

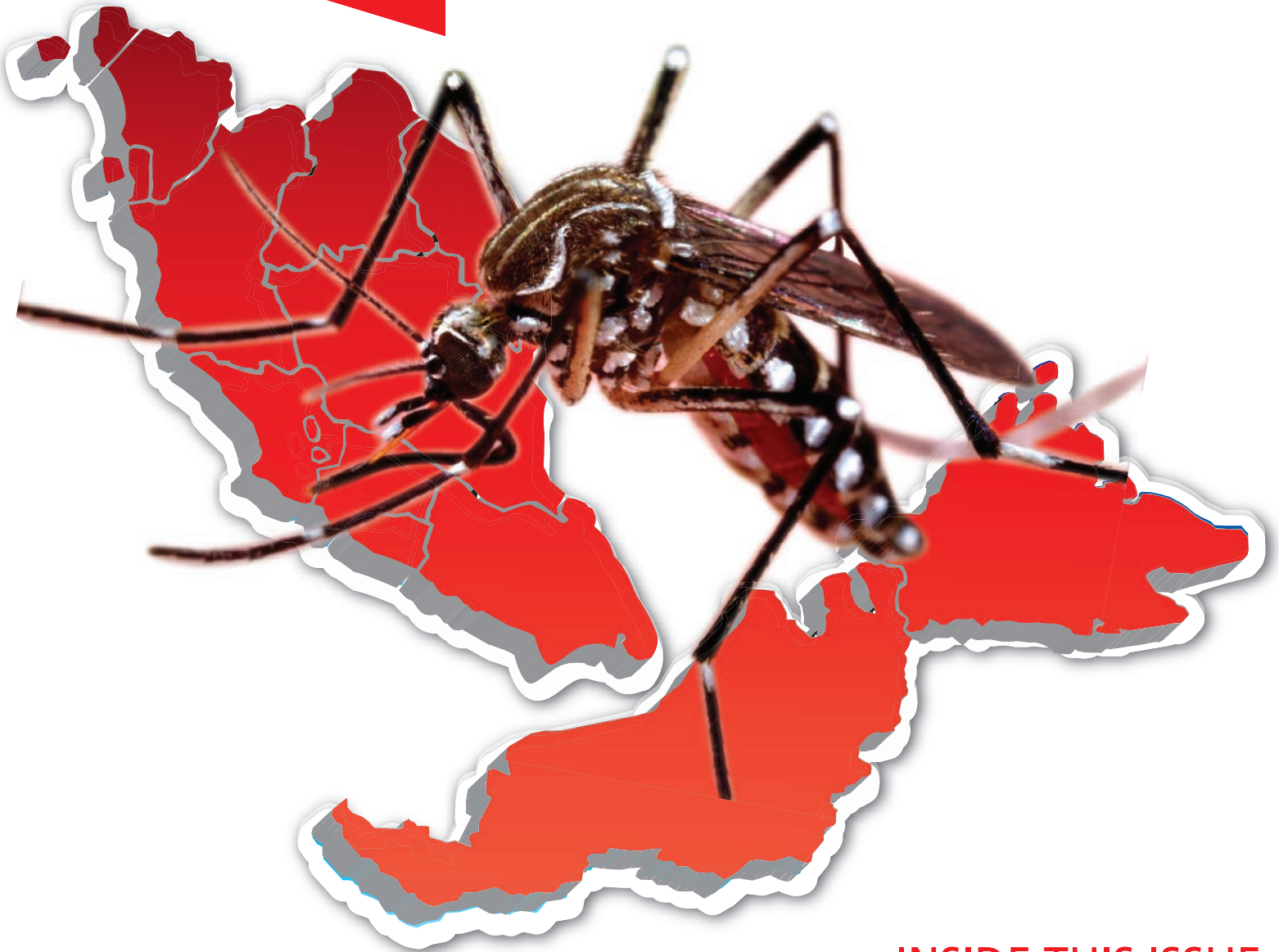


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FROM THE DESK OF THE CHIEF EDITOR

Suraiya Syed Mohamed

Head of Communications and
Public Liaison Division
National Institutes of Health
Ministry of Health Malaysia

This bulletin is a result of the hard work of all the members involved and I could not be more proud of the outcome. Considering that dengue has become an all-too-familiar disease among Malaysians in recent times, most of the articles in this bulletin focus on dengue.

We have made great strides in insect vector-control, particularly with chemical insecticide use. Recent advances incorporate long-acting residual insecticides with common household materials such as paint and varnish. The insecticidal paint is both practical and acceptable to local communities. It is also advantageous from a public health perspective, as it is efficacious, safe and cost-effective. Its method of preparation has already been patented in five countries including Malaysia. We are optimistic that this product will be commercialised and launched in the future.

Upon conducting a systematic review of dengue vector-control services in Malaysia, it has been found that integrated vector management (IVM) action plan, entomological tools and communication intervention using a Communication for Behavioural Impact (COMBI) approach is essential in improving effectiveness.

COMBI, in turn, has had its own challenges in sustainability despite being accepted well by local communities. Studies show that continuous training, publicity and monitoring are vital if we want to sustain actions in communication and social mobilization.

I also applaud the Institute for Medical Research (IMR) for being the first local laboratory awarded with the Organisation for Economic Cooperation and Development (OECD) Good Laboratory Practice (GLP) Compliance Certificate for Toxicity Studies.

There are many other research topics that have yielded useful information that we hope shall benefit readers. On behalf of the entire team, I sincerely hope that this bulletin is both informative and enlightening.

An **INSECTICIDE PAINT** to Control Insect Pests and Vectors

Nazni, W.A. & Lee, H.L. Medical Entomology Unit, Institute for Medical Research, Kuala Lumpur.

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Chemical insecticides play a pivotal role in the control of insects of public health importance, such as mosquito vectors like the dengue vectors, *Aedes aegypti* and *Aedes albopictus*. Insecticides come in various formulations such as aerosol, coil, mat, emulsifiable concentrate. Each formulation is specific for the type of application that is appropriate for the insect pest to be controlled. The type of application in turn depends on the behavior patterns of the insect pests. Insect pests may be attacked in their own breeding environment or a barrier may be formed around human habitation. The later, having received much interest has become common practice for the individual, communities and vector control operators.

The application methodology of insecticides again differs depending on the formulations they are prepared in, from temporary to that of long lasting applications such as the residual insecticide sprays. Of particular interest have been the residual contact insecticides that continue to kill insect pests over long periods after application.

The potential and advantages are obvious: application of residual insecticides in a manner in which it is acceptable and with long residual activity can save time and large amounts of resources and better coverage. The recent development in technology that incorporates the residual insecticides with other commonly used household materials is promising and is presumably the technology that will eliminate the problems of refusal by consumers due to odour, stains on walls and simplicity of application methods. Substances such as paint and varnishes are arguably most appropriate for this purpose.

Paints are widely used both inside and outside the house for decorative purposes and are applied by almost anybody. If an insecticide is incorporated into these household paints, their acceptance by the community will be much higher. Studies have shown that this insecticide paint has been well accepted by the local communities and this suggests that slow release of insecticide from the insecticidal paints, offer a practical alternative to non-persistent insecticides. In 2002, the Medical Entomology Unit, Institute for Medical Research (IMR) developed an insecticidal paint that is effective against mosquitoes, house flies and cockroaches.



