CRC
MINISTRY OF HEALTH MALAYSIA
Research that matters to patients

NEWSLETTER

Issue 2016

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Words from the Editor

Dear friends,

Greetings from the CRC network!

The year 2015 was another fruitful year for CRC. The efforts among staff at the CRC network and their collaborators have helped CRC achieve the Key Performance Indicator for publication, with 129 publications, a laudable increase from 113 articles in 2014. Out of these, 26 (20%) were published in Tier 1 (Tier 1 denotes the top 25% of the journal impact factor distribution) and 113 (88%) were published in international journals, including New England Journal of Medicine and Journal of the American College of Cardiology.

The CRC network family has added 2 new centers, i.e. Cheras Rehabilitation Hospital in 2015 and Hospital Shah Alam in 2016, thus growing the network to 33 proud CRC hospitals.

We want to take this opportunity to acknowledge two CRC long serving staffs who retired in 2015. They are Puan Celine Tsai, the head of IT unit, and Datin Matron Hazrah Arip, the head of Bibliography unit.

We are also pleased that three CRC colleagues were offered the short overseas training by MOH in 2015. They are Dr Irene Looi who did a three-month sabbatical training at the National Institute of Health USA, Dr Cheah Wee Kooi who did a one-month training in epidemiology at Erasmus MC, and Miss Ch'ng Chin Chin who did two summer courses at the Bloomberg School of Public Health, Johns Hopkins University.

As for investigator initiated research, colleagues at NCRC were involved in dengue research in 2015 and 2016. This research is a framework using existing data gathered from dengue registry, public health laboratories, dengue surveillance, in-patients data, claim data from insurance companies and Department of Statistics. It covers the areas of epidemiology, spatial temporal, clinical and cost effectiveness of dengue vaccine. Till date two papers (PLoS ONE and PLoS NTD) and one letter to editor at New England Journal of Medicine have been published. We want to acknowledge the assistance given by the Public Health Division, Health Informative Centre, Department of Statistics and insurance companies who shared their data with us.

CRC has also been very active in Malaysia Health Systems Research (MHSR), a collaboration between our Ministry of Health and Harvard School of Public Health to perform a situational analysis of our current health care system. We are involved in four analytical packages, namely cost-function and analysis, trends in avoidable mortality, quality of primary healthcare services and quality of clinical care in primary care and have completed the analyses with the first draft ready.

We cannot have accomplished all these without the strong support and participation of each CRC staff. In 2016, I look forward to setting sustainable goals for health research. I hope the CRCs in each zone can collaborate and venture into quick and translatable clinical audits in our continuing effort to improve and promote health. In this new year, let's work together to create visible and meaningful medical impact and defend Malaysian's health!

Dr Goh Pik Pin

Editor-in-Chief

RESEARCH Illustrated

ARTESUNATE-MEFLOQUINE VERSUS CHLOROQUINE FOR TREATMENT OF UNCOMPLICATED *PLASMODIUM KNOWLESI* MALARIA IN MALAYSIA (ACT KNOW): AN OPEN-LABEL, RANDOMISED CONTROLLED TRIAL

- Randomised controlled trial
- Two arms, open label
- Non-severe P. knowlesi
- 3 district hospitals (Kudat, Kota Marudu & Pitas)
- 2 years (2012-2014)
- Microscopists blinded

115 patients

Artesunate-mefloquine

Dosing

Target total: 12mg/kg artesunate

25mg/kg mefloquine

At 0 hrs, 24 hrs, 48 hrs

111 patients

Chloroquine

Dosing

Target total:

25mg/kg chloroquine

At 0 hrs, 6 hrs, 24 hrs, 48 hrs

P. knowlesi is currently the most common cause of malaria in Malaysia. P. knowlesi is microscopically misidentified as P. malariae and P. falciparum due to morphological similarities in the late trophozoite and early ring stages, respectively, and is also misreported as P. vivax. As P. knowlesi has a rapid 24 h replication rate and can cause hyperparasitaemia, severe complications and fatal outcomes, misdiagnosis of P. knowlesi has concerning treatment implications.

96 (83%) patients in the artesunate–mefloquine group and 87 (78%) patients in the chloroquine group completed follow-up to day 28 and were included in the secondary survival analysis of the treatment outcome.

