designates the living induction area in a form that encompasses them. However, the impact of this policy on the city in the future is unclear. Concerning measures implementation, based on quantitative grounds such as future projections, it is thought that it will lead to effective policy development. Therefore, this poster focused on the relation between the demographic dynamics and the dynamics of cities in houses and other buildings and considered future induction measures by predicting the effect of people induction measures in the future.

Methods: The research target city was U city, which formulated the location normalization plan in March 2017. The effect of population inducement was measured, using the registration information that can refer to building age and data of the residence instruction areas obtained from U city.

Results and Conclusions: In this poster, the effect of population inducement by the location normalization plan was demonstrated quantitatively. For an efficient supply of social services in the future, utilization of the analysis results such as for development induction and regulations is expected.

Keywords: Sustainable city, Intensive urban structure, Forecast, Provincial city, Japan
The Needs of Night-time Childcare – A Case of Utsunomiya City

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Background: Currently in Japan, the number of people who leave their children at a nursery at night is increasing due to the followings: social changes such as an increase in the number of single-parent families and the nuclear families, diversification of occupation such as an increase in medical workers or nursing care staffs and an increase in stores which open late at night. At the moment, however, the percentage of non-registered night-time childcare facilities is high while the percentage of registered night-time childcare facilities is less than 0.3%. It is necessary to expand the services that are opened to the area based on the needs of night-time childcare. The purpose of this research was to examine what kind of night-time childcare services are necessary. Methods: The subject region is Utsunomiya City in Tochigi prefecture as a central city of provincial area (population: 520,393, households: 223,079) First, the business time of all nurseries (164 facilities in total) in this city was researched to grasp the current situation of night-time nurseries including non-registered night-time childcare facilities and employer-provided childcare services. Besides, the needs of night-time childcare were examined based on the employment structure. Results: As a result of examining nurseries, 34 nurseries operate after 19:00, 5 nurseries operate after 21:00 and 4 nurseries operate after 24:00, also its quotas are only 2649 people after 19:00, 311 people after 21:00 and 198 people after 24:00. In addition, based on the employment structure of childrearing families and user’s intention, it is predicted that the number of single-parent children is 1412 and that of children whom both parents work fulltime is 7050. Conclusions: Considering the population of tertiary industry (65.9%) and nuclear family households (82%) in this city, it is necessary to expand the service of extended-hours childcare after 19:00.

Keywords: Night-time nursery, Institutional design, Extended childcare, Childcare needs
Acceptability of the WHO “Best Buys” and Perceived Effects on Own Drinking among Hong Kong Adults: A Population-Based Study

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Background: To counter the public health costs of excessive alcohol use, the WHO has outlined a set of “Best Buys” alcohol harms reduction strategies, including increased taxation, alcohol availability restriction, and comprehensive advertisement bans. Hong Kong, where few alcohol regulations are in place, has recently experienced increasing drinking rates and alcohol-related problems. This study aims to examine public acceptability of the WHO “Best Buys” and perceived effects on drinking levels among Hong Kong residents and by population subgroups. Methods: An anonymous, cross-sectional telephone survey was conducted on a random sample of 3790 Hong Kong Chinese residents aged 18-74 from January to April, 2018. Acceptability of strategies was assessed by the percentages of respondents endorsing the various "Best Buy" strategies while perceived drinking effects were examined by the proportion of drinkers who believed that the strategy would reduce their own drinking levels. Multivariable logistic regression analyses were performed to identify sociodemographic and drinking-related factors associated with endorsement of strategies. Results: The majority of respondents were supportive of: checking ID for retail purchases of alcohol (84.7%), moderate beer and wine taxes (74.4%), and restrictions on time of retail alcohol sales (56.5%). Bans on alcohol sponsorships (20.6%) and restrictions on public drinking event (20.8%) were the least supported interventions. Non-drinkers (OR 1.25-2.33), women (OR 1.36-1.60), and older people (OR 1.66-2.53) were significantly more supportive of most WHO “Best Buys” strategies (p<0.05). Requesting ID upon purchase (43.3%) and restricting alcohol availability (28.7%) were perceived to be most effective in reducing own drinking levels among binge drinkers. Conclusions: As potential alcohol harms reduction policies, the Hong Kong government may consider prioritizing ID request upon purchase, moderate taxation, and restriction on alcohol sale times. To better inform policy-making, future qualitative studies may further explore the complex relationships between public attitudes, perceived effectiveness and policy support.