The insecticidal paint is an emulsion paint formulation impregnated with an insecticide and is developed as a simple but very effective means of delivering a chemical insecticide for the control and elimination of insect pests, especially those in houses, food-processing and production factories, hospitals and ships where the common practice of insecticide application was inappropriate or hazardous. Since painting is widely practised in many activities, the development of this product will ensure its widespread use which should result in effective insect control and elimination.

The insecticidal paint contains 0.25% (active ingredient, v/v) of a synthetic pyrethroid, deltamethrin and 0.25% of a synergist, piperonyl butoxide. Deltamethrin has been widely used as a residual wall spray since 1998 for the control of malaria in Malaysia and other countries. It is also used in bednet impregnation for the protection against malaria vectors. Piperonyl butoxide is included to counter or delay the possible development of resistance in insects.

The efficacy of the paint formulation was tested extensively in the IMR laboratory against all major insects. A normal spraying of the insecticidal paint on wood or cement surface induce high mortality in the test mosquito adults of *Aedes aegypti*, *Aedes albopictus*, *Anopheles maculatus* and *Culex quinquefasciatus*, and in the housefly *Musca domestica*.



The initial killing effect on the German cockroach, *Blattella germanica* was generally low but increased to high mortality after several weeks. The killing effects lasted more than two years in laboratory tests. In the field, a small scale test in a small kitchen (14' x 7') resulted in three years control of cockroaches, houseflies, ants and lizards. The kitchen was pest-free for almost three years.

This insecticidal paint possesses the advantage of :

- (i) Easy to apply as normal paint
- (ii) Effective against insect pests of public health importance,
- (iii) No special spraying equipment required,
- (iv) Does not require special skills to apply,
- (v) Does not pollute the environment,
- (vi) Safe as no insecticide droplets/fog was released into the air,
- (vii) Wall residual effects long-lasting for up to two years,
- (viii) Development of resistance is countered or delayed due to synergist,
- (ix) Cost-effective and
- (x) the product is stable for years.

The insecticide paint should be stored in plastic/metallic cans and sealed to avoid evaporation. The product shelf life is similar to the shelf life of the regular paints.

The method of preparing the insecticide paint has been patented in USA (2005), UK (2006), Malaysia (2007); Vietnam (2009) and Indonesia (2009). IMR is now collaborating with a major local paint manufacturer to commercialise the paint and hopefully the product will be launched in the near future.



FEATURED ABSTRACTS RESEARCH

Effectiveness of an autocidal trap device for capturing and killing *Aedes* mosquitoes under field conditions

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Abstract

A study was conducted in Malaysia to evaluate the effectiveness of an autocidal trap known as the "Institute for Medical Research Autocidal (IMR) Trap (IAT)" in trapping *Aedes* and other mosquitoes. This device is a modification of the traditional ovitrap used to monitor mosquitoes, especially the *Aedes* species. The IAT consisted of a black plastic container fitted with a floater, on which a sticky strip was placed. The floater was also covered with a fine wire mesh of copper. Two residential areas, Taman Peringgjit Jaya and Taman Kenanga, in the state of Malacca, were selected for the trial. A total of 85 houses were selected and each house was installed with three IATs filled with tap water, two of which were placed indoors and one outdoors. Every 2 weeks the sticky strips were collected and the insects trapped on them were identified, counted and recorded. Three main species of mosquitoes were trapped on these strips: *Aedes aegypti*, *Aedes albopictus* and *Culex quinquefasciatus*. Female *Aedes aegypti* was the predominant mosquito trapped in the IAT (42.8%), followed by female *Culex quinquefasciatus* (17.9%) and female *Aedes albopictus* (5.56%). A mean of two *Aedes* mosquitoes were trapped/strip/2 weeks/house. On an average, about 21% of the participating houses successfully trapped *Aedes* species during each visit. Eggs were also laid on the floaters, showing that gravid female mosquitoes were attracted to oviposit in the IATs. The IAT is thus an effective device for trapping and controlling mosquitoes, especially *Aedes* species.

Keywords: *Aedes aegypti*; *Aedes albopictus*; Autocidal trap; Dengue; Trapping device.

J Vector Borne Dis 51, December 2014, pp. 327–332

Eco-virological survey of *Aedes* mosquito larvae in selected dengue outbreak areas in Malaysia

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ABSTRACT

Background & objectives: Transovarial transmission of dengue virus in the *Aedes* vectors is now a well-documented phenomenon reported from many parts of the endemic areas in the world, which played an important role in initiating and maintaining the outbreak in human populations. This study investigated the factors affecting breeding habitats and the relationship with transovarial dengue virus in larvae of *Aedes aegypti* and *Ae. albopictus*.

Methods: Larval surveillance was conducted in dengue outbreak areas in Malaysia from 2008 until 2009. Sampling was carried out based on habitat type, water condition (substrate type), canopy coverage, temperature and pH at breeding habitats. RT-PCR was performed to detect presence of transovarial dengue virus in larvae collected in the study areas.

Results: A total of 789 breeding habitats were identified during this study and the majority of these breeding sites were plastic containers (57.46%). *Aedes albopictus* dominated most of the water condition surveyed, while *Ae. aegypti* indicated preference toward habitats with clear water. *Aedes aegypti* was selective in selecting ovipositional sites compared to *Ae. albopictus* where shaded areas were shown to be the most preferred. From a total of 363 mosquito larvae pools, 23 (6.3%) pools were positive for dengue virus where 18 of them were from *Ae. albopictus* and five were from *Ae. aegypti* mosquito larvae pools.

Interpretation & conclusion: This study indicated the presence of transovarial transmission of dengue virus in immature *Ae. aegypti* and *Ae. albopictus* in the field. This study also showed that combination of water conditions, canopy coverage, temperature and pH of breeding habitats were the factors affecting the larval population. The study suggested that larval survey programme could serve as a tool not only to monitor the local dengue vector distribution but also to provide objective information for taking appropriate action by the community against dengue vectors.

S ON DENGUE



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THE EXPERIMENT

ISSN-2319-2119

RESEARCH ARTICLE

Nurulhusna AH et al, The Experiment, 2014, Vol.26 (1)1788-1795

EFFECTS OF DESICCATION ON THE HATCHABILITY RATE OF LABORATORY AND WILD STRAIN *Aedes aegypti* (L.) AND *Aedes albopictus* SKUSE EGGS

ABSTRACT

Aedes eggs are desiccation resistant and this feature enables them to survive and adapt to prolonged drought. Information on hatchability of desiccated *Aedes* eggs is crucial for estimation of survivorship and thence disease transmission. This study was conducted to determine the hatchability rate of wild and laboratory strain of *Aedes* eggs after drying and storing indoor or outdoor. *Ae.aegypti* and *Ae.albopictus* eggs were collected onto filter paper 10 fully engorged females oviposited for 24h. The egg papers were air-dried and kept inside mosquito cages located indoor and outdoor for 2, 4, 7, 14, 30 and 60 days of storage interval. After each interval, an egg paper was divided into equal portions and submerged in a medium broth for hatching and observed under an imaging system to determine the first appearance of the larvae. Eggs of both species stored outdoor showed the highest hatchability rate compared to the eggs stored indoor. The earliest appearance of larvae was at 15th minute after submergence. Eggs were still able to hatch after 60 days of storage, though the hatchability rate was reduced. This study reconfirms that *Aedes* eggs are desiccation resistant and drying does not exert any negative effects on the eggs.

