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8th NATIONAL PUBLIC HEALTH CONFERENCE 2016
MANAGING SOCIETY IN COMBATING PUBLIC HEALTH CHALLENGES

2nd - 4th AUGUST 2016

HOTEL EQUATORIAL MELAKA, MALAYSIA

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Malaysian Public Health Physicians’ Association
and
Melaka State Health Department, Ministry of Health Malaysia

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The 8th National Public Health Conference 2016 (NPHC) was jointly organized by the Malaysian Public Health Physicians’ Association and Melaka State Health Department with co-partners from local universities such as UiTM, UKM, IIUM, UPM, UM, USM and Department of Public Health, Ministry of Health Malaysia.

Objectives of this conference are:

i. To provide a platform for health professionals to communicate and share knowledge, experiences and best practices on many facets of public health challenges in managing society towards sustainable development goals.

ii. To build networking and collaboration within and between public health professionals and others in working towards community engagement and empowerment towards improving health.

iii. To recommend solutions for combating public health challenges to all stakeholders.

Conference format:

The NPHC 2016 was held from 2 to 4th August 2016 at Hotel Equatorial, Melaka with a theme of ‘Managing Society in Combating Public Health Challenges.’

The conference was officiated by Chief Minister of Melaka State YAB Datuk Seri Ir. Hj Idris Bin Hj Haron, while keynote address was delivered by the Director General of Health Malaysia, Datuk Dr. Noor Hisham Abdullah. There were three pre-conference workshops, six symposium sessions, three plenaries and one expert panel discussion. The topics cover multiple facets of public health challenges and towards health ‘Sustainable Development Goals’ i.e. Ensure healthy lives and promote well-being for all at all ages. More than 100 scientific papers were presented (oral and poster) in this conference.

Participants include public health medicine specialists and other health professionals from governmental organizations, academia and other institutions who share common interest and dedication in safeguarding and improving the health of the nation.
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PLENARY 1: PARTNERSHIPS FOR SUSTAINABLE HEALTH - REVISIT THE POLICY

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The vision of the Malaysian Ministry of Health is: “A nation working together for health”. Lasswell (1936) defined policy as “deciding who gets what, where and how”. The WHO states that health policy refers to decisions, plans, and actions that are undertaken to achieve specific health care goals within a society. The key International declarations and publications that exhorts partnerships or intersectoral actions for health include: the Alma-Ata Declaration (1978) and The Ottawa Charter for Health Promotion (1986). A partnership is a shared commitment, where all partners have a right and an obligation to participate and will be affected equally by the benefits and disadvantages arising from the partnership. Intersectoral action refers to actions affecting health outcomes undertaken by sectors outside the health sector, possibly, but not necessarily, in collaboration with the health sector. Partnerships or intersectoral action for health are needed because health is not solely the responsibility of Ministries of Health. Furthermore, the influence of the health sector on health status is estimated to be between just 20-25%. Partnership is a continuum starting from involvement to collaboration to participation and partnership. One of three interpretations of Sustainable health and health care focus on financial sustainability or affordability and accessibility of health care in the face of the rising costs of health care. We still have a long way to go before the whole spectrum from cooperation to partnerships are institutionalised as the way to provide health care. Some existing examples of partnerships in the country include KOSPEN, COMBI and NBOS. In order for partnerships and intersectoral action to work, we need to: (1) overcome the barriers to partnerships, (2) acquire the knowledge and skills in working with communities and how to work in partnerships at the levels of the institution as well as individual staff level, and (3) set up the governance tools that foster coherence, collaboration and partnership.

PLENARY 2: SUSTAINABLE DEVELOPMENT GOALS: HEALTH AS AN ASSET

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Sustainable Development Goals (SDGs) are new imitative adopted by UN General Assembly on 25th September 2015 with 17 global goals, 169 proposed targets and 304 indicators. This new non-legally development goals were launched as the continuity of Millennium Development Goals, which is supposed to achieve its objectives by 2015. The SDGs, which are also called Global Goals, set 2030 as the target to end poverty,
fight inequality and injustice, and tackle climate change. Three core elements of SDGs are economic growth, social inclusion and environmental protection. The health sector is addressed directly through Goal No. 3 (Ensuring healthy lives and promote well-being for all at all ages). Thirteen targets are set for these goals which include among others are effective control of non-communicable disease to prevent premature deaths, universal coverage, health financing, health workforce, mental health, injuries, road traffic accidents and effective tobacco control. At least four other goals that have direct and indirect impact on health are Goal No 1 (Poverty), Goal No. 4 (Education); Goal No 6 (Water and Sanitation) and Goal No 13 (Climate Change). Critics of SDGs calls for more ambitious goals to end poverty 5 years earlier (2025) by providing agriculture-led, social protection and nutrition intervention. Others felt that in eliminating extreme poverty, the US 1.25 per day income is too low for human survival and should be revised to US 5. The 169 targets were also being criticized as too many, misconceived and unfocused while ignoring the local context and “cookie-cutter” development policies. In conclusion, it is hope that SDG will provide the impetus for countries especially in the developing world to find solutions to provide the level of development to meet the current needs of the present population and for the future generation to survive.

PLENARY 3: MANAGING INFORMATION FOR PREVENTION AND CONTROL OF NON-COMMUNICABLE DISEASES

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Jabatan Kesihatan Negeri Pahang

Based on WHO Report, NCDs are the leading cause of death in the world. The four main non-communicable diseases - cardiovascular disease, cancer, chronic lung diseases and diabetes - kill three in five people worldwide. Premature deaths from NCDs, however, can be prevented by changed policies and active engagement not only in health but also in other sectors. Effective action will save millions of lives and avoid suffering. To lessen the impact of NCDs on individuals and society, a comprehensive approach is needed that requires all sectors, including health, finance, foreign affairs, education, agriculture, planning and others, to work together to reduce the risks associated with NCDs, as well as promote the interventions to prevent and control them. In 2011, WHO introduced Global action plan for the prevention and control of NCDs 2013-2020. This plan aims to reduce the number of premature deaths from NCDs by 25% by 2025 through nine voluntary global targets. The nine targets focus in part by addressing factors such as tobacco use, harmful use of alcohol, unhealthy diet and physical inactivity that increase people's risk of developing these diseases. The plan offers a set of cost-effective, high-impact interventions for meeting the nine voluntary global targets such as banning all forms of tobacco and alcohol advertising, replacing trans fats with polyunsaturated fats, promoting and protecting breastfeeding, and preventing cervical cancer through screening. Good quality health information is essential for planning and implementing health policy in all countries. Monitoring and
surveillance provide health information in a timely manner so that countries have the information that they need to fight epidemics now or plan for the future. Monitoring and surveillance provide health information in a timely manner so that countries have the information that they need to fight epidemics now or plan for the future. They are fundamental tools for public health. Collecting, analyzing and sharing of data on Mortality and morbidity, Risk factors, National systems and Multi-sectoral response, and Health outcomes monitoring is part of the surveillance and monitoring system. And managing that information is very crucial in prevention and control of NCDs.

SYMPOSIUM 1: CHANGING COMMUNITY BELIEF

VAPE- CHANGING THE YOUTH PERCEPTION

Noraryana Hasan

Unit Kawalan Tembakau/FCTC, Ministry of Health Malaysia

Vaping is a new form of smoking habit and the popularity has become widely and easily accessible to the public in Malaysia. People claims that e-cigarettes are less harmful than tobacco and the use of e-cigarettes could help to reduce smoking but what remains unknown are the health effects especially on prolonged usage. In addition to the unknown health effects, early evidence suggests that e-cigarette use may serve as an introductory product for youth who then go on to use other tobacco products, including conventional cigarettes. In Malaysia smoking of any forms will no longer be a norm in society and children should be fully protected from using them. In achieving the vision towards the Smoke Free Generation, this new forms of smoking habit is a new challenges for Malaysia. This habit poses a serious threat among teenagers and adults despite being socially unacceptable.

MANAGING ADOLESCENT SEXUAL REPRODUCTIVE HEALTH ISSUE: COPE WITH BEST EVIDENCE BASED PRACTICE

Rosnah Sutan

Community Health Department, UKMMC

Adolescent is perceived as the healthiest group in a population which have less economic burden. However, this group is risky in social, economic and health issues. Many experts in adolescent field have conducted studies to explore problems using multidimensional approached. One of the main focuses is on sexual and reproductive health (SRH). Specific health intervention aiming to improve adolescent SRH status has been implemented and many are ongoing. Success and barriers of health intervention were documented. Some of proven success interventions have been used and followed
by others by adapting to their local population. However, issues on sustainability of these interventions were always highlighted. Health problems among these adolescents were still been raise up and increasing morbidity trend seen. Potential unscreened and untreated risky behaviors of adolescents are piling up with chronic disease manifest when they become adult. Involvement of many agencies have shown potential but adolescent SRH issues is still been discussed. Where are we heading, whom we should targeted and who should take the lead? Integrating knowledge into practice using specific framework requires a contextual base, collaborative foundation, and creative partnership among families, practitioners, and researchers and these need to be highlighted.

VACCINATION: EDUCATING AND CHALLENGING THE COMMUNITY

Aminah Bee Mohd Kassim
Family Health Development Division

The National Immunisation Programme in Malaysia provides routine childhood immunisations for a number of vaccine preventable diseases. Similar to other public health programs, immunization programs are invisible when working well. The high vaccination coverage rates and low incidences of diseases indicate a successful immunization program. However there now is a growing concern, where though small in number, there is an increasing number of parents declining vaccination. Non-acceptance has been attributed to various reasons for example religious beliefs, family practices and media influences. Despite being recognized as one of the most successful public health measures, vaccination is perceived as unsafe and unnecessary by certain individuals. The harms of vaccination refusal are real and already seen globally with outbreaks due to vaccine refusal documented in otherwise well-vaccinated populations. Parents who delay vaccinations sometimes are merely seeking more time to consider the decision. Health personnel must recognize that the parents' decisions are more often not final, but still open for further consideration. Studies show that reasons for hesitancy appear to be questions about safety and the need for immunization, and thus represent opportunities for education and persuasion. Clinicians and health personnel need acquire knowledge and communication skills in order to educate and challenge the community on issues of immunization.
SYMPOSIUM 2: SUSTAINING WELLBEING

COMBI: A TOOLKIT FOR SOCIAL COMMUNICATION IN FIGHTING NCDS

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Penang State Health Department

The WHO communication planning methodology called “COMBI”’ Communication for Behavioural Impact, adopted by WHO since 2000. COMBI Offers a 10-Step process for developing integrated synchronised communication plans aimed at getting behavioural outcomes. Since 2000, WHO and UNICEF have applied COMBI successfully in achieving behavioural results in communicable and non-communicable diseases, as well as to other health issues. COMBI emphasizes a sharp focus on achieving specific behavioural outcomes and not only informing and educating the public. It begins with community-based behavioural research (smacking tools) and then applies a synchronised, integrated blend of communication actions to the task of engaging people about the merits of recommended behaviours. NCD prevention and control depends on people carrying out very specific behaviours such as putting less salt in the food one eats, exercising at least three times per week, eating a balanced diet, checking one’s blood pressure, not smoking, and the list goes on. Failing to get people adopting and carrying out these behaviours, will not make any difference in NCD. We cannot get people adopting and carrying out these behaviours unless we intimately and purposefully engage them in considering the merits of recommended behaviours. The communication plans should be carefully developed directed at behavioural outcomes and not just increasing awareness and informing people.

MANAGING HEALTH AND CHALLENGES IN OIL AND GAS- PETRONAS PERSPECTIVE

Kumarajothy Supramaniam
Occupational Health PETRONAS Group Health Safety and Environment, Kuala Lumpur

Petroliam Nasional Berhad (PETRONAS) is Malaysia’s fully integrated oil and gas multinational involved in a range of business activities that include the exploration and production of crude oil and natural gas, the liquefaction and transportation of Liquefied Natural Gas (LNG), the refining, manufacturing and marketing of petroleum products and shipping and logistics relating to LNG, crude oil and petroleum products. Oil and gas operations are complex and presents a multitude of health challenges resulting from the nature of the activities conducted at the workplaces and its presence across multiple geographical locations. These challenges are not just localized to the occupational health risks, resource capabilities or availability of infrastructure in locations or countries of operations but may also be impacted by the changes in global health risk patterns e.g. emerging diseases, pandemics, impact of
climate change and new technologies. The workforce, comprising of employees and contractors, are mainly from the society or population wherever we operate. By identifying and managing health risks and promoting health among our workforce, we contribute towards the overall wellbeing of society. The approach in managing health programs includes regulatory compliance and development of Company Health standards that are implemented across all Company facilities including projects, both in Malaysia and globally. These standards include management of fitness to work, fatigue, food and water safety, health surveillance, physical and mental wellness, medical emergency response, communicable diseases and substance misuse amongst others.

As a global player involved in complex, diversified and high risk industry that employs and hires a large number of workforce, healthy employees are fundamental for the delivery of the Company’s business priorities. Therefore, a proactive approach towards health management is required so as to protect the health of the workforce, and society in general.

‘ENFORCEMENT FOR BETTER PUBLIC HEALTH: WHAT DOES IT TAKES...?’

Nik Shamsidah Nik Ibrahim

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In delivering this topic, matters that will be discussed is the basic understanding of the law and purpose of having such laws. One of the main issues that will be addressed is interpretation of the law which will highlight the meaning of various definitions mentioned in certain said act and its examples. Role and function of implementers and enforcement officers of the said act will also be addressed such as the need to understand the offences mentioned in the said act and procedures to be done if they were to take samples, surveillance and how to collect evidences. Other important aspects of the law are power to enter certain premises, confiscation of products, protection of confiscated products and the penalties stated in the law. As an example issues pertaining to the enforcement of ‘vape’ products’ at the end of last year will be discussed in accordance to the Poison Act 1952 and Control of Tobacco Products Regulations 2004 and its amendments will be forwarded as an example. Differences between Vape, Electronic Cigarettes and Tobacco and its products will also be highlighted. The talk will finally look into the best applicable Act or Regulations that need to be introduced, formulated or amended for the interest of this country.
SYMPOSIUM 3: SUSTAINABLE CITIES AND COMMUNITIES HEALTH

HEALTHY CITY INDEX; HAVE WE DONE ENOUGH?

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Malaysian cities have undergone continuous changes where new buildings and facilities have been created since establishment. The rate of changes varies between cities and cities and between countries and countries. The socio-economic and environmental changes that the cities undergo may have change the life style, behavioral and perception of its people. Some are aware of the changes and while most does not really border. For health, whether Malaysian’s cities which have evolve from small townships to mega cities have any impact to the population’s health? Index is a tool which will score or measure a city or authority or community performances on a comparable basis and provide benchmarked for action. Healthy cities index will measure the impact of cities socio-economic development and environmental expansion to health and well-being of its population. Healthy cities index used 10 basic needs of the people in the cities and comparing where the standing of each city to others and the index were group to five clusters i.e. satisfaction, comfortable, ease (efficiency) of movement, accessibility of services deliveries and high health status. Currently, in the global area, there were several indexes available such as Sustainable cities index, livable cities index, safe cities index and global cities index etc. were used for measuring cities but Healthy cities index has not been established yet but it is paramount important for us to develop and establish this index so that the state of health of the cities in Malaysia can be measured. Murni-net developed by the Department of Town and Country Planning is quite useful tool for consideration since to establish and sustain an index needed strong commitment and support from everyone. The current health issues from infectious disease outbreak or high prevalence of non-communicable diseases and quality of health care deliveries may be factor in to the murni-net index or creating another Healthy City Index and this index will thus have reflected on how the cities were administered and areas for improvement in near future.

Keywords: healthy cities, index, benchmarked

KOSPEN: CHALLENGES IN EMPOWERING THE COMMUNITY

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The prevalence of Non Communicable Diseases (NCD) and its risk factors among Malaysian adults are still high. National Health Morbidity Survey (NHMS) 2015 shows that 17.5% of Malaysian adults have diabetes, out of which 53% are undiagnosed, 30.3%
are hypertensive whereby 57% of them were undiagnosed. 1 in every 2 Malaysian adults is overweight or obese. Except for hypertension which prevalence is slightly lower compared to 2011 NHMS, all of these prevalences are increasing over the years in spite of vigorous efforts that have been conducted in educating and creating public awareness on the disease and its prevention and control. The increasing trend in NCD and its related risk factors have proved that the educational sensibility is not sufficient in prompting the adoption of healthy behaviors. Obstacles include lack of perceived priority for health, and lack of perceived priority for NCD within the health sector itself. NCD is very much associated with human behavior, environment, economic and social factors. Many studies and experiences have shown that carefully planned and fully implemented community-based intervention program play a big role in overcoming the problem of NCD. The intervention should consist of community and individual empowerment, environmental support and reorienting health services. In 2013, the ministry has taken a big step by embarking on a nationwide community based intervention program namely Komuniti Sihat Perkasa Negara (KOSPEN). This initiative brings the NCD prevention and control program to the community through trained health volunteers, who will function as health agent of change or health enablers that introduce and facilitate healthy living practices amongst their respective community members. This would serve as a mean to control NCD such as high blood pressure and diabetes and its associated risk factors such as obesity, unhealthy diet, smoking and sedentary life style within local communities Combining public education and efforts to prompt behavioral changes, KOSPEN is based on three main strategies which are advocacy and awareness, health policy adoption and establishment of healthy environments and routine NCD risk factors screenings. Trained volunteers are also capable of measuring blood pressure, blood glucose levels and body mass index (BMI) following which, at risk cases are referred to nearby health clinics for further confirmation and management. In addition to these, the volunteers who will be known as Gerak Sihat Malaysia (GSiM) are also trained to plan and organize related intervention programs at the community level for those who need it. As of May 2016, there is 5,000 KOSPEN localities nationwide with 30,000 volunteers trained. 300,000 adults have been screened for high Blood Pressure, at risk blood sugar level, overweight and smokers, out of which 70% have been referred to health clinics for Diabetic confirmation, 36% for high risk Blood Pressure and 6.5% for class II Obesity. In addition to this, weight management program is now being piloted in 134 KOSPEN localities. The Health Ministry is targeting as many as 10,000 KOSPEN localities and 50,000 GSiM by 2022. With this individual and community empowerment effort, almost six million citizens is estimated to get benefit from the program, while 1.6 million adults are expected to undergo NCD screening tests by KOSPEN volunteers.
IMPLEMENTING SOCIAL DETERMINANT OF HEALTH THROUGH SOCIAL CAPITAL AND EMPOWERMENT OF THE JATI VILLAGE TO REDUCE INEQUITIES IN HEALTH

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Community based health service action become weak recently in Indonesia. It needs some new energy to strengthen. Adoption of social capital concept into the program could be a way out. An action research through community-based approaches to reduce inequalities in health and wellbeing was carried out in a community of urban setting, Padang city. This aims at identifying how social capital could affects health risk behavior among individuals who are still bearing self help support, social trust, information, and norms, all could be directed to achieve health goals. The research was implemented through 3 steps; mapping the determinant of health’s problem in the Jati village, brainstorming with the community about their problem, and find the solution to solve the problem together. Furthermore, the action health model based on 4 pillars; there are; empowerment, capacity building, equipment & attractive activity. The project promotes community health condition by developing personal skills, house hold waste management, workshop for income generating, as well as empowerment of health care, health expert, facility and funding, all aimed at strengthening community action to develop health service model. The output of the implementations is not only succeeded to initiate and drive processes of social change aiming at the improvement of living conditions conducive to health but also had a multiplayer effect. It could initiate of growing another community based action in education, income generating activity. People in Jati village of these relations demonstrated trust and confidence in each other, which helps enabling them as a social group to become successful in social, cultural, and health terms. This project proved that behind the concept of social capital lays the idea of a well-balanced social system, which favors mutual collaboration between social agencies and sectors for the sake of the sustainability of this system itself.

Keywords: social capital, determinant of health, strengthening community, community-based approach
SYMPOSIUM 4: ESSENCE OF HEALTH TECHNOLOGY

MYNUTRIDIARI - CALORIES AT YOUR FINGERTIPS
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The prevalence of obesity amongst adults in Malaysia has increased dramatically to 17.7% in 2015 compared to 14.0% in 2006 and 4.4% in 1996. A part from being physically inactive, unhealthy eating habit is one of the main contributors to obesity. In order to inculcate healthy eating habits of Malaysians, various strategies had been implemented by the Ministry of Health Malaysia. The most recent strategy being used to advocate healthy eating particularly in creating a calorie conscious community is through a smartphone application namely MyNutriDiari. Users can use MyNutriDiari to monitor their calorie intake and body weight daily, weekly, monthly and yearly. Functions in MyNutriDiari can also be used to calculate individual estimated daily calorie requirement based on current body weight status and physical activity level. Calorie burnt through various physical activities can also be calculated using MyNutriDiari. MyNutriDiari can be downloaded for free and the users can enjoy the unique features of it. MyNutriDiari, calories at your fingertips!

ECOSYSTEM APPROACH TO DENGUE CONTROL IN PETALING DISTRICT, SELANGOR

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Dengue is a common tropical disease affecting many different countries globally including Malaysia. The state of Selangor and district of Petaling is the worst affected area throughout the country. Despite the common conventional control approach, dengue cases continued to rise exponentially. Many of the conventional methods are not applicable in high endemic areas and the approach should be flexible and tailored according to the geographical suitability. Therefore, the ecosystem approach to dengue control was implemented in the district of Petaling in the beginning of 2015. The three municipalities in the district were further divided into 17 ecosystems based on consensus. Each ecosystem was placed under their respective team which coordinates the prevention and control activities. All teams were required to be familiar and well equipped with knowledge of their delegated ecosystem. This will in turn allow for the identification of the problematic localities and focused measures can be implemented. The main activities in this ecosystem approach focuses on prevention rather than control resulting in a decreasing trend and reduction in number of cases. This approach allows for personalized and comprehensive management through better understanding of the localities at risk and it also enhanced the
community engagement and empowerment. The conventional methods for dengue control and prevention are not applicable in high endemic areas and the approach should be flexible and tailored according to the geographical suitability.

SYMPOSIUM 5: PARTNERSHIP TO EMPOWER HEALTH

MANAGING PUBLIC HEALTH DATA: TAKING SDG AS AN EXAMPLE

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Public health generates and uses a lot of data. Data grows exponentially from kilobytes few years back, megabytes, gigabytes now and soon petabytes and exabytes. Accordingly, the information era shifting from PC to internet, or we called now as Web 1.0, then Web 2.0 and now many experts believe that we are in Web 3.0 period where portability and mobile computing are the trend. Public health must adopt and adapt to take its full advantage and to be efficient. Sustainable development goals (SDG) require a lot of data and will generate a lot of data as well. United Nation aware of this need and an independent expert advisory group was established to oversee this matter. This talk will discuss on how they manage this big data.

MATERIALIZING SUSTAINABLE DEVELOPMENT GOALS AGENDA FOR HEALTH - TIME FOR ACTION

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In September 2015, Heads of State and Government agreed on 17 Sustainable Development Goals (SDG) and 169 targets to eradicate poverty, fight inequalities, develop peaceful, inclusive and resilient societies, and secure the future of the planet and wellbeing of future generations over the next 15 years, to succeed the Millennium Development Goals (MDG). SDG-3 is the health related SDG which aspires to ensure healthy lives and promote well-being for all at all ages, with its specific target for improving health outcomes. The SDG will come into effect on 1 January 2016 and to reach the target by 2030. Several health targets in the SDG follow on from the unfinished business under MDG and many other health targets which derived from World Health Assembly resolutions and related action plans. It applies to all countries, however need to be prioritized according to national, sub-national and local development needs and be fully integrated into development policies, plans, strategies and activities for effective implementation. There are several targets to be reach by 2030, covering on maternal mortality; newborn and under-5 mortality; AIDS, tuberculosis, malaria, neglected tropical disease, hepatitis, water-borne diseases and other communicable diseases; pre-mature mortality from non-communicable diseases,
Mental health and wellbeing; substance abuse; death from road traffic accidents; universal access to sexual and reproductive health; universal health coverage; death and illness from hazardous chemicals and air, water and soil pollution and contamination; Framework Convention on Tobacco Control; support research and development of vaccine and medicines for communicable and non-communicable disease which affecting on affordability for essential medicine and vaccines; health financing; and strengthening the capacity of all countries for early warning, risk reduction, and management of national and global health risks. Realizing the need to implement SDG agenda, the next step for Malaysia is through full operationalization and effective implementation of national, sub-national and local development plans and strategies on SDGs that benefits all communities nationwide. We need to mobilize resources through innovative mechanism that ensure effectiveness and efficiency, people engagement at various levels, effective development cooperation at government, civil society, and private sector.

MILITARY ASPECTS OF MANAGING PUBLIC HEALTH ISSUES

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The goal for developing a conference theme is to bring attention to the role of society in combating public health challenges. It had been recognized that certain attributes of military service have public health implications, including occupational injuries, mental health, psychosocial rehabilitation of veterans, to name a few. However, there is a need for increased attention to issues related to cooperation between the military and civilians in terms of addressing public health concerns and burden on society. Learning from each other should be mutually beneficial considering the breadth of knowledge and experience, as well as technical expertise of both military and civilian public health resources. The Malaysian national focus on emergency preparedness for natural disasters, such as floods, and efficient immediate response operations has improved a line of communication between civilian and military public health resources. Civilian public health sector can learn from the military’s experience in dealing with public health threats related to deployment in peace support operations. The military require support from the Ministry of Health in preventing and controlling health threats reportable under international health regulations. Moreover, the military and public health authorities should collaborate on issues of common concern, including addressing the needs of population around the prevention of dengue and other emerging infectious diseases, diabetes, obesity, and the amelioration of environmental pollution. Developing an infrastructure that build bridges between the military and civilian and helps them to work together to address is important.
SYMPOSIUM 6: FIGHTING FOR HEALTH; CAN VACCINE HELP?

RECENT EPIDEMIOLOGICAL TRENDS OF DENGUE, AND POTENTIAL IMPACTS OF DENGUE VACCINATION

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Approximately 75% of the global population at risk of dengue infection lives in the Asia Pacific region, where vector mosquitoes and dengue viruses have become widely dispersed following social, environmental, and demographic changes. Case numbers are increasing globally: WHO reports a 30-fold increase over the past 50 years, and an increasing number of Asian countries are affected. Serotype distributions are unpredictable but expanding, resulting in hyper-endemic dengue with country-specific epidemiological patterns. Malaysia recorded its first dengue case in 1901 in Penang; the virus has since become endemic nationwide, with around 2/3 of cases reported in the Klang Valley. Since late 2013, Malaysia has been experiencing the largest and most sustained outbreak in its history. Worryingly, this outbreak shows no signs of abating: to date in 2016 there have been >61,000 reported cases and >130 deaths. Despite these huge numbers and in common with other countries, these are likely underestimates, with many mild episodes unreported/unrecognized. Accordingly, estimating the full disease burden is one of the WHO’s three objectives in the 2012 Global Strategy for Dengue Prevention and Control 2012-2020 and global studies have quantified this disease burden. Most notably, a 2013 cartographical modeling study estimated a global burden of 390 million infections of which 96 million were symptomatic. It estimated over 983,000 cases in Malaysia, in 2010. These and other burden estimates are relevant when considering the impacts of broad vaccination programmes, which aim to change epidemiological patterns in population groups most affected by disease. Studies indicate the public health value of dengue vaccination are likely to be substantial, including in prevention of severe clinical disease and hospitalization; and in reducing health services utilization, particularly in Asia where disease incidence is highest. In Asia, for example, dengue vaccination can prevent more hospitalized dengue episodes than Haemophilus influenza B vaccination can prevent episodes of Hib meningitis or all cause severe pneumonia. A modeling study in Malaysia indicated that a broad dengue vaccination campaign could reduce the burden of disease by ~60% over 10 years, accompanied by a substantial reduction in the number of hospitalizations, and bringing economic benefits.
MAKING DENGUE A VACCINE PREVENTABLE DISEASE

Alain Bouckenooghe

Clinical Research and Development, Sanofi Pasteur, Asia Pacific

Dengue, a mosquito-borne disease caused by one of four dengue virus serotypes (DENV-1, DENV-2, DENV-3 and DENV-4) of the genus Flavivirus, is a growing public health problem. The objectives of the WHO Global Strategy for dengue prevention and control (2012–2020) are to reduce its mortality and morbidity by 2020 by at least 50% and 25% respectively and vaccine implementation will play an important role in achieving these objectives along with other measures. The first dengue vaccine, CYD-TDV has now been licensed by several dengue-endemic countries in Asia and Latin America for use in persons aged 9–45 years and is under regulatory review in several others. It has undergone an extensive clinical development program including 25 clinical trials in over 40,000 people of different ages, geographic & epidemiological settings and ethnic & socio-economic backgrounds from 15 countries around the world. The New England Journal of Medicine reported pooled efficacy analysis of individuals 9 years of age and older of 93% against severe dengue, and 80% against hospitalizations due to dengue. The vaccine protects two-thirds (66%) of the vaccinated individuals against dengue of any severity. An integrated safety analysis also confirmed the persistency of the longer-term safety profile of this vaccine for individuals 9 years of age and older after four years of follow up. The Strategic Advisory Group of Experts (SAGE) on immunization has recommended that dengue-endemic countries should consider introduction of CYD-TDV as part of a comprehensive dengue control strategy along with other measures.
ORAL PRESENTATION

EPIDEMIOLOGY

EOP1

Prevalence and Associated Factors of Depressive Symptoms among Disadvantaged Adolescents: Results from a Population Based Study in Bangladesh

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Few studies have examined depression among adolescents in low-income countries, and no research has yet been carried out in Bangladesh. This study estimated the prevalence of depressive symptoms and determined the associated factors and help-seeking behavior among adolescents in Bangladesh. Data originated from a cross-section of 2440 randomly selected boys and girls aged 13-19 years in a rural district and urban slums of Dhaka city, Bangladesh during October-November 2012. Beck Depression Inventory (BDI), a 21-items scale measured the prevalence of depressive symptoms using a cut-off of ≥16. The prevalence of depressive symptoms among adolescents was 14% with predominance in urban slums and among girls. Older age (15-19 years), poverty, and poor parental relation were found to be associated with depressive symptoms of both sexes; family history of depressive symptoms for boys; and reproductive illness and sexual abuse for girls. More than 80% of depressed adolescents sought no help. Adolescent depressive symptoms are common and largely undetected public health problem in Bangladesh. Policies aimed at concerted efforts in the implementation of community-based counselling services and developing referral systems for those who scored ≥30 at BDI may ameliorate the potentially harmful consequences of depressive symptoms in adolescents.

Keywords: Adolescent, depressive symptoms, urban slums, rural, Bangladesh
EOP2

Effectiveness of a Self-Efficacy Education Program on Foot Self-Care Behaviour among Older Diabetics in a Public Long-Term Care Institution, Selangor: A Pilot Study

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Foot self-care behaviour is an essential component of diabetes education and care. However, little is known on diabetes education program in long-term care facilities. A self-efficacy education program was piloted to evaluate the effectiveness of a self-efficacy education program on foot self-care behaviour among older diabetics in a public long-term care institution. A pre and post intervention study was conducted in a public long-term care institution in Selangor, Malaysia. Diabetes patients aged 60 years with specific eligible criteria were invited to participate in this program. Four self-efficacy information sources; mastery experience, modelling, psychological states, and verbal persuasion were translated into program interventions. The program consisted of 20 minutes of seminar presentation, routine weekly visits and followed up for troubleshooting and support at week-4 and week-12. The primary outcome was foot self-care behaviour. Foot self-efficacy, foot care outcome expectation, knowledge, quality of life, clinical characteristics and foot condition were secondary outcomes. Data were analyzed with descriptive and inferential statistics (McNemar test and Wilcoxon signed-rank test) using Statistical Package for the Social Sciences version 20.0. Fifty-two were recruited but later only thirty-one data were analyzed from baseline to 12 weeks of evaluation. Post intervention, foot self-care behaviour (p<0.01), foot self-efficacy (p<0.01), foot care outcome expectation (p<0.01), knowledge (p<0.01), quality of life (physical symptoms) (p=0.003), fasting blood sugar (p=0.01), foot hygiene (p=0.03) and anhydrosis (p=0.02) showed significant improvement. Findings from this pilot study would facilitate planning of a study in a larger older diabetes population living in long-term care institutions.