Keywords: Alcohol, Policy, Attitudes, Public perceptions, Hong Kong
Total Direct Cost of Managing Dengue Inpatients at Sarawak General Hospital from the Providers’ Perspective

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Background: Dengue is a vector-borne viral disease that spreads widely and rapidly in the world and one of the major public health problems currently including in Sarawak, Malaysia. However, currently there is no study conducted to assess the dengue in term of economic burden associated with dengue illness in Sarawak. The objective of this study is to determine the total direct cost of managing dengue inpatients at Sarawak General Hospital from providers’ perspective from January 2014 to December 2014. Methods: All dengue patients aged 12 and above admitted to Sarawak General Hospital in 2014 was included in this study. Step down Cost Accounting (SDCA) method was used to calculate the cost components of this study, namely the overhead and intermediate costs; staffing cost and equipment/capital cost. The total direct cost of managing dengue inpatients was calculated by summing up all the cost components per patient per episode of care. Results: The total number of dengue patients admitted to Sarawak General Hospital in 2014 was 153 with 621 inpatient days and average length of stay 4.1(2.91) days. The unit cost of dengue inpatient use of overhead and intermediate cost centres was RM 449.06 per bed day and the unit cost for equipment/capital cost was RM 2.54 per bed day. The total direct medical cost of dengue inpatients in Sarawak General Hospital for 2014 was RM 1,851.55 (1311.76) per patient per episode of care. Conclusions: Total direct cost of dengue inpatients management was an integral part in determining economic burden of dengue and although SDCA had its disadvantages, this approach was a relatively simpler and practical method compared to other methods in calculating the total direct cost.

Keywords: Direct cost, Dengue inpatient, Sarawak
Accessibility of Health Care Utilization in Rural Areas of Sabah

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Background: One of the aims outlined in Malaysia’s Health Vision 2020 is to be a nation of healthy individuals, families, and communities through an equitable, affordable, efficient, environmentally adaptable, and consumer friendly health care system with emphasis on quality, innovation, health promotion and community participation. Sabah faces tremendous challenges to provide the best care to patients. Sabah’s unique geographical location and landscape, such as steep hills and rivers, is one of the challenges that health staff faces. This study aimed to examine the prevalence of utilization of health care services, the types of health seeking behavior in rural areas of Sabah to assess the accessibility and availability of health care services to be improved and enhance quality of life in rural community.

Methods: A community-based cross-sectional study was conducted for two years in two rural areas in Sabah—Kudat and Pitas. Data collection was done by face-to-face interviews that were conducted by trained local research assistants. The survey questionnaire was developed by researchers to explore the accessibility of health utilization status of rural areas in Sabah. Results: It was found that 48% of the study population had sought health care services in the last year which is less than NHMS finding in 2006. Residents in rural areas mainly chose health care services from public hospitals and community health clinics as they have no other options and they are closest to their place, which shows differences in health care utilization between urban and rural populations. Conclusions: The findings of this study provided information regarding the utilization of health care services in rural Sabah, which can be used to improve accessibility of health care services and enhance quality of life, which is in line with Malaysia’s Health Vision 2020.

Keywords: Rural areas, Accessibility, Health care utilization, Sabah
Long Term Impact of Health and Disaster Risk Education in Remote Ethnic Minority of Rural China: The Case of an Earthquake-Prone Village in Sichuan

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Ma’an Qiao village, an ethnic Dai and Yi minority based community in Sichuan province, sustained 100% infrastructure devastation in 2008 China Panzhihua earthquake. Health emergency and disaster risk reduction management (Health-EDRM) intervention programs were implemented in 2010 and 2011, and participants were invited to complete pre-and-post intervention surveys. In 2018, our project team returned to conduct an evaluation and intervention program. This is a 7-year follow-up study, aiming to examine the temporal stability and new developments of health promotion and disaster risk education in rural China. Respondents of the 2018 pre-intervention survey were recruited the day before the 2018 intervention using a convenience sampling approach. Every adult participant onsite at the intervention was invited for the post-intervention survey. As a result, 71 household representatives (22.5% of all households) responded to the post-intervention questionnaire. Knowledge retention was found in many areas of health beliefs and practices, especially in household hygiene and waste management, whereas decreases in knowledge from prior intervention levels (7 years ago) were observed in the beliefs and practices for healthy eating habits and disaster preparedness kit preparation. Other important findings included knowledge uptake patterns differences of oral rehydration solution (ORS) between earthquake-prone and flood-prone community. In addition, gender and income were found to be independent of usage intention of mobile/electronic communications for accessing disaster risk reduction information and those who are younger and more educated have a greater eagerness to seek disaster-related information online. Overall, behavioral modification promotion through awareness raising interventions demonstrated promise for reducing health risks in transitional post-disaster settings. Future health promotion and education programs should aim to identify best practices and how to strengthen health education for technology (e.g. mobile apps/internet) utilization towards disaster information dissemination.

