

# CMPH

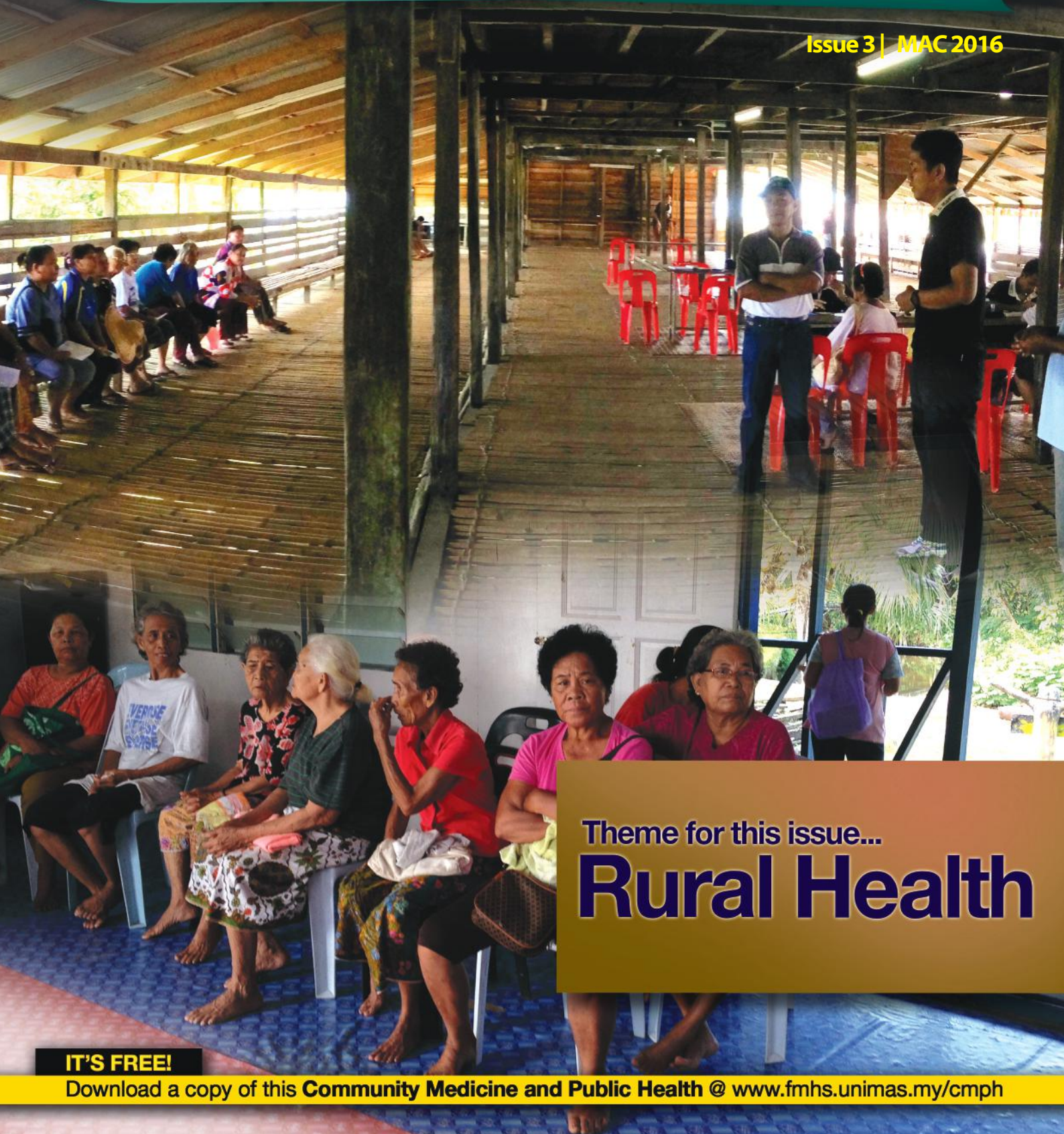
Community Medicine and Public Health



## Bulletin

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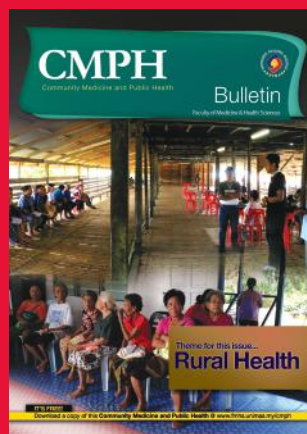
Theme for this issue...  
**Rural Health**

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## FOREWORD BY DEAN, FACULTY OF MEDICINE AND HEALTH SCIENCES, UNIMAS



Once again, I would like to congratulate the Department of Community Medicine and Public Health for continuing the efforts to produce the CMPH Bulletin, which is now in its third edition.

The theme “Rural Health” is chosen for this edition. Malaysia has a sizeable rural population over 44%, overall, while the State of Sarawak has a bigger proportion of 52% in 2010. In this respect the concern for rural health care and services amidst the changing pattern of diseases and increasing expectation of the people is anticipated.

This edition will feature some aspects of rural health services and its evaluation, research findings from UNIMAS postgraduate students as well as health promotion activities in the rural areas of Sarawak.

I wish all the best for this publication.

**Prof. Dr. Haji Ahmad Hata b Rasit**  
**Dean**  
**Faculty of Medicine and Health Sciences**



**Message from**  
**Assoc Prof Dr Razitasham bt Safii**  
**Head of Department**  
**Department of Community Medicine and Public Health**

Welcome again to our third Bulletin with the theme “Rural Health”. This bulletin, a product of the Department of Community Medicine and Public Health, endeavours to become a platform for information sharing of scientific knowledge, best practices, community projects and others. Contributors comprise of not only the faculty members of the Department but to include our own undergraduate and postgraduate students as well as staff from State health and health-related agencies and other invited writers.

In this bulletin, we have put together showcases of some of the community activities and programmes of the Department, especially in the rural area, in conjunction with the theme. This involvement is a community-based effort and integrated within the Faculty academic teaching and learning while at the same time aims to improve the visibility of UNIMAS especially our Faculty of Medicine and Health Sciences.

The students are exposed to rural health during their family health posting during the undergraduate course for Year 1, Year 2 and Year 4. In the postgraduate MPH and DrPH courses, the students are directly involved in community rural health activities. Apart from the curriculum activities, the faculty and department participated in other activities organized by other agencies.

In this issue, we will highlight some activities and students perception on the activities and research which were conducted throughout last year. We like to share all our rural activities with our readers to give more insight of our department activities. For those doctors who are interested in community health, we like to welcome you to join us.

I wish you all happy reading.

**Assoc Prof Dr Razitasham bt Safii**

# VILLAGE HEALTH PROMOTER PROJECT AND ITS EVALUATION: A RURAL HEALTH PROGRAMME PROBLEM APPROACH

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**Abstract:** The State Health Department has tried to set up as many static facilities at the 'door-step' of the community to ensure adequate coverage of all due to the widely dispersed populations. To improve coverage of health services, every rural clinic should ideally have a Village Health Promoter (VHP) under the VHT programme. In this article, an attempt has been made to explore fact and figure about the VHP programme in Sarawak from its inception.

**Key Words:** Village Health Team, Sarawak,

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## Background information

It was the era of Health-For-All (HFA) in the year 2000 when primary care was the key approach to HFA. Many developing countries developed and strengthened their health facilities as a primary care contact. Another approach was to train community workers to work on health problems of the community they live in, more often on a voluntary basis. A clear example was the barefoot doctors in China.

In the 1970s and 1980s Sarawak was struggling to strengthen the health system with emphasis on rural health. Primary care facilities were scarce. Where people could not be reached by static facilities, mobile clinics (village health team) were made available rendering family care program, sanitation and disease control. However, this could not cover many remote villages. Thus community health project through village volunteers was mooted.

Village Health volunteer project drew upon the experience of other developing countries. However, Sarawak did have an earlier experience of training traditional healers in villagers with emphasis on hygiene and healthy practices. Similar training was also conducted for traditional midwives.

Thereafter steps were taken to train not only traditional healers but also ordinary people on hygiene and health practices in the villages. The project started as a pilot project in the Tebekang District in 1981. A Village Health Volunteer (VHV), named Village Health Promoter (VHP), is seen as an agent of change and together with the community he/she works towards better health HFA in the village while the health department and other agencies gave support and basic resources. During the same period, a wider scope of the same concept was done in Lundu District. This was termed the Community Health Development (CHD) Project.

## The beginning of CHD Project

It started as a pilot community health development project in the Lundu district. The District Development Committee (DDC) headed by a District Officer of Lundu and the Medical Officer of Health (MOH) as the secretary, was the prime mover of the project. Much of the ground work was done by the health staff. Pilot villages were chosen using the criteria of difficult physical accesses. The selected villages were visited a few times to enable acceptance of the project. The DDC worked closely with the Village Development Committee (VDC) chaired by the Headmen.

## The Village Development Committee

Each village was divided into a few zones and each zone has its own head or leader. The VDC works through the leader of the zone to reach the population in each zone. Each zone elected a representative to

join village health committee. These people were the pioneers and were given a short training at the district health office on basic health development, primary care, environmental cleanliness, safe water supplies and other social development activities.

### **Promoting health**

Soon other programs were introduced within the villages. Two notable ones were: woman to woman program and the child to child program. The assistance from teachers were sought to facilitate the latter, while the community nurses facilitated the women to women program. Modules for training were developed

### **Monitoring progress**

The health team from the district health office visited the village regularly to check on the activities delivered by the health workers and the village as a whole. Soon a system of monthly return was introduced. The Lundu CHD Project was not evaluated formally, but reports from health officers and the department were encouraging. From the experiences with CHD and the Pilot VHP project in Tebekang, the health department decided to embark upon the VHP program on a statewide basis

### **VHP Project**

Each divisional health office in Sarawak selected one assistant medical officer and one community nurse to be trained as trainers using modules based on the Lundu CHD experience. On their return, they selected a few villages to take part in the project. Each village was visited a few times (sensitization visit). When they have agreed to take part the village selected one man and one woman to be trained for 2-3 weeks based on the Lundu model. The trainings were done at the nearest community clinic to the villages. On completing the course each trainer was given a certificate and first aid box. They returned home to implement the project through the agreement of the VDC. Their activities were monitored by the health trainers of the division (their supervisors) who spent a day or two in the village giving them more training each time they came to visit the village. The whole activities were subsequently monitored by the mid level supervisors and the divisional health officers at the divisional level and by the health managers at the state level.