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Wolbachia-based strategy for dengue control – the way forward

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Abstract

Wolbachia-based vector-control strategies have been proposed as a means to augment the currently existing measures for controlling dengue vector. The successful application of *Wolbachia* in insect control is critically dependent on the ability of the agent to invade and maintain itself at a high frequency in the natural population, with the goal that the mosquito population will carry the desired genotype. *Wolbachia* are being introduced into the mosquito vectors of human diseases, including the primary vector for dengue, *Aedes aegypti*, following the discovery that some strains of *Wolbachia* can cause pathogen interference as well as shortening the lifespan of mosquitoes, with the hope of causing reduction in viral transmission.

Keywords: *Aedes aegypti*; Cytoplasmic incompatibility; Dengue; *Wolbachia*.

FEATURED ABSTRACTS RESEARCH

Original article

Biting behavior of Malaysian mosquitoes, *Aedes albopictus* Skuse, *Armigeres kesseli* Ramalingam, *Culex quinquefasciatus* Say, and *Culex vishnui* Theobald obtained from urban residential areas in Kuala Lumpur

Chee Dhang Chen^a, Han Lim Lee^b, Koon Weng Lau^a, Abdul Ghani Abdullah^b, Swee Beng Tan^b, Ibrahim Sa'diyah^b, Yusoff Norma-Rashid^a, Pei Fen Oh^a, Chi Kian Chan^b, Mohd Sofian-Azirun^a

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Background: There are several species of mosquitoes that readily attack people, and some are capable of transmitting microbial organisms that cause human diseases including dengue, malaria, and Japanese encephalitis. The mosquitoes of major concern in Malaysia belong to the genera *Culex*, *Aedes*, and *Armigeres*.

Objective: To study the host-seeking behavior of four Malaysian mosquitoes commonly found in urban residential areas in Kuala Lumpur.

Methods: The host-seeking behavior of *Aedes albopictus*, *Armigeres kesseli*, *Culex quinquefasciatus*, and *Culex vishnui* was conducted in four urban residential areas in Fletcher Road, Kampung Baru, Taman Melati, and University of Malaya student hostel. The mosquito biting frequency was determined by using a bare leg catch (BLC) technique throughout the day (24 hours). The study was triplicated for each site.

Results: Biting activity of *Ae. albopictus* in urban residential areas in Kuala Lumpur was detected throughout the day, but the biting peaked between 0600–0900 and 1500–2000, and had low biting activity from late night until the next morning (2000–0500) with biting rate ≤ 1 mosquito/man/hour. Biting behavior of *Ar. kesseli* was distinctly crepuscular, which exhibited two peaks of activity at 0600–0700 and 1900–2000, while *Culex quinquefasciatus* and *Cx. vishnui* were nocturnal feeders with multiple biting peaks throughout the night.

Conclusion: This study recommends optimal time for fogging to be conducted in Malaysia and neighboring countries according to the peak biting peak obtained.

Asian Biomedicine 8(3): 315-321

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Spatial-Temporal Analysis for Identification of Vulnerability to Dengue in Seremban District, Malaysia

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Abstract

Dengue is a major public health threat in Malaysia, which is known for the hyperendemicity with all the four serotypes of the dengue virus circulating concurrently. Annual dengue cases reported were 43,000 cases for 2013, and this imposed a heavy toll on the resources for dengue prevention and control program. The objective of mapping in our study is to determine the spatial clustering of the dengue cases and to identify the areas that are vulnerable to dengue outbreaks. A Geographical Information System (GIS) was used to assess the vulnerability of Seremban district. Dengue data were obtained from the Ministry of Health. We determined the spatial distribution, the average distance of dengue cases and identified hotspots areas using the Moran's I, Average Nearest Neighbourhood (ANN), Kernel density estimation. Vulnerability to dengue was assessed with the spatial temporal analyses and Local Indicator for Spatial Autocorrelation (LISA). From 2003-2009 Seremban recorded 6076 dengue cases. Moran's I showed the cases occurred in clusters with a Z-score of 16.384 ($p < 0.001$). ANN 0.264 ($p < 0.001$) indicated the mean distance between every dengue case was 55 meters. Kernel density estimation showed hotspots of dengue were concentrated in two subdistricts. This paper discusses how spatial-temporal approach can be used to assess the vulnerability of Seremban to dengue where control activities can be more focused to these high risk areas. Mapping the dengue distribution using spatial-temporal approach is useful and guides the public health management of dengue.

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“Dengue Vector- Control Service In Malaysia : What’s Out There And Do They Work? A Systematic Review”

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Abstract

Introduction :

Mortality and morbidity on dengue cases in Malaysia remain concerns. The number of reported cases has increased steadily since 2000. Several vector-control services had been taken by the government in order to encounter this problem. However, there is still lack of information on the effectiveness of the approaches and pertinent issues raised. This paper is to review the published and unpublished literatures related to vector-control services in Malaysia.

Methods :

This review broadly followed the assessment of multiple systematic reviews (AMSTAR) recommendations for methodological quality. It was performed both electronically and manually.

Findings :

Few methods were identified in addressing the dengue vector-control services with emphasis on: (1) flexible working hours for surveillance control systems (2) preventive control systems such as accurate use of insecticide dose; (3) strengthening of legal enforcement; (4) social mobilisation and communication; and (5) anti-larva control measures.

Conclusion :

The review underlined the need for operational standards for vector-control services, insufficient number of enforcement personnel, and the need for both health care providers and local authorities to participate in prevention activities and control of dengue, and the need for adequate financial resources. In order to improve the efficiency and effectiveness of dengue vector-control in compliance with the principles of integrated vector management (IVM), a number of tools and approaches can be applied such as structured IVM action plan, entomological tools using adult mosquito traps, and community intervention using a Communication for Behavioural Impact (COMBI) approach.

Key words: Dengue, vector-control services, Malaysia, systematic review

COMBI: Challenges in Sustainability

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Abstract

Introduction :

World Health Organization (WHO) promoted Communication for Behavioural Impact (COMBI) as a methodology for planning sustained actions in communication and social mobilization. The major issues are not the effectiveness of COMBI but achieving long-term sustainability.

Objectives :

The objective was to determine factors that contribute to sustainability of COMBI, as well as to identify the challenges in sustaining COMBI and also to recommend areas where COMBI should be improved.

Methods :

A qualitative study method was conducted among 95 respondents through a series of in-depth interviews (IDIs) and focus group discussions (FGDs) in six states in Malaysia.

Findings :

The community perceived COMBI as very beneficial but they face constraint to sustain the activities. The study found that among the factors that contribute to sustainable COMBI are continuous training as well as publicity and monitoring. Lack of self-funding skills, quality leadership, partnership effort and a sense of ownerships also contribute to sustainability problem. Changes in the political structure at certain states contribute to continuous disturbance of activities.

Conclusion :

Continuous training, publicity and monitoring are extremely important as well as designate budget funds annually to sustain communications and mobilization actions. Quality leadership, partnership effort and supportive political structure play important role to sustain the programme.