Keywords: Disaster preparedness kit, Disaster risk reduction, Earthquake, Health-EDRM, Rural China, Technology
ORS Intervention as Secondary Prevention against Diarrhoea Complications in Remote Ethnic Minority Areas of Rural China

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Background: The main objective was to assess the impact of teaching oral rehydration solution (ORS) to a remote, rural village in China to treat diarrhoea-induced dehydration. This was an on-going study and a 1 year post-intervention evaluation trip is yet to determine the full impact. Methods: Two health assessment trips were carried out in November 2016 and April 2017, assessing baseline health practices and culminated into an intervention on ORS and other health topics. Evaluation of the intervention was completed using cross-sectional interviewer-administrated questionnaires. In addition, in-depth focus group interviews were also conducted, providing qualitative data on health behaviour and attitudes of primary school children (ages 11-13) and the elderly (ages 58 to 71). Results: Baseline data (n=81, 14.5%) indicated diarrhoea was highly prevalent; all households with children younger than 5 reported at least one diarrhoeal episode in the past month, while nearly a third of households, with no children below age 5, had at least one family member experience diarrhoea in the past month (n=81, 26.9%). Majority of respondents would not treat diarrhoea (71.8%), with the remaining seeking medical care from the village doctor or in the nearby township (28.2%). Of the 43 households that took part in the intervention (7.6%), McNemar’s test proved knowledge gain to be statistically significant pre- and post-intervention for: signs of dehydration (46.5%), what is ORS (74.4%), ORS can prevent dehydration (41.9%), ORS composition (90.7%), and the intention to make ORS (39.6%). Conclusions: Participants retained the knowledge about ORS post-intervention and the intention to use ORS as a secondary self-help tool against complications diarrhoea is significant. A further evaluation trip will assess the level of retained knowledge and behavioural practice of using ORS. In addition, further interventions may be conducted to prevent diarrhoea by improving sanitation and hand washing practices.

Keywords: ORS, Diarrhoea, Rural village, China
Prevalence and Associated Factors of Second-Hand Smoke Exposure among Non-Smoking School-Going Adolescents in Malaysia

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Background: Second-hand smoke (SHS) includes smoke from burning cigarettes and smoke exhaled by smokers. SHS exposure has been linked to higher smoking attempts among adolescents and preventing them from becoming smokers is one of the key to reduce national smoking prevalence. This study aimed to determine prevalence and factor/s associated with SHS exposure among non-smoking school-going adolescents in Malaysia. Methods: Data was obtained from The Tobacco and E-cigarette Survey among Malaysian Adolescents (TECMA) 2016. TECMA 2016 is a cross sectional study which utilises a two-stage stratified cluster sampling design to obtain a representative sample of school-going adolescents in Malaysia. A total of 13,162 respondents participated in the study. Data was collected using pre-validated self-administered questionnaires. Multivariable logistic regression analysis was used to determine the factor/s associated with SHS exposure among non-smoking school-going adolescents in Malaysia. Results: Approximately half (52.0%, 95% CI: 50.11, 53.88) of non-smoking adolescents were exposed to SHS during last one week. Multivariable analysis revealed that respondents who were 10-12 years old (AOR 1.27, 95% CI: 1.17, 1.39), urban dwellers (AOR 1.13, 95% CI: 1.04, 1.22), Indians (AOR 2.06, 95% CI: 1.74, 2.45), those who thought SHS was not harmful (AOR 1.65, 95% CI: 1.41, 1.92), not in the favour of banning smoking in public places (AOR 1.70, 95% CI: 1.48, 1.94), never seen health warning messages on cigarette packages (AOR 1.56, 95% CI: 1.43, 1.70) and had not been taught on the danger of smoking in school (AOR 1.29, 95% CI: 1.14, 1.47) were more likely to be exposed to SHS. Conclusions: Majority of non-smoking Malaysian adolescents were exposed to SHS. This finding calls for the need to formulate effective policies towards smoking. Health education in school should be enhanced to increase adolescents’ awareness about the dangers of SHS exposure.