Keywords: Diabetes, education, foot, long-term care, self-care behavior, self-efficacy, older
EOP3

Challenges in Managing Dengue Infection among Elderly Patients

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Dengue infection has a wide spectrum of clinical presentations. Recent studies showed that elderly had a higher risk of hospitalization and death. Therefore, to better understand dengue infection in the elderly is important to improve overall treatment outcome. The objective of this study was to compare the sociodemographic, clinical characteristics and outcomes of dengue infection between adult (<60 years) and elderly (≥ 60 years) patients in Klang District. This was a retrospective cohort on all serologically confirmed adults’ dengue patients registered in the 2015 e-Dengue database in Klang. Statistical analyses were performed using the SPSS Version 16.0. Continuous variables were expressed as the means ± standard deviations (SDs) and categorical variables were expressed as numbers and percentages. A total of 8,404 serologically confirmed dengue cases were registered in the e-dengue database in Klang District and 6,946 were adults. Of these, 353 (5.1%) were elderly patients. Elderly dengue patients were significantly more likely to be female (46.2% vs 37.5%, p=0.001), Chinese (34.0% vs 20.5%, p<0.001) and Malaysian (98.9% vs 83.1%, p<0.001). Clinical features were similar except elderly patients were significantly more likely to have a headache (98% vs 95.1%, p=0.012) and less likely to have nausea, vomiting (0.3% vs 1.4%, p=0.033) and abdominal pain (1.7% vs 4.7%, p=0.008). Hospital admission and outcome of death were not statistically different. In conclusion, elderly dengue patients present atypically with more headache and less nausea, vomiting and abdominal pain. Thus, the diagnosis and appropriate management of these patients may be delayed as they may present atypically.

Keywords: challenges, dengue infection, elderly

EOP4


Feisul I M

Steno Diabetes Center Malaysia

In many developing countries, there are an insufficient number of well-trained medical practitioners to handle the rapidly increasing number of diabetes patients. This has resulted in a treatment gap that requires diabetes educational programmes
that can enable healthcare professionals to provide patient-centred diabetes health services at the primary care level. The Steno REACH Certificate Course in Clinical Diabetes Care (SRCC) is a comprehensive, competency-based educational program that blends eLearning and classroom-based group work with the aim to improve the capacity of primary care doctors and nurses to deliver high-quality diabetes care. Using the pedagogical model of the flipped classroom, 50 hours of foundational material is delivered in a self-paced, online platform while another 50 hours of classroom time is devoted to reinforcing core concepts through exercises, mini-lectures, and case discussions. Completing the learning circle are clinic-based learning activities. Unlike most long-format, post-graduate medical training programs, participants are able to work full-time as clinicians - thereby overcoming a common barrier to participation in extensive, continuing medical education. Understanding the impact of this novel approach is critical and few studies have measured the clinical impact of medical education on diabetes in a real-world setting. While studies on medical education, in general, have reported a positive effect on physician performance and patient outcomes, several have expressed the need for further research on the application of new knowledge and skills - as well as the impact of contextual factors on this application. Most studies have reported self-assessed and qualitative outcomes. None have reported on a medical educational intervention with a duration, depth, and scale comparable to the SRCC, and targeting both doctors and nurses. The proposed quasi-experimental, mixed methods research aims to evaluate the effect of participation in the SRCC on diabetes-related knowledge, attitudes and clinical skills. The diabetes-related knowledge, attitudes, and skills of participants will be assessed before, during and after course participation using quantitative and qualitative methods. Doctors and nurses from non-intervention matched clinics not will also be assessed in an attempt to isolate changes attributable to the SRCC intervention. Seven different data collection methods will be used to achieve the research objectives. The research will focus not only on identifying if a positive impact was realised but also describe how and why the changes occurred, including discussing the contextual factors that enabled or inhibited the clinical application of new skills.

Keywords: diabetes, primary care, medical education, impact evaluation

EOP5

Socio-Demographic Characteristics and Outcomes of Patients Seeking In-Vitro Fertilization (IVF) at a Private Hospital in Saudi Arabia

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In-vitro fertilization services for infertility were commenced in Saudi Arabia in 1986. Presently there are more than 35 Assisted Reproductive Technology (ART) centres in the Kingdom; most of them (80%) are in the private sector. This study was conducted
in one of the biggest private hospital providing the largest In-vitro fertilization (IVF) service in the country performing around 41% of market share in the central area of the Kingdom. The socio-demographic characteristics and outcome of patients seeking IVF technology in Saudi Arabia have not been sufficiently documented. The aim of this study was to describe the socio-demographic characteristics and outcome of patients seeking IVF treatment in the private hospital in Saudi Arabia. This descriptive study covered a total of 2,529 couples that attended the IVF unit in a private hospital from Jan 2014 to May 2016. All cases undergoing IVF cycle for all indications and all ages were included in the study. Information was extracted from an electronic and hard copy of IVF unit medical records. The mean ages of the women and their husbands were 32.9 and 39.6 years respectively. Primary infertility was found in 45% of the women while 54% were secondary infertility. Male sperm factor was the commonest single indication for IVF and account for 36%. Infertility duration was found to be more than three years in 71% of cases. The pregnancy rate for female age 35 and below was 37.1%. In conclusion majority of patients seeking IVF due to male factor infertility and advanced female age with longstanding infertility.

**Keywords**: sociodemographic, IVF, Saudi Arabia, outcome, infertility

**EOP6**

**Effect of Ramadan Environment on Fagestrom Test for Nicotine Dependency (FTND) and Saliva Cotinine among Smokers**

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Smoking has become one of the negative health behaviour that brought in health and social problems into the community. The effects of smoking can be decreases by promoting smoking cessation. One of the approaches of smoking cessation intervention will be focusing on the supportive environment that can be naturally found during the Ramadan where every Muslim is obligated to fast which included abstaining from smoking. The study was conducted as The Time-series Experiment study design to evaluate the effect of Ramadan environment on Fagestrom Test for Nicotine Dependency (FTND) and saliva cotinine among smokers who work at Selangor. The aim of this study is to identify the changes of the smoker’s nicotine dependency score by using the FTND and saliva cotinine level from before Ramadan to during Ramadan and after Ramadan. A total of 61 male and current smokers were recruited. The mean age was 32 years old. By using paired sample t-test, the result of the study found that there is a significant positive changes of FTND score from before Ramadan to during Ramadan (t (60) = 3.47, p = 0.001) and also from before Ramadan to one month after Ramadan (t (60) = 3.25, p = 0.002). Similarly, there is also a significant positive changes in the saliva cotinine level from before Ramadan to during Ramadan (t (60) =
3.66, \( p = 0.001 \)). The findings suggest that there is a significant effect of Ramadan environment in reducing the smoker’s nicotine dependency and saliva cotinine level.

**Keywords:** smoking cessation, Ramadhan environment, Fagestrom test for Nicotine Dependency (FTND), saliva cotinine

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**EOP7**

**Burden of Disease Attributable to Major Risk Factors in Malaysia**

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Measurement of burden of disease and injury is vital for health decision-making and planning. Equally important is the contribution of modifiable risk factors towards the disease and injury. To estimate the attributable burden of disease due to major risk factors among Malaysian population aged 30 years and above. Using WHO comparative risk assessment (CRA) methodology, the disease burden attributable to a particular risk factor is estimated by comparing the current local health status with a theoretical minimum counterfactual with the lowest possible risk. The calculation of Burden of Disease in terms of Disability Adjusted Life Years (DALYs) was done using the methodology used in the Global Burden of Disease Study. The leading risk factors for burden of disease among males were high blood pressure (BP) (16.1%), smoking (15.3%) and diabetes mellitus (14.3%). High body mass index (BMI) (15.6%), high BP (14.6%) and diabetes mellitus (14.5%) were the top 3 leading risk factors among females. The risk factors were highest among age group 45 to 59 years old followed by age group of 60 to 69 years old for both genders. There was difference in the contribution of risk factors by gender and age group. Understanding the role of these risk factors is important for developing clear and effective strategies to improve the health of the population.

**Keywords:** burden of disease, risk factors, DALYs, Malaysia
Delayed Vaccination and Its Association with Measles Outbreaks: A Systematic Review

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Delayed childhood vaccination (beyond recommended vaccination schedules) can potentially reduce herd immunity and may cause outbreaks even in populations with high immunization rates. This systematic review evaluates published evidence on the link between timeliness of first dose of measles vaccination and measles outbreaks. This review was conducted in accordance with the PRISMA guidelines. We searched all original articles published before July 2013 in Embase and PubMed databases that reported delayed vaccination and measles outbreaks. Reference lists of included papers and relevant reviews were identified and searched for additional studies. Studies on vaccination coverage, vaccines other than measles or theoretical papers were excluded. Only English articles were reviewed. Study quality was assessed regarding subject recruitment, accuracy of measurement, data collection, adequacy of sample, clarity of result, and rigor of data analysis. 10 studies met the inclusion criteria. They consisted of: two secondary data analysis, three cohort studies, two outbreak investigations, two cross sectional surveys and one case-control study. Two countries with high overall vaccine coverage reported measles outbreaks when 20% to 34% of vaccinations occurred outside the recommended age. Two studies in Europe reported that children were vulnerable to measles on an average of one to three months because of delays in vaccination. Three studies predicted, through mathematical modeling, that timely vaccinations could potentially prevent 55% to 79% of outbreak cases. This systematic review revealed that delayed vaccination undermines herd immunity, and increases both the risk and size of a measles outbreak.

Keywords: measles, vaccination, timeliness, delay, outbreak
EOP9

Effect of Moon Phases on Dengue Outbreaks in Urban Areas: A Review

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Dengue Fever (DF) is a flu-like viral infection with no current treatment. It is transmitted by Aedes aegypti and Aedes albopictus mosquito female bites; incubation takes 3-14 days. Dengue is an urban disease. Statistics show that more than 100 countries in 2014 were affected by DF. It is the result of the growing urban environment providing favourable breeding sites by man-made containers such as tires or uncollected refuse. Other factors such as weather temperature and rainfall are also influencing the mosquito life cycle. A research made suggested that there is a gap in research on determining the correlation between the biting habit of the vector and the moon phases. Therefore, this research is an attempt to analyse historical dengue cases reported by the Malaysian Ministry of Health and the moon phases for a period of five and a half years to establish a correlation between the two variables. More than 6000 data representing dengue cases were restructured to reflect the four moon phases. In the present study, it is being established that there is an increase in dengue cases during the new moon phase; this implies that there was a high landing rate three to 14 days earlier. This coincides with the full moon and the third quarter phases. The significance of these results would suggest that this temporal correlation is determinant on how the data should be gathered in the future. It will further strengthen the dengue surveillance by the relevant government agencies in Malaysia and the region.

Keywords: urban health, dengue fever, moon cycle, Aedes aegypti, aedes albopictus

EOP10

Dengue Death Cases, Melaka 2010-2015, who are they?

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Dengue death is one of the key performance indicators (KPI) monitored by the Ministry of Health. The national indicator for dengue case fatality rate (CFR) should be below 0.2%. The CFR for Melaka state in the years 2010 to 2015 varies between 0 to 0.8%. This study analyses the demographic profile and health seeking behavior of Dengue death cases in Melaka from 2010 to 2015. The data for this study is extracted from the national database system, e-vekpro. Analysis of data was performed with SPSS in terms of frequencies and percentages. A total of 35 deaths were recorded between 2010 1nd 2015. CFR were higher among elderly, Malays and females. All death cases
were Malaysians. Most death cases (46%) were diagnosed by the second health facility visited by patients 0 to 5 days after onset (mean 3 days) while death occurred 2 to 14 days after onset (mean 6 days). The mean duration between onset and first health facility visited was two days. The first health facilities visited by cases were government health clinics (34%), general practitioners (34%), government hospitals (26%) and private hospitals (8%). Based on this study it can be concluded that Dengue death cases tend to seek an early treatment in the health clinics. Therefore, doctors in both government and private clinics should have a high index of suspicion of Dengue particularly within the first week of fever onset.

**Keywords**: dengue, death, cases

### FAMILY HEALTH

**FHOP1**

**HPV Self-Sampling: YAY or NAY?**

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A persistent infection with high-risk human papillomavirus (HPV) strain is one of the contributing causes of cervical cancer. This cross-sectional study aims to determine the usability of HPV self-sampling using Digene HC2 DNA collection device and the willingness to buy it. All eligible women aged 30-60 years old from Obstetrics & Gynaecology clinics at Universiti Teknologi Mara specialist centre were invited for the study. A total of 164 women agreed to participate. After HPV self-sampling had been conducted at situ, participants answered questionnaires on the sociodemographic factors and the usability of the kit. The study was approved by Universiti Teknologi MARA Research Ethics Committee (600-RMI (5/1/16). Most of the participants were Malays (93.9%), attained tertiary education (65.2%) and employed (70.1%). The mean age of participants was 40.6±8.3, range 28-59 years old. The majority of the participants (98.8%) felt that the self-sampling was easy to perform. More than half (66.5%) felt no pain at all during the procedure. About 90.1% expressed concern not able to get a good sample. In addition, 74.1% of the participants fear of dropping the brush/tube while performing the test. In the multivariate analysis, no significant associations between age, ethnicity, employment and education level with the willingness to buy the self-sampling device. In the independent t-test, no significant mean differences found among women who are willing to buy versus non-willing regarding participants’ age, age at first coital and a number of sexual partners. HPV self-sampling is applicable. It has the potential to complement Pap smear screening.
Keywords: HPV, self-sampling, usability

FHOP2

HIV Risk and Preventive Behaviours among the Wives and Female Intimate Partners of People Who Inject Drugs in Kuala Lumpur and Selangor

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People who inject drugs (PWID) comprise the highest percentage of diagnosed HIV cases in Malaysia. Their intimate partners risk being infected through sexual contact. This study aims to understand the HIV risk and preventive practices of women intimately involved with PWID. A cross sectional study using a pretested, self-administered questionnaire was conducted among the wives and female partners of PWID in Kuala Lumpur and Selangor; 221 women were recruited through respondent driven sampling. Data was analysed descriptively to assess HIV risk, condom use and HIV screening uptake. Subsequently, bivariate and multivariate analysis were undertaken to identify factors associated with condom use and HIV screening. These women are vulnerable to HIV, reflected by the high HIV prevalence of 6.3% compared to the general Malaysian population. While 7.7% of women reported having HIV positive partners, 45.7% were unaware of their partner’s HIV status. Only 19.5% used condoms regularly with their partners. Condom use was significantly higher among women who were unmarried, lived in urban areas and had higher HIV prevention knowledge. About 75.1% of women had been screened for HIV, of whom, only half were screened in the recent 12 months. Higher HIV prevention knowledge and perception of being at risk of HIV were significantly associated with screening uptake. The increased in HIV risk among these women calls for specific preventive strategies; including encouraging disclosure of HIV status by PWID to their partners and empowering women with alternative prevention methods that they themselves could control.

Keywords: HIV risk, HIV prevention, intimate partners, PWID, injection drug users
FHOP3

Managing Health System Governance: Frameworks, Strategies and Polices for Mainstreaming Gender Based Needs into Public Health

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Governance of health system is very important to be considered for the equitable distribution of healthcare services to the population. Governance of health system is based on equitable provision of resources, design appropriate strategies to improve the health conditions and wellbeing of people, assured proper and adequate rules and procedural guidelines for measuring its actions. This paper aimed to do the gender based analysis of different governance frameworks designed by health organization to measure the health system. The governance frameworks were adopted through the annual reports of International health organizations and analyzed through gender lens. Although the progress has been going on to improve the health status of women in Pakistan, but there is still a long way to go to deliver gender sensitive health care practices. In the past, the issue of health governance was the responsibility of national government only but with the increasing demands and overlapping system, it has been distributed to the regional or district levels as well. Unfortunately, the process of planning and financing of health care services lacks accountability in health system of Pakistan. For the gender balanced structure of governance in health system of Pakistan, there is a need for integrating gender perspective at all levels of health system from the policy level to its implementation.

Keywords: Health System, Governance, Health Policy, gender perspective,

FHOP4

Adolescent Health Service in Primary Care: The Klinik Kesihatan Tanglin Experience

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This paper examines the five Adolescent health scopes under our Ministry of Health’s Adolescent Health Services (i.e: Mental Health, Sexual Reproductive Health, Nutritional Health, Growth & Development, and High Risk Behaviour) in an urban setting of Klinik Kesihatan Tanglin, Kuala Lumpur. We report descriptive statistics regarding the increasing rates of issues in each of the five categories. The results suggest that the prevalence of behavioural issues among urban adolescents is
substantial. These results call for a more comprehensive and adolescent friendly service to prevent high risk involvements of adolescents in urban communities. Henceforth, Adolescent Health Service of Klinik Kesihatan Tanglin initiated an integration programme between primary and tertiary healthcare services to facilitate the management of challenging teens in the urban areas. This is in tandem to make Adolescent Services more accessible and approachable to the adolescents. The Adolescent Health Service of Klinik Kesihatan Tanglin aims to set up an adolescent one stop centre in the future.

**Keywords:** Klinik Kesihatan Tanglin, adolescent health services, adolescent health scopes

**FHOP5**

**Prenatal Breastfeeding Education Program (PBEP): Is it better?**

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Breastfeeding has been globally accepted as the best sustenance for newborns. In Malaysia, the breastfeeding rate is below the recommended practice. Therefore, a structured breastfeeding education program called Prenatal Breastfeeding Education Program (PBEP) was created. This study aimed to evaluate the PBEP by comparing the level of breastfeeding knowledge between them and mothers who attended conventional breastfeeding education programs (CBEP). A case control study was conducted among mothers admitted for delivery at a teaching hospital in North Eastern Malaysia in December 2015. Mothers with CBEP were selected as the control group, and those with PBEP were selected as the case group. A self-administered questionnaire was distributed to randomly selected mothers. The research tool was a validated Malay language questionnaire assessing breastfeeding knowledge. Data entry, analysis, and interpretation were done using SPSS. A total of 38 subjects were recruited in the control group, and 19 subjects were in the case group. Independent t-test shows a significant mean score difference of 4.79, p-value<0.0001 between the control and case group. Multiple Linear Regression showed a significant linear positive relationship between the knowledge score and PBEP. Those who attended PBEP have 5.5 unit score higher than CBEP, with the adjusted occupation, parity, age and education (Adj b = 5.51, 95% CI: 2.80, 8.11). From Mann-Whitney Test, a significant mean score difference is found between the control and case group in five out of ten domains. PBEP is effective in imparting essential breastfeeding knowledge to mothers and is superior to CBEP.

**Keywords:** evaluation, breastfeeding, education program.
Prevalence and Factors Associated with Elder Abuse: A Community-Based Study in a Rural Community in Malaysia

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With population ageing and the rapidly changing demographic structure in Malaysia, the health and social welfare of the elders are of paramount importance. Protecting elders from abuse is essential, as mentioned in the National Policy on Elders, and this is being in line with successful ageing. A community based household survey was conducted in the rural district of Kuala Pilah, Negeri Sembilan, to ascertain the prevalence of and factors associated with elder abuse. Face-to-face interviews with 2,112 elderlies, chosen via probability sampling from the census sampling frame, were conducted using a tool validated for the local population. The prevalence of overall elder abuse was 4.5%. This was further broken down into psychological, financial, neglect, physical and sexual abuse, at 2.2%, 2.0%, 1.1%, 0.5% and 0.1% respectively. Two or more occurrences of individual abusive acts in each subtype of abuse were common. Clustering of various types of abuse was experienced by one third of abused elders. Using multivariate analysis, the odds of being abused was higher among males (aOR 1.70, 95% CI 1.05-3.06), having secondary or higher level of education (aOR 2.13, 95% CI 1.03-4.42), poor mental health (aOR 4.14, 95% CI 2.18-7.87), risk of social isolation (aOR 2.67, 95% CI 1.42-5.02), prior history of abuse (aOR 4.29, 95% CI 1.72-10.69) and presence of depressive symptoms (aOR 11.78, 95% CI 4.08-34.06). Health and social welfare providers should be aware of these factors in order to help detect elder abuse, which often goes unnoticed, within the community setting.

Keywords: elder abuse, elderly health, associated factors

Are Female Health Care Workers at Greater Risk for Hepatitis C Virus (HCV) Infection?

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Hepatitis C Virus (HCV) is major public health in the world. It was estimated that about 130-170 million people were infected with HCV worldwide. Health care workers
HCWs (HCWs) have played an important role in the transmission of HCV infection. HCWs may be involved either as victims or as the source of infection. This study was designed to determine the prevalence of HCV, antibodies RNA and genotypes among the female HCWs in Baghdad and to identify whether HCWs were infective or only infected. A cross-sectional study involving 1001 women attending 17 health care centres in Baghdad, Iraq was carried out. Information on type and duration of their occupation was obtained. Blood sample was obtained from each participant. HCV antibodies (anti-HCV) were tested using subsequently third generation enzyme immunoassay (EIA-3) and immunoblot assay (Lia Tek-111). Besides that, 63 serum samples were subjected to molecular analysis using RT-PCR and DNA enzyme immunoassay (DEIA) method for HCV-RNA and genotypes detection. Anti-HCV and HCV- RNA seroprevalence were significantly higher (6.37 %, p=0.0057, 88.83%, p= 0.011 respectively) among HCWs than non HCWs. HCWs were at higher risk of exposure to HCV infection (OR=2.75, 95% C.I. =1.31-5.79) No significant association between HCV genotypes and the HCWs. HCV-4 showed higher (62.5%) among HCWs. In conclusion, Female HCWs were infective as well as infected with HCV. Hence, complete sterilization and cleaning of equipment is necessary.

**Keywords**: Hepatitis C, health care workers, risk factors, RNA, HCV-Genotype, nosocomial infection

**FHOP8**

**Influence of Foetal Sex and Maternal Gestational Diabetes Mellitus Status on Infant Outcomes among Infants Born in Hospital Universiti Sains Malaysia**

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Escalating prevalence of gestational diabetes mellitus (GDM) among pregnant women is a public health issue due to rising obesity and delayed family formation among women. It has been suggested that GDM and male foetal sex may have an effect on adverse infant outcomes through primarily the influence of male hormone on the maternal body. However, this has not been well studied in Malaysia. This study aimed to determine the proportion of foetal outcomes with GDM status, and the relationship of GDM status and foetal sex with these infant outcomes (macrosomia, preterm birth and stillbirth). A secondary data review of the birth registry was conducted in Hospital Universiti Sains Malaysia. A total of 1077 sample units was selected using disproportionate stratified random sampling. Multiple logistic regression models were built to ascertain the association of GDM status and foetal sex with selected infant outcomes. This study found that foetal outcomes macrosomia, preterm and stillbirths were of higher proportion among GDM mothers. Both GDM status (AOR 4.09, 95% CI:
2.20, 7.58, \( p < 0.001 \) and male foetal sex (AOR 2.41, 95% CI: 1.23, 4.74, \( p = 0.010 \)) were found to be significantly associated with macrosomia, after controlling for confounders. Nonetheless, both GDM status and male foetal sex were not statistically significant for preterm and stillbirths. In conclusion, macrosomia was associated with GDM status and male foetal sex, but not for preterm and stillbirths. Thus antenatal services should give focussed attention to GDM mothers carrying male foetuses with regards to management of macrosomia. (247 words)

Keywords: Gestational diabetes mellitus, foetal sex, infant outcome

FHOP9

Electronic Screen Time of Two-Year-Old Children in Malaysia

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This study aims to determine children’s time spent on electronic media and factors associated with screen time. A cross-sectional study was conducted among parents with 2-year-old children from 3 randomly selected hypermarkets in the Kinta district of Perak. A face-to-face structured interview using a standardised questionnaire was used to determine the quantity and quality of children’s time spent on electronic screens. Written consent was obtained from parents who agreed to participate. Parents were asked to recall their child’s activity on electronic screens over the immediate past 24-hour period. We collected the child’s time spent on electronic screens, type of electronic screen, location spent with electronic screen, type of activities with electronic screen, and whether the child was accompanied. Factors associated with the time children spent on electronic screens were explored using multiple linear regression analysis. A total of 382 parents were approached and agreed to participate. On average, children spent 5.9 (SD 4.9) hours on electronic screens, with television having the highest screen time (5.9 hours). Some children used more than one device at a time (63.6%). Most children spent their time watching shows/ movies/ documentaries or listening to music (77.2%) at home (82.2%). However, one fourth of these children were unaccompanied during the use of electronic screens (24.9%). The age of children’s first exposure to modern technology, number of screens viewed at a time, parent’s education level and parent’s occupational class were significantly associated with children’s screen time (\( p = 0.045 \), \( p = 0.052 \), \( p = 0.011 \) and \( p = 0.022 \) respectively). Two-year-old children spend a substantial amount of time on electronic screens. Parents need to be aware of their children’s screen time and supervise them.

Keywords: screen, electronics use, television
Knowledge of Parents or Caregivers in Managing Common Childhood Emergencies


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Children often sustain common injuries like choking, head injuries and seizures. The objective of this study was to assess the ability of parents/caregivers in identifying and managing these emergencies. We conducted a cross-sectional study in 5 randomly-sampled indoor playgrounds in the Kinta District. We included all parents/caregivers attending these playgrounds, except those who had job-related compulsory first aid training. We assessed their knowledge in identifying and managing emergencies in three scenarios (choking, head injury, and seizures). All responses were recorded in a validated British Red-Cross first aid check list. After the interview, each participant was provided with standard algorithms on the correct management of these emergencies. Participants were graded as ‘Good Knowledge’ (all steps correct and in sequence), ‘Average Knowledge’ (all steps correct but not in sequence) and ‘Poor Knowledge’ steps incorrect regardless of sequence). A total of 360 parents/caregivers were assessed, of which 86.6% were parents. Most (60.0%) had up to secondary level education, and 28.6% were unskilled workers. Only 11.9% had prior first aid training, of which 5.6% possessed current first aid certification. All participants did not possess first aid algorithms. Most were able to identify emergency conditions correctly (93.9% seizures, 91.9% choking, 73.9% head injury), but all had poor knowledge in managing them. Having first aid training, first aid kit, and algorithms at home were not significantly associated with knowledge on managing emergencies. The majority of parents or caregivers were able to correctly identify common emergencies but had poor knowledge in managing common paediatric emergencies.

Keywords: common emergencies, choking, head injury, seizures
Knowledge and Attitude on Social Health and its Related Illness among Youth in Felda Bukit Rokan, Negeri Sembilan, Malaysia

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Social health refers to the overall state of a society which concerns on relationship between people. In this recent year, drug addiction and sexual risk behaviour among youth are ranked as the top two of major issues and topics of discussion among health professionals in Malaysia. The objective of this study is to determine the knowledge and attitude and their correlation on social health and its related illnesses among youth in Felda Bukit Rokan, Negeri Sembilan, Malaysia. A cross-sectional study was conducted among 133 respondents (aged 15-24 years old) in Felda Bukit Rokan, Negeri Sembilan, Malaysia. They were selected through universal sampling method. Face-to-face interviews were done using validated self-constructed questionnaire. Most of the respondents were from the age group of 15-19 (70.7%) and 82.0% of the respondents have secondary school education Mean knowledge score on drug addiction and its related illnesses was 5.96 out of 10 points. Mean knowledge score on sexual risk behaviour and its related illnesses was 3.85 out of 6 points. The drug addiction and sexual risk behaviour attitude score among the respondents had a mean score of 19.47 out of 25 points and 18.82 out of 25 points respectively. There was also positive correlation between the knowledge and attitude on drug addiction (p=0.037) and sexual risk behaviour (p<0.001) and its related illnesses. Knowledge on the social health especially on drug addiction and sexual risk behaviour and their related illnesses should be highlighted by the authorities to improve the attitude among youth in Felda Bukit Rokan.

Keywords: knowledge, attitude, social health, illness, youth
HEALTH MANAGEMENT / HEALTH ECONOMICS

HMOP1

Provider Cost of Complete Denture among Adults in Government Primary Care Dental Clinics (GPCDCS) in Kelantan

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Fabrication of denture is the most important needs for patients to restore aesthetic, function, and quality of life among edentulous adults. Demand for denture and scarcity of budgeting is government oral healthcare providers’ concern and thus obliges to seek evidence based on the economic evaluation. This study aims to determine the provider cost incurred for the provision of the complete denture in Government Primary Care Dental Clinics (GPCDCs) in Kelantan. A cross-sectional study using Activity-Based-Costing was conducted from January to December 2013, involving 476 complete dentures of adult patients from 14 GPCDCs in Kelantan. Samples which fulfilled predetermined criteria were randomly selected by districts, clinics, and patients. Data were analysed through SPSS version 20.0 and median (IQR) and non-parametric tests were used. The provider cost incurred for ‘maxillary complete and mandibular complete’, ‘maxillary complete only’, ‘mandibular complete only’ unit of removable complete denture fabrication in conventional method was at median RM647.74 (IQR 111.37), RM474.30 (IQR 40.16), RM456.65 (IQR 79.68) respectively. In simplified method, the provider cost for ‘maxillary and mandibular’ unit, ‘maxillary only’ unit, ‘mandibular only’ unit of removable complete denture was at median RM504.60 (IQR 85.41), RM480.21 (IQR 81.43), RM415.86 (IQR 143.08), RM502.64 (IQR 111.94) and RM504.6 (IQR 74.28) respectively. Besides the cost helps in planning and annual budgeting, educating the public about the cost of dental treatment would inculcate patient that government costs borne are not cheap. Findings provide an added value in the evidence on the costing of primary oral health services in Malaysia.

Keywords: dental procedure, costing, complete denture
HMOP2

Potential Loss of Income Due to Changes in Assignments of Malaysia Diagnosis Related Group (My-Drg®) Casemix Codes Caused by Inaccuracy of Clinical Coding in a Teaching Hospital in Malaysia

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An accuracy of clinical coding is crucial in the assignment of DRG codes, especially if the hospital is using casemix system as a tool for resource allocations and monitoring of efficiency. This study aimed to estimate the potential loss of income of a teaching hospital due to changes in assignments of MY-DRG® codes caused by the error in clinical coding. 464 coded medical records were selected and were re-examine and re-code by an independent auditor. Pre and post coding results were compared and if there was any disagreement, codes by independent auditor were considered as the accurate codes. The cases were then re-grouped using MY-DRG® grouper to assess and compare changes in DRG assignment and also hospital tariff assignment. The outcomes were then verified by a casemix expert. A coding error was found in 89.4% (415/424) of the selected patient medical records. Coding errors in secondary diagnoses were the highest 80.6% (374/464), followed by secondary procedures 57.1% (265/464), principal procedure 49.2% (228/464) and primary diagnosis 48.3% (224/464). The coding errors resulted in an assignment of different MY-DRG® codes in 62.4% (259/415) of the cases. From this, 61.8% (160/259) cases caused a lower assignment of hospital tariff. In total, potential loss of income due to changes in the assignment of MY-DRG® code is RM 679, 781 or RM 2,624 per case. A quality of coding is a very important aspect in implementing casemix system. Intensive monitoring of coders performance in the hospital should be carried out to avoid potential loss of hospital income.

Keywords: diagnosis coding, procedure coding, coding error, casemix system, DRG
Cost of Community-Based Rehabilitation for Children with Disabilities from Parents’ and Caretakers’ Perspective: Comparing Centre-Based and Home-Based Programme

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Caring for children with disabilities has significant economic impact on the parents, caretakers and families. In Malaysia, Community-Based Rehabilitation (CBR) which was provided by the government could be categorized into Centre-Based and Home-Based programs. Although both rehabilitation programs were subsidized by the government, the parents and caretakers will still incur direct and indirect cost. This study was conducted to determine the direct and indirect cost incurred by parents and caretakers in both Community-Based Rehabilitation (CBR) programs. Self-completed questionnaire was used in the estimation of cost involved in CBR program. A total of 231 parents and caretakers from East Coast region of Malaysia who have disabled children and participated in CBR program were selected into the study using multi-staging sampling method. Results of the study showed that parents and caretakers in Centre-Based Program incurred very high direct cost compared to Home-Based program (median annual cost: RM847 vs. RM55). The highest direct cost incurred by Centre-Based and Home-Based parents and caretaker was on traveling expenses and insurance, respectively. The participants of Home-Based program have to pay very high indirect cost as compared to Centre-Based program (median annual cost: RM7, 636 vs. RM145). In conclusion, this study demonstrated that although the direct cost can be reduced by having Home-Based program, high indirect cost may discourage parents and caretakers to accept this option for their disable children. This study provides costing evidence that can be used by policy maker to evaluate the economic burden of CBR program on parents and caretakers.