### **Activities of the VHP**

In primary care they looked after minor ailments like diarrhea, simple fever, bodily ache, headache, scabies and others. They reminded mothers for their antenatal

checkup, children for immunization and helped the Community nurse in treating patients when they came to the village. They also accompanied patients referred from the village to the nearest health centre or hospital for emergency treatment when the need arose. The male VHP organized community work like village cleanliness, simple agriculture, building toilets and water supplies. In disease control, the VHP was taught to take blood film for malaria parasite and did sputum smear for tuberculosis. These specimens were forwarded to the health centre for microscopic examination. The workload of the VHPs was recorded on a monthly basis and submitted to the health supervisors who were also responsible to monitor their work and progress

### **The evaluation**

In 1985-1986 after five years of project implementation, it was decided to evaluate the project formally as this project involved a fair amount of resources in training and implementation. Besides, the project had involved people who delivered the service and the people who received the service. It was unique to Sarawak and not introduced in other states (Sabah started at a later year). Thus the department wished to know the impact of the project and to decide whether to continue the project or terminate it if not useful.

### **Areas for evaluation**

Three areas were identified. Firstly, the training process was evaluated internally by using survey questionnaires. Secondly, the implementation process was evaluated. This was done at the state, divisional and the district levels. These areas were evaluated internally using survey questionnaires. Thirdly, the impact was evaluated by both internal and external evaluators. A Case control study was designed.

### **The impact study**

VHP villages were randomly selected and for each a village with almost the same social characteristics in the same area was selected. Teams were sent to these villages to study either groups using questionnaires and observations of the village environment. Data collected were statistically analyzed to determine any significant differences between the two sets of villages, those with VHP and those without. The outcome of the evaluation showed that the project was well supported by the community. The VHP villages had better health status with lower disease incidences, higher immunization coverage, better utilization of health services and better environmental sanitation. All these contributed towards the improvement of health status in the communities involved and the

information obtained serves as a useful baseline data for future follow-up studies to monitor the long term effects of the programme. The title of the volunteers was then changed to “Village Health Representative” (Wakil Kesihatan Kampong or WKK) to reflect their roles in health promotion and providing basic health care. In conclusion, it was felt that the project was beneficial and it was to be continued. The program was continued with many more WKKs trained and more villages taking part

In 2000-2001, another evaluation was conducted. The report was done in 2002 for department use. Again the programme was found to be useful and well supported by the community. The villages with VHP have better environmental sanitation and the villages used less government facilities. The programme was continued till these days.

The table below shows some figures regarding the project profile since 1982 to 2015

No of VHPs trained	3244
No stopped practicing	614
No deceased	129
No still active	1466
No of villages involved	1655
No of population served	328933

Source: State Health Department, Sarawak, Malaysia, 2015

Current situation

It has been fifteen years since the last evaluation of the programme was conducted in the year 2001. Perhaps there may be a need for a third evaluation.

This programme has been a successful example of a rural based programme. The principle can be tried at the urban setting such as Kuching, the capital city of Sarawak, where several villages have a social matrix which are similar to villages in the rural areas. City communities are also living in a communal fashion within many housing estates in clearly defined areas. Urban health problem like Dengue outbreak, Hand, Foot and Mouth Diseases, diabetes, hypertension and obesity are common. It remains to be seen whether an approach like the VHP Programme can be applied in the urban setting.

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Heritage in Health: The story of Medical and Health Care services in Sarawak, Chapter 11.4, Sarawak Health Department, 2012.

# PREVALENCE OF MENOPAUSAL SYMPTOMS AMONG WOMEN AGED 40 TO 65 YEARS IN SARAWAK, MALAYSIA

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## Abstract

It is predicted that the total number of menopausal women worldwide will increase from 476 million in 1990 to 1200 million in 2030. The prevalence of menopausal symptoms among menopausal women would be an important policy issue in public health practice. This was a cross sectional study involving a total of 1195 women of 40 to 65 years all over Sarawak. Data were collected by face to face interview using a semi-structured questionnaire. All the collected questionnaires were edited manually and data analysis carried out by computer using IBM SPSS version 19.0 software. The prevalence of menopausal symptoms was 71.7%. The majority of the women complaints of physical and mental exhaustion (68.5%) followed by hot flushes (67.9%), and joint and muscular discomfort (67.4%). The highest score of menopausal symptoms was somato-vegetative (mean score=4.05 (2.81) followed by psychological (mean score=3.71 (2.96) and urogenital (2.48 (2.29)). The study found a higher prevalence of menopausal symptoms among women aged 40 to 65 years old. The study emphasizes the importance of targeting these women in alleviating their symptoms based on their menopausal status.

**Key Words:** Menopause, Sarawak, Cross Sectional

*How to cite:* Jawa D and Rahman MM. Prevalence of Menopausal Symptoms among Women Aged 40 to 65 years in Sarawak, Malaysia. *CMPH eBulletin* 2015(3):6-8.

**Introduction:** The advanced and modern medical sciences have increased the life expectancy among Malaysian women as well as in most other societies. This means that more women are now attaining menopause than before and spending more than one third of their life after menopause<sup>1</sup>. The indications of menopause begin when the oestrogen levels in a woman start changing. The mutual climacteric symptoms can be grouped into: vasomotor, physical, psychological or sexual complaints. The prevalence of some symptoms amplified with increasing menopausal status. There was an inclination for the women to have more atypical physical symptoms than typical symptoms of menopause as they aged and lesser of the vasomotor and psychological symptoms. A study in Kelantan found that the prevalence of atypical symptoms like weariness was found in 79.1% of menopausal women, followed by reduced level of concentration (77.5%), musculoskeletal aches (70.6%) and backache (67.7%)<sup>2</sup>. In the meantime, typical vasomotor symptoms such as night sweats, headache and hot flushes were found to have the prevalence of 53%, 49.4%, and 44.8% respectively<sup>2</sup>. Menopausal symptoms can have a major negative impact on quality of life in women, contributing to physical consequences, psychological impairment, cognitive deficits, social impairment, and work-related difficulties<sup>3</sup>. Therefore, better understanding of the existing prevalence of menopausal women among menopausal aged women would ensure better quality of menopausal symptoms services offered in primary health clinics and a more tailored menopausal management programme could be planned in the future in order to increase the quality of life among the menopausal aged women in the communities. In this context, the objective of this study was to determine the prevalence of menopausal symptoms among the women aged 40 to 65 years in Sarawak.

**Materials and Methods:** This was a cross-sectional study using the cluster sampling technique conducted in the selected divisions in Sarawak. All women aged 40 to 65 years old, Malaysian citizens who agreed to participate were included in this study. The data were collected by face to face interview using interviewer administered structured questionnaire. The questionnaire consists of several parts, which included socio-demographic factors and reproductive history, health status and previous medical examination, and the prevalence of menopausal symptoms. The pilot study was conducted using 100 eligible participants. The study proposal was approved by the Technical Review Committee of the Faculty of Medicine and Health Science (FMHS), the Clinical Research Centre, Sarawak General Hospital and the National Medical Research Register, Ministry of Health. Ethical clearance was taken from the Ethical Review Board of the Faculty of Medicine and Health Sciences, UNIMAS. All of the respondents were briefed and a written consent was obtained prior to data collection. Data was entered manually and cross-checking was done using SPSS Software 19.0 version. After validation, descriptive analysis was done for both quantitative and qualitative variables.

**Results:** The mean age of the respondents was 53.2 years with standard deviation of 6.72 years. The study sample was predominately Iban (42.4%) and Christians (65.1%). Most respondents (84.4%) were married, have no formal education (38.7%) and half of them were housewives (57.2%). The median income of respondents was MYR 750.00. Most respondents (46.5%) were also staying with their husband and children, and having a mean of 4 children per respondent. The mean (SD) age of menarche among the respondents was 12.8 (1.22) years.

**Prevalence of menopausal symptoms:** It was found that the majority of the respondents (71.7%) was having at least one or more menopausal symptoms during the study period, while 28% did not have any complaints at all. Among the respondents with symptoms, the median numbers of symptoms complained were 3. Among the 11 symptoms of menopause, most respondents complained about physical and mental exhaustion (68.5%), followed by hot flushes (67.9%), and joint and muscular discomfort (67.4%). The least symptoms complained were bladder problems (49.5%). Among the 3 domains, the majority of respondents had complaints about somato-vegetative symptoms (Mean=4.05, SD=2.81), followed by psychological symptoms (Mean=3.71, SD=2.96), and lastly urogenital symptoms (Mean=2.48, SD=2.29).