Keywords: Second-hand smoke, Adolescents, TECMA
Factors Influencing Tobacco Smoking among Villagers in Sikuati, Kudat, Sabah

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Background: Tobacco smoking is considered one of the preventable premature causes of death and is one of the greatest public health challenges worldwide particularly in developing countries. The National Health and Morbidity Survey, Malaysia (2015) revealed that 5 million or 22.8% of the Malaysian population aged 15 and above were smokers. Recent trends indicate rising prevalence rate among youth and earlier age of initiation. This study was aimed to determine the prevalence of tobacco smoking and the factors influencing on its initiation, maintenance and cessation among villagers in rural community of Kudat District, Sabah. Methods: A community based cross sectional study was employed among villagers aged 12 years old and above in Sikuati, Kudat. Non-probability convenient sampling method was used and 153 villagers participated in the study. Data collection was done by interview method using pretested structured questionnaire. Results: Out of 153 subjects, (48.4%) was current tobacco smokers, (59.5%) was ever smokers (current and ex-smokers) and (40.5%) was non-smokers. Among ever smokers, age of smoking initiation was ranged from 9 to 49 years old and the commonest age group was 13 to 25 years (79.1%). Peer was a major influencing factor for taking up of smoking (64.8%) which was followed by family influence (23.1%) and curiosity (10.1%). Also (65.9%) of ever smokers had tried at least once to quit smoking but of which (71.7%) was failed to stop smoking. The main reason of failure to quit smoking was due to positive feelings like pleasure and relaxation. Conclusions: The prevalence of tobacco smoking among villagers in Sikuati was found higher than national prevalence and more analytical study on a large scale is needed to determine the extent to which social and environmental factors influence smoking especially among adolescents and young adults in rural areas. Keywords: Tobacco smoking, Influencing factors, Villagers, Sikuati, Kudat
Experiences and Effectiveness of Implementing WHO MPOWER Tobacco Control Strategy in Taipei City

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Background: In order to implement the World Health Organization's (WHO) Framework Convention on Tobacco Control and the Taiwan Tobacco Hazards Prevention Act, based on the “MPOWER” tobacco control strategy proposed by WHO, Taipei City promotes a number of tobacco control measures and protects the public’s health rights to achieve smoke-free Taipei. Methods: Adult Smoking Behavior Survey is administered every year to yield data for making comparison with national trends. Global Youth Tobacco Survey is conducted annually in concert with central government. Supportive smoke-free environments were constructed by means of reinforcing law enforcement, actively engaging in education and publicizing campaign against tobacco hazards, and stipulating reward system to encourage reporting violation. Cessation classes, free telephone helpline, and services at smoking cessation outpatient clinics, health education counseling services, health-care workers were encouraged to become advocates for tobacco control and offer ways to help quit smoking. Smoke cessation e-learning course targeted at youth was created. Cross-agency cooperation cracks down on vendors and tobacco products without proper displaying of health warning messages. Key premises were inspected rigorously by the relevant authorities jointly. Intensive enforcement was carried out for manufacturers or importers in violation of the Act. The Health and Welfare Surcharge was raised in accordance to the New Regulations promulgated by the central government. And the city government put efforts into educating citizens to distinguish tobacco products taxed at the new and old rates. Results: The smoking rate among aged over 18 in Taipei dropped from 15.3% in 2009 to 9.8% in 2017. The Secondhand smoke exposure rate of smoke-free public places decreased from 7.7% in 2009 to 4.6% in 2017. Conclusions: Based on WHO's MPOWER tobacco control strategy as a framework, it can systematically and comprehensively promote tobacco control measures, effectively reduce the number of smokers, establish smoke-free environments, and implement public health policies.