Table 1. Baseline demographic and clinical characteristics

	AS-MQ (n=115)	CQ (n=111)
Median age (years)	33	32
IQR	21-49	21-50
Range	3-82	7-85
Children (aged ≤12 years)	12 (10%)	8(7%)
Sex		
Male	93 (81%)	83 (75%)
Female	22 (19%)	28 (25%)
Geometric mean parasite count (per μL)	1457	1329
95% CI	1061-2002	972-1817
Range	36-35008	33-35873
Gametocytes present	16 (14%)	14 (13%)
Haemoglobin (g/L)	136	131
IQR	114-146	118-141
Range	71-172	93-172

Data are n (%) or median (IQR), unless otherwise indicated.

Table 2. Parasite clearance

	AS-MQ (n=115)	CQ (n=111)	p value
Parasitological response (aparasitaemia)			
24 h	97 (84%; 76.4 to 90.5)	61 (55%; 45.2 to 64.4)	<0.0001
OR	4.4 (2.4 to 8.3)		
48 h	115 (100%; 96.8 to 100)	109 (98%; 93.6 to 99.8)	0.148
72 h	115 (100%; 69.8 to 100)	111 (100%; 96.7 to 100)	
Median parasite clearance time (h)	18.0	24.0	<0.0001
IQR	12 to 21	24 to 30	
Range	6 to 48	6 to 60	
Mean slope of curve (k) for log_{10} normalised parasite clearance*	0.301 (0.280 to 0.322)	0.207 (0.192 to 0.223)	<0.0001
Gametocyte *pks*25 assay			
Positive day 0	44/51 (86%; 73.7 to 94.3)	41/49 (84%; 70.3 to 92.7)	0.716
Positive day 7	3/49 (6%; 1.3 to 16.9)	2/48 (4%; 0.5 to 14.3)	0.663

Data are n (%; 95% CI), n (%), mean (95% CI), or n/N (%; 95% CI), unless otherwise specified.
*48 patients excluded from the artesunate–mefloquine group because of baseline parasite counts of 1000 parasites per µL or less (N=67); 47 patients in the chloroquine group excluded because of baseline parasite counts of 1000 parasites per µL or less and one patient excluded because of a final parasite count more than 1000 parasites per µL before negative slide (N=63).

Table 3. Haematological outcomes

	AS-MQ (n=115)	CQ (n=111)	p value
Mean fractional fall in haemoglobin at day 3 (%)	12.2 (9.9–14.5)	12.4 (10.7–14.1)	0.862
Haemoglobin nadir (g/L)	120	117	0.407
IQR	101-130	103-125	
Range	67-154	78-152	
Prevalence of anaemia at day 28*	26/95 (27%; 18.7–37.5)	27/82 (33%; 22.9–44.1)	0.421

Data are % (95% CI) or n/N (%; 95% CI), unless otherwise specified.
*Anaemia calculated as per WHO age-based criteria.

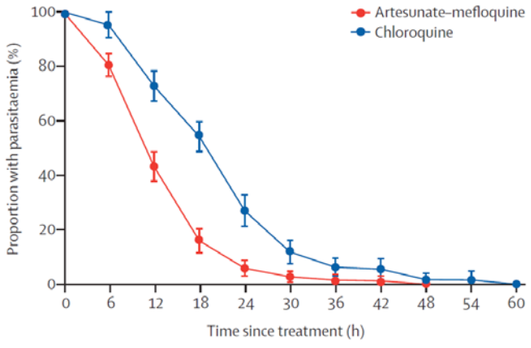


Figure 1. Parasite clearance
Error bar shows 95% CI

Adverse events rates did not differ significantly between the study groups. The most frequent events were headache, dizziness, cough, abdominal pain, and vomiting.

The rapid therapeutic response of artesunate-mefloquine and efficacy against uncomplicated *P. knowlesi* malaria supports a unified treatment policy for artemisinin-based combination therapy for all *Plasmodium* species in co-endemic areas.

Source: Grigg MJ, William T, Menon J, Dhanaraj P, Barber BE, Wilkes CS, von Seidlein L, Rajahram GS, Pasay C, McCarthy JS, Price RN, Anstey NM, Yeo TW. (2015). Artesunate-mefloquine versus chloroquine for treatment of uncomplicated Plasmodium knowlesi malaria in Malaysia (ACT KNOW): an open-label, randomised controlled trial. Lancet Infect Dis.