Keywords : Communication for Behavioural Impact, achieving sustainability, community as active partners

PROLONGED DENGUE OUTBREAK AT MENTARI COURT, PETALING JAYA, SELANGOR, MALAYSIA FROM JUNE 2013 TO JUNE 2014

Tee Guat Hiong, Norzawati Yeop, Ahmad Nadzri Jai, Mohd Hatta Abdul Mutalip, Faizah Paiwai, Mohd Hazrin Hasim, Tahir Aris, Wan Norsyaidatul Akmal Wan Mansor, Savita Kalaichelvan

EXECUTIVE SUMMARY

INTRODUCTION

Dengue has become a major public health concern in Malaysia. Over the last 15 years, there has been an increasing trend in dengue infection. Many episodes of dengue outbreaks have occurred in Petaling District, Selangor between 2013 - 2014. One particular locality, Mentari Court in PJS 8, Petaling Jaya has had ten episodes of dengue outbreaks from 17 June 2013 to 23 June 2014. Mentari Court is a residential complex featuring condominium facilities of seven blocks with 3,469 housing units. It has three covered car parking podiums and 24 units of shops.

KEY FINDINGS

Descriptive Epidemiology

A total of 291 dengue cases were notified at Mentari Court and 98.6% were diagnosed as dengue fever. Half of them were males, almost half were in the active working age groups and three quarters of the cases were Malaysians.

Dengue Database and Dengue Case Investigation

Information from the dengue database that is, eDengue was found to have some irregularities. This might be due to the incomplete information obtained or confusion during data entry due to many cases occurring in the same locality. Petaling Health District Office (PDHO) was unable to do full case investigations due to heavy burden of dengue cases and shortage of staff. Information on risk assessment could not be found in the database. We found that eDengue was not a user friendly database.

Control Activities

Despite limited resources, PDHO had implemented various activities of vector control to reduce the transmissions. However, vector control activities (larva survey, larviciding and adulticiding) were found to be carried out with some shortfalls. Some of the larviciding activities were carried out using mist blower which was not suitable as the density of the mosquito was still high. Adulticiding was not carried out adequately and did not cover the required areas in accordance to the *Aedes* mosquitoes' flight range.

Entomological Surveillance

Almost all mosquitoes found at Mentari Court during the outbreak period was *Aedes* mosquitoes; *Aedes aegypti* (58%), *Aedes albopictus* (2%) and *Culex Sp* (40%). Dengue cases had declined with the application of *Bacillus Thuringiensis Israelensis*; however, the mosquito density was high; with Ovitrap Index ranging from 30% to 93%. The predominant dengue serotypes during the outbreaks were DEN-2 and DEN-3. In addition, there were five larvae samples with transovarian dengue virus at Mentari Court.

Breeding Sites Arising from Environmental, Structural and Waste Management

Several larvae breeding sites were identified due to:

1. structural defects of the building which led to stagnation of water after raining especially at the underground car park;
2. Irregular schedule of domestic waste collection and uncollected bulk garbage.
3. Gutter drain perimeters.
4. Gully traps.

Health Education and Community-Based Mosquito Breeding Prevention Activities

Various health education activities related to dengue had been carried out; however these efforts were hampered by lack of community participation and cooperation as well as language barrier from residents at Mentari Court.

Population density and mobility of people

High population density and mobility of people at and around Mentari court also contributed to the prolonged dengue outbreak at Mentari Court.

RECOMMENDATIONS

This report provides some insight into the prolonged dengue outbreak in a hotspot in Petaling District. The recommendations suggested would offer indications for appropriate actions to be taken and to ensure a better management of dengue outbreak and to prevent prolonged dengue outbreak in future not only in Mentari Court but also other localities.

Empowerment of health personnel as well as the community can lead to improvement of dengue case findings in order to carry out effective control strategies on the dengue vector. Improvement in case investigation is crucial in planning and carrying out prevention and control activities.

It is important to continuously find effective and innovative methods on larvae survey, larviciding and adulticiding especially during large scale dengue outbreaks. This includes outsourcing adulticiding to private companies to prevent a particular locality from becoming a hotspot and subsequently prolong the outbreak. Actions have to be taken to remove breeding sites of *Aedes* mosquitoes through rectifying the structural problems of the building, cleaning up of the surroundings and better waste management. Last but not least, innovation in health campaigns and integrated community participation are equally important to prevent future prolonged dengue outbreak.



Earlier this year, several of our investigators discussed about the dengue clinical studies which could generate limitations in evidence essential for clinical and better health policy decisions in the country. And an idea took form.

A project aiming to describe epidemiology, health and economic burden of dengue in Malaysia was initiated by the National Clinical Research Center (NCRC) in March this year, involving about 27 collaborators across Ministry of Health (MOH). This dengue project encompasses a series of studies that utilizes secondary data mined from the Ministry of Health and private hospitals in the nation.

The series of studies shall be divided into the following workgroups :

Epidemiologic study of dengue by EPI and STA groups

For the EPI group

The objective is to describe the epidemiology of dengue in Malaysia for the period between 2005 and 2014 (10 years). Specifically :

- Estimate the incidence of dengue
- Estimate the secular trend of incidence of dengue, and its temporal patterns (seasonality on a yearly time scale and cyclical pattern over the 10-year time scale)
- Estimate the sub-clinical and symptomatic fractions
- Verify the diagnosis of dengue among cases encountered at clinics and at hospitals
- Estimate the health services (primary and hospital care) utilization due to dengue
- Estimate the prevalence of dengue
- Estimate the mortality due to dengue

For the STA group

- Describe the spatio-temporal trends of dengue transmission in Malaysia
- Determine the socio-ecological drivers of dengue transmission in Malaysia

CRC : DENGUE RESEARCH IN THE PIPELINE

Clinical Epidemiologic study by CLIN group

The objective is to describe the clinical epidemiology of dengue in Malaysia for the period 2013 and 2014. Specifically :

- Describe the clinical presentation of hospitalized dengue
- Describe the spectrum of severity of dengue
- Describe the management of hospitalized dengue, including ICU care
- Estimate the resource utilization of hospitalized dengue
- Estimate the mortality of hospitalized dengue
- Determine the prognostic factors for severe and fatal dengue
- Estimate the effects of interventions arising from the natural variation in ICU admissions and fluid management practices among hospitals
- Validate World Health Organization (WHO) classification/ other prediction rules for clinical dengue

Health and Economic Burden study by BOD_ECON group

The objective is to describe the health and economic burden of dengue in Malaysia for the period 2013 and 2014. Specifically :

- Estimate the health burden of dengue [specify suitable metrics, for example incidence, morbidity, mortality, DALYs]
- Estimate the economic cost of dengue from both health service and societal perspectives.

Some of the study will be completed by end of the year and strives for high impact publication with the potential to affect clinical practice and health policy decisions.

Institute for Medical Research (IMR) : First in Malaysia to be Awarded The Compliance Certificate for OECD GLP in Toxicity Studies

The Institute for Medical Research (IMR) is the first laboratory in the country to be awarded the Organisation for Economic Cooperation and Development (OECD) Good Laboratory Practice (GLP) Compliance Certificate for Toxicity Studies by the National Pharmaceutical Control Bureau (NPCB) 2014. NPCB is accredited as a national Compliance Monitoring Authority for non-clinical safety testing of pharmaceutical products, cosmetic products, veterinary drugs and food additives. With this achievement by IMR, Malaysia now has four laboratories listed by the NPCB as being GLP compliant.

The compliance certification means that any safety data produced by IMR laboratory in the area of toxicity will be accepted by more than 40 countries worldwide, which consist of the 34 OECD member countries and OECD MAD (Mutual Acceptance Data) countries comprising of Argentina, Brazil, India, Malaysia, Singapore and South Africa.