Keywords: Tobacco hazard prevention, Smoke-free, MPOWER
Abstract ID: PO0004TC

Smoking Behavior Based on Stages of Transtheoretical Model among College Smokers in Selangor

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Background: Tobacco smoking continues to be the leading causes of premature death in Malaysia for the last 3 decades. The national prevalence of smoking among the young adult is low compared to other age group. However, the percentage of quit attempt among young adults are among the highest. The aim of this study is to determine the prevalence and pattern of various stages of smoking cessation among college students using the Transtheoretical model (TTM) to provide basis for stage-based intervention. Methods: A cross sectional survey was conducted among 2272 college students at 10 community college in Selangor between December 2017 and January 2018 using probability proportional to size sampling method. Data was collected using self-administered pre-tested Transtheorectical model (TTM) questionnaire. Results: The prevalence of smoking among the college students was 18.9% (95% CI 17.3 – 20.6). Majority of them were at pre-contemplation stage (61.5%) whom had no intention to quit in the next six months. Only 7.2% and 6.1% of them at contemplation and preparation stage respectively (planned to quit smoking within the next six months and one month respectively). Those who were at the action stage (21.3%) had already made specific changes to their behavior. Of those, only 3.88% already maintained quit smoking for more than 6 months (maintenance stage). Conclusions: The prevalence of smoking among college is comparable to the national figures. But it is alarming that majority of them were still had no intention to quit and only 13% of students intended to quit smoking. A specific stage-based intervention is needed to mobilize this group of smokers towards making a quit attempt.

Keywords: Tobacco, Transtheoretical model, College, Students
The Association of Electronic Vapor Product Use and Conventional Cigarette Smoking with Korean Adolescents’ Oral Health

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Background: Smoking is more harmful to the physical health of adolescents than it is to adults. The demand for studies on electronic cigarettes as a substitute for tobacco has increased, but there is a lack of research on its harmful effects on the oral health. Therefore, we investigated the characteristics of conventional cigarette smoking, electronic cigarette use, and the dual use among adolescents and examined the relationship between oral health factors according to smoking patterns.

Methods: The subjects of this study were 65,528 adolescents who completed a questionnaire of the 12th Korea Youth Risk Behavior Web-based Survey (2016). The types of smoking were analyzed by conventional cigarette smoking, electronic cigarette use, and non-smoking. A chi-square test and logistic regression analysis were performed.

Results: According to the results of the study, there were significant differences in general characteristics such as gender, grade, school type, scholastic performance, location, perceived socioeconomic status, and drinking status according to type of smoking. There were significant differences in the number of brushing days, oral hygiene auxiliary products and treatment, and subjective oral health awareness. There was also a significant difference in oral disease symptoms. The relationship between the type of smoking and oral health was as follows: “Chipped or broken tooth”, “Tooth pain when eating”, or “Aching or throbbing in tooth”, it was significantly higher in dual users and conventional cigarette only smoker, and it was higher in dual users in conventional cigarette only smoker.

Conclusions: In conclusion, it was found that there was a difference in oral health effects according to the type of smoking. Tailored education programs and policies should be developed to promote oral health and prevent smoking in adolescents.

Keywords: Adolescent, Smoking, Oral health
To Pay or Not To Pay

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Background: Full Paying Patient (FPP) Services provides options for healthcare at selected public hospitals in Malaysia at different costs. Although FPP services have been implemented since 2007, no studies were conducted to understand the public’s values on unsubsidised FPP services. Thus, this study aimed to assess the willingness to pay (WTP) of public on selected services in a public hospital. Methods: A cross-sectional survey was conducted among non-FPPs in Selayang Hospital. We recruited 104 respondents through convenient sampling, where we interviewed 49 respondents from Department of Ophthalmology and 55 respondents from Department of Obstetrics and Gynaecology (O&G) on the amount they are willing to pay to shorten waiting time for cataract surgery and obstetric consultation respectively. Data was analysed using Stata 12. Results: Of all respondents interviewed, 63 (60.6%) non-FPPs were willing to pay to shorten waiting time while 41 (39.4%) were not willing to pay. Department-wise, 33 (67.3%) cataract non-FPPs were willing to pay to shorten wait time for cataract surgery; whereas 30 (54.5%) of O&G non-FPPs were willing to pay to shorten wait time in clinic. Only 7 (14.3%) cataract non-FPPs were willing to pay above RM 2,000 (midpoint of FPP price range) per cataract surgery and only 2 (3.6%) O&G non-FPPs were willing to pay above RM 175 (midpoint of FPP price range) for an obstetric consultation. Conclusions: More than half of non-FPP respondents were willing to pay more than government-subsidised fee to reduce wait time for medical care. Yet, the amount suggested by most of the respondents was well below the current fee for FPP services. Thus, further research is crucial to further explore the public preferences of healthcare provision under the FPP services.