A PROSPECTIVE STUDY OF TUBERCULOSIS DRUG SUSCEPTIBILITY IN SABAH, MALAYSIA, AND AN ALGORITHM FOR MANAGEMENT OF ISONIAZID RESISTANCE

- Prospective observational study
- 2-year enrolment (4 July 2012-3 July 2014)
- Luyang Tuberculosis Outpatient Clinic

176 patients
106 males (60.2%)
70 females (39.8%)

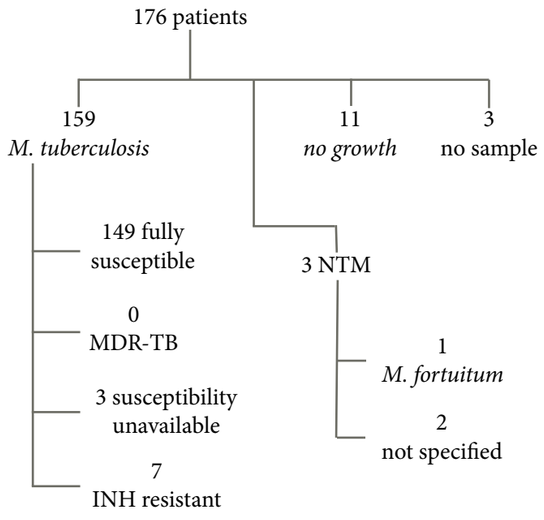
Eligibility

- Sputum smear-positive pulmonary TB
- ≥ 15 years old
- < 7 days' TB treatment
- Diagnosed with TB on the basis of clinical and X-ray assessment
- At least one sputum positive for acid fast bacili (AFB) on Ziehl-Neelsen stain performed

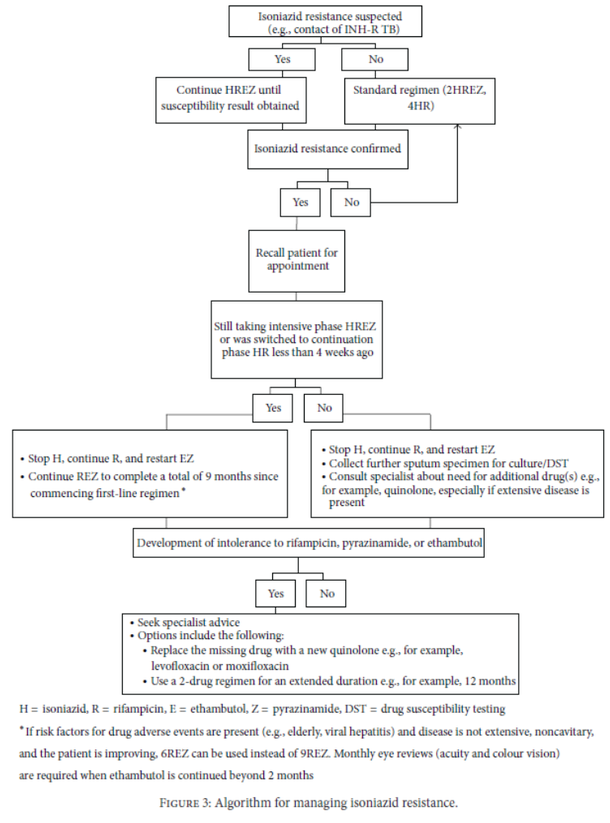
Methods
Sputum sample was provided on the day of enrolment. The BACTEC Mycobacterium Growth Indicator Tube (MGIT) 960 tube system was employed for culture. Drug susceptibility testing was performed for M. tuberculosis isolates using the nonradiometric MGIT system for isoniazid, rifampicin, ethambutol, streptomycin, and, in the instance of any first-line resistance, also for ofloxacin, kanamycin, and ethionamide. Nontuberculous mycobacteria (NTM) were identified using a DNA probe (ProbeTec, Becton-Dickinson). Further speciation, if done, was achieved using a second DNA probe (INNO-LiPA MYCOBACTERIA, Innogenetics, Ghent, Belgium) and high-performance liquid chromatography (HPLC) of mycolic acids.