Malaysia's OECD-MAD membership and IMR's certification is an important milestone and timely in supporting the Government's efforts to grow herbal and the traditional and complementary medicine sectors, as well as the domestic pharmaceuticals, biotechnology and cosmetics industries. The benefits accruing to

Malaysia from these developments are summarized below:

- International acceptance of non-clinical data developed in Malaysia
- Exemption of non-clinical research being repeated in OECD countries
- Cost reduction in product development
- Overcoming existing technical barriers
- Facilitating trade by reducing marketing time for locally manufactured products which are marketed internationally
- Increasing local and foreign investment in research and development of pharmaceutical products

Malaysia is the second country in Asia, after Singapore, to achieve OECD-MAD membership. Malaysia has to undergo stringent examinations by the OECD to ensure that its test facilities are on par with OECD standards, including having a robust system of management in place for GLP-compliant facilities. The membership grants Malaysia a competitive edge, as its lab test results are recognised and accepted by all OECD markets, including the United States, European Union and Japan, all of which are major biomedical markets.



Malaysia was awarded a provisional adherent status under the OECD Mutual Acceptance Data (MAD) mechanism in October 2008 and subsequently in March 2013, became a full adherent to the OECD Council Acts related to the MAD in the Assessment of Chemicals. The OECD Council Decision on MAD states that test data generated in any member country in accordance with OECD Test Guidelines and Principles of Good Laboratory Practice (GLP) shall be accepted in other member countries for assessment purposes and other uses relating to the protection of human health and the environment.



Crisis Preparedness Response Centre (CPRC) for Flood Disaster



The Crisis Preparedness Response Centre (CPRC) of the Institute for Health Management (IHM) was established on the 28 December 2014 in response to flood disaster in the East Coast of Peninsular Malaysia.

IHM was assigned as the transit centre for the MOH flood disaster volunteers and to provide the pre-deployment and post-deployment briefing to the volunteers. During the 20-day operation from 28 December 2014 to 16 January 2015, IHM had received a total of 494 pre-deployment volunteers and 268 post-deployment volunteers. In addition, IHM was also directed to lead the non-MOH volunteers' registry on 29 December 2014. 40 applicants were accepted and the list was forwarded to the Medical Development Division and CPRC, MOH for further action.

During the pre-deployment briefing, all volunteers underwent Psychological First Aid (PFA) training provided by trained psychologists or counsellor at IHM. The PFA sessions were conducted either in groups or one-on-one, depending on the number of volunteers. The purpose of the PFA session was to provide psychological support and to ensure mental preparedness for the volunteers so that they were well prepared mentally and ready to serve in the affected areas. A total of 151 volunteers were lodged at the IHM accommodation facility before their deployments.

For post-deployment, IHM provided Depression, Anxiety and Stress Screening (DASS) to assess mental status of volunteers who returned from the disaster area. Besides that, IHM also teamed up with the Clinical Research Centre (CRC) and the Institute for Health Systems Research (IHSR) to provide medical examination for all the volunteers.

Multiple difficulties such as communication and information delivery between the volunteers and CPRC MOH during the operation were encountered. Nevertheless, all the tasks and responsibilities were carried out successfully with full commitment and cooperation from the CPRC flood disaster team members.

NIH RESEARCH

The NIH Research Week 2014 was the first jointly organised event by the six institutes of the NIH. It was held from 24 – 28 November 2014 at the Institute for Health Management. The Research Week was organised to include various research related activities.

The main event for the week was the 17th National Institutes of Health Scientific Seminar with the theme “Re-Engineering Healthcare through Research and Innovation”. The two days’ seminar had a total of four plenary lectures as well as four research dialogues. The research dialogues provided overviews of research developments in four key areas :

Malaria	Present and Future Action Plans to Control knowlesi Malaria in Malaysia
Tuberculosis	TB Research in Malaysia
Obesity	Obesity Research in Malaysia: An Overview
Human Resource	The Way Forward for Human Resource Related Research

Other research activities conducted during the Research Week were :

i. Research workshops

- Qualitative Research Workshop
- Research Highlight Workshop
- Systematic Review Workshop
- Environmental Health Risk Assessment Workshop
- Critical Appraisal Workshop of Clinical Research Papers



Dialogue on Tuberculosis



Dialogue on Obesity

RESEARCH WEEK

ii. Research clinics

- Research Methodology and Statistics Clinic
- SERVQUAL-KKM Clinic
- National Medical Research Register (NMRR) and Medical Research Ethics Committee (MREC) Clinic
- KIK Innovation Clinic

iii. CME sessions

- Obesity
- Non-communicable Diseases: Malaysia in global public health
- A strategic shift in human resource management cultivating excellence among the workforce
- Steno REACH – Strengthening diabetes education capacity in Malaysia and developing countries
- Malaysia: Responding towards Ebola outbreak in West Africa 2014

In addition, a total of 149 posters had been presented at the Market Poster Exhibition. The Market Poster Exhibition provided the opportunity for the six institutes under NIH to share with the participants of the Research Week posters that had been presented at international and local conferences.

The Research Week also attracted a total of 104 posters on the whole range of health-related research. Cash prizes were given to six of the best posters.



NIH Research Week - Exhibition Booth

NIH RESEARCH and INNOVATION Award

In conjunction with the NIH Research Week 2014, the NIH Research and Innovation Award event was held on 26 November 2014 in appreciation and recognition of outstanding and pioneering research work by NIH researches.

The winners for the NIH Research and Innovation Award :

Ungku Omar Award

DR LEE HAN LIM

Institute for Medical Research (IMR)

Excellent Research Award

Biomedical Category :
Development of Transgenic *Aedes aegypti*
for Dengue Control

DR NAZNI WASI AHMAD

Institute for Medical Research (IMR)

Excellent Researcher Award

DR NAZNI WASI AHMAD

Institute for Medical Research (IMR)

Clinical Category :

Patients' Unvoiced Needs : A Community
Trial in Outpatient Settings

MS LOW LEE LAN

Institute for Health System Research (IHSR)

Young Researcher Award

DR TOO CHUN LAI

Institute for Medical Research (IMR)

Epidemiology Category :

National Health and Morbidity Survey 2011

DR NOOR ANI AHMAD

Institute for Public Health (IPH)

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NIH Research and Innovation Award Night

Launch of IPH Coffee Table Book - Preserving Our Heritage 1964-2014

Institute for Public Health (IPH) launched its Coffee Table book - Preserving Our Heritage 1964 - 2014 by YABhg Tun Dr Siti Hasmah Mohd Ali on 16 May 2014. This book illustrates the timeline highlighting the contributions of both ex-former and current staff in the progress and achievements of IPH in the past 50 years. This book also gives an overview of the major milestones in the history of IPH and provides selected personal insights and perceptions of staff who experienced those milestones. In a microcosm, it reflects how our health care system has developed over the past half century.



Talent Grooming Programme (TGP) for Technical Healthcare Professionals

TGP is a programme designed by the Institute for Health Management, Ministry of Health Malaysia to identify and develop technical healthcare professionals into future leaders. The ultimate aim is to improve health system performance and health status of the population through effective healthcare leadership.

Talent Grooming Programme (TGP) Inspirational Leadership Podium is a platform for well-known, established and prominent public figures to share their experiences and knowledge from their long and illustrious careers. It is a quarterly event that provides opportunities for engagement between distinguished speakers, talents and MOH technical officers. It is meant to inspire, encourage and facilitate talent personnel into becoming great healthcare leaders.