Keywords: Willingness to pay, Full paying patient services
Identifying Universal Health Coverage Research Priorities for Malaysia

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Background: Achieving Universal Health Coverage and Quality Healthcare is the goal of the Malaysian healthcare system, and research involving multiple and diverse stakeholders helps the nation achieve this. Comprehensiveness and inclusivity in prioritisation is crucial to channel limited health resources to areas of high priority. This initiative aimed to identify priorities for the nation towards enhancing health care system efficiency and effectiveness. Methods: Conceptual frameworks for different domains of health systems were utilised to guide research area identification to ensure a comprehensive, inclusive and holistic process. Additionally, we reviewed literature, national strategic plans, completed research projects and sought expert opinions. We mapped identified areas using five of the World Health Organisation’s (WHO) health systems building blocks: governance, human resource, health information and technology, health economics and financing, and service delivery. We adapted and adopted the Child Health and Nutrition Research Initiative methodology for prioritisation. Diverse stakeholders prioritised research areas in a 2-step process. Results: The initiative identified 92 research areas. This was an increment from the 10\textsuperscript{th} Malaysian Plan priority setting where 36 research areas were identified. A total of 150 participants were involved in this initiative, the majority (92\%) from Ministry of Health. Of these, 62\% were researchers, 23\% were healthcare providers and academicians while the remaining 15\% were decision makers. Of the 92 research areas, 44.6 \% were prioritised as top priority, 27.1 \% as primary reserve areas while the remaining 28.3 \% were in the secondary reserve list. Conclusions: The prioritised health research areas serves as a guide on research crucial for Malaysia towards improving universal access and quality healthcare. A multidisciplinary effort from researchers, academicians, policy makers and other stakeholders is needed to explore the numerous research areas identified towards the goal of universal health coverage for all.

Keywords: Universal health coverage, Research prioritisation
Promoting a Diabetes Mellitus Shared Care Network in Taoyuan City

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Objective: To enhance the quality of care for diabetes mellitus (DM) in Taoyuan City, the city has been promoting a DM shared care network, which increases the rates of DM care, fundoscopy, and microalbuminuria test, thus delaying or decreasing the incidence of DM complications. Methods: 1) Establishing a DM prevention system and case management model with joint effort by DM patient groups, the National Health Insurance Administration, public health groups, and healthcare organizations to provide holistic care. 2) Organizing accreditation examinations and continuing education programs for DM care personnel to enhance care quality. 3) Referring DM cases to nearby ophthalmic clinics run by DM care personnel; provide public health centers in different districts in the city with non-mydriatic fundoscopes and organize mobile vision screening services in the community, thus improving the accessibility of fundoscopy in DM cases. 4) Promoting DM care, microalbuminuria examination, and fundoscopy through outpatient reminder systems and posters in healthcare institutions and encouraging DM cases to join DM shared care network and undergo examinations. 5) Promoting “long distance DM care plan” so that DM patients can receive immediate health care from a professional team from their homes. Results: In DM patients in Taoyuan City, the rate of HbA1c examination increased from 88.73% in 2011 to 93.3% in 2016, blood lipid examination from 67.24% to 83.32%, microalbuminuria examination from 28.06% to 54.26%, fundoscopy from 29.34% to 36.35%, and care from 26.69% to 48.9%. Conclusions: By enhancing the professional competency of DM care personnel, organizing vision screening, and promoting microalbuminuria examination, more DM cases joined DM care. An increase in the rates of HbA1c examination, blood lipid examination, fundoscopy, and microalbuminuria examination was also shown.