An algorithm for managing isoniazid resistance was developed based on recommendations from selected references and level of evidence:

Results



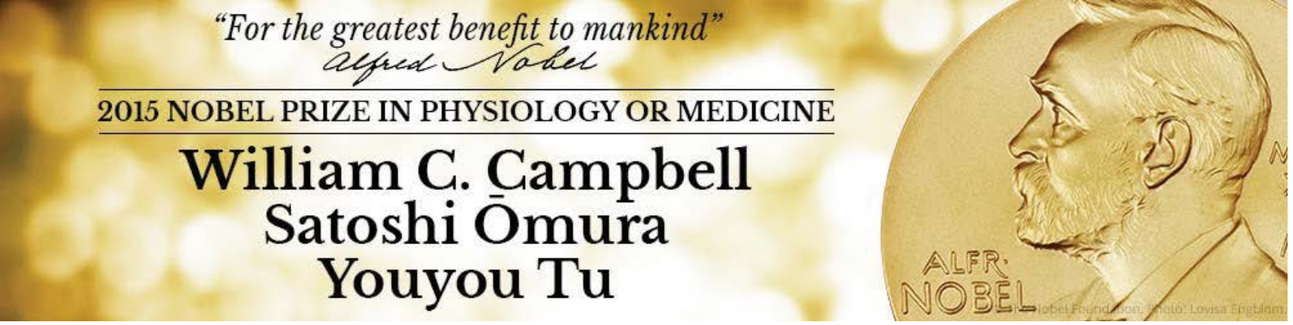
NTM = Nontuberculous mycobacteria
MDR-TB = Multidrug-resistant tuberculosis
INH = Isoniazid



H = isoniazid, R = rifampicin, E = ethambutol, Z = pyrazinamide, DST = drug susceptibility testing
*If risk factors for drug adverse events are present (e.g., elderly, viral hepatitis) and disease is not extensive, noncavitary, and the patient is improving, 6REZ can be used instead of 9REZ. Monthly eye reviews (acuity and colour vision) are required when ethambutol is continued beyond 2 months

FIGURE 3: Algorithm for managing isoniazid resistance.

Source: Rashid Ali MR, Parameswaran U, William T, Bird E, Wilkes CS, Lee WK, Yeo TW, Anstey NM, Ralph AP (2015). A prospective study of tuberculosis drug susceptibility in sabah, malaysia, and an algorithm for management of isoniazid resistance. J Trop Med. 2015: 261925.



On 5th October, the 2015 Nobel Prize in Physiology or Medicine was awarded by The Nobel Assembly at the Karolinska Institute to three scientists who have found new treatment modalities to combat the ever evolving diseases in the world.

These three scientists are Dr. William C. Campbell and Satoshi Ōmura for their collaborative discoveries concerning a novel therapy against infections caused by roundworm parasites and Dr. Tu Youyou for her discoveries concerning a novel therapy against malaria.

Both these therapies came at a time of need as the disease they treat were in need of a new direction. Resistances were emerging and world mortalities increasing. By exploring nature's resources, these scientists were able to develop these new therapies.

Dr. Campbell and Dr. Omura both collaborated in development of a drug named ivermectin for the treatment of worm parasites that causes diseases like river blindness and lymphatic filariasis. Dr. Tu on the other hand, refined techniques in extracting the drug artemisinin from Artemisia annua or sweet wormwood which have been known in Chinese traditional medicine to have antimalarial properties. Both drugs were included in the World Health Organization's list of essential medicines that are distributed to health systems for free or at low cost.

A statement made by the Nobel Assembly during the announcement of winners claimed, "The discoveries of avermectin and artemisinin have revolutionized therapy for patients suffering from devastating parasitic diseases. Campbell, Ōmura and Tu have transformed the treatment of parasitic diseases. The global impact of their discoveries and the resulting benefit to mankind are immeasurable."


Dr. William C. Campbell

Award Winners

Dr. William C. Campbell

Dr. Campbell was born in 1930 in Ramelton, Ireland. After receiving a BA from Trinity College, University of Dublin, Ireland in 1952, he received a PhD from University of Wisconsin, Madison, WI, USA in 1957. From 1957-1990 he was with the Merck Institute for Therapeutic Research. During those years he also acted as Senior Scientist and Director for Assay Research and Development from 1984-1990. Campbell is currently a Research Fellow Emeritus at Drew University, Madison, New Jersey, USA.