A talk entitled 'The Power of Platform: Strategic Shift Towards Leadership Excellence' was delivered by Tan Sri Rafidah Aziz on 26 February 2015. It was the first TGP Inspirational Podium Talk since the Talent Grooming Programme started in 2013.

On 7 May 2015, the Institute for Health Management was much honoured to have Tan Sri Dato' Sri (Dr) Mohd Nadzmi bin Mohd Salleh to share his experience as entrepreneur during his career. His talk was attended by 200 participants of the Ministry of Health (MOH).



FEATURED ABSTRACTS ON PUBLISHED ARTICLES

World J Surg
DOI 10.1007/s00268-015-3133-2

World Journal
of Surgery



ORIGINAL SCIENTIFIC REPORT

Breast Cancer Outcomes as Defined by the Estrogen Receptor, Progesterone Receptor, and Human Growth Factor Receptor-2 in a Multi-ethnic Asian Country

S. Subramaniam¹ · N. Bhoo-Pathy² · N. A. Taib³ · G. H. Tan³ · M. H. See³ · S. Jamaris³ · G. F. Ho⁴ · L. M. Looi⁵ · C. H. Yip³

© Société Internationale de Chirurgie 2015

Abstract

Introduction Breast cancer can be divided into four subtypes based on the expressions of estrogen receptor (ER), progesterone receptor (PR), and human epidermal growth factor-2 (HER2). Each subtype has different clinicopathological features and outcomes.

Objective To compare the clinicopathological features and survival of ER and/or PR positive HER2 negative (ER+PR+HER2-, ER+PR-HER2- or ER-PR+HER2-), ER and/or PR positive HER2 positive (ER+PR+-HER2+, ER+PR-HER2+ or ER-PR+HER2+), ER negative PR negative HER2 positive (ER-PR-HER2+), and ER negative PR negative HER2 negative (ER-PR-HER2-) subtypes.

Methods 1957 patients with Stage 1-3 breast carcinoma diagnosed between Jan 2005 and Dec 2011 were categorized into the four subtypes. The clinicopathological features between the subtypes were compared using χ^2 test. Kaplan-Meier analysis was performed to estimate 5-year overall survival. Multivariate Cox regression was used to determine the association between subtypes and mortality adjusted for age, ethnicity, stage, pathological features, and treatment.

Results ER-PR-HER2+ and ER-PR-HER2- subtypes were associated with younger age, larger tumors, and higher grade. There was no difference in the 5-year survival of the ER-PR-HER2+ and ER-PR-HER2- subtypes (75.1 and 74.4 %, respectively) and survival was poorer than in the ER and/or PR positive HER2 negative and ER and/or PR positive HER2 positive subtypes (87.1 and 83.1 %, respectively). Only 9.5 % of women with HER2 positive breast cancer had access to trastuzumab.

Conclusion In a low resource setting with limited access to trastuzumab, there is no difference in survival between the ER-PR-HER2+ and ER-PR-HER2- subtypes of breast cancer.

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International Medical Journal Vol. 22, No. 3, pp. 147 - 151, June 2015

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PSYCHOLOGICAL MEDICINE

Predictors of Severe Outcome in Hospitalized Malaysian Children with H1N1 Infection: Experience from a National Cohort

Hussain Imam Muhammad Ismail¹⁾, Kah Kee Tan²⁾, Jamaayah Haniff³⁾,
Tassha Hilda Adnan⁴⁾, Premaa Supramaniam⁴⁾,
Mohamad Adam Bujang⁴⁾

ABSTRACT

Introduction: Study on predictors for severity among children with H1N1 infection is well established. However, this paper will determine the predictors for severe outcome based on large children population.

Methodology: This is a prospective cohort study using the national dataset of all children with H1N1 infection from June 18, 2009 through March 1, 2010. We evaluated variables from demographic and clinical parameters towards the severe outcomes. Severe outcome is defined as death, ICU admission and/or ventilation. Univariate and multivariate analysis were applied to come out with risks factor to predict the outcome.

Results: Lower Glasgow Coma Scale (less than 13), shortness of breath, seizure, neuromuscular disorder, congenital heart disease and renal failure were associated with severe outcome although neuromuscular disorder and renal disease were close to statistically significant (P = 0.052 and P = 0.055 respectively).

Conclusions: These variables can become a basis for earlier prognosticating for a bad outcome for the children with H1N1 infection.

KEY WORDS

H1N1, mortality, risk factor, severity

Antihypertensive drugs for elderly patients: a cross-sectional study

Ka Keat Lim¹, MPharm, MSc, Sheamini Sivasampu¹, MBBS, MPH, Ee Ming Khoo², MBBS, MD

INTRODUCTION As the population ages, the prevalence of hypertension also increases. Although primary care is usually the patient's first point of contact for healthcare, little is known about the management of hypertension among elderly patients at the primary care level. This study aimed to determine the antihypertensive prescription trend for elderly patients, the predictors of antihypertensive use and any inappropriate prescribing practices in both public and private primary care settings.

METHODS Data on patient demographics, diagnosis, prescription pattern, payment mode and follow-up was extracted from a cross-sectional study involving 122 public primary care clinics and 652 private primary care clinics in Malaysia. Encounters with hypertensive patients aged ≥ 60 years were included.

RESULTS A total of 1,017 antihypertensive medications were prescribed – calcium channel blockers (27.1%), beta blockers (25.5%), diuretics (23.3%), angiotensin-converting enzyme inhibitors (14.9%) and angiotensin receptor blockers (6.3%). Out of the 614 patient encounters, 53.1% of the patients were prescribed monotherapy, 31.6% were prescribed dual therapy, 12.2% triple therapy, 2.8% quadruple therapy and 0.3% quintuple therapy. Type of primary care clinic and payment mode were significant predictors for the prescription of combination therapy and fixed-dose combination therapy, respectively. Four types of inappropriate prescriptions were identified.

CONCLUSION Calcium channel blockers were the most common antihypertensive drug prescribed and more than half of the elderly patients were on monotherapy. Antihypertensive drug prescription was found to be associated with the type of primary care clinic and the payment mode, suggesting that prescription is influenced by the cost of the drug.

Keywords: aged, antihypertensive drugs, Malaysia, prescriptions, primary care



Do we communicate openly in healthcare delivery?

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KEYWORDS

Patient Safety Culture,
Communication,
Error,
Awareness,
Assistant Medical
Officers (AMOS)

ABSTRACT

Culture of patient safety is a very important area of research because it reflects the quality of care provided by health institutions. The practice of patient safety begins at the first point of contact between patients and front liners such as doctors, nurses and assistant medical officers (AMOs). The aim of this study was to determine the level of patient safety culture, reported by assistant medical officers in the Ministry of Health hospitals. Hospital Survey on Patient Safety Culture (HSOPSC) questionnaires with minimal modification were distributed to assistant medical officers who had worked for more than 6 months in 140 MOH hospitals. This study took place from November 2012 to February 2013, and the total number of respondents was 2,480. Data was analysed by IBM SPSS software version 20.0. Overall perception of safety practices among the AMOs was 72.3%. The dimensions with the highest positive response rate were 'Organizational Learning - Continuous Improvement' (93.5%), 'Teamwork within Unit' (91.0%) and 'Supervisor/Management Expectation and Promoting Patient Safety' (82.2%). The lowest positive responses were 'Non Punitive Response to Error' (26.7%), 'Communication Openness' (44.2%) and 'Frequency of Events Reported' (44.3%). Blame free culture should be adopted and openness in communication should be encouraged in all hospitals. The practice of blame free culture will encourage reporting of incidents. With better reporting and subsequent investigation, the recurrence of events that may lead to more severe consequences can be prevented. Effective intervention tools should also be developed to increase awareness on the importance of safe patient care.