Keywords: Diabetes mellitus, Shared care network
Modified Workload Indicators of Staffing Need (WISN) as a Tool to Analyse Human Resource Requirement and Workload Stress: Study on Cardiology Services in Ministry Of Health

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Background: Achieving Universal Health Coverage (UHC) is among the targets of many countries. Human resource (HR) is a vital element to achieve UHC. Attaining good UHC indicates that Rakyat receives good healthcare which ultimately improve their health status. At present, ischaemic heart disease is known to be the main cause of death and premature death in Malaysia. Treatment within the first few hours of cardiac event ensures good patient outcome hence the need to improve access to cardiology services. As the services rely highly on trained healthcare worker, an assessment is important to appraise existing cardiology centres in term of staffing requirement based on workload trend. Methods: Workload Indicators of Staffing Need (WISN) was a methodology developed by World Health Organisation for HR planning. Modification was made to address task-sharing component between professions. All ten Ministry of Health cardiology centres participated in this study. A series of workload data from each centre were used to analyse workload stress and HR requirement for doctors, nurses, Assistant Medical Officers (AMO) and other staffs. Analysis was done using Microsoft Excel. WISN ratio of 0 being the worst and 1.0 is the best; ratio of more than 0.7 is considered acceptable. Results: Almost all ten centres showed high workload stress among cardiologist with average WISN ratio of 0.18 in year 2015. Average of WISN ratio for medical officer, AMO, nurses and healthcare assistant was 0.67, 0.95, 1.73 and 0.48 respectively. Conclusions: Cardiology services is a sub-speciality services that offers invasive interventional treatment performed by trained cardiology team. The findings conform with the workload pattern of each centre from working overtime to long waiting time for procedures and clinic appointments. This method is a useful tool to assists managers in human resource planning for existing facilities and for expansion of cardiology services.

Keywords: Human resource, Workload, Cardiologists, World Health Organization, Physicians, Health personnel
Cluster Hospital HTAN: Enhanced Ophthalmology Services Closer to Home

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Background: Cluster Hospital HTAN which is formed in 2016 comprises of Hospital Tuanku Ampuan Najihah (HTAN) (Lead Hospital), Hospital Tampin (HT) and Hospital Jempol (HJ) (Non-Lead Hospitals). Cluster Hospital refers to hospitals grouped together by geographical locations within a state which are aligned in terms of patient flow and services. Applying Action Research approach, Ophthalmology was selected as one of the specialties to be clustered in view of the long cataract surgery waiting time and increasing number of outpatients in HTAN. Since Cluster Hospital initiation, specialists started visiting Non-Lead Hospitals with clinics set up for pre-clerking and pre-operative assessment. Previously under-utilised operating theatre in HT was used to perform cataract surgeries. Staff was also sent for clinical attachment in HTAN. This study aims to assess the Ophthalmology services pre and post-Cluster Hospital implementation in the aspects of cataract surgery waiting time, total number of cataract surgeries performed, and number of outpatients seen in Non-Lead Hospitals.

Methods: Secondary data collected by Ophthalmology and Medical Record Departments from 2015 to 2017 was used. Results: Cataract surgery waiting time reduced markedly from 9 weeks in 2015 to 6 weeks in 2016 and 3 weeks in 2017. Results: The total number of cataract surgeries performed increased from 536 cases to 1349 cases over the study duration. On the other hand, the total number of outpatients seen in HJ saw an increasing trend from 436 in 2015 to 547 in 2016 and 1228 in 2017. Similarly for HT, the total number of outpatients seen rose from 465 in 2015 to 1379 in 2016 and 4071 in 2017. Conclusions: Ophthalmology services in Cluster HTAN have demonstrated encouraging results post-Cluster Hospital implementation in shortening waiting time, optimising Non-Lead Hospitals utilisation and bringing specialised care closer to home for patients which are replicable in other Clusters.

Keywords: Cluster hospital, HTAN, Ophthalmology
Abstract ID: PO0008UC

**Sharia View and Participation in Indonesia National Health Insurance (JKN)**

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**Background:** Indonesia has a target of obtaining universal health coverage by 2019. Currently more than 30% of Indonesian is not JKN participants. Since Muslim is the majority of Indonesia population, the sharia view about this mandatory program (the Fatwa from Indonesian Ulama Council) could be a reason not to join the JKN.

**Objective:** To find out the relationship between sharia view regarding JKN and participation in JKN among the non-wage earners.

**Methods:** A cross-sectional study involved 114 Muslim population characterized as “independent” non-wage earners who visit primary care service (Puskesmas) in Ngluwar district, Magelang regency, Central Java at the end of 2016. Data about sharia view regarding to JKN, sociodemographic, the need for JKN, the presence of risky family members and perceptions of the quality of JKN services were obtained from a valid and reliable questionnaire with cronbach alpha > 0.8. Logistic regression SPSS version 21 was performed to analyze data.