Professor Satoshi Ōmura

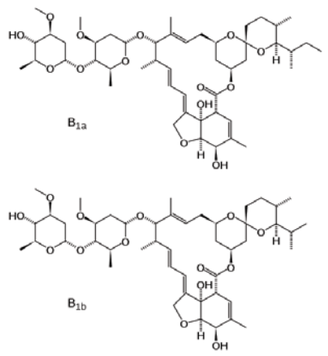
Professor Ōmura was born in 1935 in the Yamanashi Prefecture, Japan. He received a PhD in Pharmaceutical Sciences in 1968 from University of Tokyo, Japan and a PhD in Chemistry in 1970 from Tokyo University of Science. He was a researcher at the Kitasato Institute, Japan from 1965-1971 and Professor at Kitasato University, Japan from 1975-2007. From 2007, Satoshi Ōmura has been Professor Emeritus at Kitasato University.

Professor Youyou Tu

Born in 1930 in China, Professor Youyou Tu graduated from the Pharmacy Department at Beijing Medical University in 1955. From 1965-1978 she was Assistant Professor at the China Academy of Traditional Chinese Medicine, from 1979-1984 Associate Professor and from 1985 Professor at the same Institute. From 2000, Tu has been Chief Professor at the China Academy of Traditional Chinese Medicine.

Ivermectin: Development

Dr Omuro, a microbiologist, was researching on a genus of bacteria called Streptomyces, which can produce complex chemicals that is able to weaken and kill rival micro-organisms. One example of an antibiotic which was first used in treatments of tuberculosis, Streptomycin, was derived from these bacteria (Selman Waksman, discoverer of PStreptomycin also won the Nobel Prize in Medicine in 1952). During his research he was able to develop systematic ways to culture thousands of strains and screen them for compounds that might hold medical uses. Through collaborations, Dr. Campbell who was then at Drew University in New Jersey, managed to obtain samples of these bugs. From it he extracted a chemical, avermectin, which was found to be effective at killing parasites in animals. Further laboratory work with chemical modification of avermectin, ivermectin was produced and tested successfully for human consumption.



Ivermectin

Ivermectin is a broadspectrum anti-parasitic agent that belongs to the avermectin family. It is mainly used in humans for the treatment of onchocerciasis but also effective in treating strongyloidiasis, ascariasis, trichuriasis, filariasis, enterobiasis and epidermal parasitic skin disease. This drug binds and activates Glutamate-gated Chloride Channels (GluCls) which causes inhibitory neurotransmission in the parasite, killing it in the process. It is safe for human usage as long as normal doses are prescribed. The treatment with ivermectin is a 150-200mcg/kg single dose and it comes in 3mg tablets as well as topical creams.

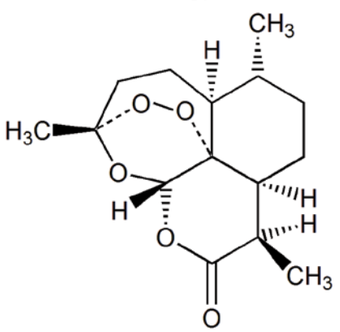

Professor Youyou Tu

Artemisinin

Dr. Tu, a professor of pharmacy at the China Academy of Traditional Chinese Medicine, researched on the possibility of using traditional Chinese medication to derive novel therapies to treat malaria. Malaria was classically treated by chloroquine or quinine but has seen declining success. By turning to ancient recipes' of Chinese medicine, she and her team was able to identify a plant, Artemisia annua, which produces an extract that helps in the treatment. However, due to inconsistent results from regular treatment methods, Dr. Tu consulted ancient literature again which guided her to successfully extract the active component from the plant. This method is known as low temperature extraction which was described by Ge Hong in 340 AD. Ge Hong detailed that by using cold water instead of boiling, he was able to obtain the "juice" needed from the leaves of the plant. Dr. Tu alternatively used ether for the procedure and was able to extract large amount of the juice. The component, later named artemisinin, was highly effective against the parasite for both infected animals as well as humans.


Professor Satoshi Omura

Discovery of artemisinin have created a new class of antimalarial agents that destroys the malaria parasite at an early phase which is particularly effective in severe malaria. However the mechanism of its action is not entirely known. Evidence has suggested the Kelch 13 protein is involved since mutations of this gene have accounted for an emergence of artemisinin resistance. Due to this resistance that is reported mainly in South Asia, WHO has recommended it be prescribed as combination therapy of artemisinin and other antimalarial drugs (Artemisinin-based Combination Therapy, ACT). The normally prescribed dose of artemisinin is 4 tablets of co-artemether (Artemisinin(20mg) – Lumefantrine (120mg)) at 0, 8, 24, 48 and 60 hours. The known side effect includes nausea, vomiting, anorexia, dizziness and mild blood abnormalities.