Keywords: Community-Based Rehabilitation, direct cost, indirect cost, disabled children
HMOP4

Direct Cost of Dyslipidemia Drugs in the Outpatient Services of UKM Medical Centre

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Universiti Kebangsaan Malaysia Medical Centre (UKMMC) is a 900-bed teaching hospital located in Kuala Lumpur. Drugs listed in the UKM Formulary are dispensed to patients with minimum cost while patients are required to pay full cost to obtain drugs outside the list. The objective of this study is to impute the direct cost of dyslipidemia drugs from the provider point of view. A total of 380 outpatients receiving at least one dyslipidemia drug at the outpatients’ pharmacy in 2012 were randomly selected in this study. The details of the drugs dispensed to the patients were obtained from the Pharmacy Information System (PhIS). The cost for the drugs dispensed to each patient was based on the procurement price at outpatients’ pharmacy. There were 829 prescriptions with the total of 5,512 drugs, of which 990 were dyslipidemia drugs. The total drug cost for all 380 patients was RM240,244. The mean cost for each patient was RM632 (Range: RM1.20-RM27,972) and the median cost was RM233 (IQR=RM403). The total formulary dyslipidemia drugs cost prescribed was RM11,003. The mean formulary dyslipidemia drugs cost for each patient was RM29 (Range: RM1.20 - RM810) and the median cost was RM9 (IQR=RM23). The wide range of drug cost per patient was probably caused by the presence of different co-morbidities in the patients. Efforts to encourage rational prescribing of dyslipidemia drugs and close monitoring of management of co-morbid conditions will likely to have a significant impact on cost-savings efforts in the hospital.

Keywords: dyslipidemia drug cost, drug pricing, drug cost, direct drug cost

HMOP5

Universal Health Coverage for Breast Cancer Treatment in ASEAN: Is this Realistic?

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With the annual increase of breast cancer incidence of 1% and 3% in all Asian countries, Universal Health Coverage (UHC) should be the way forward in breast cancer management in this region. This paper attempts to collate available evidence on breast cancer disease burden and UHC efforts in breast cancer treatment in the
ASEAN countries. Ultimately this review aims to determine if UHC in breast cancer is realistic in these countries. Review of available literature in the English language was done by searching online databases and web pages of organizations on health management and economics, and cancer published between the years 2005 and 2015. The health systems, structures and provisions of ASEAN countries vary considerably. The progress towards UHC also varies. In ASEAN, breast cancer accounts for 22% of the new female cancer cases and 15% of the total cancer deaths. Social Health Insurance (SHI) scheme is used in the majority of these countries for achieving the population coverage of UHC. However, financial protection is still poor as 75% of breast cancer patients experience financial catastrophe. Among the barriers to UHC for breast cancer treatment include lack or absence of specific policies and programs, suboptimal preventive services, limited availability and accessibility of services and financial limitations. In conclusion, while the ASEAN countries have made progress in UHC goals, breast cancer treatment in ASEAN has not achieved full UHC. Nonetheless, ASEAN has significant potential to fully achieve UHC in breast cancer treatment once the barriers are thoroughly identified and overcome.

Keywords: breast cancer, universal health coverage, developing countries, ASEAN

HMOP6

Assessment of Knowledge and Attitude on Casemix System among the IT Staff in Selected Hospitals in Indonesia

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Information Technology (IT) is one of the components in implementing Casemix in hospitals. Any misinformation resulted from lack of knowledge and negative attitude among IT personnel can lead to misunderstanding and delay in implementation of Casemix system. The objective of this study is to assess the Knowledge and Attitude on Casemix system among the IT staff in selected hospitals in Indonesia. Indonesia has been using INA-CBG Casemix system developed by ITCC-UKM since 2009 as provider payment tool. This study was conducted among 205 IT personnel from various hospitals in Indonesia using a cross sectional approach employing a standardised validated and pre-tested questionnaire. The response rate is (82%) from the total distributed questionnaires. Among the respondents, 92 (44.9%) are male, and 113 (55.1%) are female. Respondents from Type B hospitals dominated at (49.8%), followed by Type C (33.2%), Type A (13.2%), and Type D (3.9%). It was found that (41.5%) of the respondents had high knowledge on Casemix, (51.7%) moderate and only (6.8%) had low level of knowledge on Casemix. Most of the respondents (57.6%)
remained neutral in their attitudes towards Casemix, (41.9%) had negative attitude and only (0.5%) expressed positive attitude. The IT staff (45.4%) felt that they were not sufficiently trained in Casemix but most of them (72.2%) agreed that Casemix grouper is user friendly. In conclusion, in order to enhance the implementation of Casemix system in Indonesia, adequate training and exposure should be given to IT staff to enhance their knowledge and have more positive attitudes towards the system.

Keywords: Knowledge, Attitude, Casemix, Indonesia, IT personnel

HMOP7

Knowledge Regarding Major Symptoms and Risk Factors for Ischemic Heart Disease among Primary Health Care Patients in Riyadh Hospitals

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Ischemic heart disease (IHD) is global and local health problem and a major cause of mortality and disability. IHD risk factors are prevalent in Saudi Arabia and increasing patient’s awareness about IHD risk factors and symptoms is directly related to optimum quality of care. This study aimed to assess level of knowledge and awareness about IHD, specifically its warning symptoms and risk factors, among primary health care (PHC) visitors in Riyadh hospitals. We conducted an observational descriptive cross-sectional study in PHC clinics of four public hospitals in Riyadh. Convenience sampling was used for selecting subjects in the chosen hospitals. Sample size was 162 subjects. Level of knowledge was assessed through a new structured, self-administered questionnaire. Level of knowledge regarding IHD in Riyadh hospitals (King Khalid University Hospital, Imman General Hospital, King Salman Hospital, and King Abdulaziz Medical Center) was 69%, 29%, 56%, and 58%, respectively. Educational level played a significant role, as 63.4% of participants with college and advanced degrees scored high. Dyspnea was the most frequently cited symptom with an 80% rate, while smoking and obesity were the most frequently identified risk factors. Interestingly, 32% of the respondents were able to recognize family history as a risk factor. This study highlights that there is inadequate knowledge about IHD among outpatient clinic visitors in Riyadh hospitals. Demographic factors played a significant role in the level of knowledge. This study recommends health care systems in Saudi Arabia to formulate strategies regarding IHD awareness.

Keywords: ischemic heart disease, Riyadh hospitals, knowledge, awareness, Primary health care
Cost of Radiological Procedures Using Activity-Based Costing Method at Universiti Kebangsaan Malaysia Medical Centre

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Most studies estimating costs for radiology procedures usually focus on the cost of consumables and equipment and employed the step down costing method. Very few studies applied activity-based costing (ABC) method to estimate the costs for radiology procedures. In 2011, a total of 121,221 radiology procedures was carried out in the Department of Radiology of UKM Medical Centre (UKMMC). In this study cost of radiology procedures was estimated, which will be used for future financial planning and budgeting of the hospital. A cross sectional study was conducted from January to December 2013 in all units in the Department of Radiology of UKMMC. Activity-based costing was used to impute the cost of radiology services provided by all units in the department. Four hundred procedures were collected using a costing form. Information on seven cost components was collected for each procedure human resources, consumables, equipment, reagents, administration, maintenance and utilities. The results revealed that procedures with the highest mean cost were Endovascular Interventional Radiology (EIR) (RM2, 579; SD=RM2, 006), followed by Magnetic Resonance Imaging (MRI) (RM985; SD=RM53), Fluoroscopy (RM734; SD= RM76), Medical Nuclear (RM704; SD=RM499) and Computed Tomography (CT scan) (RM371; SD=RM193). In addition, the biggest cost component for human resources was in Radiology (Mobile) Unit (57.5%), consumables (78.5%) of EIR Unit, equipment (81.4%) of MRI Unit, reagents (68.1%) of Medical Nuclear Unit. In conclusion, accurate and reliable cost of radiological procedures can be determined using ABC. Top management of the department should be able to take appropriate steps to reduce unnecessary wastages of resources in the various components identified.

Keywords: Activity-based costing, Radiological procedures, Cost components
HMOP9

Outcome of Two-Year MY-DRG Casemix System Implementation to Enhance Efficiency and Improve Quality of Health Care in Teaching Hospital

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Hospital USM started adopting Casemix System through a project collaboration with United Nation University - International Institute for Global Health (UNU-IIGH) in 2012 with the objective to increase efficiency and improve the quality of healthcare. Our Casemix team aggressively collected the patient-level data that involved 14 variables. The financial data from all hospital departments was collected based on the identified cost centers (CC) in this teaching hospital. Those variables were grouped into MY-DRG Grouper software developed by ITCC-UKM. Costing analysis was carried out with the support of ITCC-UKM Team using Clinical Costing Modelling Software (CCM). The first 2 years (2013 and 2014) of its implementation in HUSM, we managed to classify a total of 22 CMGs from our patients’ episodes, comprised of 789 and 778 MY-DRGs respectively. Patients with severity III treated in this teaching hospital eventually increased (3.4%), while patient’s average length of stay reduced from 4.5 days in 2013 to 3.6 days in 2015. The percentage of ungroupable cases obviously declined (2.8%). Hospital financial information compiled from the Main, Intermediate and Final Cost Centers greatly contributed to the generation of MY-DRG tariff for HUSM. As a conclusion, Casemix System currently implemented in HUSM has shown positive result in enhancing quality and quality of care. Casemix is indeed a practical measuring tool to achieve the vision in APEX agenda for a sustainable health care provision in Hospital of USM.

Keywords: casemix System, efficiency, quality and health care services, HUSM
Ability to Pay Among Household in Malaysia for Healthcare for Future National Healthcare Financing Scheme

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It is important to preserve healthcare equitable, affordable and efficient for all. In current Malaysian healthcare financed by the government, it is found that private-public health expenditure gap getting closer with private households spent vast amount out of pocket. Therefore, Malaysia needs new healthcare financial scheme. Assessing the ability to pay for healthcare is crucial as households may be faced combined user fees from various basic needs. Ability to pay can be used for the policy maker as a method in sharing these financial burdens. One thousand one hundred and fifty four household addresses from four different states in Peninsular Malaysia were surveyed from February until September 2014. Household’s expenditure, especially for healthcare was explored by face to face interviewed. Households’ expenditure for healthcare per month was between MYR1 to MYR 2,000 with mean (SD) 73.54 (142.66) and median (IQR) 10(5-100) or in percentage of income between 0.1 - 50% with mean (SD) 2.74 (5.20) and median (IQR) 0.9 (0.33-2.78). Majority (86.6%) of respondents were able to pay for their healthcare. ATP was found significantly higher among younger and higher income households. Sociodemographic and socioeconomic status are important eligibility factors to be consider in planning the proposed National Healthcare Financing Scheme to secure the needed group from catastrophic health expenditure and enhance the fair utilization of healthcare services provided to all for more equitable healthcare.

Keywords: ability to pay, health financing, financing scheme
HMOP11

The Highs and Hurdles of Doctors in Healthcare Management: A Qualitative Study

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The complexity of providing healthcare requires high expectations from healthcare managers. This study aims to explore the experiences of healthcare managers in the Ministry of Health, Malaysia. A qualitative methodology was chosen to explore the healthcare managers' viewpoints with regards to healthcare management in Malaysia. A purposive sampling procedure was conducted to ensure only high-level performing healthcare managers became the participants. A semi-structured interview protocol based upon the Medical Leadership Competency Framework (2008) tool was used on thirty participants. All those managers interviewed in this study are committed and dedicated; working for long hours with significant personal sacrifices. The majority were confident and willing to take up the demands of healthcare management despite uphill tasks. This study found that those who possessed competencies in management, leadership, communication as well as clinical technical skills, were able to perform much better. Overall, many do not regret being in the field of management. This position provides them with the avenue to improve or revamp the performance of their organisation. This study provides an insight into the demanding role of doctors in healthcare management in Malaysia. Healthcare management requires competencies in management, leadership, communication and clinical technical skills. There is also the need for significant personal sacrifices from the managers themselves. It is, however, a fulfilling role.

Keywords: healthcare manager, healthcare management demands, experiences.

HMOP 12

Utilising religious leaders to tackle public health challenges in society: The case of HIV in Malaysia

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Religious leaders are revered, trusted and play a fundamental role in society. Such leaders are often pivotal members of the community offering guidance, beyond the religious or spiritual. Increasingly, there is an appreciation of the important role that religious leaders can make to improve public health, acting as entry points to the local
community. One such case is the involvement of Islamic religious leaders in the response to HIV in Malaysia, part of a wider study exploring how Islam shapes HIV prevention strategies in Malaysia, including both qualitative and quantitative research amongst key stakeholders, including religious leaders. Malaysia has a concentrated HIV epidemic amongst high risk groups, such as, intravenous drug users, sex workers, transgender women and men who have sex with men, all sensitive areas in a predominantly Muslim country. Notwithstanding, various programmes in Malaysia have incorporated Islamic religious leaders in HIV prevention, to disseminate and deliver information through religious sermons (Khutbahs). Training for religious leaders on issues such as spreading AIDS awareness, preventing HIV from an Islamic perspective and reiteration of the message against stigma and discrimination of those people living with HIV. In addition to gaining the Islamic religious leaders support for needle and syringe exchange programmes by promoting the importance of the principle of preservation of life in Islam, to the first methadone maintenance treatment delivered in a mosque setting. Such examples are encouraging and suggest that religious leaders could be involved in other public health challenges such as obesity and mental health, for instance.

Key words: HIV, Muslim, Islam, Malaysia, Religious Leaders

OCCUPATIONAL /ENVIRONMENTAL HEALTH AND OTHERS

EOHOP1

Filariasis among Foreign Workers in Bintulu: A Case Report

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Filariasis was detected among foreign workers employed by an oil & gas company in Bintulu. As Malaysia is moving towards elimination of filariasis by year 2020, imported filarial cases pose the challenge to achieve the goal and adding burden to current control measures already in place. The main objective of this study is to determine the epidemiology of filariasis among these foreign workers and its control measures. A total of 3098 samples were taken during Night Blood Survey (NBS) in the worker’s camp. The workers came from 6 different countries namely Indonesia, India, Philippine, Malaysia, Myanmar and Japan. Cases were confirmed by laboratory verification with the presence of filarial worm Wuchereria bancrofti in the slides taken during NBS. Cases were investigated using the standard investigation form for filariasis EPID (F)⁴ to determine their background, movements and whereabouts. Entomological investigation was conducted for environmental assessment and to identify the vector present at the camp and the workers’ living quarters. The prevalence of microfilaria among these foreign workers in this company was 0.94%. The mean microfilarial density was 32.7 (SD 57.19). All positive cases were
asymptomatic and were Indian citizens. The main vector in the camp was Culex mosquitoes while mosquitoes in the living quarters were Culex, Anopheles and Aedes. The workers camp was vulnerable and suitable for the vectors to breed, thus vector control measures were taken. All positive cases were deported to their country after medication was administered. Meanwhile, mass drug administration (MDA) was given to all workers staying in the camp. The high prevalence of microfilaria among these foreign workers is an indication that an infectious disease screening program for foreign worker coming into Sarawak is highly necessary to prevent other infectious disease spreading to local population.

Keywords: lymphatic filariasis, Wuchereria bancrofti, foreign workers

EOHOP2

Occupational Sharp Injury among Healthcare Workers in Hospital Melaka 2013 - 2015: A Descriptive Study

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Sharp injury imposed a major threat towards safety & health among healthcare workers (HCWs). Few studies in hospitals in Malaysia have shown prevalence of needle stick injury (NSI) of 24.6%, 23.5%, 20.9%, and 9.8% in year 2005, 2010, 2014 and 2015 respectively. This study aimed to determine the prevalence of sharp injury among HCWs in Hospital Melaka and to describe the factors among staff with sharp injury. This cross-sectional study was conducted in Hospital Melaka, Malaysia. 165 reported cases from 2013-2015 was reviewed and secondary data extracted. Data was analysed using SPSS version 20. The prevalence of sharp injuries among HCWs in this study was 2.5%. 65 (39.4%) were male and 100 (60.6%) were female. The mean age was 27.41 (SD, 6.06). Doctor; 113 (68.5%) shows the highest number of sharp injuries specifically House Officer; 89 (53.9%). Among those who have experience less than 25 months, most of the reported sharp injuries occur among doctor, 89 (78.8%) and paramedic, 14 (53.8%). Nearly half from the total number of reported sharp injuries among HCWs in Hospital Melaka were from Medical Department, 71 (43%). Mostly occur in ward, 114 (69.1%). The device which accounted for most of sharp injury cases was hypodermic needle, 67 (40.6%). Many of the sharp injury cases occur while withdrawing needle from patient, 26 (15.9%). Many studies have been conducted in determining the prevalence of NSI; however sharp injury still occurring among HCWs in Malaysia. Thus, effective control measures should be taken such as implementation of Safety-engineered devices (SEDs).

Keywords: sharp injury, needle stick injury, healthcare workers
**EOHOP3**

**Challenges in Teaching Public Health to Preclinical (Phase 1) Medical Students**

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Medical doctors are at the forefront in public health challenges. However, medical training in most part of the world is concentrated in hospitals limiting the interest of the students in public health. When a medical curriculum is integrated without compartment system, there is a possibility of students skipping low yield disciplines such as public health during periods of assessment. Understanding in the public health compared to other biomedical disciplines among the phase 1 UCSI medical students was explored by observing their scores in short answer questions and modified essay questions of their preclinical years’ assessment. The average score in public health is 45.15 and is not significantly different from other preclinical subjects. 16.6% (SE: 6.2; CI 6.4-32.8%) of the students from 2013-18 academic year were successful in the first professional examination regardless of their low performance (less than 30% score) in public health during phase 1 assessments. It is observed that the students are able to master the public health topics relating to communicable diseases when compared to more abstract topics such as healthcare systems, health promotion, bioethics and global health. In the UCSI MD program, public health is taught again in phase II allowing students to have a better understanding and the relevance of public health in the practice of medicine. A more practical oriented approach with real-life exposure in phase I is needed to improve the students’ interest in public health so that these future doctors would be comfortable to address public health issues in their practice.

**Keywords:** medical students, public health, phase 1 assessment, score

**EOHOP4**

**Understanding Death: Evaluating the Quality of Mortality Data in Malaysia for 2013**

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Medically certified cause of death data is available in less than one third of the global 57 million annual deaths. Malaysia practices a dual system of medically certified and uncertified deaths for its death registry. This study aims to look at the quality of the medically certified deaths reported in 2013. Mortality data for 2013, coded in ICD-10 coding, released by the Department of Statistics Malaysia is used for analysis. This
data is run in software ANACoD 2.0, an electronic tool to analyze cause of death data, to ascertain the data quality. Quality is death registry is determined by examining deaths coded with unlikely causes, for sex specific diseases, diseases unlikely to cause death and deaths assigned nonspecific or ill-defined codes. Of the 142,202 deaths registered in 2013, 74,174 deaths (52.14%) were medically certified. There are no discrepancies noted in sex-specific-deaths between males and females and deaths recorded diseases-unlikely-to-cause-death. 40 deaths were noted to be unlikely in disease-age-specific-deaths. 12,925 deaths or 17.4 % deaths were in ill-defined codes. Data that is useful for public health purposes remain at 61,209 deaths, 43.0% of total deaths for 2013. Cause of death information is an important tool in planning for health services, resource allocation and measuring the impact of interventions. The poor quality of mortality data from medically certified sources is a key area that needs to be improved along with increasing the coverage to capture better mortality data in Malaysia.

**Keywords:** mortality data, data quality

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**EOHOP5**

**Development of Patient Safety Indicators for Iran Health Care System in Efforts to Enhance Quality of the Care**

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Medical errors are common problem among healthcare systems that lead to different kind of harms to patients and additional cost for patient care. Establishment of an effective monitoring mechanism not only will promote patient safety, but also will reduce the cost attributed to medical errors. The objective of the study is to develop patient safety indicators (PSI) to be used in Iranian health care system. Patient safety indicators from three distinguished organisations: AHRQ, OECD and WHO were selected for this study. The indicators were then reviewed by a panel of seven experts. In selecting the indicators, the panel considered policies of Iranian healthcare system, existing rules and regulations, data availability, measurability, and ability to monitor the indicators. The expert panel reviewed 58 indicators from these three organizations. In the first phase, 27 PSIs were selected from the three organizations: 19 from AHRQ, 6 from OECD, 2 from WHO. Nine other PSIs were added in by the expert panel based on their recommendations. Finally, 36 PSIs (22 surgical and 14 non-surgical indicators) were considered feasible to be used in the country’s healthcare system. In conclusion, while it is useful to adopt international PSIs, further studies have to be done to prove the suitability of these indicators for local settings.

**Keywords:** patient safety, medical error, indicators
Desperate search for clues to end an endless imminent threat to Sabah Health Department front liners: A study on factors that influence Tuberculosis Infection among Health Care Personnel in Sabah, 2015

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TB infection had haunted Sabah Health Department personnel for years. Not many studies had been done in Sabah to identify the main factors that lead to higher TB infection rate among Health Care Personnel in Sabah compared to the general public. If the puzzle of infection clues solved, it will be crucial information to develop the control measures to put an end to the imminent threat to Sabah Health Care Personnel. Thus the purpose of this study is to investigate the factors that lead to TB infection among healthcare personnel in Sabah. This study is a cross-sectional study, conducted by using questionnaires that incorporate 21 TB infected respondents (Cohort of 2015) in government healthcare facilities, and direct observation of their workplace environment, in various districts in Sabah. Descriptive data analysis was employed to illuminate the frequency and percentage distribution results. The result of independent chi-square analysis suggests that, only several factors affecting the types of Tuberculosis disease. The main finding suggests that, Phlegm handling in the laboratory and Medical Surveillance, Mantoux affects Positive Smear Pulmonary at 10% significance level. On the other hand, only Phlegm handling in the laboratory significantly affects Extra Pulmonary at 5% significance level. Hence, with the identification of the factors leading to the high TB infection rate among Sabah Health Care Personnel, combined with the 3 years master plan introduced by Sabah Health Department, the endless imminent threat, the high TB infection rate among Sabah Health Department front liners can be put to an end.

Keywords: TB infection, Health Care Personnel, government healthcare facility
HEALTH PROMOTIONS

HPOP1

Is Cognitive Behavioural Therapy (CBT) an Effective Technique for Better Control of Type 2 Diabetes?

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The Malaysian Diabetes Registry Database in 2008 announced that Malaysia would have 2.48 million cases of diabetes by 2030, a 164% increase from the recorded 0.94 million cases in 2000. Diabetes is difficult to manage. Major change of lifestyle and daily decision making impose a strict discipline on a diabetes patient; they need to carefully control their regimen and sometimes greatly alter their daily activities such as eating, sleeping, and physical activities. Another less obvious reason is that diabetes is related to stress and stress acts directly on metabolic control and insulin metabolism. An indirect effect of this link is interference with the diabetic patient’s self-care tasks, which means that in order to control diabetes; a patient must be able to reduce stress. This study was designed to determine the effectiveness of combined group Cognitive-Behavioral Therapy (CBT) in improving diabetes distress and glycemic control among 60 adults with type 2 diabetes. Half the participants were the experimental group (n = 30), and the other half was the control group (n = 30). Group therapy consisted of eight sessions for three months. Measures obtained at pre-test and post-test included the Diabetes Distress Scale (DDS-17) and blood examination to examine the level of HbA1c. The results indicated that group CBT had significant effects on the amelioration of diabetes distress and level of HbA1c among the participants of the experimental group. The effectiveness of group CBT in the maintenance of good diabetic control in people who are suffering from type 2 diabetes mellitus was successfully demonstrated.

Keywords: cognitive behavioural therapy, better control, type 2 diabetes,
Orang Asli Community Involvement in Healthcare

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Orang Asli community volunteer approach was chosen as the phase two intervention program for the rural OA communities in Hulu Perak and Kuala Lipis. The OA volunteers act as advisory role models to promote optimal maternal health in their communities. The main objective of the phase two is to evaluate the effectiveness of the OA community volunteer program in improving the maternal health among the rural OA communities. A cross-sectional study using the questionnaires among OA women aged 14-49 years old was conducted pre and post-implementation of the intervention program. Health Management Information System (HMIS) data and questionnaire were used to evaluate the effect on antenatal care and safe pre and post-implementation of the six-month program. Safe delivery practice has improved significantly from 85.2% (2014) to 94.9% (2015) as reflected from the HMIS data. ($p=0.003$) There was a significant improvement on the post-intervention knowledge level on safe delivery with 88.3% (2015) as compared to only 84.8% (2014) were aware on the importance of safe delivery. ($p<0.001$) The knowledge level on antenatal care has improved significantly post-implementation of the program. The prevalence of respondents with good knowledge level on first antenatal booking and frequency of antenatal check-up has improved from 73.1% to 83.4% and 63.7% to 86.1% respectively. ($p<0.001$) OA community volunteer program had shown promising outcomes in improving the maternal health of the Orang Asli communities. This intervention program has potentials to be expanded to other OA communities to improve the OA maternal health status.

Keywords: orang asli, community volunteer program, advisory role, maternal health
HPOP3

The Mediating Factor of Risky Sexual Behavior among Youth in Kota Tinggi, Johor

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Youth is engaging in sexual risk-taking behaviors at an earlier age, often before they are developmentally ready to deal with potential outcomes. This study aims to determine factors mediating the risky sexual behavior among youth. The data were collected through self-administered questionnaire from 146 youth, age 18 to 25 which were recruited from an institution. A mediation analysis was conducted by utilizing latent variable using Structural Equation Model with risky sexual behavior as the outcome variable. 19.9% reported to have sex with consent. Of the sexually active, all of them had exposure as early 15 years old, and 70% of them know their partners with at least one partner. Results of the structural equation model indicated 64% of the variance, poor knowledge on STD/HIV and lower attitude against sexual activity had significant direct impacts on risky sexual behaviors. Additionally, lower attitude against sexual activity was a partial mediator of both relationships. These results suggest the need for place-based approaches to STI/HIV control. Innovative strategies are suggested to address youth needs, including an awareness campaign, education, expanded counseling and onsite STI/HIV testing.

Keywords: mediating factors, risky sexual behavior, attitude against sex, knowledge on STD/HIV, Youth

HPOP4

Effects of a Community-Based Healthy Lifestyle Intervention Program (Co-Help) Among Adults at High Risk of Type 2 Diabetes in Seremban, Negeri Sembilan: Quasi-Experimental Study

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Community-based interventions promoting healthy lifestyle have become an important strategy for prevention of type 2 diabetes in Malaysia. This study assessed the effects of a community-based healthy lifestyle program in reducing the modifiable risk factors of type 2 diabetes and health-related quality of life. All participants (268) with pre-diabetes were assigned to the intervention or the usual care groups. The interventions
were delivered in partnership with existing local NGO and community volunteers, incorporated health education, diet, exercise, monitoring, and counseling. An intention-to-treat analysis of between-group differences at 12 months revealed that the intervention participants' mean fasting plasma glucose reduced by -0.40 mmol/l (-0.51 to -0.28, p<0.001), 2-h post-glucose by -0.58 mmol/l (-0.91 to -0.24, p<0.001), HbA1C by -0.24 % (-0.34 to -0.15, p<0.001), diastolic blood pressure by -2.63 mmHg (-3.79 to -1.48, p<0.01), waist circumference by -2.44 cm (-4.75 to -0.12, p<0.05) and HDL cholesterol increased by 0.12 mmol/l (0.05 to 0.13, p<0.01) compared to the usual care group. Significant improvements were also found in HRQOL for both physical components (PCS) by 3.17 score (2.09 to 4.25, p<0.001) and mental component (MCS) by 4.13 score (3.14 to 5.13, p<0.001). Greater proportion of participants from Co-HELP intervention met the clinical recommended targets of >5% weight loss from the initial weight (24.6% vs. 3.4%, p<0.001) and physical activity of >600 METS/min/wk (60.7% vs. 32.2%, p<0.001) compared to the usual care group. Collaborations with existing community partners demonstrated a promising channel for wide-scale dissemination of diabetes prevention at the community level.

Keywords: diabetes mellitus, primary care, medical education, impact evaluation

HPOP5

Health Education Needs, Risk and Protective Factors and Risky Sexual Behavior Issues among Adolescents in Sarawak, Malaysia

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This paper discussed on review of literature on health education needs, related risk and protective factors, and risky sexual behavior issues among adolescents in Sarawak. Proper knowledge, self-efficacy and positive attitude on sexual health and accessibility to media on sexual health information are among important protective factors in preventing adolescent involvement in risky sexual behavior. Positive sexual health lies on the ability to make a rational decision-making in choosing what is good for adolescent themselves. Hence evidence based health education strategies are needed in identifying various underlying psychological and social domains that related to how adolescents decide, rationalize, internalize, and control themselves from risky sexual behavior. Furthermore, rapid urbanization process in Sarawak has been affecting its rural communities and family institution in which rural-urban migration contributed significantly to teenage pregnancy issues. The reported case of teenage pregnancies in Sarawak in 2014 and 2015 are among the highest in Malaysia. As such, this segment of population need proper sexual health knowledge and skills to negotiate various risky factors and must be nurtured earlier through proper planning, implementation and evaluation of health education needs within the healthcare and socio-cultural framework. The outcome of these so called processes may contribute significantly in shaping sexually healthy adolescents and in their adulthood. Thus,
evidence based strategies that translated into effective health education activities may reduce adolescent involvement in risky sexual behavior. It may improve the current health education strategies related to sexual health that are being implemented by various stakeholders in the state.

**Keywords:** risk and protective factors, sexual health, health education needs

**POSTER PRESENTATION**

**EPIDEMIOLOGY**

**EPP1**

**The Role of Mediating Risk Factors in the Association between Socioeconomic Status and Blood Pressure**

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The impact of socioeconomic status (SES) on blood pressure (BP) in several studies has reported conflicting results. This relationship maybe mediated by biological and lifestyle factors which are related to SES differences. This study aimed to determine the factors that mediate the association between SES and BP. A cross sectional study was conducted among 284 hypertensive patients, recruited via purposive sampling from UKMMC. Data on SES (educational level, income, occupation), mediators (lifestyle, biochemical and anthropometric measurements) and BP was collected through questionnaire, physical examination and medical records. Using Baron and Kenny method, mediation model with regression analyses were tested using the 4-steps-approach. The significance of the possible mediation model was tested using Sobel test. The findings revealed almost 60% of the patients had controlled systolic blood pressure (SBP) with mean of 138.04 (17.14) mmHg and controlled diastolic BP (84.5%) with mean of 77.19 (11.69) mmHg. The median household income was MYR1800 (IQR 2650.00)/month. Majority were overweight/obese (61.6%) with mean body mass index (BMI) of 27.08(4.89) kg/m². Baron and Kenny method with linear regression indicated that the direct association between income and SBP was insignificant while indirect association between BMI and SBP was significant, suggesting full mediation model. Thus, the association between income and SBP was fully mediated by BMI (β=1.55; 95%CI 1.19,1.91, p=<0.001, Sobel test: z=0.81, p=0.419), whereby every increase of 1 MYR will rise SBP by 1.55mmHg. In conclusion, higher income was associated with higher systolic blood pressure. BMI was a possible mediator of an adverse indirect effect of SES and systolic BP.

**Keywords:** socioeconomic status, blood pressure, mediation
EPP2

Trends in Abdominal Obesity after a Decade: Findings from the National Health and Morbidity Surveys

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Abdominal fat deposition is a key component of obesity and one of the reliable predictor for disease risks and all-cause mortality. Waist circumference (WC) measurement is commonly used in assessing abdominal obesity (AO). This study has sought to examine the trends of AO among Malaysian adults from 2006 to 2015 by gender, age, ethnicity and locality. Data from the National Health and Morbidity Surveys (NHMS) in 2006, 2011 and 2015 were analysed to estimate the trends of AO among Malaysian adults aged 18 years and above. The cross-sectional population-based survey with two-stage stratified sampling design was applied. Household members were interviewed and anthropometric measurements were collected in the survey. The cut-off values for AO were classified based on the recommendation by the World Health Organization (1998); WC more than 102 cm for men and 88 cm for women. Over the past ten years, the prevalence of AO among Malaysian adults has increased from 17.4% in 2006 to 20.9% in 2011 and 23.0% in 2015. Women had a greater relative in increased AO with a prevalence of 26.0% to 35.4% during the three surveys. Among men, there was a significant increase between 2006 (7.2%) and 2011 (10.9%), but slightly increased between 2011 and 2015 (11.8%). The prevalence of AO increased by age and showed decreasing trends after the age of 60 years and above. The prevalence of AO was higher among urban population and Indians in all three surveys. The prevalence of abdominal obesity among Malaysian adults has increased continuously during the past 10 years. There is an urgent need to determine the associated factors to abdominal obesity and underscore the need of a national program to combat obesity.