**Results:** In this study 56% of respondents have not participate in JKN. The majority of respondents (73.7%) agree with JKN sharia. Respondents characterized by elementary school education (aOR=14 p=0.037), younger age <20 years old (aOR=19.5 p=0.02) and 20 to 39 years old (aOR=8.7 p=0.43) were more likely not to be JKN participants. Otherwise, respondents who do not have elderly (aOR=0.95 p=0.029) and have no congenital defects(aOR=0.020 p=0.020) and have a risky family member (aOR=0.055 p=0.013) tend to become JKN members. The sharia view regarding JKN (p = 0.808), perceptions of the need for JKN (p=0.255) and the quality of JKN service (p=0.688) were not a predictor of JKN participation among the independents/non-wage earners.

**Conclusions:** Sharia view on JKN among the non-wage earners is not associated to their participation. Increasing the public awareness regarding the importance of having health financial protection trough socio-religio approach is needed to achieve universal coverage in 2019.

**Keywords:** Sharia view, Universal coverage, Non-wage earner
Iodine Deficiency Disorder Cases Identified from the Maldives

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Background: The iodine deficiency disorder (IDD) is a worldwide problem. The aim of this study was to investigate the IDD cases recorded for one year (2016) in the big data of National Social Protection Agency (NSPA) under ‘Aasandha’; National Health Insurance scheme of the Maldives. The objectives of this study were to screen all the IDD related cases along with other associated diseases besides investigate hypothyroidism. Methods: The big data was obtained from Aasandha. The data was extracted for IDD related cases using Excel, identified by International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) and analyzed using SPSS. Logistics regression was used to identify likelihood of the occurrence of associated diseases to that of hypothyroidism. Results: The total population having IDD cases were 6934 with the mean age of 46 years among which 85 % were females and 14% were males. Total 23 types of IDD cases were found and 8 cases had more than 50 patients; E02 (161), E05 (697), E03.9 (1515), E06 (72), E04 (170), E04.1 (64), E04.2 (118) and E03 (3947). These were subclinical iodine-deficiency hypothyroidism, thyrotoxicosis [hyperthyroidism], unspecified hypothyroidism, thyroiditis, other non-toxic goiter, nontoxic single thyroid nodule, nontoxic multinodular goiter, and other hypothyroidism, respectively. A person with hypothyroidism is 1-2 times likely to have hypertension, type 2 diabetes, iron deficiency anemia, gastro-esophageal reflux and hyperlipidemia. The hypothyroidism was prevalent in the Maldives and more female have hypothyroidism compared to men. Conclusions: The person having hypothyroidism is at risk to have type2 diabetes, hyperlipidemia, hypertension, gastro-esophageal reflux, and iron deficiency anemia. Further work need to be carried out on the detail analysis of hyperthyroidism cases found in the year 2016.

Keywords: Iodine deficiency disorder, Hypothyroidism, Type2 diabetes, Hypertension, Hyperlipidemia
Health Status of a Population in Malaysia with High Poverty Rate: A Review

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Background: Published health-related information on Sabah was compiled to describe past trends in health outcomes and other related variables from 1957 to 2015. Seven categories of information were included i.e. supply-side type data, patient records, health data platform, disease specific, population, financing and coverage. More than half of the population lives in urban areas from a mere 17% in the early 1970s. The overall Gross Domestic Product (GDP) is still the lowest despite encouraging economic growth. The median household income was only RM3745/month. Despite having low dependency ratio, Sabah has the highest unemployment rate of 5% and highest poverty incidence of 4%. It faced persistent high incidence of Tuberculosis and Malaria and also an increasing number of people with diagnosed and undiagnosed non-communicable disease such as diabetes, hypercholesterolemia and hypertension. In terms of use of health service, the people rely heavily on public health services either for inpatient or outpatient care. Public health infrastructure’s coverage has increased in the past 10 years. Likewise for doctors per population ratio. In 2009, Sabah total health expenditure was about RM2,652 Million but the per capita health expenditure was very low (RM758). More than two-third of the share health expenditure was for public financing. Conclusions: The results show, Sabah’s hybrid health system presents continuing unresolved policy challenges, the state’s experience nonetheless provides lessons for others that want to expand access to health care and despite limited resources.

Keywords: Review, Health status, Population, Sabah
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