**Discussion:** In this study, the mean (SD) age at menopause was 50.7 (3.0) years, ranging as early as 40 years and older at 61 years. These findings were similar to a study in the Western societies, where menopause happened at the range age between the ages of 40 and 61 years<sup>4</sup> and the average age for last period were 51 years<sup>5</sup>. Similar finding was also found among Asian women<sup>6</sup>. A more recent study done among the indigenous ethnic group of Sarawak exhibited that the mean age of menopause was 51.3 years<sup>7</sup>. However, a study in India and Philippines showed the median age of menopause was 44 years<sup>8</sup>, and the mean age of menopause in a study conducted in two rural areas in Malaysia was 48.7 years<sup>3</sup>. This had shown that the ages of menopause among women of Sarawak are similar to those in the Western and other Asian countries. The prevalence of menopausal symptoms in this study was 71.7%. This is higher compared to the study done by Rahman, Zainudin & Lee (2010) where the prevalence of symptoms was 40.8%<sup>7</sup>. The highest complaints among the respondents in this study were physical and mental exhaustion symptoms (68.5%), followed by hot flushes (67.9%), and joint and muscular discomfort (67.4%). The least symptoms complained were bladder problems (49.5%). Similarly, a study by Rahman, Zainudin & Lee (2010) in Sarawak<sup>7</sup> and a study in Kelantan, had shown that joint and muscular discomfort and physical and mental exhaustion<sup>2</sup> were among the highest symptoms complained among menopausal the women. The prevalence of some symptoms amplified with increasing menopausal status. Based on mean of this study, pre-menopausal women had less severe symptoms compared to those women in peri and post-menopause level. Complaints on hot flushes, heart discomfort, depressive mood, irritability, anxiety, physical and mental exhaustion, were seen more in peri-menopause women, compare those in the post-menopause and the pre-menopause level. However, the symptoms of sleep problem, sexual problems, bladder problems, dryness in the vagina and joint and muscular discomfort were more severe among women in post-menopause level compared to those in other level of menopause. This finding was similar to a study done in Kelantan, where there was an inclination for the women to having more of the atypical symptoms than typical symptoms of menopause as they aged and lesser of the vasomotor and psychological symptoms<sup>2</sup>. This finding was also similar to the study done by Rahman, Zainudin, & Lee (2010), where they found that perimenopausal women experienced higher prevalence of somatic and psychological symptoms compared to premenopausal and postmenopausal women, while urogenital symptoms customarily experienced by the



postmenopausal group of women<sup>7</sup>. These effects, such as hot flashes and mood changes are attributable to the extreme fluctuations in hormone levels, which will usually wane or progress once the peri-menopause transition is over<sup>9</sup>. It clearly states that the prevalence of menopausal symptoms is definitely higher among women aged 40 to 65 years old. Pre-menopausal women had less severe symptoms compared to those women in peri and post-menopause level. Complaints on somato-vegetative symptoms were seen more in peri-menopause women, but urogenital symptoms were more severe among women in post-menopause level compared to those in other level of menopause. Therefore, health programs should focus on helping these women in alleviating their symptoms based on their menopausal status. The result of this study can be utilized by public health practitioners to improve the quality of care provided to all menopausal women and patients attending clinics and hospitals.

**Acknowledgments:** We acknowledge the ethical clearance rendered by Universiti Malaysia Sarawak for permission to conduct the study. We are also acknowledging the support from all the Ketua Kampung and the respondents of this study.

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# Delay in Tuberculosis Treatment: Evidence from a Cross-Sectional Study in Sarawak, Malaysia

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**Abstract:** Delayed diagnosis of tuberculosis (TB) can lead to increased period of infectivity, a delay in treatment lead to a severe form of disease. Considering this, a cross sectional study was conducted in all TB treatment centres (Pusat Rawatan 1) in all division in Sarawak from January 2015 till August 2015. The objective of this study was to determine the length of delay in taking treatment from the onset of symptoms of tuberculosis (TB) until the commencement of treatment. A total of 991 new TB patients participated in the study. The median patient interval of time was 15 days. The median diagnosis interval was 2 days. However, there was no delay in starting treatment following diagnosis. Both patients and health providers played a role in delaying TB diagnosis. A mechanism is needed to increase all healthvcare providers' suspicion of TB so that proper investigations can be done during the first consultation.

**Key Words:** Delay in Treatment, TB, Sarawak

*How to cite:* Sharkawi HM and Arif MT. Delay in Tuberculosis Treatment: Evidence from a Cross-Sectional Study in Sarawak, Malaysia. *CMPH eBulletin* 2015(3):9-10.

**Introduction:** Despite Malaysia has a well-organized National Tuberculosis Control Program (TBCP) which provides easy access and free-of-charge services, the notification rate of tuberculosis (TB) in Sarawak (one of the states of Malaysia) is still high. In 2010, the rate was 76.3/100 000, almost twice the national target of 40/100 000 population. Although there has been a gradual decline since 2001, the incidence rate of TB still within top five in Malaysia<sup>1</sup>. New strategies in TB management in Sarawak had improved TB case

detection in Sarawak for the past five years. Despite the improvement, Sarawak still relies heavily on passive case detection where the success is known to be influenced by factors such as patient motivation, degree of diagnostic suspicion by health-care workers and quality of laboratory services. When patients who have TB symptoms decide to seek mainstream medical treatment, they have a few options: government health clinics staffed by doctors and assisted by Medical Assistants (MAs) or by Medical Assistants (MAs) only, outpatient departments in hospitals staffed by doctors and assisted by Medical Assistants (MAs) or private practitioners' clinics. Once TB is suspected, the Doctors/MAs in the health clinic will do all the necessary work-up or refer them to another centre which have radiography and sputum microscopic examinations. Almost all health clinics have an operational area covering a radius of 12.5 km radius, thus most parts of Sarawak are well covered by health services. The time taken to diagnose patients seen in health clinics can be lengthened depending on the distance of laboratories and X-ray facilities. It is assumed that the slow decline in TB incidence in Sarawak and the persistently high incidence in certain areas are, in part, related to delay in case detection. A review of the records of one of the urban TB clinics showed that approximately 44% of its smear-positive TB patients had their disease diagnosed more than 30 days after the onset of major TB symptoms, while in one rural TB clinic it was approximately 35%. A diagnosis interval of more than 30 days was considered as delay in diagnosis in some studies. In Malaysia, two studies have been conducted on diagnostic delay, assessing the diagnosis intervals and factors contributing to patients' and diagnosis delay. The current study aimed to investigate the length of delay in seeking for treatment from onset of TB symptoms until the commencement of treatment.

**Materials and Methods:** This was a cross sectional study conducted in all TB treatment centers (Pusat Rawatan 1) in all divisions in Sarawak from January 2015 till August 2015. A total of 991 Tuberculosis patients were interviewed using a semi-structured questionnaire by face to face interview. Data entry and analysis was done by SPSS version 22.0. In the present study, delay was analyzed from two perspectives: (1) period between the onset TB symptoms to any medical consultation (patients' delay); and (2) period between the first medical consultation for the diagnosis of TB (diagnosis delay).

### Results

The patient delay was calculated based on the median patient delay of 30 days based on previous study (Chang & Esterman, 2007). The health system delay was also categorized as 'delayed' if patients had visited any healthcare facilities (governmental or non-governmental) and diagnosed to have TB after a median of 22 days from the presentation of symptoms. The median of 22 days for the health system delay was also taken as a cutoff duration of the same study by Chang and Esterman (2007). For health system delay, the mean duration was 2.75 days (SD  $\pm$  3.34) with a median of 2 days. The shortest duration of the health system delay was 'one' day and the longest duration of the health system delay was '21' days. The median time interval from the diagnosis of TB to the initiation of treatment was 0 days (range 0-7 days). 912 (92.0%) of the respondents started treatment immediately on diagnosis, while the rest, 79 (8%) started treatment within 7 days of diagnosis.

### Discussion

This present study found that the median patient interval was 15 days, which was shorter than two other studies undertaken in Peninsula Malaysia<sup>1,2</sup>. This finding could be due to the implementation of 'Pusat Rawatan 1' in Sarawak which is more approachable compared to the old system. Hooi (1994) found that the delay was found to be longer in males, which was reflected in this study<sup>1</sup>. In contrast, the results from this study are similar to studies undertaken in Vietnam<sup>5</sup> and Bangladesh<sup>4</sup>, where female respondents had a longer patient delay. The patient interval among male was extended mainly due to their preoccupation with work. Diagnosis delay was not observed in this study. This can be due to the improvement of the case detection method implemented in the primary care setting such as cough triage, TB screening for high risk patients which includes diabetes mellitus and HIV patients.

Not only that, the implementation of a more active approach in detecting new cases and contacts has also contributed to the improvement of diagnosis delay in Sarawak.

The treatment interval observed in this study ranged from 0 to 7 days, which was shorter than other studies conducted in Seremban<sup>3</sup>, and Canada<sup>6</sup>. Delayed treatment initiation unnecessarily prolongs the periods of TB transmission in the community, and delayed treatment of hospital patients are believed to contribute significantly to nosocomial transmission<sup>6</sup>. Delays in treatment were not observed in this study because once a TB patient is detected, the nearest health clinic to the patient would be informed by telephone. The health worker from the health clinic then rapidly traced the patient.

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# Combating Dengue in Preparation of the Next Rio Olympics 2016: An Experience worth Sharing

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## Abstract

Dengue is the most prevalent and fastest spreading arthropod-borne viral disease in Brazil with more than 1.2 million cases are reported annually. Brazil spent almost 1.3 Billion USD just to curb this menace. It is seen to be a significant threat to the global health by affecting mainly the tropical and sub-tropical regions. Until now, due to the absence of effective therapeutics or vaccines for Dengue, prevention of Dengue transmission is limited to vector control. Unfortunately, studies have demonstrated that the vector control methods utilized to respond to Dengue epidemics have not shown evidence of effectiveness. Concerns regarding the toxic effect of insecticides on non-target and beneficial insect populations, human and the environment have also been raised. In view of that, it is important for Big Data and Artificial Intelligence to take the lead by developing an autonomous machine to predict & determine outbreaks. In view of that AIME (Artificial Intelligence in Medical Epidemiology) has been chosen to be part of the FIX (Field Innovation Program) by Singularity University, NASA Ames Research Center in USA to assist Brazil. Knowing what we are about to face will allow us to intervene at an early stage and this time AIME will be utilizing Artificial Intelligence to assist public health officials in Rio De Janeiro to cease dengue in Brazil before the upcoming Rio Olympics 2016.