Keywords: abdominal obesity, waist circumference, fat deposition, National Health and Morbidity Survey, national survey
EPP3

Knowledge and Attitude Regarding Antibiotics Use among Administrative Personnel in a Public University

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One of the major threats to public health security is antibiotic resistance which occurs not only as a result of unnecessary prescriptions but also by improper use of antibiotics. Our goal is to determine the level of knowledge and attitude towards antibiotics use among administrative staff in a public university. A cross-sectional study was conducted using self-administered questionnaires which contained 10-items on knowledge and 7-items on attitudes regarding antibiotic usage. Respondents were randomly selected from two administrative offices. Data were analyzed using a non-parametric test. All selected staffs (n=100) answered the questionnaire. Their median age was 30 (IQR: 7) years old, 51% females, 45% had a university education and 66% were married. The Cronbach’s alpha for knowledge score was 0.772. The median score of knowledge 4.0 (IQR: 4) and among high proportions of misconceptions was ‘antibiotics are used to treat viral infections’ (70%) and ‘antibiotics are used to stop fever’ (69%). The knowledge score was significantly associated with age and marital status. There were no significant correlations between knowledge score with each three statements of attitude i.e. ‘antibiotics should be stopped given to the patient when the symptoms disappear’, ‘antibiotics should be kept at home in case of emergency’ and ‘antibiotics can be shared among family members’. Our respondents showed suboptimal knowledge with some misconceptions regarding antibiotics use. Higher knowledge did not correlate with some aspects of the good attitude of antibiotics use. The gaps found in this study will assist us in designing educational materials towards preventing the development of antibiotic resistance.

Keywords: antibiotic use, resistance, knowledge, attitude

EPP4

Awareness towards Hypertension at Sub-Urban Area in Sepang, Malaysia

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Hypertension is one of the commonest chronic diseases in Malaysia and is still on the rise. Patients’ awareness on their blood pressure is important in control the blood pressure which it can lead to many complications. This study aim was to determine
the prevalence of hypertension in a community and the level of awareness among hypertensive patients. This cross sectional study was conducted among Malaysian adults who were stayed in the study area at least three months. Two-stage sampling was done; firstly, systematic sampling was done to choose the house, then one respondent from every house selected using simple random sampling. Blood pressure was measured two times in at least five minutes' interval, meanwhile face to face interview was done to collect the data on awareness among hypertensive patients. A person defined as aware is he acknowledge his blood pressure was normal during last clinical visit, has regular blood pressure check-up and aware about the normal range of blood pressure. Out of the 323 sample calculated, 305 respondents agreed to participate in this study giving response rate of 94%. About 23% of them were hypertensive which 83% (n=55) of them were diagnosed previously while 14 (5%) people were detected during the current study. Out of 55 patients who were diagnosed previously, 36% of them were aware about hypertension. Our finding shows that the awareness of blood pressure among hypertensive patients in the community was low and need health promotion and education to improve the awareness towards hypertension.

**Keywords:** hypertension, awareness, sub-urban area

**EPP5**

**Hypertension and Its Associated Factors among Private University Students in Selangor, Malaysia**

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Hypertension prevalence is on the rise worldwide. The rates among adolescent and young adults are alarming and need a lot of attentions. The aim of our study was to identify the prevalence of hypertension among private university students in Shah Alam, Selangor and also to find out the associated factors. A cross-sectional study was carried out among 410 undergraduate students from different faculties at the university. Self-administered questionnaires were used to identify socio-demographic characteristics of the students, nutritional habits, and life style habits. Digital sphygmomanometer was used to record blood pressure while anthropometric measurement was done by measuring height, weight and waist circumference. The mean age of the respondents was 21.7 ± 2.1. The prevalence of hypertension among students was 10%. There was a significant association between gender, BMI, Waist circumference and hypertension (P< 0.001, <0.0001, < 0.0001) respectively. While the association between nutritional habits, Physical Activity and hypertension was not significant (P= 0.812, 0.300) respectively. The prevalence of hypertension among university students was 10% and this alarming figure should alert us to increase the
health promotion regarding health lifestyle among those young students to avoid future complications and other chronic diseases.

**Keywords:** hypertension, associated factors, private university students

**EPP6**

**Modernity is Catchingup with the Orang Asli, So as Lifestyle-Related NCDs**

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Orang Asli (OA) has been traditionally known to practice healthier diet, more active and stress-free lifestyle as compared to the modern dwellers. However, cases of NCDs were said to be emerging among the OA community of late. The objective of this study was to determine the prevalence of chronic illnesses among the fringe and rural OA respondents. A total of 875 (rural; n=435, fringe; n=440) OA women within the reproductive age group of 15-49 years old from the rural and fringe settlements in the state of Pahang, Perak, Kelantan and Selangor were interviewed. The questionnaire included demographic questions and questions on the general health status of the respondents. Categorisations of rural and fringe settlements were based on the guidelines by Jabatan Kemajuan Orang Asli. A total of 65 fringe (14.8%) and 45 rural (10.5%) respondents perceived that they suffered from chronic illnesses. Chronic illnesses were defined as illnesses which require long-term follow up and treatment. The most common non-communicable chronic (NCD) illnesses cited by both rural and fringe respondents were hypertension, diabetes mellitus and heart disease. There were 38 fringe respondents suffering from the NCDs as compared to only 12 rural respondents. Higher prevalence of life-style associated illnesses indicates that the fringe community members are gradually being exposed to the unhealthy dietary intakes which in turn lead to higher prevalence of NCDs among them. In addition, better accessibility to healthcare facilities for the fringe community might also relate to higher detection rate for these illnesses.

**Keywords:** Orang Asli, non-communicable diseases, lifestyles, modernity
EPP7

Factors that Influenced Parents’ Acceptance towards Childhood Immunization in Asian Countries: A Systematic Review

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Despite multiple strategies had been taken by the Ministry of Health in many countries together with continuous monitoring by the WHO, vaccine preventable diseases eradication goals such as for measles has not been met in year 2015. This review aims to identify factors that influence parents’ acceptance towards childhood immunization for their children in Asian countries. A systematic review from published literature 2010 and onwards were search using Wiley Library, Science Direct and PubMed databases. Articles were excluded if not published in English, from non-Asian country, incomplete statistical data and children more than three years old. All eligible articles will be reviews by two reviewers independently, which will extract the data and assessed study quality. A total of 14 articles were included in this review from countries. The socio-demographic factors associated with higher intentions and uptake of childhood immunization were classify to family demographics factors, paternal factors, maternal factors, child factors, vaccine factors and healthcare system factors. Maternal factors and family demographics factors were the most factors studied. This review revealed the association between socio-cultural factors and parents’ acceptance towards immunization for their children. By recognizing the possible factors influencing parents' decision, efforts can be targeted to the specific issues identified. Health providers’ together with the influential or respected persons in the community play important roles in ensuring the positive outcomes of vaccination from the health as well as cultural or religious perspective.

Keywords: childhood immunization, factors, parents’ acceptance, Asian

EPP8

Physical Activity Pattern in 6th Month Weight Loss Intervention among Overweight and Obese Housewives

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Increased physical activity has been proven to reduced body weight in many weight loss programs. However, little evidence available regarding physical activity among housewives especially those who are overweight and obese. Therefore, this study will reveal the physical activity pattern of the overweight and obese housewives and how
its effect on their weight. MyBFF@home is a weight loss intervention study which involves 326 overweight and obese housewives (168 intervention group, 158 control group) from 15 low-cost flats in Klang Valley. Weight was measured by Tanita HD319, and physical activity was determined by short version International Physical Activity Questionnaire (IPAQ) at baseline and 6th month intervention period. Metabolic Equivalent Task (MET) from IPAQ was declined from baseline to 6th-month intervention in both intervention and control group. Among respondent in the intervention group, 29 (24.2%) respondents experienced increased in physical activity level, 73 (60.8%) maintained and 18 (15.0%) declined. Whereas 13 (14.8%) increased, 56 (63.6%) maintained and 19 (21.6%) declined among respondent in the control group. Among those experienced increased physical activity level, 28 (66.7%) was reduced in body weight and it higher among respondent in intervention group 21(72.4%) compared to control group 7 (53.8%). Both study groups showed the same pattern in their physical activity. However, respondent in intervention group shows more positive outcome than control group when almost quarter of them had increased in physical activity, and it affects their weight

**Keywords:** obesity, overweight, physical activity, IPAQ, weight loss intervention

**EPP9**

**Dietary Salt Intake among Health Staff: Are We Following the Recommendation?**

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High level of dietary sodium is associated with elevated blood pressure and adverse cardiovascular health. Aims of this study were to determine the baseline of salt intake in and the characteristic of high sodium consumers among health staff. This study was conducted from November to December 2015 and involved 1568 of health staff aged 18 - 59 years old from 16 study sites. A total of 98 participants were randomly selected from each 14 State Health Department, Ministry of Health headquarters, and National Health Institute study sites. Anthropometric indices, blood pressure, two days’ food diaries, validated food frequency questionnaire, and 24-hour urine collection were measured. Dietary sodium was assessed using Nutritionist Pro™ Nutrition Analysis Software version 6.1.0. Urine sodium was tested using ion selective electrodes diluted for sodium in Architect C system analyzer. Completeness of urine collection was based on volume > 500 ml. Data were analyzed using SPSS version 22. Sodium output over 24 hours was 2860.1(1369.4) mg/d corresponding to 7.15g NaCl. Dietary sodium as evaluated from food diaries was 2761(1042) mg/d or 6.90g of NaCl. High sodium consumers (> 2000mg / day) were mostly male, married, had higher BMI and waist circumference, higher blood pressure, and consumed higher calorie intake
(p < 0.05). Sodium intake among health staff was higher than 2000 mg sodium as recommended by World Health Organization. The intake should further be reduced in order to combat the increasing prevalence of cardiovascular diseases.

**Keywords:** 24-hour urine sodium, sodium assessment, sodium food frequency questionnaire, high sodium, health staff

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**EPP10**

**Prevalence of Overweight and Obesity and its associated factors among Urban School Children in Kuala Lumpur: A Pilot Study**

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The Malaysia Health and Morbidity Survey report in 2011 showed that 3.9% (0.3 million) of children under the age of 18 were obese; boys higher than girls, and more at in urban setting. This paper presents the baseline data of children selected for an intervention study which aimed at identifying the most practical and cost-effective way of inculcating healthy diet and physical activity among school children. A cross-sectional study was conducted among a primary school children age 11 at Kuala Lumpur. Data collected include anthropometric measurement, 24-hour dietary intake recall, physical activity (modified PAQ-c questionnaire), fitness level (modified Harvard Step Test), salivary cortisol level, and socioeconomic background. From a total of 234 students who had participated in the study, 13.8% and 9.5% of students were overweight and obese according to BMI and waist circumference (WC), respectively. Boys were found to have higher prevalence than girls, with a total of 14.6% overweight and obese by BMI and 9.9% obese by WC. The prevalence was associated with total calorie intake for WC but not BMI, and increases in proportion to the increment with socio-economic status in parents. A total of 15.5% of participants were reported to be physically active. Significant risk factors of obesity observed were gender, high caloric intake and high socio-economic status. The accurate identification of risk factors in the appropriate cultural, political and socioeconomic context is crucial for planning intervention and preventive initiatives to mitigate this epidemic successfully.

**Keywords:** obesity, overweight, school children, physical activity, calorie intake
EPP11

Obesity and Pattern of Physical Activities for Weight Control in a Low Socioeconomic Urban Community, Malaysia

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Physical activity is recommended for weight control and to improve health outcomes. A cross sectional study was done to determine the association of obesity and level of physical activity as a mean of weight control among adult respondents in a low socioeconomic urban community, Kuala Lumpur. A total of 331 adult residents were recruited. Data were collected using guided, pre-tested self-administered questionnaire. Anthropometric measurements were done using calibrated weighing scale and measuring tape. The level of physical activity was assessed using International Physical Activity Questionnaire (IPAQ) guideline version 2.0 (revised April 2004). The data was entered and analyzed using SPSS software version 20.0. Results yields majority were obese, (161) 48.6 %, followed by (98) 29.6 % with normal BMI, (59) 17.8% overweight and (13) 3.9 % underweight. Majority reported of engaging in moderate level physical activity (46.6% and 46.5% for obese and non-obese), 20.5% and 25.3% were at low level for the obese and non-obese respectively; and 32.9% and 28.2% at high level for the obese and non-obese respectively. There was no significant difference on physical activity level between obese and non-obese group (p=0.491). A more comprehensive study involving other healthy lifestyle components such as nutrition and diet pattern is needed to further explore the obesity issue and at the same time promoting healthy lifestyle practices for better weight control.

Keywords: obesity, low socioeconomic community, physical activity, weight control

EPP12

The Role of Better Knowledge and Right Attitude for Weight Control in a Low Socioeconomic Urban Community of Klang Valley, Malaysia

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Previous studies demonstrated that bad dietary habit, physical inactivity, lack of support and lack of self-motivation contributes to obesity and poor weight control. However, the role of knowledge and attitude on ideal weight maintenance is not yet assessed as a contributor to overweight and obesity in a low socioeconomic urban population. This study was done to determine the level and association between knowledge and attitude regarding weight control and ideal weight maintenance among adults in a low socioeconomic community in Klang Valley, Malaysia. A total of 331
adult respondents were recruited using systematic random sampling. Data on knowledge and attitude for weight control and ideal weight maintenance were collected using a structured pretested questionnaire interview. The level of physical activity was assessed using International Physical Activity Questionnaire (IPAQ - short form). The data was then analyzed using SPSS software version 20.0. Results shows that there is a statistically significant difference (p<0.001) in the mean attitude score on dietary habit between high [22.18(4.54)] and poor [19.42(4.29)] knowledge group. There is also a statistically significant difference (p=0.01) in the mean attitude score on ideal body weight maintenance between high [3.51(0.71)] and poor [3.24(0.92)] knowledge group. In conclusion, high knowledge will eventually improve the attitude thus, promoting healthy lifestyle practice for good weight control and ideal body weight maintenance.

Keywords: ideal weight maintenance, obesity, dietary habit, low socioeconomic

EPP13

Validation of Verbal Autopsy Methods in a Sample of Hospital Deaths in Malaysia

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Despite Malaysia having an established functional vital registration system, the generation of reliable mortality statistics is still hampered due to incompleteness and poor coverage of medical certification. Verbal autopsy (VA) has been used globally to determine the cause of non-medically certified deaths. This study aims to validate VA methods in ascertaining cause of death in a sample of hospital deaths in Malaysia. Two independent teams were involved in data collection; the hospital team reviewed medical records whereas the field team interviewed family members of the deceased using adapted International VA methods. Both teams assigned cause of deaths using ICD10 code. A total of 2,172 deaths that had both VA and medical record diagnoses were validated. The sensitivity values were calculated for these. With a sensitivity of >75%, VA methods performed well in identifying deaths from transport accidents (92%) and certain site-specific cancers (such as breast cancer with an accuracy of 95%). Accuracy was moderate (50 to 75%) for leading causes of death which include ischaemic heart disease (65%) and cerebrovascular disease (59%). VA performed poorly (<50%) for deaths from 'other' categories and some leading specific causes such as pneumonia (35%), diabetes (36%) and chronic obstructive pulmonary disease (47%). VA is an accurate tool for detecting certain leading causes of deaths and is crucial in developing countries to fill the gap on mortality surveillance. Community and family empowerment on diseases and its effects can increase the information collected during VA.
Keywords: verbal autopsy, validation, Malaysia, cause of deaths

EPP14

Undiagnosed Type 2 Diabetes Mellitus (T2DM) and Its Risk Factors Among Malaysians - Findings of a Nationwide study

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The prevalence of diabetes has increased dramatically in the last decade. A large number of individuals who have T2DM do not realize that they have the disease. Undiagnosed T2DM impose substantial implications because subjects remain untreated and are at risk for developing fatal complications. The objective of this study was to determine the national prevalence of undiagnosed T2DM and to identify the associated risk factors in Malaysia population. A nationwide cross-sectional study was conducted involving 19,935 respondents. Two stage stratified sampling design was used to select a representative sample of the Malaysian adult population. Structured validated questionnaires with face-to-face interviews were used to obtain data from the respondents. Respondents who claimed that they were not having diabetes were asked to perform a finger-prick test. The prevalence of undiagnosed T2DM among respondents was 9.2% (n=2103). The highest percentage of undiagnosed among respondents was found to be females (9.2%), 55-59 years old (12.4%), Indians (11.9%), with no formal educational attainment (12.9%), not working (10.6%), widow/widower/divorce (12.0%), smokers (9.5%) and obesity (12.7%). Multivariable analyses revealed that age group, ethnicity, obesity and hypertensives were more likely to have undiagnosed T2DM. This study showed a high prevalence of undiagnosed T2DM in Malaysia. This study also found that established risk factors like obesity, age, ethnicity, hypertensive status were associated with undiagnosed diabetes mellitus. Early screening is crucial to detect early signs of diabetes especially among adults aged 30 years and above to prevent more serious complications of this disease.

Keyword: prevalence of diabetes, undiagnosed, type 2 DM, risks factor, Malaysia
High Prevalence of Latent Tuberculosis Infection among Non-Clinical Hospital Staff

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In United States, there were about 10 to 15 million people with latent tuberculosis infection (LTBI) who are asymptomatic, particularly among healthcare workers (HCWs). The aim of the study was to determine the prevalence of LTBI among the HCWs in a main general hospital in Malaysia. About 401 HCWs have been enrolled in this cross sectional study conducted in November 2014 until January 2015. A standardised questionnaire was used to obtain their demography and job description together with Tuberculin skin test (TST). The prevalence of LTBI in the institution was about 46.4%, which was high. It was common amongst a younger age group and male HCWs. The dignified finding was the study proved that the non-clinical or administrative type of work in a clinical setting has the highest prevalence and risk (adjusted OR = 5.366; 95% CI = 1.397 - 20.619) compared to others. Non-clinical HCWs like administrator should be screened and treated as one of the high potential profession for LTBI in any hospital or clinic. Any programme on TBI awareness and prevention should include them as well.

Keywords: latent, tuberculosis, non-hospital staff

Estimating Burden of Disease Attributable to High Blood Pressure in Malaysia

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High blood pressure (BP) is a global public health issue and it is estimated that in 2025, there will be 1.56 billion adults affected with this condition. High BP is responsible for a large and increasing proportion of burden of disease, particularly with regards to cardiovascular diseases. To estimate the burden of disease (BOD) attributable to high blood pressure in adults aged 30 years and older in Malaysia. The calculation of Burden of Disease in term of Disability Adjusted Life Years (DALYs) was done using the methodology used in the Global Burden of Disease Study whereas the calculation of attributable burden of high BP was done using the World Health Organization Comparative Risk Assessment methodology. Mortality and population data were provided by the Department of Statistics, Malaysia and data on blood pressure was obtained from National Health and Morbidity Survey 2006. High BP was estimated to
have caused 15.5% of BOD among Malaysian population (16.1% in male and 14.6% in female). By age group, 22.2% of DALYs in 70-79 years old were contributed by high BP followed by 60-69 years old (20.3%). Overall, 70% of BOD in stroke and almost 60% of BOD in ischaemic heart disease were attributable to high BP. High BP contributed to a considerable burden of disease particularly cardiovascular disease and the results indicate that there will be health gains by implementing effective policy and practice regarding the prevention and management of hypertension in our population.

**Keywords:** burden of disease, risk factors, DALYs, high blood pressure

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**EPP17**

**Successful Coverage of Search and Destroy Activities in Dengue Hotspots under Cheras District Health Office: Lesson Learnt from Operasi Penguatkuasaan Premis Individu (OPPI)**

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Recently, Ministry of Health launched nationwide OPPI with aim to execute a more integrated and focused dengue control to curb expected upcoming rise of dengue cases. Following this mandate, Pejabat Kesihatan Cheras (PKC) carried out mass search and destroy (S&D) activities in 5 hotspot localities commencing on 11th April 2016. 3 of these localities were high-rises low cost flats whereas 2 were terraces residential which make up a grand total of 6025 individual premises. During period of 18 days, 5844 premises (97%; range from 94% to 97.8% at each locality) managed to be inspected for mosquito breeding. Remaining 181 premises (3%) were classified as vacant. It took average 6 days (range between 5 to 8 days) to achieve 100% S&D coverage for every occupied premises (excluding vacant) in each locality. Mean number of workforce involved daily were 11 sub-teams. In average, 325 premises were inspected in a single day with each subteam covered 29 premises. Average time utilized for inspection in each premise was 7 minutes. 8 premises were found positive for mosquito breeding with Aedes Index of 0.14%. Factors that may have contributed to these high S&D coverages were 1) timing of S&D during weekdays after office hours (more people at home), 2) early and continuous public announcement, 3) larger workforce compared to usual S&D, 4) innovative usage of reminder card and warning notice. Low dengue indices perhaps indicated that mosquito breeding mainly occurred outdoor. Careful planning and strong commitment from staffs of PKC contributed to successful OPPI achievement.

**Keywords:** dengue hotspot, search and destroy activities, mosquito breeding
EPP18

Genetic, Life Course Socioeconomic Status and Family Risk Information as Combination of Risk-Stratified Cancer Effects on Screening Participation and Health Pattern

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By putting a suggestion of combination risk stratified cancer for screening, it is believed could lead to elevate the participations. Therefore, paper aim to describe the effectiveness of genetic, life course socioeconomic and family risk information as combination of risk stratified cancer to screening participation and its influence on health pattern. The English-language articles, 2004 or later were retrieved by Proquest, Science Direct, Wiley Online Library, Cochrane Library, PubMed, and Ovid. Additional articles were identified through bibliography searches. The study design Randomized Controlled Trials (RCTs), systematic reviews, cohort studies, and qualitative exploration studies are included. Articles that addressed the accuracy of risk assessment methods, risk-stratified screening, and its combination, participation, and influences on health pattern are selected. Genotyping and validated genetic markers have been widely replicated as significant risk factor for cancer. Socioeconomic adversities mediate the elevation inflammatory states resulting from gene expression and unhealthy lifestyles. Even not many cancers occur due to inherited faulty genes; family history still considers one of the risks since it is related to the gene. Hence, genetic, life course and family risk information are relevant criteria can be used for selection candidates for cancer screening. It is limited to the general idea and conclusion, no statistical analysis conducted to prove the association as predictors and lack of study done upon relating to this combination. The combination of risk-stratified cancer could give advantages to the screening test progression in the future. Few issues require attention until it can fulfil relevant conditions for cancer screening.

**Keywords:** genetic, life course socioeconomic status, family risk information, risk stratified cancer, screening participation, health pattern
EPP19

Dengue Fever in Bera District in 2015 - An Analysis

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Dengue fever remains a major public health problem. In Malaysia, 70% to 80% of cases occurred in urban areas. The study is to clarify the factors that contribute to the occurrence of dengue fever cases in terms of socio-demographic, clinical presentation and the environment. The study was carried out based on the descriptive epidemiology. This information is derived from the form the investigation of cases "of Dengue Case Investigation Report" form PBV (D) 202 (PIND. 2002) (PIND.PHG). A total of 118 cases were recorded by the majority of the Malays of 65 cases (55.1%), China 34 (28.8%) and India 12 (10.2%). A total of 64 cases (54.2%) were male and 54 cases (45.8%) were female. 10-19-year age group recorded the highest percentage of dengue fever of 27.1% followed by the age group of 20-29 years (26.3%). The lowest age group infected by dengue is less than 10 years old (7.6%). In terms of employment, the student is the highest dengue fever of 22.9%, followed by the unemployed (16.9%) and 16.1% of the business man. Triang subdivision is the largest contributor of dengue fever cases in Bera (55.1%) followed by Bera subdivision (44.9%). The clinical presentation is fever (100%), headache (61.9%) and vomiting (50%). The period of time from the date of onset of symptoms and signs of dengue fever to hospital admission date is 0 to 2 days (23.7%), 3 to 5 days (50.9%) and more than 5 days is 25.4%. A total of 43,064 premises inspected were found to be 335 (0.8%) positive mosquito breeding. Health education should be improved to prevent the occurrence of an increase in dengue fever cases, especially among school children. Control activities in localities identified mosquito breeding sources must be carried out effectively.

Keywords: the case of dengue, Bera, socio-demographic aspects, clinical presentations, environmental conditions

EPP20

A Study on Awareness and Perception towards Leprosy among Elderly in Malaysia

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Awareness and perception on leprosy are essential in order to assist in detecting and treating patients suspected to be infected with leprosy. Early treatment will lead to complete cure from the disease without any deformity and disability. The objective of this study was to assess the awareness and perception of Malaysian elderly towards leprosy. This study was part of the National Health and Morbidity Survey conducted in 2015 using multistage stratified sampling design. Respondents were asked questions on awareness and perception towards leprosy. Awareness and perception were rated as excellent, intermediate and poor when 70%-100%, 40%-69% and <40% of the questions were answered correctly. Elderly were respondents aged ≥60 years. Descriptive analyses were performed by using SPSS version 19. Elderly showed significantly poor awareness as compared to adults <60 years on: symptoms (10.90% vs 89.10%), cure (11.03% vs 88.97%), infectiousness (10.41% vs 89.59%), and deformity (11.32% vs 88.68%) caused by leprosy; as well as on perception: ever heard about leprosy (11.34% vs 88.66%) and existence of leprosy in Malaysia (9.27% vs 90.73%). Male elderly showed significantly higher awareness on cure, infectiousness and deformity cause by leprosy than female elderly. No significant differences on perception between male and female elderly. Our study showed poor awareness and perception towards leprosy among Malaysian elderly. It is important to educate the elderly on the aetiology, diagnosis, early symptoms and curability of the disease in order to assist in detecting and treating if they are suspected to be infected with leprosy.

Keywords: leprosy, elderly, awareness, perception, Malaysia

EPP21

Mental Health Problems in Malaysian Adults: A Cross-Sectional Study in 2015

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Mental health problems are a common issue nowadays. This study was done to determine the prevalence of mental health problems among Malaysian adults. Data was extracted from the National Health and Morbidity Survey (NHMS) 2015, a nationwide study conducted by the Ministry of Health Malaysia. The General Health Questionnaire (GHQ-12) was used to screen for mental health problems. Descriptive analysis using complex sampling design showed a total of 29.2% (95% CI: 27.85, 30.49) adults aged 16 years and above with mental health problems. The prevalence was higher among females (30.8%) as compared to males (27.6%). Adults in rural areas were more likely to have mental health problems compared to those residing in urban areas (30.3% vs 28.8%). By ethnicity, mental health problems were reported higher among Other Bumiputras [41.1% (37.35, 44.99)], as compared to Malays [28.2% (26.63, 29.74)]. Adults from low household income families were reported to have higher prevalence of mental health problems as compared to those from higher income
families. Logistic regression analysis revealed that females, Other Bumiputras, non-government workers, and secondary level education were factors significantly associated with mental health problems. The prevalence of mental health problems among Malaysian adults has increased 3 times from 2006 (11.2%) to 2015 (29.2%). This increment shows that mental health has become a national public health problem. Comprehensive intervention strategies should be planned to tackle these problems.

Keywords: mental health, NHMS, General Health Questionnaire

EPP22

Smokeless Tobacco Use among Malaysian Male Adults Aged 15 Years and Above: Prevalence and Predictors

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The overall prevalence of smokeless tobacco (ST) use among Malaysian adults aged ≥15 years increased from 0.7% in 2011 to 10.9% in 2015. This presentation aims to examine the prevalence and predictors of smokeless tobacco use among Malaysian male adults aged ≥15 years. Data were obtained from the National Health & Morbidity Survey 2015; a nationally representative household survey using multi-stage cluster sampling design via face-to-face interviews. Associations between the prevalence and selected socio-demographic characteristics were tested using chi-square test. Logistic regression analyses were used to determine predictors of ST use. ST use was defined as currently using ST either daily or occasionally. The prevalence of ST use among Malaysian male adults in 2015 was 20.4%. The use of ST was significantly higher among 25-44 years (24.8%), rural residents (24.8%), and Malays (24.6%). Those with tertiary education, unpaid workers/homemakers and retirees used the least ST. A notable decreasing gradient of ST use was observed from income quintile groups 2 to 5. Significant predictors of ST use were: those aged 25-44 (aOR=1.29) or ≥65 (aOR=0.53) years, being Chinese (aOR=0.47), Indians (aOR=0.58), Other Bumiputera (aOR=0.62) and ‘Others’ ethnic (aOR=0.69); as well as those attaining tertiary education (aOR=0.64). One in five Malaysian male adults used ST. Further study is needed to explore this high prevalence of ST use. In addition, risk factors of ST use were similar to cigarette smoking, thus interventions use to reduce cigarette smoking could be used to combat the use of ST and preventing premature death.

Keywords: smokeless tobacco, male adults, National Health and Morbidity Survey, Malaysia
Larvicide Usage in Malaysia: Who Did Not Use and Why?


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Dengue is one of the major infectious diseases in Malaysia. Many activities have been carried out by the Ministry of Health and local authorities to control dengue. Larvicides have been used as a method to control dengue since 1970s. This study was part of the National Health and Morbidity Survey 2015; a nationwide cross-sectional, interviewer-administered survey conducted by using two-stage cluster sampling design. Respondents were asked about the usage of larvicides. Data analyses were performed by using SPSS version 20. The response rate for this study was 98.9%. A total of 83.9% of the respondents reported that they did not use larvicides. The prevalence of not using larvicides was highest among younger respondents at 18-30 years (35.3%), Malays (46.6%), private employees (48.6%) and those with secondary education (46.2%). There were significant differences between males (50.6%) vs females (48.4%) and urban (76.2%) vs rural dwellers (23.8%). The commonest reasons for not using larvicides in their homes were: no water storage (45.4%) did not know that there were larvicides (17.9%) and did not know where to get larvicides (16.3%). Only 14.2% of the respondents reported that they received health education materials on dengue. Logistic regression analyses revealed that urban dwellers (aOR=1.25), those aged 51-60 years (aOR=0.75) and Malays (aOR=0.82) were more likely not to use larvicides. We found Malays, older respondents and urban dwellers were more likely not to use larvicides. Interventions on dengue control should target these groups of population by educating them through health education materials.

Keywords: dengue control, larvicide, National Health and Morbidity Survey, health education material, Malaysia
Dengue Fever Trend at Port Dickson in 5 Years Period (2011-2015)

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Dengue fever is one of the main public health concerns in Malaysia whereby it shows increasing trend by years. This study was done to explore the dengue fever trend at Port Dickson for 5 years’ period from 2011 to 2015. A retrospective study was conducted whereby information was obtained during dengue case investigation by using Dengue Fever Investigation Form with face to face interview. The dengue cases were confirmed by NS1 positive test. There were 457 dengue cases recorded from 2011 to 2015. There was increasing trend in dengue cases by years whereby the highest case was in 2015 (35.4%). Malays was the highest race who suffered from dengue fever with 45.7% of the total cases followed by Chinese and Indians. More males suffered from dengue fever than females with 57.1%. Most of the patients (56.7%) were working and 67.4% of the dengue patients lived in the town. The mean age of the patients was 36.89 (±17.56) years old. The mean day from the onset of symptoms to the day of first treatment was 4.22 (±1.76) days. There is no significant difference in the mean period of seeking first treatment between gender, age, races, occupation and locality. There were only 6 (1.3%) dengue death cases and the mean period of admission was 6.50 (±2.74) days. Dengue fever is increasing in trend with few deaths. It is common among middle age group, working people and those who live in town. Preventive measures should be focused on these groups of people at the district.

Keywords: dengue fever, dengue trend, dengue death
Alcohol Consumption and Risk for Hypertension among Malaysian Adults: A National Health Morbidity Survey 2015

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Epidemiological studies show the apparent link between excessive alcohol consumption and hypertension. However, few studies have investigated drinking pattern and risk for hypertension among Malaysian population. This study was carried out to determine association between alcohol consumption and hypertension among Malaysian Adults. A National Health and Morbidity Survey (NHMS) was conducted in year 2015 using a cross sectional population survey design with two stage stratified random sampling. A total of 19959 Malaysian populations above 18 years participated in this survey. Data on alcohol consumption was obtained through validated self administered Alcohol Use Disorder Identification Test (AUDIT) questionnaires. The hypertension status was obtained using screening question and measurement of blood pressure. A complex sampling analysis was used for descriptive analysis. The associated factor of hypertension among current drinker was obtained using Multiple Logistic Regression analysis. A total of 1065 adults were categorized as current drinker with a prevalence of 8.4\% (95\% CI: 7.4, 9.5). Among the current drinker, 28.4\% (95\% CI: 24.4, 32.8) were of risky drinker pattern. Male (12.1\%, 95\%CI: 10.8, 13.6) revealed highest prevalence of current alcohol consumption. Approximately, one fourth (26.6\%, 95\% CI: 23.3, 30.0) among current drinkers have hypertension. The multivariable model shows the risk for hypertension among the current drinker were significantly higher in men (AOR 2.05, 95\% CI: 1.36, 3.09), older age drinker (AOR 1.06, 95\%: CI 1.04, 1.07), risky drinker pattern (AOR 1.44, 95\% CI: 1.02, 2.03) and current drinker with diabetes (AOR 2.56, 95\% CI: 1.67, 3.93) and overweight (AOR: 3.54, 95\% CI: 2.54, 4.92) The prevalence of current drinker having hypertension was alarming and become deleterious especially among men, elderly, risky drinker and those with other non communicable disease comorbidities. Preventive counseling for alcohol use among them should be integrated in primary care.