FEATURED ABSTRACTS ARTICLES



Vaccine Storage in Private Practice: A Community Trial

Sheila Gopal-Krishnan^{1*}, Sondi Sarakas², Amar-Singh HSS³, Lidwina Edwin Amir⁴, Mohd Yusof Ibrahim⁵, Ranjit Kaur Praim Singh⁶, Maimunah A Hamid⁷, Faridah Abu Bakar⁸, Kok Juan Loong⁹, Noorizah Mokhtar¹⁰ and Wong Swee Lan¹¹

Abstract

Aim : Vaccine storage practice in private practitioner clinics is poor, and concerted effort to improve practice at national level is lacking. This study sought to identify practices in private practitioner clinics and assess the effectiveness of an intervention.

Methods : A non-controlled community trial was conducted in four administrative regions. The intervention was implemented concurrent with the first baseline audit and reinforced in the subsequent 3 audits. We designed a comprehensive, multipronged intervention package to effect behavioural change. It consisted of training, enabling resources, educational materials and non-monetary incentives. Outcomes were assessed based on six essential **criteria :** temperature between 2-8°C, refrigerator type and placement, dedicated vaccine refrigerator, vaccine placement and temperature monitoring. Analysis was done at private practitioner clinics level and estimates pooled by meta-analysis.

Results : Of 467 clinics invited, 442 participated. One year later, 430 remained. At baseline, no clinic complied with the combined six criteria. Significant improvement was seen for the combined four criteria with drugs, 1.2% (0.0-2.3%) at baseline to 50.9% (37-64.7%) at 1 year. Improvement in five criteria were all statistically significant, most notably in the correct placement of vaccine [31.7% (27.3-36.0%) to 75.0% (62.9-87.0%)], maintenance of temperature between 2-8°C [56.9% (45.2-68.7%) to 88.2% (84.1-92.4%)] and daily monitoring of temperature [2.3% (0.9-3.7%) to 84.1% (74.1-94.2%)].

Conclusions : The intervention was able to improve practice, and this change was sustained at one year. This intervention package had been adopted for all private practitioner clinics in Malaysia, and could be implemented in other countries to improve practice.

Keywords : vaccine storage, cold chain, private practitioner clinics, general practice, refrigerator temperature monitoring

Norris *et al.* *BMC Public Health* 2014, **14**(Suppl 2):S6
<http://www.biomedcentral.com/1471-2458/14/S2/S6>



RESEARCH

Open Access

The life and health challenges of young Malaysian couples: results from a stakeholder consensus and engagement study to support non-communicable disease prevention

SA Norris^{1*}, H Anuar², P Matzen³, JCH Cheah⁴, BB Jensen⁵, M Hanson⁶

Abstract

Background: Malaysia faces burgeoning obesity and diabetes epidemics with a 250% and 88% increase respectively between 1996 and 2006. Identifying the health challenges of young adults in Malaysia, who constitute 27.5 % of the population, is critical for NCD prevention. The aim of the study was two-fold: (1) to achieve consensus amongst stakeholders on the most important challenge impacting the health of young adults, and (2) to engage with stakeholders to formulate a NCD prevention framework.

Methods: The Delphi Technique was utilised to achieve group consensus around the most important life and health challenges that young adults face in Malaysia. Subsequently, the results of the consensus component were shared with the stakeholders in an engagement workshop to obtain input on a NCD prevention framework.

Results: We found that life stress was a significant concern. It would seem that the apathy towards pursuing or maintaining a healthy lifestyle among young adults may be significantly influenced by the broader distal determinant of life stress. The high cost of living is suggested to be the main push factor for young working adults towards attaining better financial security to improve their livelihood. In turn, this leads to a more stressful lifestyle with less time to focus on healthier lifestyle choices.

Conclusions: The findings highlight a pivotal barrier to healthier lifestyles. By assisting young adults to cope with daily living coupled with realistic opportunities to make healthier dietary choices, be more active, and less sedentary could assist in the development of NCD health promotion strategies.

INCREASING eHIS DOCUMENTATION OF NURSING PROCESS IN O & G WARDS, SULTANAH BAHYAH HOSPITAL

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3. Muar Health District Office, Johor

Purpose : Sultanah Bahiyah Hospital has been equipped with 'Total Health Information System' (THIS) to document the hospital activities, including the management of patient-related data. Key Performance Index (KPI) for nursing process documentation in THIS-equipped hospitals was set to be at least 80% documentation in the hospital's electronic Health Information System (eHIS). Despite that, the target had never been achieved by Obstetrics & Gynaecology (O&G) wards of Sultanah Bahiyah Hospital. This study, using an action research approach aimed to improve the documentation to meet the KPI demand.

Methodology : In the beginning, feedback from questionnaires to staff had identified lack of knowledge and skills among staff, heavy workload and IT system breakdown as the obstacles to an efficient documentation. Interventions were instituted based on the feedbacks obtained. They were educational trainings for staff, at-night documentation and frequent maintenance of the IT system. Achievement was later assessed at the end of each cycle to allow for continuous improvement.

Findings : In the end, all wards in O&G unit had recorded at least 80% documentation. Since then, this project has been monitored to ensure the sustainment of the effective interventions as well as maintenance of achievement within the KPI set.

Keywords : hospital information, nursing process, electronic record, action research

NOBLE PRACTICES AMONG MINISTRY OF HEALTH STAFF : 'THE DIFFERENCES BETWEEN SELF EVALUATION AND PEER EVALUATION'

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1 Hospital Rehabilitasi Cheras, 2 Hospital Serdang, 3 Institut Pengurusan Kesihatan, 4 Management Science University

Introduction: Noble values are the practices or code of conduct that is considered good by community. All staff in Ministry of Health (MOH) should internalize these noble values. The training module of the Practicing Noble Values was launched by the Minister of Health Malaysia on February 11, 2006. Many studies have been conducted to determine the level of Noble values practice among the MOH staff. Some studies used observation approaches while the others used perception of self practices.

Methods: In this paper, we compared the findings of three studies that were conducted previously. The first study was conducted in 2007 (surveyed on hospitals staff), 2009 (health clinics staff in and dental personnel). All studies applied similar approaches using five Likert scales of self-administered questionnaires. The questionnaire consists of: i) Respondent profiling ii) perception of self practices iii) Observation on other staff noble values practicing.

Findings: In these studies, there were improvements in the practices of noble values. Observation on other staff practicing noble values shown that 86.3% of staff in health clinics (second study) and 82.7% of dental personnel (third study) perceived their colleagues practiced these values. Meanwhile in the first study only 47% of the staff in hospitals perceived their colleagues practiced noble values.

Conclusions: There is the differences between the perception of self practices and observation on other staff practice. Observation method is more realistic to assess the practicing of noble values.

Keywords: Noble values

FEATURED ABSTRACTS ON PUBLISHED ARTICLES

What Doktor Muda Did, What Peers Want?

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Institute for Health Behavioural Research, Ministry of Health, Malaysia

Journal of Health Management, IHM
Vol : 12 No.1/2015 43

Abstract

Introduction :

Young Doctor Programme is a school based programme tailored to train a selected group of pupil to become agents in promoting health to their peers, school staff and their families. This programme aimed to cultivate healthy lifestyle practices and contribute positive impact on the health status of the pupils. Young Doctors ability to deliver health messages is crucial in achieving the objectives of this programme. The objective of this study was to identify methods of delivering health messages used by the Young Doctors and peer preferences. Findings from the study can be used to improve the programme.