**Keywords:** Artificial Intelligence, AIME, Big data, Brazil, FIX, NASA, Singularity University,

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## Introduction

Singularity University's mission is to educate, inspire and innovate in order to solve the global grand challenges (Singularity University, 2005). Field Innovation Exchange Program (FIX), is a program made available with the partnership between Singularity University (SU) in NASA Ames Research Park and Viva Rio (VR) in Rio de Janeiro, in which participation was given to the SU's Graduate Studies Program (GSP) Company called Artificial Intelligence in Medical Epidemiology (AIME). The FIX consists in inviting a GSP company to the home country of one of the partners, in this FIX the host partner was Viva Rio, and enabling that company to foster its operations, in terms decided by the three parties (SU, VR and AIME).

The criteria of selecting AIME for the FIX, was directly related to the company's mission and goal, and how these objectives could positively impact the local country of VR. The mission of AIME is to predict diseases using Epidemiological knowledge and Artificial Intelligence, saving lives even before they are in danger. AIME started this mission by using the epidemiological research of one of its founders, done on dengue. As dengue is a growing menace in South America and in specific to Brazil, AIME was selected.

## Objectives of The Fix Program Between Singularity University, Viva Rio & AIME

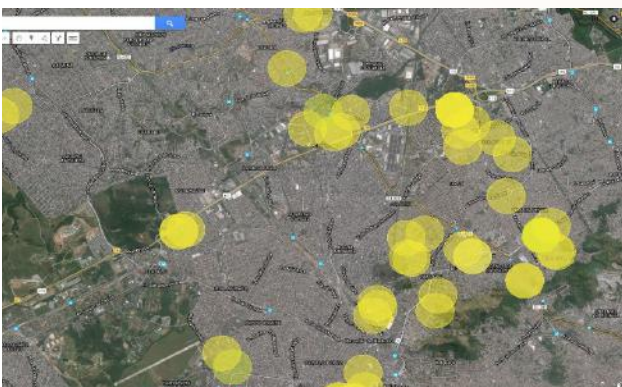
The following objectives were designed by AIME and reviewed by Singularity University and Viva Rio:

1. Proof of concept for AIME's disease prediction platform, focusing on dengue in Brazil.
2. Develop relationships with regional and national government officials, businesses, and trade organizations working in technology, health, and the 2016 Summer Olympics to curb the upcoming dengue issue.
3. Acquire capital investment for pilots.
4. Investigate and create partnerships with organizations that share AIME's goals and vision.
5. Deliver a Report with the benefits of implementing our model in Brazil, allowing public health officials to predict dengue outbreaks in advance & geolocate dengue outbreaks up to 400 meter radius, and saving valuable resources (money, human capital) which could be otherwise used in other programs.

### Field Innovation

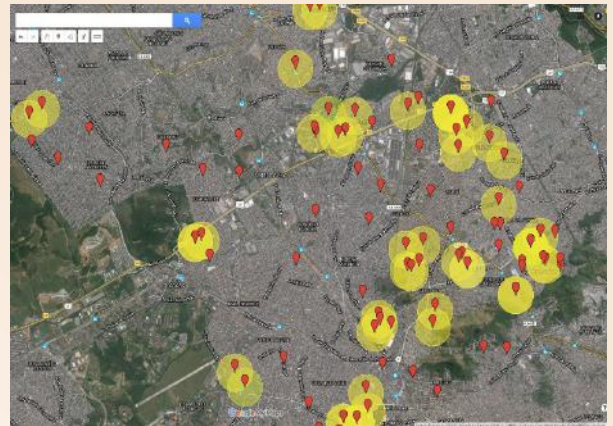
In the first week of the FIX exchange program, we had different meetings with the Public Sector of Rio de Janeiro, which would serve not only as an introduction of the project to Brazil, but also to allow the involved parties to obtain necessary data for its analysis.

We also visited Rocinha, a favela of Brazil, with the goal to understand the whole process of epidemiological reporting from the very beginning (where the dengue cases are treated and reported) to the last step of acquiring the data (the health secretary of the city).



During the second week, our focus was more towards data acquisition and data Analysis. The following was accomplished during the second week:

- Based on the data seen and discussed in meeting one, the model was modified to fit Rio de Janeiro's health ecosystem.
- Some variables were substituted, such as "House Type" variable which was replaced by "Vegetation", as most of the house types in the selected zone were the same.
- Due to time restraints, the focused set of data for the study was 2014 data. A further analysis with all the data could potentially increase the model accuracy. After the analysis of 2014 was made, analysis of 2015 carried on.



- For weather data, we found an open data weather station in Rio de Janeiro, which recorded the weather data from the GIG Airport. Although not ideal, the obtained data were used due to the proximity of area 3.3
- The 2014 data analysis rendered an initial accuracy from a range of 80% to 86%, further analysis would flatten the gap.

Finally, the last week of the FIX program was dedicated to:

1. Test the results obtained by the machine learning model
2. Continue the analysis of 2014 data, through several methods such as Feature Selection
3. Continue cleaning 2015 data

During the last week, AIME team finalized the prediction application with an accuracy of **84.11%** and a True Positive Rate for outbreak was **0.95**.

This accuracy was obtained by:

1. Retrospective analysis of the 2014 data set.
2. Prospective analysis with the first 3 months of dengue cases of 2015

The AIME's platform is currently capable of analyzing a zone, and giving a probability of an outbreak within a 400 meter radius from the chosen zone. The following results are based on zones that showed a probability of an outbreak higher than 65%.

### Analysis and Prediction for January, February and March 2015

#### Predicted outbreak zones:

The yellow bubble indicates possible outbreaks and the darker the consistency the higher the chance of an outbreak to occur in that particular area.

#### Predicted outbreak zones by AIME (Yellow Bubble) with actual, confirmed dengue outbreaks over the 3 months (True Outbreaks; Red Pointers)

Red Pointers represent the actual dengue cases from in Rio De Janeiro, Brazil. While the yellow bulbs represent the predicted outbreaks by AIME. There are some cases that happen very closely, as this is a bi-dimensional map, the distance between each point is limited to the Zoom in resolution capabilities we have applied to the map.

#### Conclusion:

The principal goal of the FIX, which was established with the collaboration of the 3 parties involved, was the Proof of Concept of AIME's prediction model in Rio de Janeiro and we successfully achieved the objective with the assistance of VivaRio (Vivario, 2005).

The model, which was developed by the end of the second week of the program, rendered a result of **84.11% at a 0.95 True Positive Rate** for an outbreak to occur. These results were obtained after analyzing 2014 data, and testing both retrospectively and prospectively within the first 3 months of 2015.

It is the first ever predictive model to utilize artificial intelligence in real to be ever invented. We hope with this new innovation, the health authorities and the community will be able to identify high risk areas, and be prepared for future outbreaks. This will also allow the health authorities to intervene at an early stage and mobilize their expertise towards a more proactive approach rather than a reactive approach.

#### Acknowledgments

We would like to sincerely thank Singularity University & Viva Rio for the opportunity & the vote of confidence they have given to AIME. We will continue to uplift social justice and curb infectious disease in order to create a safer and healthier environment globally.

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# Rural Health Training: An Experience from UNIMAS

Report Prepared by Yuto Oiki, Naoshi Koizumi  
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Two students from Osaka University, Japan has been attached to Department of Community Medicine and Public Health, Faculty of Medicine and Health Sciences, UNIMAS as an exchange programme between UNIMAS and Osaka University, Japan. During their stay in UNIMAS, they shared their experiences in this short article.

## Introduction

Type	Attendance of patient /population
1	>800
2	Between 500 - 800
3	Between 300 - 500
4	<300
5	<150

We stayed in Sarawak from 4<sup>th</sup> January 2015 to 28<sup>th</sup> January 2015. This is the report about the part of our attachment to public health and rural clinic attachment. In Malaysia, there are mainly 5 types of Government Clinics. They are classified by the population of their areas.

This table shows the types and population.



As population shows, especially, Type 4 and 5 are in the rural areas. Population also relates to the number of doctors. The number of doctors is usually controlled as more than 1 per 60 patients. However, in Type 5 clinics, there is no doctor but medical assistant.

## Chronology of our visits

### 6<sup>th</sup> January,

I was attached to Dr. Amir, Dr. Diana, and Dr. Dhesi. I was introduced to CDC group and arrived the district hospital in Lundu.

### “District health office in Lundu”

Kuching Divisional Health Office had the report about food poisoning from the District Hospital in Lundu. Then, I went to there to investigate. We had the meeting about the food poisoning. In that meeting, we could not find what really caused this problem, because several days had already passed from the case occurrence. Therefore, we planed to go to the food factory next day.



### 12<sup>th</sup> January

From 12<sup>th</sup> Jan, we were attached to KK Telaga Air. In the morning, we observed Out Patient Department (OPD) section, especially “Services in the clinic.” After that we participated in mobile clinic. In the afternoon, we observed Maternal Child Health (MCH) activities.

Type 5 clinics have OPD section and MCH section.

Gestation (Wks)	# in Malaysia	# in Japan
<24	Once a month	Once a month
24-28	Once a month	Once two weeks
28-36	Once two weeks	Once two weeks
>36	Once a week	Once a week

OPD section has two activities: Services in the clinic/static clinic and Mobile clinic. In KK Telaga Air, services in the clinic section are conducted by two medical assistants (MA). The works of MA are following up the chronic patients, taking care of non-severe patients and assessing patients. They do follow-up the patients who have diabetes, hypertension and hyperlipidemia. They also treat wounds which are not complicated. However, if patients are so severe that medical assistants cannot handle, they will send patients to the general hospital. For example, we saw that one patient came to the clinic because of she complained of leg pain. MA diagnosed her leg was not fractured but may be dislocated. He let her go to the hospital by herself to take X-rays. About dengue fever, Dr. Fadzlli told us in these two years he have not seen a patient who had dengue fever.

Mobile clinic section is also included in the OPD section. They go to the patient’s house using their own cars, covering the area between 5 and 12 km from the clinic which is called as “Intermediate area” and the area farther than 12 km is called as “Extended area”. When the clinic gets a call from the patients, the MA will go to the patient’s home by a car.. If the MA cannot go by car because of accessibility, a helicopter service may be used.