Keywords: alcohol use, risk, hypertension, Malaysian adult
Cross-Sectional Study: Distribution of Aedes Mosquitoes in Two Selected Localities in Alor Gajah

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Aedes aegypti and Aedes albopictus are well known to be the vectors of Dengue Fever. Malaysia is one of the countries that is endemic of Dengue Fever. Thus, it is essential to know the entomology aspect of these Aedes sp for a better dengue surveillance and control. A study was held in 2 different localities in Alor Gajah in 2015 to determine the breeding habits of both species. The 2 localities are Taman Seri Kelemak and Taman Sri Cahaya Mas. 30 ovitraps were put randomly indoors and outdoors, and were replaced by new ovitraps each week. Ovitrap Index (OI) was obtained each week to give a clear picture about the breeding preference of both Aedes sp. This study was done all year long. From the study, we can conclude that for both localities, Aedes albopictus inhabit most of the outdoor areas, whereas Aedes aegypti breed mostly indoors. Study on Aedes surveillance in Taman Seri Kelemak revealed the mean of 4.9 outdoor positive ovitraps for Aedes albopictus is significant compared to none of Aedes aegypti breed outdoors. While, for indoor settings, mean of 1.5 positive ovitraps for Aedes aegypti were found, and mean of 0.6 positive ovitraps for Aedes albopictus, with ratio of 1: 2.5 for Aedes albopictus and Aedes aegypti respectively. For Taman Sri Cahaya Mas, the mean of 4 outdoor positive ovitraps for Aedes albopictus was found, whereas only 0.02 for Aedes aegypti. It constitutes ratio of 1: 200 for positive ovitraps for Aedes aegypti and Aedes albopictus respectively. On the other hand, the mean of positive indoor ovitraps for Aedes albopictus is only 0.4, compared to Aedes aegypti, 0.92, which constitutes the ratio of 1: 2.3. Taman Sri Kelemak had 2 episodes of dengue outbreak in Epidemiology Week 2 and 39-41, whereas Taman Sri Cahaya Mas dengue outbreak episodes in Epidemiology Week 4 and 10. The highest ovitrap index which is on Epidemiology Week 48 in Taman Seri Kelemak (30%) and Epidemiology Week 33 in Taman Sri Cahaya Mas (26.67%) didn’t come up with any dengue cases within the following 2 weeks. In conclusion, it is shown that ovitrap index alone is not sensitive in predicting outbreaks.

Keywords: Aedes albopictus, Aedes aegypti, ovitrap, Ovitrap Index
Factors Associated with Tuberculosis Mortality in Melaka Tengah, Melaka

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Tuberculosis cause 1.3 million fatal cases in 2015 globally. It is the main cause of mortality among infectious disease in Malaysia. Understanding factors contributing to death among Tuberculosis patient is important to predict prognosis and therefore measures can be taken to lower the risk. The aim of this study was to identify risk factors for TB death. Retrospective cohort study was conducted on Tuberculosis cases in Melaka Tengah district Melaka between January 2010 and December 2014. Cases were analysed using univariate and binary logistic regression. TB death is defined as TB mortality before completing anti TB treatment irrespective of cause. Among 1644 patients identified, 1410 (85.8%) cases fulfilled the criteria with their mean (SD) age was 44.13(17.98). There were 1238(87.8%) in the alive group and 172(12.2%) in the death group. In univariate analysis, age, gender, absence of BCG scar, smoking, drug addiction, HIV infection, liver disease, chronic renal failure, cancer, on steroid treatment and advanced chest x ray findings had significant relationship with tuberculosis death. After adjusted for confounders, the significant predictors for tuberculosis mortality were elderly age (OR 4.34; 95%CI: 2.80-6.74), absence of BCG scar (OR 1.65; 95%CI: 1.10-2.50), advanced chest x ray findings (OR 2.58; 95%CI: 1.81-3.68), HIV infection (OR 2.91; 95% CI: 2.11-4.01), chronic renal failure (OR 4.91; 95%CI: 2.17-11.08), on steroid treatment (OR 3.91; 95%CI: 1.46-10.46) and cancer (OR 5.82; 95%CI: 5.82(2.01-16.84). Based on findings, BCG immunization provides protection against TB death. Advanced chest x ray findings might reflect delay in treatment. Medical personnel should aware of comorbid condition significant in this study to reduce death rate. The implementation of Direct Observed Treatment need to be strengthened particularly among those with comorbidities mentioned.

Keywords: tuberculosis, BCG immunization, mortality
EPP28

Disability Prevalence among Adults Population in Malaysia: Findings from a Population-Based Survey

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World report on Disability 2011 defined disabilities as an umbrella term, covering impairments, activity limitations, and participation restriction. Adults aged 18 years and above were invited to respond to disability module in National Health and Morbidity Survey 2015 using Washington Group Short Question. This survey is a nationwide population-based study, using stratified random sampling design. Based on the six domains assessed; the prevalence of having at least some difficulties in seeing, hearing, walking, concentrating, self-care and communicating were; 16.8%, 5.5%, 11.6%, 9.4%, 2.5% and 3.4%, respectively. Overall prevalence of disabilities; defined as “have at least two domains with some difficulties or one domain with a lot of difficulty”, was 11.8% (95% CI: 11.15, 12.53). Disabilities were noted as higher among females, elderly and those from rural, the poorest 20% income quintile, and those without any formal education. The prevalence of diabetes, hypertension and hypercholesterolemia were higher among those reported as having disabilities as compared to general adult population. Similar scenario was seen in hospital admissions and outpatient visits. Logistic regression analysis noted that at risk population for disabilities were single/widow elderly, less educated, diabetic, and hypertensive. This study revealed the unmet needs, resulting in disabilities, of those above 18 years particularly the elderly, and those with chronic diseases. Intervention strategies should be should be two-prong; provision of services to this “at risk population” while strengthening the primary and secondary prevention of chronic diseases to prevent these disabilities.

Keywords: disabilities, Washington Group Short Question, NHMS 2015

EPP29

Cancer cases in Melaka. Is it prevalent?

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Cancer is the fourth leading cause of death in Melaka as well as in Malaysia. Until now, there is no documented study which looks into prevalence of cancer cases in Melaka. The objectives of this study are to assess the trend of cancer cases in Melaka from
2007-2011 and to determine their distribution according to demographic factors, types of cancer as well as treatment modalities received. This study used secondary data from Melaka Cancer Registry. The information on new cancer cases were obtained from voluntary notifications as well as from active case findings. The data were verified and coded using ICD-O-3 and entered into the registry using CanReg4® software. The data were analysed using SPSS version 15.0 software. Cancer cases were more common in female \{ASR 116.3(111.4,121.2)\} compared to male \{ASR 103.0(98.2,107.8)\} and among Chinese, both male \{ASR 114.9(106.6,123.2)\} and female \{ASR 125.4 (116.8,134.1)\} compared to others. Most common cancer among male were lung \{ASR 20.1(17.9,22.2)\}, colorectal \{ASR 17.1(15.2, 19.1)\} and lymphoma \{ASR 7.9(6.5, 9.1)\} whereby among female were breast \{ASR 38.4(35.6, 41.2)\}, colorectal \{ASR 13.3(11.6, 14.9)\} and cervix uteri \{ASR 8.5(7.1,9.8)\}. The most common morphology for lung cancer were squamous cell carcinoma (30%) and adenocarcinoma (26.1%), whereby, for breast cancer cases were infiltrating duct carcinoma (58.3%) and infiltrating ductular carcinoma (22.4%). Most of them received treatment (76.5%) and most common modalities were surgery (36%), chemotherapy (35.8%) and radiotherapy (22. 8%). Prevalence of cancer cases in Melaka is higher compared to Malaysia. ASR for lung cancer in Melaka was 20.1 per 100,000 population compared to 14.8 in Malaysia, while ASR for breast cancer in Melaka was 38.4 compared to 29.1 in Malaysia. Steps must be taken to educate the public on the importance of screening for cancer as well as adopting a healthy life style.

**Keywords:** cancer, Melaka, cancer registry

**EPP30**

**Implementation of Sustainable Development Goals (SDGs) in Malaysia**

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In September of 2015, the 193-Member United Nations General Assembly adopted the 2030 Agenda for Sustainable Development, along with a set of 17 Global Goals, also called the Sustainable Development Goals and its 169 targets. This new 2030 agenda builds on the historic Millennium Development Goals (MDGs). Malaysia is on the right track towards achieving the global 2030 Sustainable Development Goals Agenda. The current five-year development plan, the Eleventh Malaysia Plan 2016-2020, formulated with People as the centrepiece of all development efforts will serve as an overarching and guiding policy for sustainable development in this country which will require a whole of government approach. Achieving the sustainable development goals by 2030 will require enormous efforts including resource mobilization, innovation, knowledge sharing as well as active partnerships among the government, the private sector, non-governmental organisations, civil society, universities and research institutions as well
as regional and multilateral organisations. Malaysia needs to put in place the appropriate platforms for SDG implementation and monitoring, with meaningful participation from all stakeholders and to explore means towards strengthening data and the measurement for future assessment and reporting. Effective planning, inclusive and participatory governance, sound policy and legal frameworks, strong institutions, and effective development cooperation and partnerships will be needed. Everyone has a role to play - governments, CSOs, the private sector, international institutions, youth and individuals. The ability to work in effective partnership, guided by the commitment to leave no one behind, will shape the quality of our development results.

Keywords: SDGs, MDGs, 11th Malaysia Plan

EPP31

Health-Related Quality of Life among Overweight or Obese Malay Housewives in Klang Valley: A Baseline Study of a Community Intervention

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Majority studies indicated a relationship between the increased in body weight and impaired health-related quality of life (HRQOL) among obese women. We aimed to report the HRQOL by different BMI categories of the overweight/obese housewives. This is a baseline finding of the My Body is Fit and Fabulous at Home project, an intervention study to combat obesity among housewives aged 18-59 years old living in Klang Valley. Data collection was conducted from January to June 2014. Overweight/obese housewives were categorized as overweight, class I obesity and class II obesity (WHO 2004). Obesity and Weight-Loss Quality of Life (OWLQOL), a self-reported 17-item questionnaire measured feelings related to being overweight or obese. Higher scores indicated a better HRQOL. A total of 278 questionnaires were analyzed (96.2%). Mean age of the housewives was 42.3(SD 8.5) years. About 133 (45.0%) housewives were overweight, obese class I, 95 (33.0%) and obese class II, 62 (22.0%). Overall mean score for the HRQOL was 58.11 (SD 25.01), and there was a significant score reduction as the BMI increased (p=0.002). By condition-specific, a significant reduction was seen in 12 out of 17 items as the BMI increased. By domains, significant HRQOL reduction was seen in all domains of self-image, social stigma, trying to lose weight and physical as the BMI increased. As a conclusion, increased body weight resulted in lower quality of life among the Malay housewives. This finding serves as an evidence for the need to conduct weight intervention program to improve quality of life among the housewives.

Keywords: obese housewives, OWLQOL, quality of life, HRQOL, MyBFF@home
EPP32

Epidemiology of Dengue Death in Kuala Lumpur and Putrajaya in 2014-2015

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We aim to describe the epidemiology of dengue mortality in Kuala Lumpur and Putrajaya from January 2014 till December 2015. There were 21 and 34 dengue deaths reported in 2014 and 2015 respectively (62% increased). Case fatality rate showed a significant increased from 0.29 in 2014 to 0.4 in 2015. Of 55 dengue deaths, median age was 41 years old. Male gender comprised of 50.9% and comorbidities existed in 56% of the cases. 69% of deaths occur in the productive age between 20 to 50 years old. 60% of the patient already sought for treatment in the first 48 hours since onset and 65% of them was treated in private clinic during the first consultation. Dengue fever or probable dengue was only diagnosing in 33% of the patient during their first consultation. From illness onset, patient presented for admission at a median of 4 days and death occurred at a median of 6 days. 91% of deaths were due to Dengue Shock Syndrome. Liver impairment occurred in 76.4%, acute renal impairment 63.6%, impaired consciousness 20.0% and myocarditis in 3.6%. 60.0% of the cases develop warning signs of persistent vomiting, 56.4% had high hematocrit with rapid drop of platelets and 43.6% had abdominal pain. In conclusion, majority of the patient sought their first treatment early, however diagnosis of Dengue fever was not entertained which lead to delay in referral and appropriate treatment. Majority of death occurred in patient with comorbidities. Liver and kidney impairment occurred in most of the patient.

Keywords: dengue deaths, case-fatality rate, dengue shock syndrome, comorbidities

EPP33


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Cancer became a health threat. The National Cancer Registry 2007 showed 18,219 new cancer cases in 2007 and 1294(7.1%) were from Kuala Lumpur and Putrajaya. In 2007; the 5 top cancers in Malaysia were breast, colorectal, lung, nasopharynx and prostate. Majority were diagnosed at late stage of disease. This is a cross-sectional study using secondary data of notified new cancer cases in Kuala Lumpur & Putrajaya.
from 2011 till 2015. Aim is to determine the cancer incidence, its associated sociodemographic factors and cancer stage at diagnosis. There were 2581 new cancer cases diagnosed in Kuala Lumpur and Putrajaya from 2011 till 2015. Cancer incidence in 2011 were 878, in 2012 were 381, in 2013 were 369, in 2014 were 517 and in 2015 were 436 cases. Out of this, 903 (35%) were male and 1678 (65%) were female. Mean age was 55 years old (SD 14.5). Majority were Chinese 1408 (54.6%), Malay 860 (33.3%), Indian 285 (11%), others 28 (1.1%). The top 5 cancers diagnosed in Kuala Lumpur and Putrajaya were breast 906 (35.1%), colorectal 269 (10.4%), lung 237 (9.2%), nasopharyngeal 123 (4.8%) and lymphoma 111 (4.3%). Most of breast cancer were diagnosed at early stage, yet colorectal and lung cancer were diagnosed at late stage. Incidence of cancer in Kuala Lumpur and Putrajaya each year from 2011 till 2015 was reduced compared to incidence reported in National Cancer Registry 2007 probably due to under-reported cases or effective cancer prevention program. However, effective screening program should be emphasized in the future especially for cancers that were diagnosed at late stage.

**Keywords:** cancer, registry, Kuala Lumpur, sociodemographic

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### EPP34

**The Effectiveness of Methadone Maintenance Therapy (MMT) among Intravenous Drug Users (IVDU) Registered in Government Health Facilities in Melaka**

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Methadone Maintenance Replacement Therapy (MMT) among intravenous drug users (IVDU) is part of Harm Reduction Program introduced by Ministry of Health Malaysia in 2006. Malacca started MMT in 2009 at Malacca General Hospital before it was expanded to all government health facilities by 2011. The objective of this study is to determine the effectiveness of MMT among our clients in government health clinics in Melaka. The study design was a record review of intravenous drug users involve in MMT program in two health clinics, Ayer Molek Health Clinic and Merlimau Health Clinic from 2014 until 2015. Our research tools were the OTI and WHOQOL-Brief self-administered questionnaires which were filled up by the MMT clients at entrance into the program and after six months. Paired t-Test was used to compare means at entrance into the program and after six months. A total of 105 records were reviewed. From the analysis of WHOQOL questionnaires, there were significant increase in the mean score in all five domains namely general (p<0.001), physical (p<0.001), social (p<0.001), psychological (p=0.03), and environment (p<0.001) after 6 months. Analysis of OTI Questionnaire showed a significant reduction in mean scores in health (p<0.001) and social function (p<0.001) domains only. MMT is effective in improving quality of life among our clients.
life among injecting drug users. It is highly recommended for prisons and drug rehabilitation centers to include MMT program to improve quality of life among injecting drug users.

**Keywords:** methadone, WHOQOL-Brief, OTI, Melaka, drug users

EPP35

**Forgotten Disease: Community Knowledge on Tuberculosis among One Selected Island Residents in Selangor**

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Tuberculosis (TB) is a global public health problem. Malaysia is known as an intermediate burden TB country. Similarly, in Malaysia the incidence of TB in Malaysia is still increasing and the main cause of death from infectious diseases. Despite of this, there is still limited study on community knowledge on TB in Malaysia. The aim of this study was to determine the community knowledge on tuberculosis among an island resident in Selangor. A cross-sectional study was conducted among residents of four traditional villages in the selected island. A total of 700 subjects were selected to participate in this study through stratified random sampling method. The information on knowledge was collected by a self-administered questionnaire. The IBM SPSS software version 22.0 was used to perform data analyses. The response rate was 72.9%. Most of respondents (97%) have heard about TB, but only 73.3% knew that TB is caused by a bacterium. Only 80.9% of them knew that tuberculosis was infectious, preventable (74.0%) and cured (72.2%). For TB symptoms, most of respondents (89.7%) knew about cough for more than two weeks but not for fever (34.8%), night sweat (43.7%), and sputum with blood (43.7%). About 86.7% knew that tuberculosis is transmitted via air-borne. For high risk group, they knew about smokers (77.8%) but not for diabetic patients (16.3%) and HIV patients (52.0%). The findings of this study suggested that the importance of health promotion and health education in order to improve community knowledge on tuberculosis.

**Keywords:** Knowledge, symptom, high risk group, tuberculosis, Malaysia
EPP36

Study the Effectiveness of HRP/PANI Electrode as Sensor to Detect Level of H$_2$O$_2$ in Urine

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The level of hydrogen peroxide (H$_2$O$_2$) in urine has been suggested as a potential biomarker of whole body oxidative stress, but issues of stability, reproducibility and biological variation still be issues. Immobilise enzymes can offer many advantages over their soluble forms making this is a topic of active research in enzyme technology for industrial applications. Horseradish Peroxidase (HRP) was used extensively in molecular biology applications primarily for its ability to amplify a weak signal and increase the detectability of a target molecules. Recently class of conducting polymers are used as a polymeric support. Among the family a conducting polymer, polyaniline (PANI) has intensively been used for various reason because of its unique properties such as ease of synthesis by chemical or electrochemical oxidative polymerization of the monomers, role as a polymeric support and also have potential in various field. This study intends to see the effectiveness of HRP when it is deposited onto PANI layer using electrodeposition method to detect level of H$_2$O$_2$ in urine by potentiostatic technique. The characterization was done using UV-Visible and FTIR. For U.V.-visible, HRP/PANI shows a two sharp absorption peaks at ~310 nm and ~810 nm. This is supported by FTIR result that proves the existence of shifted peak because of interaction between HRP and PANI. Detection response shown by HRP/PANI electrode towards H$_2$O$_2$ gave a response time as early as 0.01 second. This gave promising in applications for detection of concentration hydrogen peroxide level in urine that useful for clinical applications.

Keywords: HRP, PANI, H$_2$O$_2$, Urine
EPP37

Incidence and Clinical Characteristic of Severe Dengue Melaka, 2013 - 2015

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Dengue infections have always been a public health concern in tropical and sub-tropical countries including Malaysia. The actual burden of severe dengue and its’ characteristics in Melaka is not known. This study aims to determine the incidence and clinical characteristic of severe dengue for further preventive public health actions. Identification of severe dengue cases were classified according to WHO Dengue Classification 2009. A cross sectional study was conducted. Dengue cases between 2013-2015 were randomly selected from eDengue registry and Dengue Virus Serotype Surveillance. Univariate analysis was performed using SPSS v20. From 487 samples analysed, 185 (38%) cases hospitalized. Among those, 22% had dengue fever, 67% had Dengue fever with warning sign and 21 cases (11%) had severe dengue. Average rate for severe dengue was 4.3% and average admission rate was 38.0%. 61.9% cases developed severe dengue in ward. Mean duration developing severe dengue after admission was 1 day (SD ± 1 day). Mean duration in developing severe dengue from onset was 3 days (SD±1.8 days). Highest rate among severe dengue are male, Malay and in productive age group. The significant risk factors are presence of comorbidities (OR 3.04 95% CI 1.20-7.67, p=0.015) and warning signs (OR 0.86 95% CI 0.80-0.91, p=0.009). Predominant virus circulating in Melaka was DEN 1 (39%) and DEN 2 (37%) in 2014 while in 2015 DEN 1 (71%) was dominance. DEN 3 was the most common serotype identified among severe dengue. In summary, prevention effort should focus among productive age group and cases with warning signs.

Keywords: incidence, severe dengue, dengue virus serotype
FAMILY HEALTH

FHPP1

The Eating Habits Between Males and Females Medical Students in a Public University

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Medical students are future doctors who will be advising patients on healthy dietary habits. They are at a critical age period to have the opportunity to decide their food choices. We conducted a cross-sectional study to determine the eating habits of male and female medical students at a public university in Selangor. Our respondents were selected using stratified cluster random sampling and were given questionnaire containing 11-items of eating habits where an optimal score or adequate habit being zero and above. There were 42 (41.6%) males and 59 (58.4%) females Bumiputera students included in this analysis. The mean age was 21.6 ± 1.3 years old. Males showed the significantly higher proportion of overweight and obese compared to females. The overall score of eating habits was below optimal (mean score -2.8 ± 6.9) Males were significantly having a lower score of eating habits compared to females although both sexes were below optimal score (-4.5 ± 6.6 versus -1.53 ± 6.9, p=0.03). The highest proportion of poor eating habit in both sexes was ‘frequent eat in a fast food restaurant in a normal week’ (males 85.7%, females 84.7%, p=0.89) while ‘frequency of eating red meat in a normal week’ was significantly poorer in males compared to females. Our results supported many others studies that showed poor eating habits among university students with males having poorer eating habits. Our conclusion is that our medical students need more education on healthy eating habits and may need to be tailored according to sex.

Keywords: eating habits, medical students, public university

FHPP2

Prevalence and Determinants of Stress among Parents of ASD Children in National Autism Society of Malaysia (NASOM)

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Autism spectrum disorder (ASD) is a severely incapacitating life-long developmental disability, which typically appears during the first three years of life. Taking care of children with autism is not an easy task and responsibility; instead, it is a challenge for those parents who live with more stress and needs much more support compared
to those raising healthy children. This study designed to determine the prevalence and risk factors of stress among parents of ASD children. It was a cross-sectional study among 53 parents at five NASOM centers in Selangor, Malaysia. Self-administered questionnaire to identify the socio-demographic characteristics and parenting stress index (PSI) among the caregivers of children with ASD. The questionnaire contains items in three major domains (child characteristics, parent characteristics and situational/demographic life stress) that represents positive and negative themes of parenthood to examine to what extent the parents is experiencing stress in their roles as a parents. Prevalence of stress was 43.4% among parents of children with Autism spectrum disorder. Multiple logistic regression showed that child’s age was the main determinant of parental stress (Adjusted OR= 22.8, 95%CI (2.72, 190), p=0.004). The study supports the previous research finding that showed higher levels of stress among parents of young children with an ASD. A special attention should focus on those parents with children at school age to help them cope with stress in order to have a better quality of life.

**Keywords:** autism, parenting stress, ASD children, National Autism Society of Malaysia

**FHPP3**

**Perceived Barriers toward Cervical Cancer Screening Amongst Women in Az-Zawiya City, Libya: A Qualitative Study**

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The study aims to explore the attitude and beliefs about cervical cancer and its prevention, as well as the barriers toward cervical cancer screening among women in Az-Zawiya City. Ten focus group discussions were held with seventy-eight women from Az-Zawiya City, Libya, between June and August 2014. A series of questions based on the Health Belief Model was used as a study tool and the data were analysed using thematic analysis. The study found that apparently healthy women have poor knowledge about cervical cancer and its prevention, in contrast to women with cervical cancer. Numerous barriers preventing women from undertaking a Pap smear test were identified as follows: lack of knowledge about cervical cancer and its screening, financial constraints, and accessibility of screening service. This was the first study to explore the barriers to cervical cancer screening attendance in Libya. The findings suggest that the screening uptake among Libyan women can be improved through health educational campaigns, which may provide clearer information about cervical cancer and the benefits of its screening.
Keywords: barriers, cervical cancer, screening, Libya, qualitative study

FHP4

Why Did They Start Smoking at an Early Age?

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Age of smoking initiation will greatly influence smoking prevalence in the country. Studies have shown most young people from lower socioeconomic status who regularly smoke will continue to smoke throughout adulthood. This study aims to describe the pattern and background of early age smoker and reasons for initiating smoking among the lower socioeconomic community in the urban settlements. A cross-sectional study with face to face interview was conducted in October 2015. A smoker was defined as someone who smokes at least one cigarette stick in the past seven days. Ex-smokers were defined as those who have not smoked for the past six months or more. Among 102 young smokers with mean (SD) age 14.5 (3.01), 87.3% were males and 12.7% females. The mean (SD), household income per month, was RM1539.00 (RM812.20). The mean (SD) age of started smoking was 11.8 (2.76). They smoked almost 5 cigarettes per day [mean (SD) = 4.7 (4.1)]. Nearly 40% (39.2%) of the young smoker attained non-formal or lower education level, 32.4% higher secondary or tertiary and 29% lower secondary education. The majority of them (66.7%) stayed together with their parent, and 43.1% of their both parents were working. Mostly (68.6%) still actively smoking, only 31.4% had stopped. Most (47.1%) of the young smoker also had tried vaping. Even though 92.2% of them are Muslims, only 10.8% performed regular Islamic prayer. We found that the topmost described curiosity (69.6%), peer influenced (65.7%) as well as to fit in with friends (52.0%) as the factors that contribute to their decision to initiate smoking. Curiosity and peer influence were the most influenced factors. Therefore, in-cooperating the factors that contribute to the initiation of smoking are an important element in a prevention programs.

Keywords: decision, smoking, early age
Anaemia Situation in Malaysia: Findings from National Health & Morbidity Survey 2015

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Anemia is one of the most common public health problems. Globally, the most affected groups are women of reproductive age and children. This study aims to describe the prevalence of anemia among Malaysian adults. Data were obtained from the National Health & Morbidity Survey 2015, a population-based study. Respondents aged 15 years and above from the selected living quarters and agreed to participate, were recruited in this study. Hemoglobin level was measured using Hemacue® point-of-care testing on capillary blood sample. Data analysis was conducted using SPSS version 21 taking into consideration the complex sampling design. There were 19,909 out of 21,445 respondents with a 92.80% response rate participated in this study. The overall prevalence of anemia was 24.59% (95% CI: 23.59-25.62) with an estimated projection to 4,945,188 persons. Females (35.50%, 95% CI: 34.06-36.97) had a significantly higher prevalence of anemia compared to males (14.3%, 95% CI: 13.33-15.40). In terms of ethnicity, Indians (30.8%, 95% CI: 28.04-33.80) had the highest prevalence of anemia. By state, Negeri Sembilan and Terengganu had the highest prevalence of anemia. Among different target groups, the highest prevalence of anemia was in women of reproductive age, 36.02% (95% CI: 34.30-37.70) followed by elderly, 35.02% (95% CI: 32.90-37.20). In numbers, 2.61 million (95% CI 2.45-2.77) women of reproductive age are estimated to be suffering from anemia. Anemia is a major health problem that should be focused on especially among women of reproductive age and elderly. Preventive measures such as iron supplementation should thus be started from the younger population.

Keywords: prevalence, anemia, point-of-care testing, population-based study, Malaysia.
Scoliosis Screening Revisited: Findings from the District of Petaling, Selangor

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Internationally, there are conflicting recommendations on scoliosis screening policies in schools. The Health Technology Assessment Report of the Scoliosis, Ministry of Health Malaysia suggests that scoliosis screening only be performed for high risk group such as girls at 12 years of age. Currently, all Year 6 students in public schools in our district are screened. Our objective was to review the scoliosis screening programme conducted in public schools in Petaling District, Selangor. A retrospective review of scoliosis screening data collected by school health team annually from 2013 to 2015 was performed. The data collected included screening results of all Primary 6 students in the public schools of District of Petaling, Selangor, Malaysia During the school years of 2013 to 2015, a total of 77138 students were screened for scoliosis. Of those screened, only 84 (0.11%) were referred for further evaluation. Of those referred, 74(88%) were girls. Only 62 (74%) of the referred students was reported to have a confirmed diagnosis and followed up at tertiary level. Literature suggests that girls achieve puberty two years before boys and are afflicted with scoliosis up to three to four times more frequently. The findings from this review are similar. Despite the low pick up rate in our schools, there is literary evidence to suggest that school-based scoliosis screening programme is cost-effective. Based on existing recommendations and our findings, screenings should ideally be limited to Year 6 female students instead of the entire enrolment.

Keywords: scoliosis, school screening, Selangor

Patient’s Cost and Outcome Gained among Children with Disability Attending Community-Based Rehabilitation

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Children with disability usually require long-term and continuous rehabilitation. Community-Based Rehabilitation (CBR) was developed to fulfil this need and has benefited children at various ages. In Malaysia, government largely fund rehabilitation
of children at the CBR centers. However, additional costs are still borne by caretakers or parents. To date, no research is available on patient’s cost for children attending CBR in the country. This information helps to understand the burden of caretakers/parents of disabled children that require rehabilitation. The objective of this study was to assess the patient’s cost and outcome gained among children following 6 months of rehabilitation at CBR. This study involved 220 children with disability aged 4 to 18 years old from 29 CBR centers in Pahang, Terengganu and Kelantan. Patient’s cost was estimated using activity-based costing approach, with the use of self-administered questionnaire. Outcome of rehabilitation was measured in term of changes in disability level, using Barthel Index. The results showed that the mean number of therapy session was 63.21 (SD=33.86) in the 6 months’ period. The mean patient’s cost was RM 1183.40 (SD=RM1628.60). The highest cost component was travelling/transportation cost, 60.7% and medicine and supplement cost 16.8%. There was a small but significant increase in the Barthel Index score of the children following rehabilitation, mean ± SD = 0.90 ± 4.54 (p = 0.003). This study found that, although beneficial, the outcome gained through CBR is too small for the amount of money spent by the caretaker’s/parents. Review of the therapy in the program is needed to improve the outcome.

**Keywords:** Community-Based Rehabilitation, disability level, disabled children, patient’s cost

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**FHPP8**

**What is The Nutritional Status of Children with Disability? A Scoping Review**

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Disability is categorised as physical and neurodevelopment disability which includes children with Autism Spectrum Disorder (ASD), Cerebral Palsy (CP), Down Syndrome (DS) and other types of disabilities. The important aspects to indicate overall health status and wellbeing are nutritional status. Therefore, this study aims to identify evidence on the nutritional status and to determine tools and indicators to measure nutritional status of children with ASP, CP, and DS. This study was a scoping review and conducted using a framework suggested by Arksey and O’Malley. It contains five stages in order to complete this study. A comprehensive search of primary study, reviews, grey literature and annual reports were done by researchers. Inclusion criteria for the search were articles in English published from 1990-2014 and related to children disabilities aged below 18 years old. A total of 305,268 titles were extracted and from that only 21 articles were selected in the review based on inclusion criteria. Overall, the majority of the studies found that children with CP were at risk of underweight with the prevalence was 22.2% to 78.2%. However, children with DS and
ASD were tend to be at risk of overweight or obesity. The prevalence of children with DS was 33.5% to 43.5%. The most common nutritional indicator was z-score for weight-for-age, height-for-age, body mass index-for-age, and head circumference-for-age. There is emerging evidence on the nutritional status of children with ASD, DS, and CP, although still very limited in Malaysia. It is hoped that these findings will support the planning of future researches and health intervention or programmes for this population.

Keywords: nutritional status, children, autism spectrum disorders, cerebral palsy, down syndrome

FHPP9

Infertility: Who are More Affected? Infertile Men or Women?

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Western literature reveals that infertile men and women were susceptible to suffer some form of physical and psychological problems with regards to the infertility. There are limited studies done in Asian population pertaining infertility. It is not just a disease of the reproductive system but it also commonly results in negative sequels and diminished quality of life. As a result, this situation may cause a major life catastrophe. The purpose of this study is to determine the psychological wellbeing and its determinants among Malaysian infertile men and women. A cross sectional study was conducted in the subfertility clinic of ‘National Population and Family Development Board’ (LPPKN), Kuala Lumpur, Malaysia from February till April 2016. Data were collected using self-administered Depression, Anxiety, Stress scale (DASS-21) questionnaire which encompasses of 21 questions that assesses the psychological status. Data were analyzed using SPSS version 21. The sociodemographic characteristics were tabulated by percentage and frequency using descriptive analysis. Logistic Regression analysis was performed to measure the associations between the predictor (gender) and the outcomes. Most respondents were young, female, Malays, and had attained tertiary education. Majority of respondents reported have type 1 infertility. More than half of participants have anxiety. Infertile women reported significantly higher level of depression, anxiety and stress (p<0.05) as compared to the infertile men. Malaysian infertile men and women are susceptible to psychological agony that befalls more frequently among women than men. Therefore, this study may assist the fertility facilities to plan and strategize better intervention for the infertile couples.