Artemisinin

UP CLOSE and Personal

Research: From paper to policy change – with Professor Happy Araneta

Maria Rosario (Happy) G. Araneta PhD is a Professor of Epidemiology in the Department of Family Medicine and Public Health, at the University of California San Diego. She received her BA in Biology from UCSD and her MPH and PhD in Epidemiology (with special emphasis in Perinatal Epidemiology) from Yale University.

Appropriately called "Happy" since birth, she was baptized in the Catholic church as "Maria Rosario" where tradition requires being named after a saint (there is currently no "Saint Happy"). Prof Happy shared with me some candid moments of her work for the past 2 decades.

My sister told me that this is my 'Lupita Nyongo'* moment! Those were Professor Maria Rosario (Happy) Araneta's words when she was asked how it feels like to receive the American Diabetes Association's Vivian Fonseca Scholar Award last year.

The Vivian Fonseca Award recognizes diabetes research focused on South Asian or Asian American, Native Hawaiian or Pacific Islander populations. Professor Happy was surprised at the honor of receiving the ADA award since there were countless researchers with more experience and seniority in this field.

Following this, she was invited by the American College of Cardiology and the American Association of Clinical Endocrinologists to join the faculty of the Cardiometabolic Think Tank. She was also appointed by the Secretary of Health and Human Services to serve on the National Institutes of Health (NIH) Advisory Council for the National Institute on Minority Health and Health Disparities, and her publication titled, "Optimum BMI cutpoints to screen Asian-Americans for Diabetes" was recognized in "Best of Care" as one of the 9 most noteworthy articles published or accepted in the medical journal "Diabetes Care" in 2014.

Born in the Philippines but raised in the U.S since she was 10 years old, Prof Happy is inherently concerned with what goes on in her community. She is the principal investigator of the UCSD Filipino Health Study, the largest and the oldest cohort study on diabetes, cardiovascular disease and osteoporosis among Filipinos in the U.S. She is also a co-investigator of the Rancho Bernardo Study, where she leads ethnic disparities research among Caucasians, African-Americans and Filipinos on a myriad of health outcomes, including that of regional fat distribution, adipocytokines, coronary artery calcium, osteoporosis and metabolic abnormalities.

In addition, Prof Happy serves as the principle investigator of UCSD in the PRYSMS Study (Practicing Restorative Yoga vs. Stretching for the Metabolic Syndrome), and as a perinatal epidemiologist of the UCSD Mother, Child, and Adolescent HIV Program.

'A lot of it comes from what you see in the community, or within your own family', she said, recalling her meeting as a new graduate with Dr. Wil Fujimoto, an endocrinologist and a pioneer of diabetes research among Asians, specifically Japanese Americans, in the U.S.

It all started with a simple observation. Some time ago, a colleague of hers, Prof Barrett-Connor noticed that Navy personnel who were receiving hemodialysis treatment at one of the teaching hospitals were thin Filipino men. They had advanced stage of diabetes with renal failure in the absence of obesity.

The question was, why were they diagnosed late? Were they not screened because they were thin? Were they screened but somehow the diagnosis was missed? This made little sense because they had access to healthcare and they exercised frequently as part of their job. This was not the typical group of people who gets diabetes, but did their condition go unnoticed and caused it to progress to kidney failure?

Thus in 1995, a journey began. They started a cohort study of 453 Fillipino women and followed them for 5 years. And what they found out intrigued them further. Thirty-two percent of the subjects have diabetes even with a mean BMI of about 25, compared with African Americans who were obese but only 12% were diabetic. What else was causing the high risk for diabetes among the Filipino women?

They dug further to investigate whether there was a difference in visceral adipose tissue among the African Americans and Asians. It was recently established that visceral adipose tissue (VAT) is an independent risk factor in cardiometabolic diseases, not just a storage place for excess calories.

Visceral adipose tissue is an active endocrine organ which secretes inflammatory markers such as TNF and IL-6 which increase the risk of diabetes and cardiovascular diseases. Adiponectin has anti-atherogenic effects and an important role in glucose homeostatsis. It is down regulated when VAT is high, losing the protective function against diabetes.

The study found out that obese and overweight African American women had significantly more VAT compared to normal weight Filipinos. In fact, African Americans had significantly less VAT compared to the whites and Filipinos. Low levels of adiponectin is predictive of diabetes risk.