	Malaysia (2010)	Japan
BCG	○	○
DPT	○	○
Poliomyelitis	○	○
Hepatitis B	○	
Hib	○	
MMR	○	○(without Mumps)
HPV	○	
JE		○

In fact, we arrived at one of patient’s houses. The patient had severe pneumonia and he was discharged

just for a week, so he cannot move. We went there for exchanging foley catheter.



MCH



In KKTelaga Air, the MCH section is run by nurses. MCH section enforces the care about children, adolescents, women and maternal women. The main purpose of MCH is not treating diseases, but detecting abnormality. In terms of maternal care, women who are less than 28<sup>th</sup> weeks of gestation would have checkups once a month unless there is any problem and women who are less than 36<sup>th</sup> weeks of gestation would have checkups once two weeks and women who are more than 36<sup>th</sup> weeks of gestation would have checkups once a week.

About children care, nurses check their height and their weight and their vaccination.history If At specific ages, the children will be checked for peculiar diseases like autism. Children who are less than 6 months old are checked once a month and children who are less than 1 year old are checked once two months and children who are less than 2 years old are checked once three months and children who are more than 2 years old are checked once six months unless they have deficits of their weight.

13<sup>th</sup> Jan

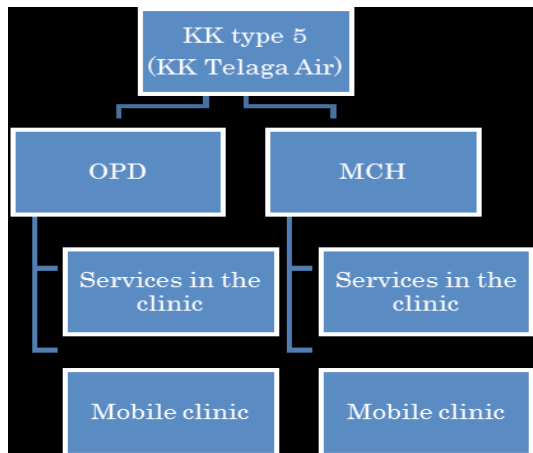
Sam who is MA explained about KK Telaga Air. We observed the vaccination. In the evening, we are taken to the water catchment area.



## KKTelaga Air

As we mentioned the report on 12<sup>th</sup> Jan, KKTelaga Air covers several villages. The coverage of KKTelaga Air reaches Kpg Tembangong in the south and Kpg Sibul across the river. The coverage of Clinic based on radius around the clinic, e.g. in 0-5 km area, there are 4652 people and in 5-12 km area, there are 1817 people and in more than 12 km area, there are 2559 people.

## Vaccination



We saw the vaccination of hepatitis B. The nurse gave an intramuscular injection to baby's thigh.

## Nursing staff

In KK Telaga Air, there are one staff nurse and several community nurses. One of the biggest differences between staff and community nurse is that staff nurse was not trained as midwife and community nurse did. On the other hand, staff nurse can report cases. Originally, staff nurse was trained to work in hospital, and community nurse in rural area. The number of nurses is decided by the attendance. Currently in KK Telaga Air, one nurse has about 2,000 patients per month.

## Water supply

Dr. Sam brought us to one house which has water supply system using gravity. They gather rain which falls on the roof and save it in the tank. They will use the water for various things.

14<sup>th</sup> Jan

Today, we tried to join the home nursing visit, but there was none because there were limited nurses. We saw one vaccination by community nurse .

Type of vaccination in Malaysia compared to Japan

15<sup>th</sup> Jan

This is the final day in KK Telaga Air. We accompanied them on home nursing for MCH.

“Home nursing”

In MCH activity, nurses go to patient's house. They check the health of both mother and baby every day until 10 days of the birth, 15days, 20days, 25days, 30days and every month after 30 days. Nurses check their body temperature, blood pressure, heart rate, and physical examination. They also take care for deep vein thrombosis of mothers.

In this day, we went to two patients. The first baby is 15 days of his birth in a longhouse. We checked the baby and mother. They did not have any problem. After that, they showed us the inside of the longhouse. The second patient is 10 days of his birth. He is hydrocephalus and had mild fever, so we took them to another clinic.

16<sup>th</sup> Jan

Today, we visited UNIMAS main campus with Dr. Razita. In the afternoon, we participated in CPC.

18<sup>th</sup> Jan

Today, we arrived at a Bidayu's village in Serian to investigate mosquitoes. We accompanied 2<sup>nd</sup> Year medical students about community health. In this village, there were several dengue fever cases in the past week. First, they handed out questionnaires about dengue fever to almost all residents in the village. After that, they visited each house to collect questionnaires and investigated environment around and inside house. In checklist of environmental assessment, there are 16 items: “Drains are clogged,” “Improper garbage disposal practice,” “Flower pot plate filled with water” and so on. Through this investigation, we found a lot of possible habitats like an abandoned tire and a bath containing water.

19<sup>th</sup> Jan

In this day, we went to Sarawak General Hospital. Dr. Hamidi introduced us to the hospital set-up.

21<sup>st</sup> Jan

Today, Dr. Helmy brought us to the border area and KK Biawak.

## Border Area

There are 3 environmental officers for doing their various tasks. The following is their tasks.

### 1. Health screening

Environmental officers check 15% of foreigners for Malaria. They take foreigners' blood and send samples to laboratory. They also check all coughing foreigners for tuberculosis. As for both diseases, if samples are positive, they will trace the patients and the patients will be treated.



### 2. Vector control

Environmental officers use mouse trap and ovitrap for controlling vectors. Mouse trap is set once a week. They should investigate mice because mice have fleas which transfer plague. Ovitrap is set in the specific places. The main target is *Aedes aegypti*. They should investigate mosquitoes because mosquitoes transport dengue fever and yellow fever.

### 3. Water survey

In this area, they use raw water from the mountain, not treated water. Environmental officers sample raw water for checking pH, bacteria and so on. In this agency, they cannot test for bacteria, so they send samples for the test in Kuching.

### 4. Food safety premise

This is under the FoSIM (Food Safety Information System of Malaysia). Environmental officers sample foods which are imported from Indonesia. 10% of the foods are tested. However, 90% enter without testing, so if samples are positive, they should trace the rest. They test only foods meant for business.

### 5. Health promotion

When environmental officers find people who have diseases, they send them to clinics. Moreover, when they export the dead body to Indonesia, they check the dead body. The dead bodies are packed to prevent

contamination. The package is done by PKB. And at border area, they check whether the packages are packed properly, and if not, they send the package back to PKB.

## KK Biawak



We arrived at KK Biawak, near to the border. This type 2 clinic was built by the local inhabitants and operated from 1980. They cover 4 villages in immediate area and 4 villages in extended area. This clinic has OPD and MCH and 10~20 patients per day in OPD. They also have "VHT (village health team)" and "SHT (school health team)". When we arrived at this clinic, there is only one medical assistant. They look after patients who have hypertension or diabetes or asthma. This clinic is ABC (anti-natal birthing center) and has delivery space because sometimes Indonesian pregnant women may need to use the service. In 2013, they have 2 cases of delivery. However, it is not recommended.

What we have never heard is about WKK program. Three of four villages in immediate area and two of four villages adopt this program. This program is that educated non-medical people are given some simple medicine to villagers.. KK Biawak staffs will get reliable people to volunteer. These people must take 2 weeks training. They have to report to KK Biawak about the medication and KK Biawak supply medication based on the report.

## Conclusion

Visit to Malaysia, created an opportunity to learn about health care system and other public health issues such as vector control, environment health, food safety and hygiene, and culture of Malaysia as well.

## Acknowledgment

We are grateful to all faculty members in Faculty of Medicine and Health Sciences, especially Dr. Razitasham bt Safii, Dr. Helmy bin Hazmi, Dr. Amir, Dr. Dhesi baha Raja Dr. Diana Ak Jawa, Dr. Hamidi, Dr. Jackson Wong and Mr. Sam.

# Community Outreach Programme at Kampung Semera Masjid, Asajaya

## Report Prepared by

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On 17 November 2015, the Department of Community Medicine and Public Health (CMPH) together with the village committee of Kampung Semera Hilir and Kampung Semera Masjid of Asajaya, organized a launching ceremony of the Family Health Course (MDP10604) for the year 1 Medical Students. The event was held at a Dewan Pesona, a Community Hall in the Kampung Semera Masjid. In conjunction with the event, the department coordinated various health services as part of the department's outreach programme for the attending villagers.

The community outreach programme involved lecturers, staffs and postgraduate students from various departments, including CMPH, the Pathology Department, the SGH Ophthalmology team and the Samarahan Divisional Dental Office.



The programme received a huge and welcoming response. A huge crowd was seen registering for health screening even before the various counters were set up.

Among the health screening activities were the anthropometric measurement, blood pressure measurement, blood glucose and cholesterol measurement, dental and eye screening. The department's postgraduate students acted as the consulting medical officers while the dental officers from the Samarahan Dental Office provided the dental consultation services.

All registrants were given a copy of their screening results for keeping and future reference. Those who needed referral for further treatment were referred accordingly. Most of them were referred for further investigation and treatment for hypertension and suspected diabetes mellitus in the nearest Health Clinic – Klinik Kesihatan Asajaya.

A simple dental procedure such as dental extraction were provided on the mobile dental clinic – a dental clinic on the bus. The dental mobile team is not unusual for the villagers as the team conducts weekly screening in the village.



The programme ended at 11am. The dental team had 15 patients, while the medical team saw 109 patients. There were 64 patients who went for the eye screening. One person with disability was referred to for welfare assistance.

Team	No. of villagers seen	No. of cases referred	No. of new diagnosed cases
Medical	109	25	12
Dental	15	0	0
Ophthalmology	64	15	15

Overall, the response from the villagers of Kampung Semera Masjid was overwhelming, and the head of the village expressed his wish for further community outreach program to be done more frequently in the village.

### The launching ceremony of the Family Health Course (MDP10604)



In the Faculty of Medicine and Health Sciences, the Family Health Course is compulsory for the Pre-clinical medical students. The method of teaching and learning is unique where, besides learning the issues in family health in in classes, the students will be adopted by a family in selected village. In this cohort, 2 villages were selected – Kampung Semera Hilir and Kampung Semera Masjid. The students will be attached to the family for 2 years.