Keywords: infertility, infertile couples, psychological well-being
Can We Effectively Secure Neonatal Identification Tags?

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This study aims to evaluate the quality of application of identification (ID) tags among neonates and the perception of staff towards the current system in a regional referral hospital. We conducted a cross-sectional study among neonates with birth weight ≥ 2.5 kilograms. ID tags of neonates were observed without the knowledge of ward staff. The quality of application was determined based on the following components: presence and placement of the ID tag, size of the ID tag, fit of the ID card in its holder, whether the tag was properly locked, the completeness and legibility of information on the ID card. Any component identified to be at high risk of misidentification (loose fit, missing, dislodged) was reported immediately to the staff in charge for further action. The perception of staff involved in the application of ID tags was evaluated using a self-administered questionnaire. We observed 217 neonates with mean birth weight of 3.0 (SD 0.4) kilograms. The majority had tags attached to the ankle (88.5%), but 2.8% were not tagged (tags missing), and 8.8% were dislodged. Of those with tags attached, all were properly locked, with ID cards fitted snugly in holders. Nearly all ID cards were legible (96.8%), but only half had complete information (51.2%). Over a quarter of the tags (28.2%) were at high risk of misidentification. A total of 30 staff completed the questionnaire. Half of them (50.0%) perceived the probability of dislodgement of ID tags to be less than 10%, mainly due to the tags being too loose (96.7%). The current system of ID tag application for neonates is inefficient. Healthcare providers should play a vital role in reviewing and improving system standards.

Keywords: ID tag, neonate and secure application

Use and Appropriate Use of Child Car Seats in Malaysia

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This study aimed to determine the use of child car seats by parents/caregivers of children≤5 years old in Malaysia. A cross-sectional study was conducted at four randomly selected supermarkets in the Kinta district. We approached vehicles of
parents/caregivers with children and provided them with an information leaflet on safety information of child car seats. At the same time, we enquired the child’s age, observed the presence of a child car seat, and its use. Appropriateness of use was determined based on the direction of placement according to child’s age group and whether the child was buckled up. A total of 966 vehicles with children were observed, but 77 (8%) parents/caregivers did not provide their child’s age. Of the remaining 889 parents/caregivers of children with mean age of 2.3 (SD 1.3) years, only 16% installed a child car seat, of which half (56.3%) placed their child in the seat. Of those who used a child car seat, 57.5% were appropriately used. Chinese were 1.7 times more likely than Malays to use a child car seat, adjusted for child’s age (OR=1.69, 95% CI 1.17, 2.45). Parents/caregivers of children <2 years old were 1.8 times more likely to have a child car seat installed in their vehicles than those with older children, adjusted for ethnicity (OR=1.81, 95% CI 1.26, 2.60). The use of child car seats among children ≤5 years old in Malaysia is low. Many who use child car seats do not secure their children properly.

**Keywords:** use, appropriate use, child car seat

**FHPP12**

**Accessibility to Sexual and Reproductive Health Information among Adolescents in Sarawak, Malaysia**

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Adolescents need to have proper and accurate information and awareness on sexual and reproductive health that can help them to make responsible decision-making about their sexual behaviour. The aim of the study was to explore how adolescents access to various sources of media in regards to sexual and reproductive health information in Sarawak. This study is part of pilot study on protective factors and risky sexual behaviour. A cross-sectional study was carried out in Samarahan, Sarawak among 100 adolescents (N=100) between 16 to 19 years old, with a response rate of 77.0%. Sampling process includes multistage clustered sampling with selected districts involved were sub-district Asajaya and Serian in Samarahan Division. Data were collected using self-administered questionnaire. Descriptive and inferential statistics were employed for the data analysis using SPSS version 21. Those respondents reported ever had search for sexual and reproductive health in the past 3 months were 78 (78.0%). The three main sources of information for the respondents were through internet (52.6%), friends (39.7%) and printed media (34.6%). While school teachers (10.3%), parents (15.4%) and siblings (14.1%) being the least person consulted by respondents. Three main reasons for searching information on sexual and reproductive health were to get some information on STI’s and AIDS (34.6%), preventive measures (19.2%), and personal health (33.0%). These results suggest a need to look into the importance of internet and communication technology (ICT) and also interpersonal
communication in developing effective health education strategies related to sexual and reproductive health among adolescents in Sarawak.

Keywords: information seeking, sexual and reproductive health, adolescent

FHP13

Overweight/Obesity: A Potential Risk among Malaysian Elderly with Walking Disabilities

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The possible effects of overweight/obesity among elderly with walking disabilities should be fully understood in order to mitigate other leading health effects. The aim of this study is to examine overweight/obesity as a risk affecting elderly with walking disability beside other socio-demographic factors. National Health and Morbidity Survey (NHMS) is a cross-sectional survey (two-stage stratified sample) designed to collect health information on a nationally representative sample of the Malaysian adult’s population. Data were obtained via face-to-face interviews using validated questionnaires. Malaysian elderly shows highest prevalence in having at least some difficulties in walking compared to younger adult which is 11.3% (95% CI: 10.6 - 12.0). Based on logistic regression analysis, the result highlighted that overweight/obesity [AOR=1.4; 95%-CI=(1.29-1.56)], elderly [AOR=20.2; 95%-CI=(16.70-24.50)], male [AOR=1.5; 95%-CI=(1.39-1.68)], as well as rural [AOR=1.1; 95%-CI=(1.03-1.24)] was significantly associated with walking disabilities. The finding of this study is consistent with previous study that obesity risk rates were substantially higher compared to their nondisabled peers. Beside obesity, increasing number of people having difficulty in walking or going up and down stairs is also due to aging factors. Physical disability among Malaysian elderly may lead to social and health inequalities. Continual study on these issues can aid on the implementation of health promotion and weight management among the elderly with walking disability.

Keywords: adult, disability in walking, elderly, overweight/obesity risk, NHMS 2015
Oral Contraceptive Pills (OCP) intake reduce the risk of developing rheumatoid arthritis (RA) among Malaysian Women-Results from MyEIRA Case-Control Study

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Rheumatoid Arthritis (RA) is a chronic inflammatory disease affecting the hands and feet joints. RA is 2-3 times more common among women. Previous studies reported that the use of oral contraceptive pills (OCP) before the onset of RA was associated with reduced risk of RA across the population. This study aimed to determine the associations between oral contraceptive pills (OCP) intake and the risk of RA among Malaysian women. The data derived from the Malaysian Epidemiological Investigation of Rheumatoid Arthritis (MyEIRA) case control study. A total of 1551 women aged 18 and above from peninsular Malaysia were recruited. All respondents underwent a face-to-face interview by trained personnel to obtain information on sociodemographic and OCP intake. Statistical analysis were performed using SPSS software. Among the 1551 participants, 51.3% were Malay followed by Chinese (18.2%), Indian (25.6%) and others (4.8%). A total of 854 RA cases and 697 healthy controls matched by age and residential area were recruited. There are no significant association between the education background and monthly income with the risk of developing RA. Interestingly, the OCP intake was significantly associated with decreased risk of RA among Malaysian women (OR = 0.77, 95% CI: 0.62- 0.96, p-value = 0.02). Our findings suggest that OCP may reduce the risk of developing RA among Malaysian women.

Keywords: OCP, Rheumatoid arthritis, women
FHPP15

Parity Pattern and Postmenopausal stage influence the risk of developing Rheumatoid Arthritis among Malaysian women- Results from MyEIRA case control study

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Rheumatoid arthritis (RA) is a chronic inflammatory disease involving the joints. RA is 2-3 times more common among women. Previous findings showed that parity and stages of menopause had an impact on risk of RA. This study was carried out to determine the associations between parity and menopausal stages with the risk of RA among Malaysian women. The data sources were from the Malaysian Epidemiological Investigation of Rheumatoid Arthritis (MyEIRA) case control study. A total of 1310 women from Peninsular Malaysia, aged between 18 and 70 years old were included in this study. All diagnosed RA cases fulfilled the 1987 American College of Rheumatology (ACR) RA classification. All respondents underwent a face-to-face interview by trained personnel to obtain information on sociodemographic, parity pattern and pregnancy status. Statistical analysis were performed using the SPSS version 16. Logistic regression analysis showed that women who had 6 or more children were significantly associated with decreased risk for developing RA (OR = 0.69, 95% CI 0.50-0.96, p-value: 0.03). On the other hand, RA women with postmenopausal were associated with increased of RA as compared to women who are still in the reproductive stage (OR = 1.47, 95% CI 1.17-1.84, p-value = 0.001). Our findings is consistent with the previous studies suggesting postmenopausal stage may increase the risk of RA while giving birth to 6 or more children will decrease the RA risk. Further studies should be done involving multiple factors of hormone level, pregnancy practices and environmental factors.
Mental Health Problems among Children in Malaysia: NHMS 2015

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Mental health problem or sometimes known as emotional and behavioural problems among children is a growing public health problem among children in both developed and developing countries. This study was done to determine the prevalence of mental health problems among 5 to 15 years’ children in Malaysia. Data from National Health and Morbidity Survey 2015 was used. It was a nation-wide study using two-stage cluster sampling design involving selected living quarters. Data was collected using locally validated Strengths and Difficulties Questionnaire (SDQ) by face to face interview and was then analysed using SPSS version 19.0. A total of 5182 (out of total 5823 children) aged 5 to 15 years responded in this topic with response rate 88.9%. The overall prevalence of mental health problem among children was 12.1% (95% CI: 11.0, 13.4). The prevalence was highest in Sarawak [16.0% (11.6, 21.8)]. Children from rural area had higher prevalence of mental health problems as compared to those from urban areas [13.0% (11.1, 15.3) vs. 11.8% (10.4, 13.4)]. By sex, mental health problems were higher among boys than girls [12.4% (10.8, 14.1) vs 11.9% (10.3, 13.6)]. Younger children (5-9 years) showed higher prevalence of mental health problems; 13.1% (11.4, 15.1), as compared to older children (10-15 years); 11.4% (10.0, 12.9). By ethnicity, other Bumiputras’ showed highest prevalence of mental health problems [16.5% (12.9, 20.8)]. This survey also revealed that the prevalence of emotional problems among children were 15.7%, conduct problems; 16.7%, hyperactivity; 4.6%, peer problem; 32.5% and pro-social skill; 11.2%. Prevalence of mental health problem among children in Malaysia was comparable with Gaza (14.2%) but lower compared to Brazil (18.7%) and Tehran (25.8%) who used similar tools. At-risk population for mental health problems are children from rural, boys and the younger age group. Based on the findings, it is clear that specific policies and programmes must be designed to address the current issues affecting mental health of children in Malaysia.

Keywords: mental health, children, National Health and Morbidity Survey, NHMS
Orang Asli Mobile Clinic Service in Cameron Highlands: A Cross-Sectional Study

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Pasukan Bergerak Orang Asli (PBOA) also known as mobile team, Cameron Highlands district was established in 1990s and has been providing health services for Orang Asli community, with support from the Jabatan Kemajuan Orang Asli (JAKOA) and Malaysian Armed Forces. The available health services majorly concern on maternal and child health, primary health care supervision under JAKOA, as well as early detection of malaria/TB under the supervision of Health Department Unit Vector of Cameron Highlands. Their works cover Orang Asli settlements in Pos Terisu, Pos Menson, Pos Telanok and Pos Lemoi. In 2012, the Ministry of Health Malaysia has fully acquired this service and thus, allowing PBOA to be upgraded, especially on the vehicles and staffs’ development, in improving service quality and visiting frequency. Objective: The analysis is aimed to evaluate the achievements and effectiveness of the provided services, and measures taken in improving the health care practices in the aforementioned Orang Asli settlements. Methodology: A cross-sectional study was conducted by evaluating the reports and annual data from PBOA (maternal and child health, primary health and nutrition data) starting from 2010-2015. Findings: Although there was a decline in the patient’s visit in 2014, with only 704 patients (a reduction of 51.0% from 2013), there was an increase in 2015 (3,808 patients visiting). Out of this number, majority of the patients were seeking URTI disease treatments. On the other hand, diabetes mellitus and hypertension cases were first diagnosed in 2008, with the prevalence of 37.5 out of 10,000 populations for hypertension, and 12.5 out of 10,000 populations for diabetes mellitus, in 2015. Moreover, safe delivery rate has increased to 90.4% in 2015, compared to 70.5% in 2010, and early booking has increased to 90.4%. The infant mortality rate decreased from 76.9 (in 2010) to 35.1 out of 10,000 live births (in 2015) and perinatal mortality decreased from 90.9 (in 2010) to 47.6 (in 2015). Furthermore, malnutrition cases have decreased from 164 cases (in 2010) to 65 cases (in 2015). Conclusion: In short, the Orang Asli overall level of health has improved, and thus, justified the role of PBOA. However, the efforts to upgrade the service are highly needed, especially on the quality of transportation and equipment.

Keywords: Orang Asli, primary, maternal and child health, nutrition.
Risk Factors of Anemia Among Pregnant Mother At Health Clinic In Jasin District, 2015: A Case Control Study

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Anemia in pregnancy is associated with increased rates of maternal and perinatal morbidity and mortality. Prevalence of anaemia in pregnancy in Malaysia is 35%. Understanding the factors contributing to anemia is important to take appropriate action in this risk group effectively. This study aims to identify the major risk factors contributing to anaemia among pregnant women attending antenatal checkup at health clinic in Jasin District. A case control study was conducted (1: 2 ratio). Cases defined as pregnant women attending antenatal checkup at health clinic in Jasin District who had anemia (Hb < 11 gm/dL) at 36 week gestation. Sociodemographic data, hemoglobin level, nutritional and treatment history were collected by reviewing antenatal cards and interview using questionnaire. Descriptive, univariate and multivariate analysis was done using SPSS v20.13 pregnant women interviewed in this study (case: 171, control: 342). Women with anemia at 36 weeks of pregnancy had lower Hb level during booking (95% CI 0.48-0.91), had history of anemia for previous pregnancy (OR = 2.1, 95% CI = 1.05-4.25), vegetarian (OR = 14.6, 95% CI = 1.8-118.3) and less frequency of hematinic intake per week (p=0.001, 95% CI 1.07-1.59) compared to control. Multivariate analysis showed that Hb level during booking and haematinic intake were independently related with anemia in pregnancy at 36 weeks. The major predictor of being anemic at 36 weeks of pregnancy was low level of Hb during booking and non compliance to treatment. We recommended importance be given to this group during antenatal care and educate on importance of compliance to haematinic.

Keywords: anaemia, pregnancy, Hb level, haematinic

Vaccine Refusals in Kuala Langat District: Are Teachers Dominating?

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Despite the greater advantage of immunization in the reduction of vaccine preventable diseases, there are rising numbers of vaccine refusal groups in Malaysia. The aim of this study is to determine the trend of vaccine refusal in Kuala Langat District and the relationship with parental occupation. A retrospective study was
conducted from January, 2011 to March, 2016 among babies with parents refused immunisation. The data collection was taken from all refusal vaccine records taken from all government health clinics in the district. A total of 63 of babies were included in the study. All participants were Malays. There were increasing trend of vaccine refusals from 17.4% in 2013 to 44.4% in 2015. About one third of the cases were new born to six month old infants with about 50% were below one year of age. Reasons for vaccine refusal given were homeopathy practices (32.8%), suspicious of vaccine content (31.2%), husband not allowed vaccination (8.2%), medical problems (6.6%), taking alternative food (4.9%), using alternative medicine (4.9%), afraid of side effect (4.9%) and refused injection given to their child (1.6%). Mothers’ occupation was housewife (42.8%), teacher (30.1%), professional (11.1%), support group (9.5%) and doing business (4.8%). Out of 19 teachers, they were ordinary teachers (58%), religious teacher (26%), traditional religious teacher known as ‘pondok’ (11%) and kindergarten teacher (5%). Majority of fathers’ occupation were teachers and lecturers (31.6%). This study had suggested that parental occupation as teacher dominates the vaccine refusal group as compared to other occupation. Health education targeting teachers on the important of immunisation should be strengthened at primary care level as well as in the community.

Keywords: vaccine refusals, teacher, immunization

FHP20

Recent Trends in Under-Five Mortality in the District of Petaling, Selangor

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With the international community agreeing on the Sustainable Development Goals (SDGs), the target for child mortality is to end preventable deaths of newborn and children which were under 5 years of age by 2030. It is also an important indicator of the health of a nation. Our objective was to review the levels and trends in the number of deaths of children under age five in the District of Petaling. For the purpose of this study, three-year mortality data from district level surveillance was analysed and compared to the national average. In Petaling District, the under-5 mortality rate for the year 2013, 2014 and 2015 were 14.8, 15 and 15.8 per 1000 live birth respectively. These rates were higher than the national average of 7.9, 7.6 and 9.2 for the three years. Age stratification analysis shows that macerated still births and early neonatal deaths constitute majority of under-5 mortality cases in the district. Conditions from perinatal period and congenital malformations make up the top causes of death in under-5 mortalities. Non-citizens had a higher rate of under-5 mortalities as compared to citizens in both 2014 and 2015. However, the difference was not significant. Amongst the three major ethnic groups, Malays had a higher rate as compared to Indians and Chinese for both the years. The under-5 mortality rate in
the district is almost double that of the national average and it is progressively increasing. Rapid scale up of basic interventions could improve rates and accelerate progress towards SDG for better child survival.

**Keywords:** child, mortality, sustainable development goals

**FHPP21**

**An Evaluation of Proactive Telephone Counselling for Breastfeeding among Mothers in Kuala Lumpur**

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An evaluation of proactive telephone counselling to promote breastfeeding has been conducted in Kuala Lumpur. The objective was to assess the effects of pro-active lactation counselling provided through telephone among mothers who gave birth in a public hospital in Kuala Lumpur. Two study designs were conducted to evaluate the intervention. The effectiveness of breastfeeding counselling for the mothers through proactive telephone calls has been studied in a randomized controlled trial (RCT) in 2010, whereby provider-initiated telephone lactation counselling by nursing professionals was rendered twice monthly for six months to mothers. Evaluation of the programme from the providers’ view was conducted using a qualitative study method. Feedback from the mothers who received the intervention was also sought during the RCT. Proactive telephone counselling was effective in increasing the exclusive breastfeeding rate at the first month postpartum (intervention vs control: 84.3% vs. 74.7%, OR 1.83 95% C.I. = 1.05, 3.16) but not at the later postpartum months. The intervention was well accepted by the mothers, found to be helpful, improved the mother’s satisfaction with breastfeeding and the mother’s sense of comfort with breastfeeding. The intention of Lactation Counsellors, external constraints, mothers’ influence and their behaviour played an apparent role in the success of this intervention. In conclusion, lactation counselling through telephone has shown promising effects of increasing the exclusive breastfeeding practice, particularly in the early postpartum months. Future research need to focus on providing extensive support module comprising of multiple methods at the early postpartum period, among mothers who has higher risk of stopping breastfeeding.

**Keywords:** lactation counselling, telephone, breastfeeding, exclusive breastfeeding, randomized controlled trial, rct, qualitative study
FHPP22

Internalising and Externalising Behaviour among Children in Malaysia: Findings from a Population Based Survey


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It was reported that the overall prevalence of mental health problem among children in Malaysia is 12.1%. This study aims to describe the prevalence of internalising and externalising behaviour among them. We used data from National Health & Morbidity Survey 2015, a population based survey using stratified random sampling design. Children aged 5 to 15 years old were all included. Information was obtained from their parents, by answering Strength and Difficulties Questionnaire (SDQ). Internalising behaviour comprises of emotional and peer subscales while externalising behaviour consists of behavioral and hyperactivity subscales. The third subscale; prosocial behaviour, is a standalone subscale and it is positive predictors for mental health. Based on three subscale evaluated, the prevalence of externalising and internalising behaviour were 13.6% and 12.9% respectively, and the prevalence of children with good prosocial behaviour was 88%. The prevalence of externalising behaviour was higher among younger age group boys and living in rural region. While for internalising behaviour, it shows higher prevalence among older age group girls with the poorest 20% income quantile. Both subscales were noted to have higher prevalence among other or other Bumi ethnicity and those with unclassified or no formal education. This study revealed groups of children who were at risk of having mental health disorder; either falls under externalising or internalising behaviour. Further evaluation using five subscales of the same tool is required for screening of mental health disorder. Intervention strategies should take into consideration the at risk population as mentioned above.

Keywords: internalising and externalising behaviour, NHMS 2015, Strength and difficulties questionnaire

FHP23

Pilot Study on Bullying among the Malaysian Adolescents

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Cases of bullying among students in Malaysia are widely being reported recently. It involved serious act of misconduct by the perpetrators. They are usually superior in nature compared to the victim in many aspects. In view of this, a cross sectional pilot
A study on school bullying among the national secondary school students in Malaysia was conducted before proceeding with a large-scale field study. Information on bullying, victimization, victim turned bully, and type of bullying among the students who were the respondents were gathered using a self-administered questionnaire. The risk factors identified represent individual, peer, family, school, and community factors of the students. The questionnaires were written in Bahasa Melayu and involve 103 items measuring 5 domains. Approval had been obtained from the Research Ethics Committee, The National University of Malaysia and Educational Planning and Research Division, Ministry of Education Malaysia. At the pre-test phase, content and face validity were conducted. Thereafter, a national secondary school in Klang Valley was chosen for the pilot study. A total of 360 students took part in the study. The respondents were from the ages of 13 to 17 years old. Total female respondents were 57.8% compared to their male counterpart, 42.2%. Malays were the majority (70.6%), followed by the Chinese (15.6%), Indian (13.1%), Iban (0.3%) and others (0.6%). The items in questions were adapted from various sources. Reliability and validity test were conducted for Kessler Psychological Distress Scale (K10), Malaysian Bullying Questionnaire and Reactive-Proactive Aggression Questionnaire (RPC). The Cronbach’s Alpha value for all domains were more than 0.70 and Exploratory Factor Analysis (EFA) showed factor loading of more than 0.40. Upon achieving the desired value from the reliability and validity test, we are continuing with the full scale field study throughout Peninsular Malaysia, Sabah and Sarawak.

**Keywords:** bullying, students, Malaysian national secondary school

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**HEALTH MANAGEMENT / HEALTH ECONOMICS**

**HMPP1**

**Physical fitness status among male trainees of Public Health College, Kuching, Sarawak**

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Fitness is one of the key pillars to health. Healthy Public Health trainees would ensure their physical wellbeing and development of competent health care providers. In Malaysia, the prevalence of physical inactivity is high (43.7%). The minimum recommendation of physical activity by the World Health Organization (WHO) for adult is 30 minutes at least 5 times per week. The general objective of this study was to determine the status of physical fitness among male trainees at Public Health College Kuching. The specific objectives were to measure abdominal muscular endurance,
determine cardiovascular fitness using Bleep Test and assess the intensity of physical activity achieved by the trainees. This research was a cross-sectional study design and involved a total of 52 trainees. Two tests were used to measure physical fitness: one-minute push-ups and sit-ups; and the Bleep test. The results showed that for the one-minute push-ups and sit-ups test, 40% of the trainees had excellent fitness level, 33% good fitness level and 12% low fitness level. Whereas for the Bleep test, only 6% showed good cardiovascular endurance, whilst 46% were poor and 33% were weak. About 73% of the trainees did their physical activity according to WHO recommendation. Among the respondents, 36.5% did their physical activity as a daily routine and 13% did them once a week. In conclusion, this study suggests the need to examine the trainees' fitness status in supporting the development of health.

Keywords: physical activity, Bleep test, fitness status

HMPP2

Lean Health Care Initiatives to Overcome Congestions in Medical Wards of Ministry of Health Hospitals

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Due to rising demand, the Ministry of Health (MOH) Hospitals currently show many symptoms of strain that manifests as longer discharge time and high bed occupancy rate at Medical Wards (MWs). Hence, this study was aimed to shorten the discharge time from the decision to discharge until patient leave bed. This is a pre and post interventional study carried out in the Medical Wards (MWs). Lean methodology was applied using the value stream map to identify wastes and value in the whole process. Kaizen burst to identify areas for improvement. Three parameters were measured including 1-time bed occupied during patients (bed occupancy rate-BOR), 2-time from decision to discharge until patient leave the bed (discharge time-DT) and 3-time from patient leaves the bed until time bed available for new patient (bed turnaround time-BTAT). Throughput measurement such as the percentage of patient who met the local standard requirement within 4 hours (standard) was also measured. The outcome of implementing lean methodology able to improve the performance of MWs according the benchmark and MOH KPI’s where an average BOR less than 100%, DT less than 240 minutes and BTAT less than 30 minutes.

Keywords: lean methodology, medical ward, discharge time, bed turnaround time, bed occupancy rate
HMPP3

Intensive Care Services in Hospitals: Where and How Are We Spending?

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Intensive care unit (ICU) is a major service component in salvaging patients. ICU consumes 40-60% of the total hospital charges despite the total length of stay (LOS) is less than 25% of the entire hospital. The factors associated with ICU costs from the peer reviewed journals and grey literatures were explored for articles having ICU, intensive care and cost as key words from PubMed, Ovid databases, and Google Search to identify the cost and nature of ICU were then identified. Huge variation is observed between hospitals. ICU bed availability varies from 7.5 beds per 100,000 populations in UK to 34.7 beds in US. Based on this, severity as well as complications of the patients varies. Due to variation in ICU services availability, ICU services quality, labour wage and time difference, ICU cost is difficult to be directly compared. Among the ICU cost components, labor uses 61% (48-80%) of the ICU expenses, followed by consumables 22% (15-28%), and investigations 14% (5-21%). The ICU cost is directly influenced by reasons of admission, patient characteristics and LOS; indirectly by admission and discharge policy and ICU bed availability. Complications can lengthen LOS in ICU. Quality improvement initiatives can shorten the LOS and cost. However, use of electronic medical record does not have substantial effect on LOS and cost. Hospital practices determine the ICU beds availability, care approaches, LOS and costs. Reduction in variation of ICU utilization, optimal use of ICU beds and use of appropriate standard of ICU practice would bring cost saving and efficiency.

Keywords: ICU, cost, length of stay, determinants

HMPP4

Cluster Hospital Project Improving Performance of Healthcare Professionals in Non-Lead Hospitals: A Bottom-Up Approach

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Hospital cluster is defined as grouping of hospitals by geographical locations within a state where the hospitals are aligned in terms of services and patient flow. The Pahang cluster includes three hospitals; Sultan Haji Ahmad Shah Hospital, Jengka and
Jeantut Hospital. This study aims to assess the performance of healthcare professionals in Emergency Department (ED) in Jengka and Jeantut Hospital, comparing before and after cluster project. Secondary data from the Pahang Cluster team was used. Applying the Action Research approach, an initial situational analysis was done to identify issues amongst departments within their cluster. It was noted that ED had been receiving referral cases which do not follow standard operating procedure some of which resulted in morbidity and mortality. Clinical attachment and training to ED healthcare professionals in non-lead hospitals were then carried out. Prior to Cluster Project, 46.4% (n=32) of referrals from Jeantut Hospital and 63.8% (n=30) from Jengka Hospital had issues upon arrival in ED in lead hospital. Post cluster project, referral issues reduced to 11.5% (n=6) and 20.6% (n=7) in Jeantut and Jengka Hospitals respectively. Following training, the number of procedures done in ED of non-lead hospitals has improved from an average of 13 to 30 per month in Jeantut Hospital and 17 to 27 per month in Jengka Hospital. Hospital Cluster project empowers the healthcare professionals to highlight issues faced at the ground level, leading to a change in practice. This exemplifies a bottom-up approach in practice for the betterment of the service provided by the cluster as a whole.

**Keywords:** hospital cluster, Pahang cluster, action research

**HMPP5**

Cost of Nursing Service and Development of Nursing Service Weights for My-DRG® Casemix System for Common Medical and Surgical Cases in Universiti Kebangsaan Malaysia Medical Centre

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Today’s healthcare sectors consist diverse of services to accommodate high demands and expectations from the users. Nursing is also the largest components of hospital labor cost and operational cost that may influence hospital budgeting system. To date, the economic value of nursing services remains unclear and nursing cost is poorly estimated. The purpose of this study was to determine cost of nursing services and to develop the nursing service weights of MY-DRG® casemix system using combination of top-down and activity-based costing methods. A total of 85,042 cases in UKMMC casemix data base in 2014 were included in this study after the L3H3 trimming of outliers. These cases were classified into 704 MY-DRG®. The three most common medical inpatient cases with their mean nursing cost and nursing service weight of each MY-DRG® were: I-4-11-III (Acute & Subacute Endocarditis - Severe) (MYR 6,014±SD3, 721; 4.94), F-4-19-III (Other Mental & Behavioral Disorder - Severe) (MYR 5,311±SD3, 306; 4.36), I-4-14-I (Unexplained cardiac Arrest - Mild) (MYR 5,290±SD3,
511; 4.34). For surgical inpatients cases, the three most common conditions were: G-1-11-III (Ventricular Shunt - Major) (MYR 8,532±SD4386; 7.00), L-1-30-III (Skin Graft Excluding Burns) (MYR 7,627±SD 3201; 6.26), M-1-03-III (Spinal Fusion Procedures - Major) (MYR 7,047±SD4, 175; 5.79). It can be concluded that were great variations of nursing care costs among MY-DRG® groups. High nursing service weights in this study showed that nursing care is a significant component in managing inpatient care. This information can be used by the hospital management for budgeting and fair reimbursement for nursing services in future social health insurance programme in the country.

Keywords: nursing cost, MY-DRG®, nursing service weight, nursing workload

HMPP6

Challenges in Implementing Casemix System as Reimbursement for Hospital Services: Outcome of Qualitative Study on Acheh Social Health Insurance

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The implementation of Aceh Health Insurance (Jaminan Kesehatan Aceh: JKA) programme since 2006, where the providers were paid based on fee-for-service has not only led to the increase of health expenditure, but also linked to suboptimum services provision. The Government of Aceh decided to reform the JKA by introducing prospective payment method using Indonesia Case-Base Groups (INA-CBG) casemix system developed by International Centre for Casemix and Clinical Coding-UKM, since January 2014. This qualitative study used in-depth interviews to identify the challenges of government and public hospitals in implementing the casemix system. A total of 15 respondents, mostly are major stakeholders of JKA, participated in this study including head of provincial health department, staff of National Health insurance Agency, directors of government hospitals, coordinators of JKA, doctors, and nurses in the hospitals. The results showed the provincial government had established adequate regulations and supported the hospitals to conduct the capacity building programme for their staff on casemix system. The hospitals have taken the initiative to establish working groups, coding units and claim processing teams to ensure smooth implementation of the system. However, most hospitals have not implemented clinical pathways, which is an important component of implementation of casemix system. Besides, there was inadequate hospital staff’s awareness on casemix system and the impact on health care service was not evaluated regularly. In conclusion, although casemix system was implemented quite well as provider payment
method in the province, continuous monitoring and capacity building should be carried out to ensure its sustainability.

Keywords: social health insurance, casemix system, reimbursement

HMPP7

Does Health Insurance Influence the Choice of Health Facility? Findings from the National Health and Morbidity Survey 2015

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Health insurance is an integral component of health financing which provides an individual the financial freedom to choose their preferred health facility. This study aimed to determine the utilisation of different types of health facility based on health insurance coverage and to explore associations between them. Data were obtained from the National Health and Morbidity Survey (NHMS) 2015, a nationwide cross-sectional household survey using complex survey design. Participants were interviewed face-to-face using structured questionnaires. Inferential statistics were utilised in the data description. In this analysis, the types of health insurance include personal health insurance (PI) and employer-provided health insurance (EPI) while visits to health facilities were divided into public, private or both. Total respondents were 29460 with a 96.6% response rate, and accounted for 4741 visits to any healthcare facility. In general, 67% (95% CI 65.8–68.8) of the population has no health insurance, with the rest having at least one type of health insurance (PI, EPI or both). Of those with insurance, 53% (95% CI 49.7–57.0) of the visits were to private healthcare facilities compared to public (38%, 95% CI 34.5–41.8). In contrast, people without health insurance utilised government facilities the most (public 72%, 95% CI 69.7–74.2 VS private 20%, 95% CI 18.0–22.1). The Pearson chi-square test revealed a significant association between health insurance and the choice of health facility [$\chi^2$ (2, N=1597) =150.37, p<0.01]. In conclusion, people with health insurance were more likely to visit private facilities although public facilities were still the main choice for those without.