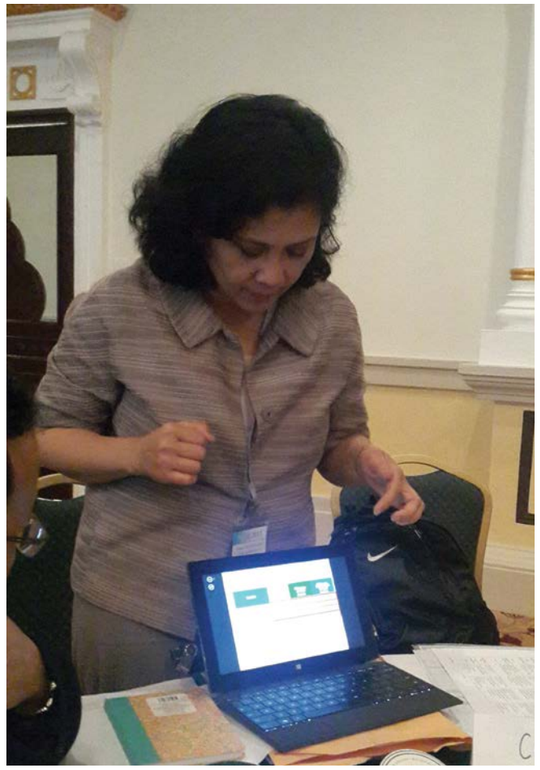
Adiponectin concentration in normoglycemic women were found to be highest in white women, followed by African Americans and Filipinos had the lowest levels. But the African Americans have the least visceral adiposity. Why is this so?

They also found that the adiponectin levels are inversely proportionate to the risks of diabetes and cardiovascular diseases. Which means to say the lower the adiponectin, the higher the diabetes or cardiovascular problems, which confirms their findings of Filipino women having the highest prevalence of diabetes.*

At the time of the publication of these results, Prof Happy received a comment from a grant reviewer that the Filipino cohort was a "low impact population". Her interpretation was that the grant reviewer did not consider Filipinos or other Asians to be important populations to study because of their small populations in the US. She could have quit and chosen another research path. But she was reminded by the encouraging words

*Lupita Nyongo seemed to have emerged overnight and earned an Academy Award for a brief appearance in her first feature film role in '12 Years a Slave' – shortly afterwards, she was in every magazine, TV show and will soon appear in the next "Star Wars" film.

*Interestingly, there was also another study which reported that there is a polymorphism in the AP gene which is associated with low levels of AP among Filipino women.



of Dr. Fujimoto when she first met him during an ADA poster session. He told her, "Just keep doing what you are doing… if you don't do it (the research), nobody else will.'

It would have been easy for Prof Happy to have become discouraged, and to seek a more convenient research path with abundant funding, but she stuck to her guns and she and her colleagues sought and secured funding elsewhere, including from the American Heart Association. She and her associates continued to publish on novel risk factors on fatty liver diseases, lean muscle to fat ratios, and hyperuricemia, to name a few.

"The challenge is that when you have a novel finding, sometimes people don't believe you and sometimes they don't want to take the risk in investing because they are waiting for others to validate your work, to do similar studies in big numbers', she said.

Then in 2013, two events unfolded which ultimately validated the findings in her studies back in 1995. The Northern California Kaiser Hospitals reported that the highest prevalence of Type 2 diabetes among 2.1 million adults were the Pacific Islanders (Samoans, Hawaiians), followed by Filipino and South Asian (Indians) which shocked the medical community because historically the African Americans, Latinos and native Americans have the highest rates of diabetes and obesity. Coincidentally, the International Diabetes Federation (IDF) announced that China and India are the diabetes capital of the world, having among the highest prevalence of diabetes in the world.

'So now, people are acknowledging that there are biological differences by ethnicity, and that the pathophysiology of diabetes among Asians is actually interesting!' she says gratefully.

What happened next was, the American Diabetes Association (ADA) contacted those who worked on diabetes in Asians in the US, which included Prof Happy herself with the question whether the current ADA screening guidelines were inadequate for Asians. At that time, the ADA guideline recommended that those above 45 years old and with a BMI of 25 kg/m2 or more should be screened for diabetes. Without Prof Happy's findings, approximately 375,000 non-obese diabetic Asian Americans might remain undiagnosed.