The attachment is an opportunity for students to get a hands on experience in dealing with various health aspects in a family and being exposed to a rural community – which many of them may not have.

Throughout their 2 years attachment, there will be nine visits to the adopting family. The duration of each visit is only one day. For each visit, the student will have a specific task to complete. The tasks are related to the academic blocks they are currently in. For example, in a Respiratory Block, the students will ask family members questions related to smoking dependence, symptoms of bronchial asthma or measure the family members' forced expiratory volume using a spirometer.

At the end of the Family Health Course, the medical students should be able to describe the structure, role and function of the family interaction, identify various resources in the family, describe the family lifestyle, family health behaviour and factors affecting health behaviour. They will also be able to identify and discuss various problems and factors affecting the family health, identify and discuss the family coping mechanisms in health status of the family in term of their nutritional aspects, immunization, family spacing and other preventive measures and describe the importance of managing problems through preventive and promotion activities.

The event was officiated by YB Ir. Aidel Lariwo, State Assembly Member, N.20 Sadong Jaya at Dewan Pesona, Kampung Semera Masjid, Asajaya. The other dignitaries include Prof. Dr. Haji Ahmad Hata Rasit, Dean, Faculty of Medicine and Health Sciences, UNIMAS, Tan Sri Datu Prof. Dr Mohamad Taha Bin Arif (Former Dean, Faculty of Medicine and Health Sciences, UNIMAS), Assoc. Prof. Dr Razitasham Binti Safii (The Head of Department of Community Medicine and Public Health) and Kampung Semera Masjid representatives. Traditional performances by school children ensued after the speeches. This was then followed by the handing over of UNIMAS Year 1 Medical students to their respective foster parents, witnessed by Prof. Dr. Haji Ahmad Hata Rasit and invited guests.

Overall, the community outreach programme was a success and achieved its objectives and ended at 4.00 pm.

## NUR SEJAHTERA: COMMUNITY HEALTH PROGRAMME SMK SPAOH, BETONG

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A Sexual and Reproductive Health Education session was conducted among the Form 6 Students in SMK Spaoh, Betong, Sarawak. The aim of the programme was to create awareness and fill in the knowledge gap regarding the sexual and reproductive health issues, including teenage pregnancy and sexually transmitted diseases among the adolescents.

### Background

Adolescents have the highest rates of sexually transmitted infections (STIs), including HIV. And yet they are the one who are often less informed, less experienced, and less comfortable discussing this issue with their parent, family members or health professionals. As a result, they are the one who are trailing behind the adults in accessing family planning and reproductive health services.

They often experience resistance, even hostile reaction from adults when they try to obtain reproductive health information and services. Fears of negative provider attitudes as well as concerns about privacy and confidentiality may prevent young people from accessing health care services. As a result, they may be at increased risk of STIs, HIV, unintended pregnancy, and other negative health consequences. Thus, it had come to our prime attention to take part in The Nur Sejahtera Health Education Programme.



Our work in adolescent sexual and reproductive health focuses on three critical areas:

- Fostering a supportive environment;
- Improving youth knowledge, attitudes, and skills,
- Increasing access to and use of reproductive health services and commodities.

- To strengthen healthy sexual behaviours education programs involving station-based interactive learning and multimedia exhibition.

### Activities

A total of 4 stations were set up, each with specific objectives in order to provide a comprehensive learning environment. The participants were divided according to gender and spent 15-20 minutes at each station. Before the session started, the participants were asked regarding their needs and expectations from the learning session.

1. The first station was talking about male and female sexual reproductive health and healthy social lifestyle. The first station informs the participants about sexual reproductive organs and their functions, menstrual cycle, and pregnancy-related knowledge. The session also included an audio visual presentation on healthy social life and reproductive organs hygiene.
2. The second station was a lecture on sexually transmitted diseases, discussed the prevalence and incidence, rate of spread and prevention of sexually transmitted diseases.
3. The third station was an interactive discussion on the concepts of family planning and an exhibition on types of contraception available in Malaysia.
4. The fourth station was exhibition on health consequences of smoking. This also included the breath analyzer to test for Carbon monoxide contents inside our lungs.

Each station encourages the participants to actively engage with the facilitators. Some stations also provided quizzes for the assessment of knowledge. At the end of the learning session, every participant completed a written feedback on this program.

### Outcome

#### Strength of the programme

- The adolescents were divided into 4 groups, each with 40 to 45 students and assigned to station based interactive session. As the sessions were conducted interactively, it encourage two-way communication between facilitators and participants.
- One of the group consist of all males participants and the rest of the groups were all females. This division of male and female group able to reduce anxiety and inhibition among adolescent while discussing the matters related to the reproductive health. At the same time, participant's engagement in the session has been facilitated.
- The adolescents involve being able to engage interactively with session facilitators. It was noted that male participants were actively involved in the discussion as compared to female counterpart. However, the female participants were asked to more relevant questions about family planning method than the males.
- As adolescents more comfortable talking to their peers than their family regarding sexual and reproductive health, this session was able to assess their demand for and access to family planning information, option for method of contraception & services available in both government & non-governmental agencies.
- The session was able to fill in their knowledge gap about the reproductive health among the participants towards a better understanding of their own body. The session also helped the participants about the sexual and reproductive rights. The high level of attention to these important issues of sexual and reproductive health, highlighted the critical needs of the participants towards the access to sexual reproductive health education and service.

## Recommendations



Future interactive session could be made into smaller group of less than 10 students with allocation of longer time during each of the station-based sessions, in order to enable more participants' engagement. Teaching aid such as model of sexual and reproductive organs could be made available for the demonstration, e.g. proper ways of contraceptive use as condom.

- In future more interactive sessions should be conducted for the adolescent as their demands for sexual and reproductive knowledge are not fulfilled by the current education system.

## Conclusion

Overall, the experience with The Nur Sejahtera Health Education Programme at SMK Spaoh, Betong was an eye opener to both participants and health providers involved. There is a huge knowledge gap regarding sexual reproductive health among the adolescents and that require immediate attention from our education and public health authorities. It is expected that more collaboration between government and non-government agencies can help fulfil the knowledge gap for sexual and reproductive need among the adolescents.



# Community Medicine and Public Health Posting: A True Insight into Sarawak's Rural Health and Indigenous Culture

## A Reflection by

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When I decided to pursue my Bachelor of Medicine in UNIMAS four years ago, I knew from the start that my life would never be the same. I hail from Sungai Petani, Kedah, approximately 2000 km away from Kuching, Sarawak. This year marks my fourth year as a student in UNIMAS and I am glad to say that my time here has been filled with memories that I cherish dearly and will never forget.

Year 4 is the year that my friends and I have been looking forward to, with more weeks of holidays, which would mean that we would have more time to revise what we have learnt so far in this course, while being able to explore the various places and attractions that Sarawak has to offer. Our year began with Community and Public Health (CMPH) posting, which I found to be a very enjoyable one. The CMPH posting is different from the other clinical postings that we have experienced so far as it allows us to apply our medical knowledge in a broader sense by shifting our focus from the patient as an individual to the community as a whole. This posting has opened our eyes to the importance of the health care system and its functions in the community.

During this posting, we were required to come up with a research topic and to carry out the study in Sibu. As part of our research, we were to organize an intervention programme based on the results obtained from our study. The research, entitled "*Knowledge, Attitude, Practice of Smoking and Perception towards Anti-Smoking Campaigns in Rumah Jemat, Rumah Seliah and Rumah Lumbok, Kemuyang, Sibu*" was successfully carried out, as a result of the hard work and contributions from each of us. As the community was predominantly Iban, we had expected to face some difficulties in communicating with the villagers. However, we decided to overcome this problem with the help of our Iban-speaking course-mates. We had a 'crash course' on the Iban language, with night sessions conducted by our Iban friends for a week. It was a fun and interesting experience for me, and I felt very lucky for having the opportunity to learn another local language from East Malaysia.



Abram performing the "Ngajat" dance



Learning how to play the traditional musical instruments

Although I stayed in Sarawak for four years, this was my first time visiting a longhouse in the community. I got to learn a little about their unique culture as I



spent my time with the villagers at the longhouse. The villagers demonstrated to us the traditional Ngajat dance, performed to the rhythm of bertaboh (a recital of traditional Iban instruments). Ngajatis usually performed to welcome guests, and it was a priceless experience for us as we danced together with the villagers.



*Briefing by SibU Water Board staff*

Throughout this posting, we also spent our time at *Klinik Kesihatan Lanang* and *Klinik Kesihatan Oya*. There, we gained some insights on how the clinics are run and the various programmes conducted. We also had the chance to practice clinical procedures, such as venipuncture, vaccination injection, and many others.



*Vaccination of primary school students during the School Health Program*

CMPH has also reinforced the fact that the learning process is continuous, flexible and is not only limited to the classroom or bedside teaching. We were given the chances to carry out fogging and visit places such as the food manufacturing factory, landfill, sewage treatment plant and water treatment plant. In my opinion, this is why this posting is so much different from the other postings I have experienced.



*Fogging activity under the supervision of officers from DHO SibU*

Since we were posted in SibU for four weeks, we thought it would be a waste to not explore the places in Sarawak. As the saying goes, *all work and no play makes Jack a dull boy*. Hence, we decided to take a break in the midst of it all and go to Bintulu for a short 2 days and 1 night trip at the end of our second week in SibU. This trip had indeed brought all of us closer together and strengthened our bond in ways that we had never imagined. We had such a fun time and enjoyed each other's company that even the 3-hour journey to and from Bintulu was not felt.



*A short getaway to Bintulu*

We would definitely never forget the memories made

throughout the posting, from our time attending the lectures in Kuching to the field visits in Sibul and the night of barbeque and games in Bintulu. We know all these memories could never be ours to share if we did not choose to be in UNIMAS in the first place. So, thank you UNIMAS for giving us this chance to create

beautiful memories as medical students. Even in the midst of our hectic schedule as doctors in the future, we would all reflect back on our days as in UNIMAS and reminisce about the 'good old times'. Then, I am sure all of us will be glad for choosing the road that we had taken.