Keywords: heath insurance, health facility, Malaysia, NHMS 2015, public, private
HMPP8

Cardiovascular Disease Risk Factors among Malacca Residents: A Descriptive Study from Community Screening, 2013-2015

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Cardiovascular diseases (CVDs) are major cause of death in world and studies shown many have undetected risk factors. In Melaka, at least 5% of the population were screened annually at health clinics. This study aims to describe CVDs risk factors among gender from Community Screening’s (BSSK) respondents in Melaka from 2013 to 2015 for a more focused public health preventive actions. A cross sectional study was conducted from March 2016 until July 2016. Secondary data was collected by reviewing all Health Status Screening Forms from 2013 to 2015. Descriptive analysis was done using SPSS v20. 161501 respondent’s data were analysed. Three highest CVDs risk factors among respondents are BMI>25 (35.3%), physical inactivity (25.3%) and unhealthy diet (24.0%). However, the risks are different in between gender. The significant CVD risk factors for female are BMI>25 (OR 0.25, 95% CI 0.24-0.25, p<0.001), physical inactivity (OR 1.50, 95% CI 1.46-1.55, p<0.001) and unhealthy diet (OR 1.29, 95% CI 1.25-1.33, p<0.001). For male, the significant risk factors are hypertension (OR 0.82, 95% CI 0.79-0.86, p<0.001), smoking (OR 58.74, 95% CI 50.86-67.85, p<0.001) and alcohol consumption (OR 2.66, 95% CI 2.28-3.10, p<0.001). BSSK able to detect CVD risk factors. Many outpatient attendees are not aware they have the risks. The risk also significantly different across gender. An intervention such as a focus health education is needed. Further study need to be done to find the best intervention such using special space with digital devices for interactive health education tailored for specific target group.

Keyword: health screening, non-communicable disease, risk factor, prevention

HMPP9

Impact of Implementation of Casemix System on Length of Stay and Outcome of Care at National Stroke Center of Indonesia

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Quality of care and efficiency are among the issues need to be considered in evaluating the outcome of implementation of casemix system. Government of Indonesia implemented the Indonesia casemix system for reimbursement of all hospitals in the country under the National Health Insurance since 2009. Indonesia
Case-Based Group (INA-CBG) employs the UNU-CBG grouper software to classify patients into 1,250 groups. The aim of this study is to assess the impact of casemix on discharge status and length of stay of patients admitted before and after the implementation of casemix system, in 2008 and 2012 respectively. This study was conducted at National Stroke Centre Hospital, a 112-bed specialised hospital located in Bukittinggi West Sumatera Indonesia. Information was obtained from patients’ medical records. A total 256 patients in year 2008 and 559 in year 2012 with complete medical records were randomly selected in this study. The findings showed that proportions of patients discharged well increase from 72.9% (180/249) in 2008 to 83.5% (467/559) (p value < 0.0001). However, those who died in the hospital increase from 2.7% (7/256) to 12.3% (69/559). The average length of stay significantly increased from 6.4 days (SD 7.2 days) to 7.9 days (SD 5.7 days) (p = 0.002). In conclusion, the implementation of casemix system has given the opportunity for the hospital to take higher risk of managing more severe cases with positive outcome. Close monitoring should be carried out to ensure that this positive effect of implementation of casemix system is sustainable in long-term.

Keywords: casemix system, length of stay, national stroke centre

HMPP10

The Impact of Casemix Reimbursement of Cesarean Delivery in a Teaching Hospital in Indonesia

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Cesarean delivery were studied between patients reimbursed with Casemix and FFS. The objective is to study the impact of the Casemix reimbursement of cesarean delivery in a teaching hospital in Indonesia. Specific objectives are to describe length of stay (LOS) and tariff reimbursement between FFS and Casemix. The study was conducted in the national top referral hospital in Indonesia with 1,001 beds using casemix since 2008. The design of the study was a comparative cross-sectional between two groups of patient documents, Casemix and FFS. Sample of cesarean delivery during 2011 were selected by universal sampling. Data of patients reimbursed with FFS were coded by ICD-X and ICD-IX-CM then grouped with UNU-Grouper Software of Indonesia Case-Base-Groups (INA-CBG’s) into Casemix. LOS were analyzed by descriptive analysis. Normal distribution test of tariff reimbursements were done with Kolmogorov-Smirnov Test. To compare tariff reimbursement, data of patients reimbursed with FFS and Casemix were analyzed by t-test. There were 253 samples of cesarean delivery reimbursed with FFS which were 32.42% without complication; 47.43% with minor complication and 20.15% with major complication. LOS had mean 6.94 ; median 7 and modus 8. The tariff reimbursements were not in the normal
distribution \((p\text{value} < 0.05)\). With Mann-Whitney Test, the average-tariff reimbursement of patients reimbursed with FFS (IDR 6,604,982.04) were higher than Casemix (IDR 5,329862.62). The analysis determined significantly different of tariff reimbursement between FFS and Casemix \((p\text{value} = 0.000)\). Conclusion described LOS of cesarean delivery had mean 6.95 and tariff reimbursements of patients reimbursed with FFS were higher than Casemix.

**Keywords:** casemix, reimbursement, tariff, cesarean

### OCCUPATIONAL /ENVIRONMENTAL HEALTH AND OTHERS

**EOHPP1**

**Pesticide and Childhood Leukemia: A Structured Literature Review**

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In the USA, cancer is the second leading cause of death in children under 15, and the most common childhood cancer is leukaemia. Little is known about the risk factors for childhood leukemia. Known risk factors for childhood leukemia include female gender; age peak between ages two to four years; ionizing radiation; and specific genetic and congenital disorders which account for less than one percent. Among environmental chemicals, pesticides have caused increased public concern on its potential hazard. Pesticides encompass a group of heterogeneous chemicals designed to kill unwanted organisms. Knowledge on the carcinogenic effects of pesticides remains a concern. This study aims to analyze published articles on the relationship between childhood leukaemia and exposure to pesticides. The search strategy included articles published in PubMed and Ovid-MEDLINE, for the period of 1995 to 2010. Data extraction, data synthesis and quality assessment were done. Six studies investigated the relationship between parental residential exposure and childhood leukaemia. Five of those studies showed positive associations. Two of the studies investigated the relationship to maternal residential exposure. Only one of the studies showed statistical significance. Two studies reported an association between childhood leukaemia and parental occupational exposure. This structured literature review provided weak to modest evidence in most of the studies but causation remains unexplained. More information and further analysis is needed; especially in dealing with study design, data analysis and consideration of genetic–environment interaction.

**Keywords:** child cancer, leukaemia, pesticides exposure
EOHPP2

Pattern of Food Safety Practices among Urban Community in Malaysia: Do People Really Care?

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Food borne diseases can cause significant morbidity worldwide. Food safety is an important issue among our community and must be taken care of to prevent any outbreak of food borne diseases. This study aimed to determine the pattern of food safety practices among an urban community in Shah Alam, Selangor. A cross sectional study was conducted in an urban community of Shah Alam, Selangor. A total of 286 respondents were involved in the study. Systematic random sampling was used to select the respondents using the pre-determined inclusion and exclusion criteria. Data were collected using guided self-administered questionnaire and entered into SPSS Software Version 20.0 for analysis. Results yields; 80.1% of the respondents always wash their hands before food preparation; 62.2% always clean the equipment for preparing food; 46.2% always use separate utensils and cutting-boards when preparing raw and cooked food; 71.3% always separate raw and cooked food during storage; 49% always check that meats are cooked thoroughly; 66.4% always reheat cooked food thoroughly; 45.5% always thaw frozen food in the refrigerator; 31.1% always store any left-over in a cool place within two hours; 82.9% always check and discard expired food; and 93% always wash fruit and vegetables before eating them. In conclusion, pattern of food safety practices among the public is generally still less satisfactory. More effort is needed in order to increase the awareness and good food safety practices among the public to prevent possible food poisoning in the family.

Keywords: food safety, practices, pattern, urban, Malaysia

EOHPP3

Direct and Indirect Cost of Noise Induced Hearing Loss among Manufacturing Industrial Workers in Malaysia

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Manufacturing industrial workers are at the highest risk of being affected with Noise induced hearing loss (NIHL). The disease has been reported extensively compared to other occupational disease among industries in Malaysia. This study is an attempt to estimate the cost of NIHL attributed by workers, employers and relevant government
agencies. Face-to-face interviews using structured questionnaires were conducted among 26 industrial representatives and 310 workers with NIHL selected from various manufacturing industries. Direct cost and indirect cost were imputed covering cost of medical care and rehabilitation; transportation; loss of productive time and investigations. The medical cost of managing NIHL was obtained from MY-DRG® casemix system database in UKM Medical Centre. Findings of the study showed that the total annual cost of NIHL per worker was RM32,700, of which 14% was direct and 86% was indirect cost. The highest cost component was investigations and benefits expenditures (83%), followed by medical care and rehabilitation (14%) and loss of productive time (3%). The government paid most of the total (96%) while the employers and employees paid only 3% and 1%, respectively. Annual national economic burden of NIHL was estimated to be RM1,142 Millions or 0.13% of the Gross National Income. In conclusion, the cost of NIHL is a towering burden for Malaysia. Hence, extra efforts must be taken by the employers to carry out hearing conservation programme at workplace and the authority should enforce effective regulations to reduce the noise exposure in the industries.

Keywords: noise induced hearing loss, manufacturing, cost, economic burden, Malaysia

EOHPP4

Benefit of Training Session and Policy Awareness on Good Clinical Waste Management Practice among Hospital Staff in Kuala Lumpur

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About 20% of the total waste from a health care setting was categorised as clinical waste. It poses harmful effects to the environment and health care workers. The aims of this study were to evaluate the knowledge and practice about clinical waste management among hospital staff at the point of clinical waste generation and its influencing factors. This cross sectional study was conducted in one of the hospitals in Kuala Lumpur in 2013. A self administered questionnaire was given to the participants that contained six parts comprising sociodemographic, awareness of policies existence, perception of clinical waste, knowledge, practice and facilities. The hospital staffs were enrolled using a stratified random sampling. The data were analysed using SPSS 21.0 with p<0.05 as the significant value. A total of 107 staffs participated in this study. There was no association between knowledge score with sociodemographic factors such as age (p=0.747), experiences (p=0.475), gender (p=0.532), type of occupation (p=1.000), number of training sessions (p=0.354), attended training (p=1.000), awareness of the policy's existence (p=0.336) and perception of clinical waste (p=0.058). For the practice, there was also no association with sociodemographic factors. However, best practice was associated with the
number of training sessions \( (p=0.006) \) and awareness of the policy's existence \( (p=0.010) \). Multivariate analysis showed that frequencies of training \( (\text{adjOR} \ 9.939; \ 95\% \ CI: \ 1.196 \ to \ 82.595) \) and awareness of the policy's existence \( (\text{adjOR} \ 1.680; \ 95\% \ CI: \ 1.118 \ to \ 2.525) \) were predictive factors that significantly associated with good practice. The findings indicate that practice is so much influenced by training and policy.

**Keywords:** clinical waste, knowledge, practice, hospital staffs

**EOHPP5**

A Short Term Intervention Program on Body Weight Reduction among Health Workers in Pejabat Kesihatan Daerah Kuala Langat, Banting, Selangor

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With increase in health awareness among the general population, loss of weight is a way forward among overweight and obese individuals. The purpose of this study, designed over 7 months, was to conduct a short term intervention program on body weight reduction among 18 volunteer staff health workers from the Kuala Langat District Health Office, comprising 16 females and two males. Variables assessed were Body Mass Index (BMI), body fat percentage and Waist Hip Circumference (WHC), using anthropometric measurement. TANITA body composition analyzer (TBF-306, Japan) was used to determine body fat percentage of the subjects. Interventions included diet counseling, weekly physical activity and motivational talks. The mean age of the respondents was 36.3±8.4 years. Mean BMI, WHC and fat percentage for pre-intervention were 32.2±4.1 kg/m², 0.8±0.06 cm and 45.9±7.8 % while for post-intervention were 32.2±4.1 kg/m², 0.8±0.09 cm and 43.3±6.0 % respectively. There was a significant difference between mean for WHC (pre-intervention), and post-intervention \( (p<0.05) \) and a significant different between mean for fat percentage (pre-intervention) and post-intervention \( (p<0.05) \). In summary, this program successfully reduced WHC and body fat percentage of the participants although the mean BMI of the respondents was similar for pre-intervention and post-intervention program. This intervention program is recommended to be continued for new interested participants, as in this initiative, only 56% lost minimal weight. Nutritionists and health care professionals should capitalize on this concern and interest in future participants by providing beneficial information as guidance for proper weight loss techniques.

**Keywords:** weight loss, BMI, body fat percentage
EOHPP6

Retrospective Study of Sharp Injuries among Healthcare Workers in Hospital and Health Clinic in Melaka

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Healthcare personnel are at increased risk to percutaneous injury with contaminated sharps instruments due to occupational exposure to blood and body fluids which can result in a proportion of HIV, Hepatitis C and Hepatitis B infection. The objective of this study was to determine the prevalence and factors associated with sharps injuries among health care personnel in Melaka state for a 5-year period (2011-2015). The retrospective study was carried out using registry of sharp injury surveillance from all MOH hospital and health clinics in Melaka. Data was analysed using SPSS version 21.0. Results showed that a total of 308 sharp injury cases among healthcare workers in Ministry of Health hospitals and health clinics were registered in the Melaka sharp injury surveillance, registered from 2011 to 2015. The highest prevalence of sharp injuries was Housemen (43.8%) followed by Medical Officers (13.6%), Staff Nurse (8.4%) and other category of staffs. Hospital Melaka had the highest prevalence (86%). The top three work locations associated with the greatest proportion of sharp injuries were medical wards (32%), health clinics (13%) and other wards (12%). The number of sharp injury notifications has increased in Melaka from 2011-2014. Incidence rate of sharp injuries in Melaka was 34.36 per 1000 healthcare workers (HCW). Females HCW were the most affected (60.4%) compared to males (39.6%). The hollow bore needles accounted for 89.9% of sharp injuries. Attitude and clumsiness may have contributed to sharp injuries especially among housemen. Hence, the department needs to strengthen its training and monitoring system in order to reduce the incidence rate.

Keywords: sharp injury, healthcare worker, percutaneous infection

EOHPP7

Water Vending Machine; is it Safe?

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Water vending machine license was introduced by Ministry of Health Malaysia (MOH) in 2013. MOH requires that every water vending machine in Malaysia to obtain the license before it is ready to operate for the purpose of trade. Samples of drinking water from the machines were taken according to the location applied and sent to Jabatan Kimia Malaysia, Petaling Jaya for analysis. License will be granted if samples do not contaminate by bacteria and heavy metal as been stipulated in the Food
Regulation 1985 (FR1985). In 2015, from January to August, Pejabat Kesihatan Lembah Pantai received 37 applications of water vending machine license. A total of 363 drinking water samples taken consist of 113 and 250 samples that are meant for microbiological and chemical analysis respectively. The results of analysis were then compared with the 25th Schedule of FR1985. Result of the analysis revealed, 1.8% of the samples found to be contravened to the microbiological standard whereas 7.7% of the samples found to be contravened to the chemical standard for the first sampling. Re-analysis of the contravened samples was conducted again and it showed that all samples complied with the microbiological standard but 64.7% of the samples were still contravened against the chemical standard. Chemical analysis was done on these samples for the third time and results found to be in compliance with the standard. Though the percentage of violation can be considered low, it is important to ensure the public to buy water from the licensed machine.

**Keywords:** Water vending machine, license, water sampling

EOHPP8

The Level of Cleanliness among the Hawker Food Handlers and Practice in Ramadan Bazaar at the Bera, Pahang 2015

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This cross-sectional study was conducted to determine the level of cleanliness and quality in food safety practices among food handlers based on the report of inspection and closure of premises Ramadan bazaar for 2015 and to get their sociodemographic factors of Bazaar Ramadhan’s hawker in Bera District Council. Results obtained from this study will help Unit Food Safety and Quality Bera to assess the strengths and weaknesses of the infrastructure and practices of food handlers to improve the quality of hygiene among workers while reducing public complaints about the cleanliness of the premises of traders in the bazaar Ramadhan as well as to reduce the risk of contamination and food poisoning against civilians. A total of 100 respondents were selected from seven localities that are registered in Bera. Random sampling method was used as the design of the sampling in this study. Risk-based form for food premises inspection is used to obtain information about the infrastructure and environment of the premises and the attitude of food handlers in Ramadan bazaar 2015. Analysis of variance was used to find the difference socio-demographic factor with food safety practices. Findings show that most food handlers are aware of their responsibilities in maintaining food security but not food handling practices prudently. Pest control and poor waste management also affect scores assessing the hawkers. Therefore, any positive effects derived from food safety training program are not permanent. Then, the support from all parties are very important and will impact
more effectively while improving the quality of the food handler hygiene in Ramadan bazaar and perhaps will create a good environment on their premises.

**Keywords:** Food Safety, Attitude and Practices, Bera district, *Keselamatan Makanan*, bazaar Ramadhan

EOHPP9

**Home Injury among Elderly Population in Malaysia**

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In Malaysia, injury is one of the leading causes of death and disability. The aims of this study are to determine the prevalence of home injury and its associated factors among elderly population in Malaysia. This study is a cross-sectional population-based survey design using two-stage stratified random sampling of households. Data was collected using a validated questionnaire by face to face interview and analysed using SPSS version 19.0. The overall prevalence of home injuries among elderly population aged 60 and above was 5.3% (95% CI: 4.3-6.5), out of an estimated population of 107,035. The prevalence was higher among females, rural dwellers, those 80 years old and above, ‘others’ ethnicity and elderly from medium family income. Kitchen was the most common place of injury (20.4% [95% CI: 12.4-31.5]). The most common cause of injury was falls (42.2% [95% CI: 32.0-53.2]) and self-neglect was the main contributing factor (47.0% [95% CI: 36.6-57.6]). Multivariate logistic regression analysis revealed that women (aOR=1.801, p<0.001), elderly aged 70-79 years old (aOR: 2.049, p<0.001) and elderly aged 80 years and above (aOR: 2.485, p<0.001) were more likely to sustain a home injury. Home injuries among elderly are indeed a growing public health problem which deserves more attention than being currently given. There is a need for educational and intervention programmes to increase the awareness and understanding of elderly safety and injury prevention in Malaysia.

**Keywords:** home injury, elderly, population
EOHPP10

Confirmatory Factor Analysis of the Malay Version of Psychosocial Aspects of Work Questionnaire

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The Psychosocial Aspects of Work (PAW) questionnaire is a self-administered questionnaire which consists of three factors: Job Satisfaction, Social Support and Mental Stress. There is a total of 15 items, each with a five-point Likert-type scale. This study was conducted to validate the Malay version of PAW Questionnaire among primary school teachers in Kelantan by confirmatory factor analysis (CFA). This was a cross sectional study on 345 primary school teachers in Kota Bharu district. The PAW questionnaire was first translated to Malay language using forward and backward translation method. CFA was applied using robust Maximum Likelihood estimator due to violation of multivariate normality assumption. A three-factor model of PAW was fit. The full model, consisted of 15 items and three factors fit the data well ($\chi^2$ (df) =263.5 (87), $p$-value<0.001; CFI=0.956; TLI=0.947; RMSEA=0.077 [90%CI: 0.067, 0.087]; SRMR=0.087). The factors also showed good reliability that ranged between 0.71 and 0.93. The Malay version of PAW demonstrated good validity among primary school teachers in Kelantan.

Keywords: confirmatory factor analysis, Psychosocial Aspects of Work, reliability, validity

EOHPP11

Prevalence of Psychological Distress and Its Associated Factors among Healthcare Workers Involved In Massive Flood in Kuala Krai, Kelantan

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The massive flood that affected the East Coast of Malaysia has been regarded as one of the worst in history. This was a cross-sectional study involving 160 healthcare workers working during flood. The research tools used for the data collection were a designed proforma, DASS 21 to determine depression, anxiety and stress and Brief COPE to identify the coping strategies applied by the healthcare workers. Data was analysed using multiple logistic regression using SPSS version 22.0. The prevalence of depression, anxiety and stress among those healthcare workers were 18.1%, 38.8% and
18.1%. From multiple logistic regression analyses, the variables that significantly protected those workers from depression were total household income, number of hours of work in a day during the flood and self-distraction with protective effect of about 1%, 10% and 60% respectively. The use of emotional support had about 2.6 times the odds of developing depression. For anxiety, the variables that significantly protected those workers were having previous experience involved in flood and number of hours of work in a day during the flood with protective effect of 80% and 8% respectively. The use of emotional support had about two times the odds of developing anxiety. The use of behavioural disengagement and self-blame as their coping strategies had about 1.6 and 2.3 times the odds of developing stress respectively. A system should be established to measure and monitor psychological distress among the affected healthcare workers and they should have access to psychological supports to improve their psychological wellbeing.

**Keywords:** Depression; Anxiety; Stress; Healthcare Workers; Flood

**EOHPP12**

**Density of Anopheles Mosquitoes in Rural and Suburb Aboriginal Localities in Cameron Highlands**

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In 2015 Pahang has reported 22 cases of malaria which a significant increase compared with 2014. While in Cameron Highlands has reached zero indigenous cases since 2003. Malaria cases in Cameron Highlands once widely occurred in Aboriginal rural areas. Cases have been reducing with implementing active case detection, control and prevention activity. The ecology in aboriginal areas has changed where forest area was explored. Mosquito density is one of the factors where infection can occur. Previously, Cameron Highlands doesn’t have accurate data related to the density of Anopheles mosquitoes due to lack of studies conducted. This study was conducted to measure the density of Anopheles mosquitoes and identify the affecting factors. A cross sectional study was conducted from 15/7-25/12 in the localities selected by multi-stage sampling involving 10 localities from the 3 Aboriginal posts. Bare leg catch was techniques using to catch mosquitoes start from 6 pm until 1 am for 3 nights continues. Ecological change Information obtained through observation and interview local residents. No Anopheles’ mosquito captured in the study area, there was the presence of *Aedes albopictus* mosquito in all studies locality. Mosquito density time was between 7pm-10pm with peak hour from 8pm to 9pm. A total of 90% of the mosquitoes captured from outdoor. There were exploration and opening of land for crops, and also hidroelectric projects and roads in all study areas. Anopheles mosquito density in Aboriginal rural and suburb areas in Cameron Highlands was a low possibility due to ecological changes.
Keywords: Anopheles mosquitoes, aboriginal, localities

EOHPP13

Factors Influencing Food Poisoning Outbreak in Melacca Tengah District, Malaysia, 2015

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1Pejabat Kesehatan Melaka Tengah

Food poisoning occurs frequently in community and institution. School children and elderly are vulnerable groups and give impact on health and affect daily activities. Notification of food poisoning is mandatory under the Prevention and control of Communicable Diseases Act 1988. Aims of the study was to describe the trend, social demographic and laboratory results of food poisoning. A case defined as those presenting with abdominal pain, nausea, vomiting or diarrhea associated with ingestion of food. A cross-sectional study was conducted by reviewing all registered cases of food poisoning in year 2015 in District Melaka Tengah. Data collected from eNotification and Vekpro online such as demographic, symptoms of food poisoning, result of laboratories, premise rating and the food implicated. 96 cases fulfilled definition registered in eNotification. Mostly female (82.3%) and among Malay (86.4%). There were 3 episode of food poisoning occurred in 2015. The main symptom during outbreak were abdominal pain (100%), diarrhea (70.3%) and vomiting (46.9%). The majority cases among children aged 13-17 years old (38.5%). Mostly the outbreak of food poisoning due to eating cooked chicken (66.7%). Salmonella sp and Bacillues cereus were commonest cause of food poisoning related to cross contamination of ready to eat food and raw materials and utensils. Food poisoning occurred due to consumption contaminated food, most probably contributed by cross contamination due to unsanitary food handling and poor personal hygiene. Action taken included premises closure for cleaning and health education to food handlers. Good in food handling may help prevent future outbreak and this is being strengthened.

Keywords: food poisoning, contaminated, Melacca Tengah
EOHPP14

Why Doctors Want to Serve in Sabah and Sarawak 2014?

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There is an apparent gap distribution of doctors in Sabah and Sarawak as compared to Peninsular Malaysia. Understanding the influence of sociodemographic background of the doctors is important as an input to minimise the gap. The aim of this study was to describe the characteristic of the sociodemographic backgrounds of doctors who are working in Sabah and Sarawak in 2014 and their decision to continue working there. A cross sectional study was conducted in October 2014 using quantitative method. Questionnaire was developed based on the thematic analysis from focus group discussion and literature review, pretested and validated. Simple random sampling of 749 doctors grade 44 and above, working in Sabah and Sarawak in 2014 were selected. Contract non-citizen doctors were excluded. Data analysed using SPSS 22. Total of 549 doctors from 749 completed the questionnaires with response rate of 73.3%. The respondents were 23.7\% (n=130) Specialist and 76.7\% (n=419) Medical Officer. 53.9\% (n=296) respondents were originally from Peninsular and 46.1\% (n=253) from local Sabah and Sarawak. Majority of the doctors were female 54.3\% (n=298). Most of the respondents were Chinese 46.4\% (n=255). 54.6\% (n=300) married whom 53.0\% (n=159) of their spouse was from Sabah and Sarawak. Almost 80\% (79.6\%) (n=437) of doctors decided to continue working in Sabah and Sarawak whom 46.0\% of them were from Peninsular. Most doctors who decide to continue working in Sabah and Sarawak are Chinese, local Sabah & Sarawak and those married to local people (p value <0.05).

Keywords: sociodemographic background, doctors, Sabah, Sarawak

EOHPP15

Hepatitis Seroconversion Cases in Private Haemodialisis Centres in Malaysia from 2011 to 2014: A Cross Sectional Study

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Hepatitis B virus (HBV) and Hepatitis C virus (HCV) infections are vital public health issues within dialysis units. The information gaps of hepatitis seroconversion in private haemodialysis centres (PHC) in Malaysia lead us to conduct this study specifically to determine the number of incidents, socio-demographic and its associated factors. Cross-sectional study was conducted involving mandatory notification to Private Medical Control Practice Section (CKAPS), Ministry of Health based on IR-1 form from January 2011 to December 2014. There were 25 incidents (18.7\%) of HBV
seroconversion, 107 incidents (79.9%) of HCV seroconversion and 2 incidents (1.5%) of co-infection during course of HD. Mean (SD) for age of the patients was 59.15 (12.10) with equal number of gender and majority were Malays (85 patients, 63.4%). The identified reasons for the incidents as follows: 79 incidents following the outbreak (59%), 20 incidents of recent history of admission and received blood transfusion (14.9%), 18 incidents of false positive result (13.4%), 8 incidents of recent history of dialysed at other places (6%) and 4 incidents of known hepatitis patient as possible source of outbreak (3%). The associated factors of all studied variables (age, gender and race) based on simple logistic regression showed no significant association (p-value > 0.05). It was concluded that there were high percentage of HCV among PHC patients in Malaysia. Prevention of transmission of HBV and HCV in PHC setting warrants a multi-faceted approach such as strict implementation of infection control practices, the use of dedicated HD machines, adequate personnel-patient ratio as required by laws, isolation of affected patients and single use of dialysers. Therefore, further study to determine the exact association of the variables is urgently required.

**Keywords:** Hepatitis seroconversion, private haemodialysis centre in Malaysia

**EOHPP16**

**Predictors of Knowledge, Attitude and Practice of Automotive Workers towards Noise Induced Hearing Loss**

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Excessive exposure to noise can cause a serious irreversible disease known as noise induced hearing loss. There is always risk of exposure to occupational noise but some workers are more susceptible to in comparison to others. Determining the predictors of knowledge, attitude and practice of workers towards noise induced hearing loss in the operational divisions in an automotive company in Selangor was the objective of the study. A cross sectional study was conducted among operational division workers from January 2015 to May 2015. Respondents were selected based on simple random sampling. Validated and reliable self-administered questionnaire was used for data collection. Data was analyzed using SPSS version 21 and statistical significance of predictor was assessed using Binary Logistic Regression. The independent variables were the socio-demographic factors and occupational factors. Response rate was 84% and the satisfactory score for knowledge was 60.4% attitude was 62% and practice was 60%. The predictors for satisfactory knowledge on noise induced hearing loss were perceived noise exposure as harmful noise (AOR=0.54, 95%CI = 1.02 - 3.41), years in service for more than 10 years (AOR=2.79, 95%CI = 1.71 - 4.56) and had received training on safety (AOR=1.94, 95%CI = 1.12 - 3.36). For satisfactory attitude the
predictors were perceived noise exposure as harmful noise (AOR=3.79, 95%CI = 2.36 - 6.10), years in service for more than 10 years (AOR=0.56, 95%CI = 0.34 - 0.83) and tertiary level of education (AOR=3.61, 95%CI = 1.67 - 7.81). As for satisfactory practice the predictors were more than 10 years in service (AOR=2.16, 95%CI = 1.24 - 3.75) and had received training on safety (AOR=1.94, 95%CI = 1.26 - 2.99). In general, the findings showed that respondents had unsatisfactory knowledge, attitude and practice on NIHL. The results from this study may be used to set appropriate measures and identify workers who are at risk of developing noise induced hearing loss.

**Keywords:** predictors, knowledge, attitude, practice, noise Induced Hearing Loss, automotive workers

EOHPP17

**Psychological vs Physiological Assessment of Stress**

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Stress has been given different definitions over time. It was originally perceived as environmentally-induced pressure/strain within a person. Recent definitions describe stress “as an interaction between a person, towards a situation.” It encompasses physical & psychological conditions that results in an individual’s inability to handle the pressures and demands of a certain situation. Cortisol is the major glucocorticoid produced in the adrenal cortex in a circadian rhythm, with levels peaking in the early morning and dropping later on towards end of the day. These levels rise independently of circadian rhythm in response to stress. Previous literatures have consistently reported high correlations between serum and salivary cortisol, indicating that salivary cortisol levels reliably estimate serum cortisol levels. A cross sectional component of the CLUSTer cohort study was conducted in urban and rural secondary schools in the state of Selangor, Malaysia to examine work-related stress among school teachers. A total of 152 respondents participated, where saliva samples were collected to determine cortisol levels (physiological component), as well as answering DASS 21 questionnaire (psychological component) to determine perceived stress amongst the school teachers. Data were analysed using one-way ANOVA using SPSS version 21.0. Natural logarithmic transformations were performed on biomarker values. Majority of the respondents were females (>80%) and the Malay race. This study found no significant association between perceived stress (psychological) and log salivary cortisol levels (p>0.05). Larger sample size with numerous cortisol samples taken in 1 day may reveal varied results.
Keywords: stress, salivary cortisol, DASS 21, school teachers, Malaysia

HEALTH PROMOTIONS

HPPP1

Peer Influences and Intention to Smoke E-Cigarette: A Cross-Sectional Study among Form 4 Students of a Secondary School in Kuantan, Pahang

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Although research in high-income countries highlighted that peer influence served as an important factor in the first-time use of e-cigarette among the secondary school students, there is lacking research on the topic in Malaysia. This study measured the prevalence of future intention to smoke e-cigarette and to explore peer influence to be one of the strongest factors among form 4 students. A cross-sectional study was done in Sekolah Menengah Kebangsaan Indera Mahkota 2 (SMKIM 2) in April 2016 among 101 students using assisted self-administered questionnaire. Data were presented as frequencies, percentages and Chi-square test. Almost all of the students (96%) had previously heard of e-cigarette, and the prevalence of ever user and never user was 36.1% and 63.9% respectively. About 28.4% reported that more than half of their friends used e-cigarette. The prevalence of intention to smoke e-cigarette in the next 12 months was 8.2% (n=8). Among them, 87.5% were ever user and 75% male students. Ever user was significantly (p=0.003) indented to use e-cigarette. The prevalence of intention to smoke e-cigarette if offered by best friend was 20.6% (n=20). Both ever user 100% and male students 90% were significantly (p<0.001) intended to use e-cigarette if offered by a best friend. This study highlighted that peer influence is one of the contributing factors for their future smoking behaviour among the form 4 students at SMK IM2. School health education programme may be one of the effective strategies to prevent smoking e-cigarette too.

Keywords: e-cigarette, peer influences, students
HPPP2

Roles of Self-Efficacy in Health Promotion Initiatives to Control Dengue Outbreaks: A Structural Equation Model of a Cross-Sectional Survey

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Dengue fever is endemic in Malaysia and one of the major control strategies is to rely on health promotional campaigns aimed at encouraging people to reduce mosquito breeding sites close to people’s homes. However, such campaigns have not always been 100% effective. The concept of self-efficacy is an area of increasing research interest in understanding how health promotion can be most effective. This paper reports on a study of the mediation impact of self-efficacy on dengue knowledge and dengue preventive behaviour. We recruited 280 adults from 27 post-outbreak villages in the state of Terengganu, east coast of Malaysia. Measures of health promotion and intervention education activities and types of communication during the outbreak, the level of dengue knowledge, level and strength of self-efficacy and dengue preventive behaviour were obtained via face-to-face interviews and questionnaires. A structural equation model was tested and fitted the data well ($\chi^2 = 71.659$, $df = 40$, $p = 0.002$, RMSEA = 0.053, CFI = 0.973, TLI = 0.963). Mass media, local contact and direct information-giving sessions significantly predicted the level of knowledge of dengue. Level and strength of self-efficacy fully mediated the relationship between knowledge of dengue and dengue preventive behaviours. The strength of self-efficacy acted as partial mediator in the relationship between knowledge of dengue and dengue preventive behaviours. To control and prevent dengue outbreaks by behavioural measures, health promotion and education interventions during outbreaks should now focus on those approaches that are most likely to increase the level and strength of self-efficacy.