Methods :

A cross-sectional study was conducted in 2012 involving 54 Young Doctor and 416 peers from Standard 6 in seven primary schools representing every district of Negeri Sembilan using self-administered questionnaire.

Findings :

Peers prefer Young Doctors to deliver health messages through method that was fun such as games (71.1%) and quizzes (65.7%). Young Doctors admit that fun is one of the factors considered when choosing the method (61.1%). However, individual advice is the actual method that is frequently used by the Young Doctors to educate their peers. Although peers says Young Doctors activities beneficial (72.5%) to them but they were less confident (68.1%) with the ability of Young Doctors to deliver health messages.

Conclusion :

Young Doctors should be adequately trained to be more confident in selecting methods and delivering health messages. Selection of health delivery methods should match with the interests of their peers.

Keywords : Delivery methods, health messages, peers

Mohamed et al. *Journal of Physiological Anthropology* 2014, **33**:28
<http://www.jphysiolanthropol.com/content/33/1/28>

JPA Journal of
PHYSIOLOGICAL
ANTHROPOLOGY

Open Access

ORIGINAL ARTICLE

The effect of wearing sanitary napkins of different thicknesses on physiological and psychological responses in Muslim females

Nazirah G Mohamed¹, Nurdiana Z Abidin¹, Kim S Law¹, Mika Abe², Megumi Suzuki², Ahmad M Che Muhamed¹ and Rabindarjeet Singh^{1*}

Abstract

Background: Menstruation is associated with significant unpleasantness, and wearing a sanitary napkin (SN) during menses causes discomfort. In addition, many Muslim women use a thick type of SN during menses due to the religious requirement that even disposable SNs be washed before disposal. Therefore, the objective of this study was to measure the physiological and psychological responses to wearing SNs of different thicknesses during menstruation and non-menstruation phases at rest and during physical activity/exercise among Muslim women.

Methods: Eighteen Muslim females were randomly assigned to wear an ultra slim type (US, thin) or a maxi type (MT, thick) SN on two different occasions (i.e., during non-menses and menses). Each subject tested both types of SN. Upon arriving at the laboratory, each subject was equipped with an ambulatory electrocardiograph and rested in a seated position for 10 min. She was then given either an US or MT SN, put it in place, and rested in a seated position for 10 min. Each subject then walked at 3 km/h for 10 min, sat resting for 10 min, and then walked at 5 km/h for another 10 min. At the end of each 10-min stage, subjects marked their feelings of discomfort on the visual analog scale (VAS). Perceived exertion during exercise was evaluated using the Borg scale. Heart rate and low frequency-to-high frequency ratio (LF/HF) of heart rate variability were continuously recorded during rest and exercise.

Results: During both the non-menses and menses trials, VAS and LF/HF were significantly lower in subjects using the US SN compared to the MT SN. These results indicate that when wearing the US SN, subjects were more comfortable and did not increase sympathetic activities. Meanwhile, perceived exertion during exercise had no significant difference between US and MT although the means of the scores for US tended to be lower than those of MT.

Conclusions: The results of this study (VAS and LF/HF) indicate that wearing an US SN induces less physiological and psychological stress compared to wearing a MT SN. Thus, use of the former will empower women to live their lives with vitality during menses.

Keywords: Comfort, Menstruation, Physical activity, Sanitary napkin

Southeast Asian J. Trop. Med. Public health Vol 45 No. 2 March 2014

PREVALENCE AND FACTORS ASSOCIATED WITH PHYSICAL INACTIVITY AMONG MALAYSIAN ADULTS

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Abstract. Using data from the Third National Health and Morbidity Survey (NHMS III) in 2006, this study examined the association between socio-demographic factors and physical inactivity in a sample of 33,949 adults aged 18 years and above by gender. Physical activity levels were measured using the Global Physical Activity Questionnaire (GPAQ vers 1). Physical inactivity was defined as having a total physical activity level of less than 600 metabolic equivalents-minutes per week (METs-minutes/week) contributed by all three different life domains. Logistic regression analyses were conducted. The prevalence of overall physical inactivity was 43.7% (95% CI: 42.9-44.5). The mean total physical activity level was 894.2 METs-minutes/week. The means METs-minutes/week for the domain of work, travelling, and leisure time were 518.4, 288.1, and 134.8, respectively. Multivariable logistic regression analyses indicated that females were more likely to be physically inactive than males were (aOR=1.62; 95% CI: 1.53-1.72). Among women, being a housewife (aOR=1.78; 95% CI: 1.56-2.03), widow/divorcee (aOR=1.23; 95% CI: 1.05-1.43), and those with no formal education (aOR=1.20; 95% CI: 1.01-1.43) were found to be significantly associated with physical inactivity. Urban residents, older adults aged 65 years and above, private employees, nonworking group, and those with a monthly household income level of MYR5,000 and above appeared to be consistently associated with physical inactivity across men, women, and combined group (both). Specific health intervention strategies to promote physical activity should be targeted on population subgroups who are inactive.

Keywords: National Health and Morbidity Survey, physical inactivity, prevalence, socio-demographic factors, Malaysia

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Clinical Interventions in Aging

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ORIGINAL RESEARCH

Applying theory of planned behavior to predict exercise maintenance in sarcopenic elderly

This article was published in the following Dove Press journal:
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Number of times this article has been viewed

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Abstract: This study aimed to determine the factors associated with exercise behavior based on the theory of planned behavior (TPB) among the sarcopenic elderly people in Cheras, Kuala Lumpur. A total of 65 subjects with mean ages of 67.5±5.2 (men) and 66.1±5.1 (women) years participated in this study. Subjects were divided into two groups: 1) exercise group (n=34; 25 men, nine women); and 2) the control group (n=31; 22 men, nine women). Structural equation modeling, based on TPB components, was applied to determine specific factors that most contribute to and predict actual behavior toward exercise. Based on the TPB's model, attitude ($\beta=0.60$) and perceived behavioral control ($\beta=0.24$) were the major predictors of intention to exercise among men at the baseline. Among women, the subjective norm ($\beta=0.82$) was the major predictor of intention to perform the exercise at the baseline. After 12 weeks, attitude (men's, $\beta=0.68$; women's, $\beta=0.24$) and subjective norm (men's, $\beta=0.12$; women's, $\beta=0.87$) were the predictors of the intention to perform the exercise. "Feels healthier with exercise" was the specific factor to improve the intention to perform and to maintain exercise behavior in men ($\beta=0.36$) and women ($\beta=0.49$). "Not motivated to perform exercise" was the main barrier among men's intention to exercise. The intention to perform the exercise was able to predict actual behavior regarding exercise at the baseline and at 12 weeks of an intervention program. As a conclusion, TPB is a useful model to determine and to predict maintenance of exercise in the sarcopenic elderly.

Keywords: theory planned behavior, aging, elderly, sarcopenic, exercise

UPCOMING

EVEN TS



*APCPH - 7 – 9 September 2015
Kuantan, Pahang*



*National QA Convention
19 – 22 October 2015, Johor Bahru*

NATIONAL INSTITUTES OF HEALTH, MINISTRY OF HEALTH MALAYSIA

<http://www.nih.gov.my>

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