*Showing off our free packets of 'bihun' from the trip to Bihun Bersatu Sdn. bhd*



*Community Medicine and Public Health Posting, Rotation 1*

## Research and Training: In Pursuit of Wider Knowledge

### Report Prepared by

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Research and Development is crucial for the provision of quality evidence-based policy support and as an aid to decision-making and accountability the Department of Community Medicine and Public Health, Faculty of Medicine and Health Sciences, Universiti Malaysia Sarawak. The main objectives of this report is to the identify relevant research priorities for the Department, plan and manage the Department's research programme in the priority areas and also to organize and support the dissemination of findings of the research and other relevant work through seminars, workshops and publications. In the following section, the research and development in the last year describe in three section a) Training, b) Seminar and c) Research.

### A) Workshop/Training 2015

**Introduction to ICD Disease Coding.** This was a one day hands-on workshop conducted on 31 July 2015 at the Meeting Room 5, second floor, faculty of Medicine and Health Sciences at the UNIMAS kota Samarahan. Attended by 8 participants, the first part was the lectures for providing an introduction to the standardization in the Medical documentation and role of WHO International Classification of Disease (ICD 10). In the second part of the workshop participants had the hand-on training for the allocating the proper ICD codes to the diagnosis written using the ICD 10 Manuals.

**Begkel Asas Pengekodan Klinikal: Diagnosis Penyakit dan Prosedur (ICD 10 & ICD 9 CM).** This was a three (03) days hands-on workshop conducted form 6 – 7 May 2015. The work shop was organized by the Health Information (Medical Record) Department

of Pusat Perubatan Universiti Kebangsaan Malaysia (PPUKM) at the Makmal Terabyte, Aras 5, Blok Pendidikan, Hospital Chanselor Tuanku Muhriz PPUKM. It was an extensive workshop covering both the Diagnosis coding as well as Procedure coding. We used ICD for the Diagnosis coding and ICD9-CM for the procedure coding. It was attended by about 40 participants mostly from the hospital in the Klang Valley.

**Introduction to ICD Disease Coding.** This was a one day hands-on workshop organized as the Post Public Health seminar Workshop arranged by the final Year DrPH student as part of requirement for their degree course. It was organized on 31 18 November 2015, at the Computer Lab, ground floor, faculty of Medicine and Health Sciences at the UNIMAS kota Samarahan. Attended by 14 participants, the first part was the lecture and introduction to the standardization in the Medical documentation and role of WHO International Classification of Disease (ICD 10). In the second part of the workshop participants had the hand-on training for the allocating the proper ICD codes to the diagnosis written using the ICD 10 Manuals.

**Costing Methodology in Healthcare.** This was a 2 day workshop organized by the Institute of Health system Research (IHSR) Ministry of Health Malaysia on 28 – 29 April 2015. It was conducted at Bangunan UOA, Bangsar Kuala Lumpur for everyone convenience. Objective of this course was to train the professionals, especially in the Ministry of Health, in methods of the hospital level costing. Both Activity Base Costing and Step Down costing were introduced to the participants. But the main emphasis was on the Step Down Costing methods, that will be discussed in greater detail. Special emphasis was put on exercises during the course, so that the participants will develop technical skills while gaining the theoretical knowledge during the lecturers.

**Training on the Hospital Quality Management and Improvement.** This was a three (03) day workshop conducted on 14 – 16 September 2015 at The Cong

Doan hotel. No 14 Tran Binh Trong, Ha Noi. Vietnam. The workshop was organized by the NORRED (North East and Red River Delta Regions Health System Support) Project Vietnam under World Bank. The workshop was participated by the 23 hospitals involved in the NORRED project, and the total number of participants were 40. The main objective of the workshop was to introduce the concept Quality Assurance and Efficiency to the participants and introduce them to the techniques of measuring these in their respective healthcare facilities.

### Workshop/Training 2016 (Proposed)

**Introduction to ICD Disease Coding.** This will be a one day hands-on workshop conducted in June 2016 at the faculty of Medicine and Health Sciences at the UNIMAS kota Samarahan. The first part will be the lecture and introduction to the standardization in the Medical documentation and role of WHO International Classification of Disease (ICD 10). In the second part of the workshop participants will have the hand-on training for the allocating the proper ICD codes to the diagnosis written using the ICD 10 Manuals.

**Costing Methodology in Healthcare.** This will be a three (03) day workshop organized by the Department of Community Medicine and Public Health, Faculty of Medicine and Health Sciences at the UNIMAS kota Samarahan. the proposed dated are in May 2016. It will be conducted at Faculty of Medicine and Health Sciences at the UNIMAS Kota Samarahan. Objective of this course was to train the professionals, especially in the Ministry of Health, Malaysia, in methods of the hospital level costing. Both Activity Base Costing and Step Down costing will be introduced to the participants. But the main emphasis will be on the Step Down Costing methods, that will be discussed in greater detail. Special emphasis is put on exercises during the course, so that the participants will develop technical skills while gaining the theoretical knowledge during the lecturers.

## B. Public Health Seminar

Malaysia in this era, an aspiring developing country expects its society and healthcare care providers to remain ever more proactive, resilient and innovative to face emerging public health issues and forge ahead toward the country's vision for health. As it would have been predicted in the year 2014 that this year would be focused on longstanding challenges such as HIV,

family planning, maternal health, no one would have predicted that Ebola would have hit global headlines. This years' public health conference may not be able to encompass all public health issues of the century, but had covered the few top essential topics which we feel to be essential and relevant. These topics were presented by selected speakers some of which are world renowned WHO consultants, experts in their respective fields with years of experience.

The objectives for this Public Health Seminar were to gain up to date knowledge in recent years and discuss public health issues both in the local and global setting; to increase understanding in the vast field of public health and the factors that interplay in all levels of the government and the society and to give exposure to the future challenges and predictions in the issues pertinent to public health issues in a world with no boundaries.

The invited speakers included:

1. Datu Dr. Andrew Kiyu, state consultant field epidemiologist
2. Dr Feisul Idzwan Mustapha, Program Manager for Steno Diabetes Centre Malaysia
3. Dr Nik Jasmin Binti Nik Mahir, Head of Global Health Unit, MOH
4. Dr. Selvasingam Ratnasingam, Consultant Child Psychiatrist
5. Dr.Thilaka A/P Chinnayah, Senior Principle Assistant Director Unit in Johor State Health Department
6. Dr Hirman Ismail, Principal Assistant Director and Head of Transplant Unit, MOH

The seminar was organized by students of Doctorate of Public Health (Cohort 4) and Department of Community Medicine and Public Health. It was held at Pusat Islam Tun Ahmad Salahuddin (PITAS), Universiti Malaysia Sarawak on 16<sup>th</sup> – 17<sup>th</sup> November 2015. The two-day seminar had 110 participations from various health personnel from all over Malaysia. Most of them came from West Malaysia and from universities. Most of the participations were public health physicians, medical officers and post graduate students of public health.

The seminar started with delightful experience sharing by Dr Thilaka A/P Chinnayah in Port Loko, Sierra Leone for Ebola Response recently. This experience

was an eye-opener for participants regarding the Ebola outbreak worldwide. Dr Hirman shared his experience in handling Transplant Unit, Ministry of Health, and its challenges to increase awareness of the importance of organ donation in Malaysia. The seminar was then continued by Dr Feisul Mustapha regarding challenges to implement NCD activities and its achievement in Malaysia. He was previously the Head of NCD unit in Ministry of Health and then joined Steno Diabetes Center for his career development and his passion in combating NCD in Malaysia.

The seminar was officiated by Prof. Dr. Lela Su'ut, Deputy Dean of Faculty of Medicine and Health Sciences, UNIMAS in the afternoon. Simple and symbolic ceremony held at PITAS, UNIMAS attended by lecturers of the faculty and participants. Special keynote address was presented by Prof Dr. Lela Su'ut regarding Leptospirosis in Sarawak.

The seminar continued with another interesting topic delivered by Dr Nik Jasmin, Head of Global Health

unit, Ministry of Health, regarding population and health in relation to global health issue. Dr Selvasingam Ratnasingam continued the seminar by presenting interesting topic of public health issues of adolescent and young children.

Second day of seminar brought interesting free oral paper presentations whereby 10 participants presented their own studies or working experience. The participants presented various interesting topics and followed by good discussion from the floor. These free paper presentations' judges were from the state health department and UNIMAS faculty of Community Medicine and Public Health lecturers. Presentation from Dr Haslina, Kapit District Health Public Health Specialist was chosen to be the best as she presented working experience in managing outbreak of food poisoning in Kapit.

This seminar had been good platform for organizing committee to train on how to organize a seminar or conference in near future.