Keywords: dengue, outbreaks, structural equation model
HPPP3

The Prevalence of Internet Addiction and Its Related Factors among Medical Students of International Islamic University Malaysia (IIUM), Kuantan Campus

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Although the Internet is undeniably helpful in medical students’ life, they need to be aware of their level of internet usage and proper time management. This study measured the prevalence of Internet addiction (IA) and its related factors among year 1 to 5 medical students at International Islamic University Malaysia. A cross-sectional study was done at Faculty of Medicine, Kuantan Campus in August 2015 among 270 medical students using a self-administered online questionnaire (Internet Addiction Test-20) with quota sampling method. Chi-square test, ‘t’ test and ‘U’ test were applied to infer an association between IA and factors related to using Internet. The prevalence of normal, mild and moderate internet user were 60.9% (n=164), 36.9% (n=100) and 2.2% (n=3) respectively. Internet addiction (mild and moderate) was higher among mean (SD) age of 22.7(1.9) years old, female (61%), Year 1(27%), living in dormitory (90%), using Smartphone (72%), using Internet for 7 years and more (48%), night user (63%) and spent 2 to 5 hours per day (40%) with fast speed Internet (52%). They used the Internet for communicating with friends and family (96%), searching scientific research (84%), checking emails (81%), reading news (76%), chatting with new people (73%), and downloading films and music (64%). However, these findings were not statistically significant. High prevalence of normal Internet user and no severe IA among medical students under study is a favorable condition to instill awareness on their level of Internet usage and students should manage their time wisely by participating in other activities.

Keywords: internet addiction, medical students, IIUM

HPPP4

Knowledge, Attitude and Practice of Modern Medicine among Orang Asli Population in Kampung Orang Asli, Jelebu, Negeri Sembilan, 2014

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Medicine has undergone many changes with time in order to support the modern lifestyle. Even though the Malaysian government have provided good healthcare services, the health status of indigenous people are still far behind others. This
research was carried out to evaluate the level of knowledge, attitude and practice of modern medicine among the Orang Asli and the effect of a brief health promotion campaign on knowledge scores. It was conducted in two phases among 123 subjects. The first phase was an analytical cross-sectional study and the second was an experimental study. A questionnaire was used to collect the data. It comprised of four sections including three main components that assess the level of knowledge, attitude and practices towards modern medicine. Two days later, the effect of the health promotion intervention assessed using the same questionnaire to evaluate the knowledge scores. Results showed that the percentage of respondents for good, moderate and poor knowledge level was 66.7 %, 30.8% and 2.6% respectively. The mean knowledge level score before intervention was 18.23 ±2.7, whereas the mean knowledge level of post intervention was 19.38±2.56 (p <0.01). Majority of the respondents (77.9%) possessed neutral attitudes and 94.3% of the respondents visited healthcare centers. There was significant association between monthly income and the knowledge level (p=0.03). Findings from this study showed that it is not impossible to improve the healthcare of Orang Asli in Malaysia by conducting health educational campaigns.

**Keywords:** knowledge, attitude, practice, modern medicine, Orang Asli

**HPPP5**

**Dietary Habits, Nutritional Knowledge and Physical Activity among Selangor Matriculation Students**

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Rapid lifestyles changes in the past 20 years that occurred in Malaysia had brought significant modifications in the dietary habits and nutritional knowledge of the community, especially among adolescents. The aim of this study is to determine the dietary habit, nutritional knowledge, and physical activity level among Selangor matriculation students. A cross-sectional study involving 221 students of Selangor Matriculation School was conducted during December 2015. A self-administered questionnaire consisting of socio-demographic backgrounds, nutritional knowledge, dietary habits, a level of physical activity were distributed among the students. Also, anthropometric measures were used by taking weight and height to determine Body Mass Index (BMI) among respondents. Results showed that prevalence of Overweight was 24.1% while obesity was 17.5%. Student’s poor dietary habit was (50.5%) while, student’s nutritional knowledge showed that (65.1%) had fair knowledge. The most common source of nutrition was an internet. Regarding physical activity, the prevalence of poor physical activity was (62.3%). There was no significant association between Socio-demographic factors and dietary habits. There was a significant association between physical activity and gender, living place (p<0.001, 0.06)
respectively. The prevalence of student’s nutritional knowledge was good, but dietary habits were not good. Also, the prevalence of overweight and obesity was high, so more efforts are needed to educate adolescent regarding the consequences of bad eating habits and obesity later in life. More health promotion needed among those adolescent as they are in the transitional period in their life.

**Keywords:** dietary habits, physical activity, matriculation students

HPPP6

**Prevalence of Confectionery Intake among Malaysian Adults: Findings from Malaysian Adults Nutrition Survey (MANS), 2014**

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Consumption of confectionery or food items that are rich in sugar and carbohydrate may be a key contributor to the epidemic of overweight and obesity. Evaluation of confectioneries intake among adults is important to improve diet quality and impact on nutrient intakes. This study aimed to determine the prevalence of confectioneries intake and its relation to gender among Malaysian adults. MANS is a nationwide cross-sectional study conducted from March until June 2014. The multistage stratified sampling design was used to select a representative sample of Malaysian adult population, aged 18 years and above. Data on nutrition, specifically confectionery intake, were collected by trained interviewers using semi-quantitative food frequency questionnaire (FFQ). About half of Malaysian adults consumed confectioneries on a weekly basis (53.5%), while another half consumed either on monthly (34.5%) or daily (12.0%) basis. There were no obvious difference in daily confectionery intake among men (12.1%) and women (12.0%). However, the daily confectionery intake among those living in the rural area (17.4%) was much higher than those in the urban area (9.7%). The most popular confectionery consumed by Malaysian adults was local “kuih” (79.9%), followed by cake (38.5%), milk ice-cream (38.5%), snack (33.4%), and a chocolate bar (32.3%). The prevalence of confectionery intake was higher on a weekly basis, and the favourite confectionery was local “kuih”. Thus, a healthy eating behaviour is one of the important strategies for prevention of obesity and non-communicable diseases such as diabetes, heart disease, and other health problems.

**Keywords:** confectionery, dietary behaviours, confectionery foods
HPPP7

Social Determinants of Health Visualized Through the Lens of Future Public Health Physicians

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Social determinants of health are the conditions in which people are situated throughout the life course, and ones which are shaped by the distribution of money, power and resources at global, national and local levels. This paper aimed to demonstrate the utilization of photojournalism techniques in exploring the social determinants of health, specifically environment as a determinant of health. The authors used qualitative visual methods to express their contextual understanding of the social determinants of health, as a reflection of the knowledge acquired from a Medical Sociology course in public health. As a representation, photographs were utilized as data which “speaks for itself” in depicting the health impact of living conditions of people in developing countries. Several real-life conditions exhibit the complex relationship between urbanization, environment determinants and human health. These include the polluted environment of a fast developing city to poor quality living spaces in terms of the unsafe housing structure and unhygienic neighborhood, observed in urban slums, threatening the vulnerable group to slide further down the social gradient of health. Poor governance in waste disposal services encourages illegal dumping; ultimately threaten the well-being of society. Conversely in Cambodia, the efforts to combat poverty and sustain safe living environment is witnessed. The living environment affects the health and also health equity of the population. This issue can and has been tackled in other localities; however, it requires concerted multi-sectored effort to keep the eyes peeled for creating a livable and healthy sustainable environment.

\textbf{Keywords:} health determinants, photojournalism, environment
HPPP8

Willingness to Quit Smoking and Its Associated Factors among Undergraduate Student Smokers in the Faculty of Engineering and Agricultural Science, Universiti Putra Malaysia

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Tobacco smoking is the largest preventable cause of death in the world; it has been reported that each day 13000 people die prematurely because of tobacco use. In Malaysia, smoking-related diseases are important public health issues with 10,000 deaths reported annually. This study is aimed at assessing the willingness of young student smokers to quit smoking and the associated factors. Multi-staged cluster random sampling was done to identify participants from various faculties in the Universiti Putra Malaysia with probability proportionate to size. A pretested, self-administered questionnaire was used. Data were analyzed using SPSS version 22 for descriptive, bivariate and multivariate analysis. In total, 316 respondents participated in the survey with a response rate of 66.5%. About 42.4% were willing to quit smoking. The predictors of willingness to quit after logistic regression analysis were amount spent on cigarette per week (OR = 3.591, 95% CI = 1.817-7.101, p = <0.001), Hindus (OR = 0.041, 95% CI = 0.005-0.335, p = 0.003), females (OR = 3.108, 95% CI = 1.463-6.602, p = 0.003). The result shows that the level of willingness to quit smoking is still weak and therefore needs further improvement.

Keywords: smoking, young adults, willingness, student

HPPP9

Can Patient Help in Preventing Blood Transfusion Error?


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Haemovigilance and incident reports in 2012 and 2013 analysis had identified critical points at bed-side sampling leading to near misses and blood transfusion error in the government hospitals’ settings. Most of them occurred during patient-provider contact. Thus, a pamphlet describing the process of blood transfusion was developed aiming to educate and empower patients. On top of that, questionnaires were given to
test the patients’ understanding. A pamphlet and questionnaire were prepared in Malay as the national language of Malaysia. This pamphlet was pre-tested to patients admitted to a government hospital in an urban setting. Convenient sampling was done to select patients. The cognitive debriefing was conducted for phrases like "Transfusi Darah", "Pemindahan Darah" and "Pengambilan Darah". 23 patients completed the questionnaire after reading the pamphlet. 43.5% stated that the pamphlet was moderately eye catching. 65% agreed that the pamphlet was meant for those who need to undergo the blood transfusion process. 75% and 95% stated that the pamphlet was easy to read and not offensive. 70% of the respondents think that each step listed in the pamphlet is important. 56.5% of the respondents reported that the provider practiced checking mechanism by asking their name. Only 47.8% of the patient had the awareness of asking the doctor to check their name and wristband. 69.6% of the patients would remind the doctor if the doctor failed to check their identity after reading the pamphlet. The educational material was acceptable. Patient education to prevent blood transfusion error is possible. Empowerment is yet to be explored.

**Keywords:** blood transfusion error, patient empowerment, blood, transfusion, error, patient, empowerment.

**HPPP10**

**Effect of Three Different Treatment and Rehabilitation Programs on the Quality of Life of Opiate Abusers in Kuala Lumpur and Selangor**

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A substantial amount of funds has been used for drug eradication activities in Malaysia which included rehabilitation and treatment programs for drug abusers. This study aimed to compare the changes in the quality of life (QOL) of opiate abusers who were enrolled in different treatment and rehabilitation programs in Kuala Lumpur and Selangor. A quasi-experimental study was conducted to determine effects of three different treatment and rehabilitation programs on the abusers’ QOL. Group 1 consisted of participants of the Cure & Care Clinic; Group 2 was the Methadone Replacement Therapy participants, and Group 3 consisted of street drug users. Data was collected at enrollment and six months later using the World Health Organization-Quality of Life questionnaire. There were 141 respondents. Analysis showed that the Group 1 participants had statistically significant improvement in physical, psychological, social relationship and environment domains’ scores compared to other programs. The educational level had statistically significant association and was a significant predictor of the score of QOL in physical, social relationship and environment for participants of Groups 1 and 3. This present study suggests that the program carried out at the Cure & Care Clinic is better the other two programs regarding improving the quality of life of the opiate drug abusers. The associated and
predicting factors identified in this study can provide information to policy makers and related agencies in determining the suitable candidates for the programs to ensure improvement in their quality of life.

**Keywords:** opiate abusers, Cure & Care Clinic, quality of life

HPPP11

*Agreement of Using SMS on Dengue Fever Awareness and Prevention in Bandar Baru Uda, Johor Bahru*

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Short message service (SMS) is one of the essential tools that could be potential and useful for dengue intervention programs by Ministry of Health Malaysia. Bandar Baru Uda, Johor Bahru is a dengue endemic locality. Even many dengue prevention activities have been carried out but dengue cases still occurring in this locality. Therefore, as an innovation in health promotion activities, SMS is a way introduced by the researcher in delivering and disseminating knowledge and information about dengue and its prevention. The objective of this study is to determine the number of respondents that are agreeable to implement this new method of message dissemination and to investigate the relationship between the factors of a sense of belonging with the agreement given by the respondents. A cross-sectional study was conducted using systematic random sampling whereby the head of the households was chosen as the respondents. Data was collected through face to face interview using pre-tested questionnaires, and the study was conducted in December 2014. A total of 368 respondent participated in this study consisting of 264 (71.7%) male and 104 (28.3%) female. Most of the respondents were the owner of the house 304 (82.6%), the majority of the respondents 363 (98.6%) declared using SMS services and 345 (93.8%) stated that read all the messages received. There is also a significant relation between the house ownership and agreement to receive SMS. In conclusion, this study succeeded in getting an agreement of the population on the usage of SMS in arousing awareness and disseminating information on Dengue Fever. Therefore, it is highly suggested to incorporate SMS as an additional tool in dengue campaign and prevention program.

**Keywords:** Short Message Service, intervention program, ownership, dengue fever, awareness and prevention
HPPP12

How Active Are We Malaysians? - A 10 Year Trend

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Physical inactivity has been identified as the fourth leading risk factor for global mortality causing an estimated 3.2 million deaths globally. People who have inadequate physical activity have a 20-30% greater risk of all causes of mortality. This study aims to describe the prevalence of physical activity among Malaysians and establishing differences in these findings by gender, age-group, and locality. Data was obtained from the National Health and Morbidity Survey (NHMS) conducted in 2006, 2011, and 2015. All respondents aged 18 and above consented to the International Physical Activity Questionnaire (IPAQ) and those who achieved a minimum score of at least 600MET-minutes/week of physical activity was classified as physically active. In 2015, 1 in 3 Malaysians did not meet the recommendations to be classified as physically active. The prevalence increased over ten years whereby 56.3% met the recommendations in 2006, 64.8% in 2011 and 66.9% in 2015. Similarly, prevalence increased in both genders. More men met the recommendations than women, and physical activity declined after 60 years old for both genders. The highest percentages of men and women achieving the recommended levels of physical activity are found in rural Malaysia (77.3% and 66.4% respectively). Compared to other regions and the global average, Malaysian adults have a high prevalence of insufficient physical activity. There is a clear need to assess why Malaysians are particularly insufficiently active, and to ensure that physical activity is addressed as a national health priority.

Keywords: physical, activity, NHMS, Malaysia

HPPP13

The Effectiveness of an Internet-Based Health Promotion Programme on Sexual and Reproductive Health among School-Going Adolescents in Kuala Lumpur

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Premarital sexual experience is becoming more common among adolescents in Malaysia. Without accurate information and protection, many face negative sexual health outcomes, including unwanted pregnancies, abortions, sexually transmitted
infections (STIs) and HIV/AIDS. This study was designed with the objective to study the effectiveness of an Internet-based health promotion programme on sexual and reproductive health (SRH) for school-going adolescents in Kuala Lumpur. A total of 209 adolescents aged between 11 to 12 years old were randomized into two treatment groups: Internet-based education and conventional teaching method. Using a self-administered questionnaire, adolescents’ knowledge on SRH were assessed at two points in time; before (pre) and after (post) the intervention. The study showed that most participants had a moderate and good level of knowledge on SRH. The internet-based education recorded an increase of 3.88 in knowledge mean score registering a significant difference (p<0.05) between the pre and post-test. Similarly, the conventional teaching method showed a significant increase of 4.30 (p<0.05) in knowledge mean score. Findings from this study demonstrated that both delivery methods improved adolescents’ knowledge on SRH.

Keywords: sexual and reproductive health, adolescents, internet-based education, health promotion, conventional teaching

HPPP14

Dengue Control: What is Community Perception?

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In Malaysia, dengue fever is defined as endemic and considered as a serious disease as the trend is increasing because it caused deaths. The objective of this study aimed to investigate the perception of PPR Sri Pantai’s community about the dengue’s control practices based on the theory of Health Belief Model. The cross-sectional study was used in this study by using the validated questionnaires from Health Belief Model. The purposive sampling method was used involving 333 respondents. The study was conducted in PPR Sri Pantai, Kuala Lumpur due to an increase in the number of new cases and repeated cases significantly which caused the target of repeated outbreaks including 'hotspot' of dengue in 2013, 2014 and 2015 under the supervision of Pejabat Kesihatan Lembah Pantai. The findings show that the majority of respondents have a positive perception of dengue’s control activities. Three (3) out of five (5) aspects of perception studied showed the high percentage (over 80%) such as Perceived Severity (91.3%), Perceived Benefits (94.3%), Cues to Action (85.9%) and Self-Efficacy (86.2%). While another two (2) aspects are moderate which are Perceived Susceptibility (75.1%) and Perceived Barriers (63.7%). These perceptions are related to the risks of dengue fever, the use of 'abate' and fogging activities. In conclusion, higher knowledge does not necessarily lead to better dengue’s awareness, practice, and control. This study reveals Perceived Susceptibility and Perceived Barriers need to be promoted and strengthened to avoid public misunderstandings regarding the control activities implemented by the Ministry of Health.
Keywords: Dengue Control, Perception, Community, Health Belief Model

HPPP15

Motivational Interview, an Approach to Facilitate Healthy Lifestyle Change in the Jom Mama Project

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Behaviour change counseling (BCC), one of the client-centered approaches has shown to be more effective in achieving client lifestyle change than the traditional advice given in multiple health care settings. The Jom Mama project is a pre-pregnancy lifestyle intervention study incorporating community health promoter (CHK) consultations and a mobile application as the intervention package. A training module on the motivational interview (MI) was developed to train the CHK in this new technique of consultation. The knowledge on BCC, nutrition and physical activity were measured after training on MI had been given. Focus group discussions (FGD) were conducted among the CHK. Pre- and post-assessments on nutrition, physical activity, and BCC knowledge were also self-administered by the CHK. After the MI training, knowledge and understanding of client centred care and BCC of the CHK improved. FGD highlighted a better understanding of pre-pregnancy health, higher engagement, and role-satisfaction by the CHK. The training also provided higher confidence among the CHK to apply the new BCC approach. However, ongoing support and practice are necessary to ensure continued CHK skill development in BCC. In addressing the challenge of non-communicable disease management in Malaysia, capacity building of healthcare personnel is crucial to ensure confidence and better engagement with clients.

Keywords: Jom Mama, healthy lifestyle, pre-pregnancy, behaviour change counselling, community health promoter, diabetes

HPPP16

Prevalence, Knowledge, Perception and Factors Influencing Smoking among Primary School Students in Melaka Smoke-Free City

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In order to increase the proportion of successful attempts to quit smoking, it is important to understand the factors influencing smoking among individuals since their
young age. Objectives were to estimate the prevalence of smoking and to determine the knowledge, perception, and factors influence smoking among primary school students in Melaka Tengah District. A cross-sectional study carried out in October 2015. Sample sizes of 269 students were selected using stratified random sampling technique. A self-administered questionnaire was used for data collection. Results of this study showed ever smokers represent 28.6% of the students. The earliest age of smoking initiation was seven-year-old. The mean knowledge on smoking were higher (19.5 ±5.6) among those who doesn’t smoke as compare to those who ever smoke (16.9 ±4.2). About perception, 74.0% of the primary school children know the danger of smoking. Among those who smoke, the majority of them (74.0%) did not feel regret, smoking makes them look matured (44.8%), smoking solved their problems (43.8%). In regards to the factors influencing smoking, peer pressure has the highest prevalence which is 89.6%, early exposure from family members who are smokers (71.9%). Findings from this study should be considered as a warning for an impending epidemic. Thus, the smoking prevention program should have a greater role in schools and should be started as early as in kindergarten. Governmental commitment and social support are vital in health education and awareness and especially in ensuring that smoking programs are being implemented and sustained.

**Keywords:** primary school students, smoking, knowledge, perception, factors

HPPP17

**Practices Related to Dengue Fever Prevention among International Students in Universiti Putra Malaysia, Serdang**

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Dengue fever is a vector-borne, notifiable and preventable communicable disease. Study on practices related to dengue fever prevention was necessary given high the prevalence of dengue fever in Malaysia and the high mortality and morbidity associated with it. A cross-sectional study was conducted among the international students using stratified proportionate random sampling technique. Data were collected using a validated, self-administered questionnaire and analyzed using SPSS version 21.0. A total of 641 respondents were involved with the response rate of 95.7%. The mean age of the respondents was 33.41±6.56 years old. The majority of the respondents were Asian (74.6%), male (65.5%), married (61.5%), had poor knowledge (45.9%), showed negative attitude (51.6%) and demonstrated good practices related to dengue fever prevention practices (53.7%). Knowledge on dengue fever was influenced by the previous history of dengue fever (77.8%) and mass media (54.4%). The significant association was recognized between practices related to dengue fever prevention and gender (p=0.010), marital status (p=0.003), knowledge on dengue fever (p=.001) and attitude towards dengue fever (p=.001). Knowledge on dengue fever was influenced by mass media (p=0.001) and previous history of dengue
fever (p=0.019). The significant predictor for poor practices was the negative attitude towards practice (AOR=3.705, 95% CI = 2.532 - 5.421, p=0.001). The findings revealed good practices among the respondents despite their poor knowledge and negative attitude towards dengue fever. Therefore, knowledge-based health education and cultivating positive attitudes with enhanced preventive practices should be further reinforced via mass media with interesting advertisements, interactive talks, and mind-casting reminders.

**Keywords:** practices, dengue fever, prevention, international students, Universiti Putra Malaysia

**HPPP18**

**Validity and Reliability of Questionnaire on Knowledge, Attitude and Practice on Skincare Products among Urban Community in Selangor**

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Skincare products usage had increased globally in the past decade. However, there was evidence that some of these products might contain dangerous substances and yet were still marketed to the consumers. Malaysia, as one of the developing countries with big market potential for these products, needs to assess the impact of these skincare products among the population. This will help the policy makers to formulate strategies to prevent negative impact from a usage of harmful products in the future. The purpose of this study was to develop and validate skincare products KAP questionnaire among urban community population. In this validation study, a total of 200 adult respondents in Selangor urban community were recruited using simple random sampling. Knowledge domain was considered as the optimal level of difficulty and able to discriminate performance of knowledgeable and knowledge-deficient respondents. Construct validity was assessed using exploratory factor analysis with principle components method and varimax rotation. Difficulty indexes and discrimination indexes of the knowledge items range were 0.21-0.89 and 0.17-0.87 respectively. Four factor-solutions emerged each for both attitude and practice domain. Internal consistency was acceptable for knowledge with Cronbach’s alpha (CA=0.859), attitude (CA=0.923) and practice (CA=0.940) domains. This is a feasible questionnaire which can be a useful tool for measuring the skincare products KAP and assessment tool to evaluate the impact of the skincare products advertisement among the urban community in Malaysia. However, removing one item in the knowledge domain consisted of side effects of skincare products will improve the knowledge discriminatory index score.

**Keywords:** validity, reliability, questionnaire, factor analysis, skincare products, urban community
HPPP19

Determinants of Willingness-to-Pay for Skincare Products among the Urban Community in Selangor

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Skincare products have become one of the most bought products by Asia’s population in the past 5 years. Although some of the skincare products contained dangerous substances, the public seem to be unconcerned and sales of these type of products continue to increase. In Malaysia, no study had been conducted to identify the determinants in the community’s for using these products despite the controversies. This was vital in managing potential harmful impact to the society in the future. The aim of this study was to determine the level of willingness to pay (WTP) for skincare products among the urban community and factors associated with it. This is a cross-sectional survey using simple random sampling method in one of Selangor’s urban residential areas. Data collection was done using a set of structured interview questionnaire. Respondents were adult population who use at least one topical skincare products during the study period. Hypothesis testing were done using t-test and ANOVA in SPSS version 23.0. A total of 353 respondents were sampled. Majority were in the age group of 31 to 45 years old (42.8%), female gender (81.9%), secondary education level (57.2%), non-working women (33.4%) and from low household income group (86.1%). Mean WTP value for buying the skincare products was RM71. Proportion of respondents who were not willing to spend any amount or willing to spend up to RM700 to buy skincare products were about the same which was about 0.3%. Majority of them (22.4%) were willing to pay about RM100 to buy skincare products. Significant association was found between gender (t(df) = 4.09 (350), 95% CI = RM30, RM86) and type of household income group (F(df) = 2.441(3), 95% CI = RM45, RM218) with the WTP value for skincare products. Gender and household income could influence the decision to buy skincare products in urban community. Thus, strategies to manage the possible adverse outcome from foreseen increased in spending of skincare products should target these key determinants.

Keywords: Willingness-to-Pay, Skincare products, urban community
HPPP20

Reviving Quit Smoking Service in a Primary Care Setting in Malaysia

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Cigarette smoking is associated with high morbidity and mortality worldwide. It is a form of addiction, hence regarded as a chronic disease of the brain. Quitting from an addiction is very challenging to both patients and health care provider. Moreover, it has high relapse rate that further frustrate both parties. In Malaysia, quit smoking service has been available in many government health clinics since a decade ago. Over the years, the service seemed not progressing well and was unpopular among patients as recruitment was less than 10 in a year and very poor success rate. Efforts were made to revive the service in Masjid Tanah Health Clinic. This study is to evaluate the outcome of the six-month intervention. A retrospective chart review of all patients’ registered in the quit smoking service based on their folders, from January until June 2016. A Quit smoking team was formed followed by a few meetings to improve patient care. Preparations on materials, 5 A strategy and mixed treatment approach were used. Data were analysed using SPSS version 16. There were 32 patients recruited; mean age was 46.3 years old, 96.9% were the Malays, all men, 65.6% had received secondary education and a third worked in the private sector while a quarter had retired. There were 90.6% had attempted to quit before, mean Fagerstrom’s score at baseline was 5 (min=0, max=9), and mean duration of the service was 13.7 weeks (min=4 wk, max=32 wk). Regarding treatment, 15.6% used non-pharmacotherapy, 68.8% used the nicotine patch, 12.5% used verenicline while 3.1% used the combination of nicotine patch and gum. There were 50% still smoking, 46.9% had stopped smoking but still less than six months and 3.1% had quit more than six months. The mean duration of the service at quit date was 4.6 weeks (min=1 wk, max=19 wks). The new approach in quit smoking service seemed promising hence need to be continued.

Keywords: quit smoking, primary care setting
HPPP21

Quality of Life among Patients on Methadone Treatment- Findings from MyTOS

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Malaysia has started free methadone maintenance treatment for opiate dependent patients since 2005 in order to curb against HIV transmission among intravenous drug users. The Malaysian Methadone Treatment Outcome Study, MyTOS was conducted to evaluate the service. This study aimed specifically on the effect of methadone treatment in their quality of life. This was a multi-centre retrospective cohort study among patients registered in Methadone Maintenance Therapy program in Malaysia in 2014. In this study, multistage stratified random sampling was used according to urban & rural centres. Patients, who were at least one year on methadone treatment, were randomly sampled from methadone registry at each selected centres. Validated questionnaires were used to collect data on socio-demography, health screening, treatment outcome, perception to treatment and available facilities. Responses to the quality of life-based on the score for WHOQOL-BREF were compared between at registration and after joining treatment. The response rate was 98.6% (N=3316). Their mean age was 39.2 years old, 99.1% males, 90.2% the Malays. The mean duration on methadone treatment was 3.8 years (min=1 yr, max=9 yrs) and mean methadone dose was 54.8mg (min=2.5mg, max=120mg). There was significant improvement in all areas; mean difference score baseline vs. after on treatment: physical 12.76±0.58, P<0.001, psychological 15.48±0.61, P < 0.001, social 13.07±0.66, P<0.001 and environmental 14.12±0.56, P< 0.001. Methadone treatment was noted to be able to be able to improve patients’ quality of life hence the service should be expanded further.

Keywords: methadone, WHOQOL, quality of life
HPPP22

Smoking Cessation Module for Trained Counsellors as a Tool for Stop Smoking among Adolescents in Selangor

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The concern with a high prevalence of smokers among adolescents and difficulties to access quit smoking clinic during school session, smoking cessation module was proposed as an option to be implemented at schools. The module was tested among adolescents in 24 secondary schools in Hulu Langat and Gombak District of Selangor. A total of 346 respondents aged 14 years that intended to stop smoking were included in the study. Intervention Group (IG) comprised of 158 respondents receiving group counselling on smoking cessation by well-trained counsellors for four months. The Non Intervention Group (NIG) consisting of 188 respondents were subjected to the regular smoking cessation activities. The quit rate was measured for both groups before the intervention as well as at 4, 8, and 12 months after the intervention. In-depth interviews were carried out among eleven school counsellors to obtain their views on the modules at the end of the intervention programme. Quit rate at four months after the intervention was significantly higher (45%; 71/158 vs. 32%; 60/188) (p = 0.013) in IG as compared to NIG. The quit rates dropped to non-significant levels between the two groups at 8 and 12 months. Findings from the interviews showed that this counsellor-friendly module could improve the personality of respondents and enhanced cohesiveness between respondents and counsellors. In conclusion, this smoking cessation module is an effective short-term tool to quit smoking among adolescent at school. The modules should be continued on a regular basis by the counsellors to ensure long-term and sustainable effect.

Keywords: smoking cessation module, counsellor, adolescent
HPPP23

Knowledge, Attitude and Practice of Larviciding for Prevention and Control of Dengue among Urban Community in Selangor

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Larvicides' usage to prevent larval development in water-holding containers is an essential component of dengue prevention and control. Continued application of larvicides by vector control staff reinforces community perceptions that government is responsible for all facets of vector control with little or no responsibility of the community, especially in the urban areas. There are very limited studies on larvicides and larviciding for prevention and control of dengue. This study was conducted to determine the level of knowledge, attitude, and practice of larviciding for prevention and control of dengue by an urban community in Selangor. A cross-sectional study in the highest reported dengue cases was chosen in five local authority areas in Selangor. Two-stage random sampling using cluster random sampling for the type of houses and systematic random sampling for selection of houses was carried out. Total of 2007 respondents above 12 years of age were interviewed using structured guided self-administered questionnaire. The study found that 57.8% of respondents had good knowledge on larvicides and larviciding. Knowledge score had significant associations with level of education (chi square 62.810, df=4, p<0.05). 69.2% of respondents were found to have a good attitude towards larviciding with significant positive correlation with knowledge (r=0.311, p<0.05) and practice of larviciding (r=0.225, p<0.05). Only 27.9% of respondents had a good practice on larviciding with the significant positive correlation between knowledge (r=0.326, p<0.05). There is a need to increase knowledge of urban population on larvicides and larviciding in Selangor to promote larviciding practices by the community for prevention and control of dengue.

Keywords: Knowledge, Attitude, Practice, Larviciding, Dengue, Urban, Selangor
The Effectiveness of Educational Program Intervention among Childhood Asthma in Primary Care Clinic: A Quasi Interventional Study

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Asthma continues to be one of the costliest long-term disorders of childhood. Among chronic paediatric conditions, it accounts for the highest number of paediatric emergency department (ED) visits and hospitalizations and the highest number of missed school days for children. Education about asthma is an integral part of the recommendations of most guidelines for the management of asthma. This study aimed to determine the effectiveness of educational program interventions to assist children with managing their asthma in primary care settings. A quasi-intervention study was carried out from December 2015 to June 2016. 140 asthmatic children aged 7-17 years old attending two government primary care clinic in Melaka were selected via simple random sampling and divided into two groups: educational program intervention and conventional care. The main outcome measures were the improvement in the quality of life scores, a number of hospitalisations, unscheduled health care visits and school absenteeism after one, three and six months of follow-up. The survey was conducted via a face-to-face interview using paediatric asthma quality of life questionnaire (PAQLQ), and questionnaire for the main determinants including sociodemography, disease-related and patient-related factors. 140 children with asthma were selected and divided into two groups: educational program intervention (n=70) and conventional care (n=70). Children with pest at home only show the significant relationship between the two groups (p<0.05). Repeated measurement analysis shows a significant increase in quality of life score between groups (F=3.15, p=0.01). There was also a significant reduction of hospitalization (F=22.74, p 0.01), unscheduled healthcare visits due to an asthma attack (F=8.94, p <0.05) and school absenteeism (F=13.32, p<0.05). As a conclusion, Education Program Intervention able to move the treatment of this disease away from a focus on acute-care needs and toward improved long-term patient outcomes.

Keywords: Childhood Asthma; Educational Program Intervention; quality of life