### C) Research

	On Going Research (Faculty)	Type	Researcher(s)
1.	Workplace Bullying and Metabolic Syndrome among Private Sector Workforce in Malaysia,	FRGS	Main researcher: Anselm Su Ting Co-researcher: Victor Hoe Chee Wai, Marzuki Isahak, Azlan Darus, Sharon Kwan, Kanami Tsuno
2.	Anthropometric indicators as predictors of high blood pressure in adolescents in Sarawak,	FRGS	Main researcher: Cheah Whye Lian Co-researcher : Helmy Hazmi, Razitasham Safi, Chang Ching Thon
3.	Prevalence and Correlates of Disability in Sarawak: An Analytic Cross Sectional Study	FRGS	Main Researcher: Md Mizanur Rahman Co-researcher: Tan Sri Prof Mohd Taha Arif, Fadzillah bin Razak, Raili bi Suhaili, Asri bin Said, Zainab binti Tambi, Florence Ak Bakon, Ling How Kee
4.	The distribution of Aedes spp mosquitoes and dengue virus in Kuching, Sibul and Miri division, Sarawak.	FRGS	Main researcher : Razitasham Safii; Co-researcher : Lela Su'ut, Siti Fairouz Ibrahim, Nor Aliza Abdul Rahim
5.	Factors Associated with Care Seeking Behaviour of Bangladeshi Workers and their Acculturation Process in Sarawak: A Respondent Driven Sampling Approach	IBS	Main Researcher: Md Mizanur Rahman Co-researcher: Tan Sri Prof Mohd Taha Arif, Zainab binti Tambi, Clifton Akoi Ak Pangarah, Zulkifli Jantan
6.	Prevalence and Factors Influencing Intention to Quit Smoking among the Rural people in Sarawak	Faculty	Main Researcher: Md Mizanur Rahman; Co-eseacher; Mohd Taha Arif

7.	Development of the anthropometric database for children with disability in Malaysia	RACE	Main researcher : Shahrol Mohammadan; Co-researcher : Ana Sakura Zainal Abidina, Mohd Syahmi Jamaludina, Noor Aliah Abd Majida, Muhamad Fadzli Asharia, Helmy Hazmi
8.	Single Nucleotide Polymorphisms Of Epstein Barr Virus EPV-Related Genes And Evaluation Of Immunoglobulin (Ig)A Antibodies To Epstein-Barr Virus (EBV) Capsid Antigens (EBV Iga/ VCA) Associated With Nasopharyngeal Carcinoma In Bidayuh Ethnic Group	RAGS	Main researcher : Mohd Aminuddin; Co-researchers: Samirah Abdullah, Helmy Hazmi
9.	Developing a Psychosocial Model of Psychological Disturbance among University Students in Malaysia		Main researcher : Ayu Akida Abdul Rashid
10.	Program COMBI Pencegahan Demam Denggi dan Pengenalan Sistem Tadahan Air Hujan Sistematis: Satu Inisiatif Menangani Permasalahan Denggi.	Geran Program Pemindahan Ilmu, KTP	Main researcher : Khatijah Yaman; Co-researchers : Rasidah Abd Wahab, Siti Halipah Ibrahim
11.	Dokumentasi Pengamalan Rawatan Tradisional dan Implikasi Terhadap Tingkahlaku Mendapat Rawatan Masyarakat Melanau, Pulau Beruit	Geran Kursi Nusantara IPB	Main researcher : Rasidah Abd Wahab; Co-researchers : Siti Zaleha Raduan, Muhd Wahizul Haswan Abdul Aziz, Alexander ak Chelum, Asrul Asshadi Mohd Morni dan Dyg Hajyrayati Awg Kassim
<b>On Going Research (Students)</b>			
1.	Effectiveness of I-kelahiran, an Health Informatics Program in Sabah State Health Department	DrPH	Researcher: Dhesi Baha Raja Supervisor(s): Anselm Su Ting, Cheah Whye Lian
2.	Assessment of Quality of Life Among Menopausal Women in Sarawak, Malaysia.	DrPH	Researcher: Diana Ak Jawa Supervisor(s): Md Mizanur Rahman
3.	The Determinants of Smoking Cessation Clinic Utilization Among Smokers in the Southern Region of Sarawak	DrPH	Researcher: Jackson Wong Supervisor(s): Anselm Su Ting
4.	Integrated Management Of Childhood Illness Family Key Practices in Sarawak	DrPH	Researcher: Musalnizan binti Mustalkah Supervisor(s): Razitasham bt Safii
5.	Quality of life and its determinants among elderly in Sarawak	DrPH	Researcher: Irwillla Bt Hj Ibrahim Supervisor(s): Razitasham bt Safii
6.	Characteristics of Type 2 Diabetes Mellitus Patients in Sarawak	DrPH	Researcher: Amirulazman Bin Abu Hassan Supervisor(s): Md Mizanur Rahman
7.	Assessment of Tuberculosis Control Program in Sarawak	DrPH	Researcher: Hamidi Bin Mohamad Sharkawi Supervisor(s): Tan Sri Mohd Taha Arif
8.	Level of Satisfaction Among Service Providers & Psychiatric Patients Attending CMH Program	DrPH	Researcher: Noor Baizura Bt Jamali Supervisor(s): Tan Sri Mohd Taha Arif, Md Mizanur Rahman

9	Assessment of Patient Safety Programme in Sarawak's General Hospital: A Mixed Methods Study.	DrPH	Researcher: Mohd Khairul Anuar bin Roselan Supervisor(s): Tan Sri Mohd Taha Arif
10	Barriers, Perception, and Level of Satisfaction on Pre-pregnancy Clinic Services in selected healthcare facilities in Sarawak from clients' and healthcare provider's perspective.	DrPH	Researcher: Natazcza Abdul Rahim Supervisor(s): Md Mizanur Rahman
11	Estimating the clinical burden of Community Acquired Pneumonia Disease in paediatric in-patients and assessing the Quality of Life of the caregiver.	DrPH	Researcher: Becklyne anak Mile Supervisor(s): Zafar Ahmed
12	Perceived barrier in weight reduction management and willingness to pay among overweight and obese adult patients attending government health clinic in Kuching.	DrPH	Researcher: Euphrasia anak Bari Supervisor(s): Zafar Ahmed
13	Quality of Life and Support Needs of Domestic Violence Survivors in Sarawak: A Mixed Methods Study.	DrPH	Researcher: Easwary a/p Hari Ramulu Supervisor(s): Anselm Su Ting, Zabidah bt Putih
14	Quality of Life of informal caregivers for patients with dementia in Kuching: A cross-sectional study.	DrPH	Researcher: Ivan Vun Jan Shui Supervisor(s): Helmy b Hazmi
15	Factors contributing to Unmet Needs among Breast Cancer Survivors in Kuching, Sarawak: A Mixed Methods Study.	DrPH	Researcher: Emmanuel Joseph Fong Tsung Supervisor(s): Cheah Whye Lian
16	Willingness to Pay (WTP) for National Health Insurance Scheme in state of Sarawak, Malaysia: A Contingent Valuation Study	DrPH	Researcher: Mohamad Norhaizam bin Ahmad @ Nakawi Supervisor(s): Anselm Su Ting,
17	Cost-Effectiveness of Different latent TB Screening among high risk health care workers in Sarawak and Estimating the Total Burden of TB among HCW using different screening strategies applying Markov Model	DrPH	Researcher: Pauline anak Robert Ero Supervisor(s): Zafar Ahmed
18	Health Literacy on Disordered Eating among Adolescents in Kuching Division	DrPH	Researcher: Rahmah binti Rashid Supervisor(s): Helmy b Hazmi
19	Disclosure of Traditional and Complementary Medicine use to Medical Doctor Primary Care Clinics in Kuching Division, Sarawak, Malaysia: A Mixed-Method Study	DrPH	Researcher: Johnny anak Kelak Supervisor(s): Cheah Whye Lian

20	Stigma and Discrimination toward People Living with HIV/AIDS and Factors Affecting it in Sarawak, Malaysia: A Community Based Cross Sectional Study	DrPH	Researcher: Aren Sinedeh anak Lemin Supervisor(s): Md Mizanur Rahman
21	Disordered eating and its Associated Factors among the undergraduate students of a public University in Sarawak	MPH	Researcher: Vasanthi Binti Selvaraju Supervisor(s): Cheah Whye Lian
22	Factors associated with progress in Children attending clinic based early intervention programme in Kuching	MPH	Researcher: Suzalinna Binti Sulaiman Supervisor(s):Razitasham binti Safi
23	Readiness to adoption of healthy behaviour among government servants with risk of Type 2 Diabetes Mellitus	MPH	Researcher: Nazura Binti Ahmad Zawawi Supervisor(s):Hemly Hazmi
24	The Cost-effectiveness analysis of Dengue Control Programme in Sarawak	MPH	Researcher: Nordiana Binti Rosli Supervisor(s): Zafar Ahmed
25	Hypertension and its association with nutritional status among public University Students	MPH	Researcher:Majorie Ensayan Anak Junting Supervisor(s): Cheah Whye Lian
26	Role of Performance of KOSPEN Community Volunteers and Factors affecting it	MPH	Researcher: Melvin Chung Hsien Liang Supervisor(s): Hemly Hazmi
27	Factors Influencing the Timing of Antenatal Booking in Lundu District Hospital, Sarawak	MPH	Researcher: Sam Froze Anak Jiee Supervisor(s):Razitasham binti Safi
28	Prevalence of Hypertension and its associated risk factors among secondary School Students in Urban Kuching, Sarawak	MPH	Researcher: Robert Wong Kung Yee Supervisor(s): Aye Aye Aung
29	Pattern of Home Accidents among under Five (5) Children and its Care Seeking Behavior by Care Givers in Selected Rural Communities of Kota Samarahan District, Sarawak	MPH	Researcher: Lim Jyh Hann Supervisor(s): Md Mizanur Rahman
30	Factors determining Attempt-to-quit Smoking: A Cross-sectional Study in Sarikei, Sarawak	MPH	Researcher: Wong Khung Ying Supervisor(s): Md Mizanur Rahman
31	Workplace bullying and its association with depression and self-esteem among health care workers in selected hospitals in Sarawak	MPH	Researcher: Peter Chang Chung Meng Supervisor(s): Anselm Su Ting, Md Mizanur Rahman
32	Determinants, Unmet Needs & Cost Of Care: An Insight Into Persons With Disability	PhD	Researcher: Ayu Akida Abd Rashid Supervisor(s): Md Mizanur Rahman, Mohamad Taha Arif



33	Coping Mechanism and Quality of life of Caregivers of Peoples with Disability	MSc	Researcher: Norliza Binti Suut Supervisor(s): Md Mizanur Rahman, Zabidah Putih
34	Quality of life, Client Satisfaction and Willingness to Pay to Maternal and Child Health Care Services in Bangladesh: Evidence from Urban Primary Health Care Project	PhD	Researcher: Sharmin Mizan Supervisor(s): Md Mizanur Rahman, Razitasham binti Safi



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**First issue can be found in  
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