The ADA approached other researchers conducting diabetes studies among Asian Americans, including Drs. William Hsu (Joslin Diabetes Center/Harvard), Alka Kanaya (University of California San Francisco) and Wil Fujimoto (University of Washington) to review the ADA screening guidelines for diabetes mellitus last September. They pooled their data together and found that at a BMI of 23 kg/m2, at least 85% of Asians with diabetes could be identified. The amended ADA screening guidelines became official in January 2015.

"My message to young researchers in Southeast Asia is to observe patterns in your family, your community, your

patients, and be courageous in raising and investigating research questions that might seem unconventional, but are relevant to your community, and address necessary "gaps" in our scientific knowledge.

Secondly, conduct research within your own community – don't rely on the US or European studies exclusively since Southeast Asians differ… in selected biological characteristics and behaviorally, especially with regards to diet. Validate these studies in your own country, or better yet, instead of duplicating studies, develop novel, original ideas that are uniquely relevant to your population."

Now, if you will excuse me, I am going down to the basement to search for some papers I wrote 2 years ago to see if it is journal worthy…

CRC in Retrospect

CRC HOSPITAL TUANKU FAUZIAH

The Clinical Research Centre of Hospital Tuanku Fauziah (HTF), Kangar, Perlis was established on 7 May 2007 and headed by Dr. Sia Koon Kit. It is located in the Medical Outpatient Department at the Specialist Clinic Building. The current head of the centre is Dr. Noram Azlan bin Ramli.

CRC HTF has an aim to encourage research at the hospital level and within the national level of the Network of Clinical Research Centres. Its main function is to establish a conducive environment to enable ethical and quality clinical research projects to be carried out for the improvement of patients' health outcome in Hospital Tuanku Fauziah.

Such activities are in line with the objectives of the Ministry of Health Malaysia with the purpose of generating quality research projects. CRC Perlis will provide support to all clinical research and clinical trial projects with the network of CRCs in Malaysia.

(from left) En. Ahmad Zakhwan (Research Assistant), Dr. Khairul Syakir (Deputy II), En. Mohamad Syafuan (Deputy I), En. Rohaizan (Operations Assistant), Pn. Nor Efarina (Administrative Assistant), Pn. Ooi Kim Hong (Study Coordinator)

NATIONAL CONFERENCE FOR CLINICAL RESEARCH 2015

This year the National Conference of Clinical Research was held in Bayview Beach Hotel, Penang.

"We are arriving in 5 minutes," read the text sent to me via Whatsapp.

I made bigger and faster strides to the ever cheerful crowd of committee members and whispered, "Get the CRC family ready at the lobby for photo taking. The Minister and Big Boss are going to be here very soon".

Yang Berhormat Minister of Health Malaysia, Datuk Seri S. Subramaniam arrived at the Bayview Beach Hotel Penang with a huge smile. Accompanied by Director of National Clinical Research Centre Dr Goh Pik Pin and CEO of Clinical Research Malaysia Dr Akhmal Yusof from airport, he was warmly welcomed by the Deputy Director General of Health Dr Shahnaz Murad, State Health Director Dato' Dr Hajjah Zailan and by about seventy of us in purple Batiks at the lobby.

Warm greetings were exchanged among the VIPs, and a family photo of the members of the Clinical Research Centre (CRC) with the minister was taken.

The minister then made his way to the event hall and was greeted with cheers by 520 curious delegates of the 9th National Conference of Clinical Research (NCCR). It was indeed an honour to have the busy minister fly all the way from Kuala Lumpur on the earliest flight of the day, to open this conference.

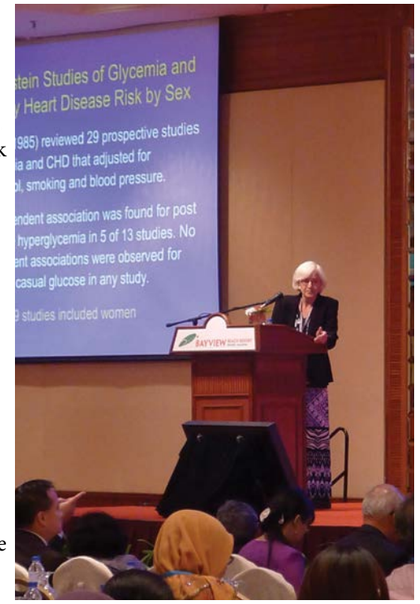
In his speech, he reminded the members of the healthcare that despite overwhelming demand of service in our settings, clinical research should never fall out of our radar. He sent a strong word of encouragement to the local researchers to buck up and speed up. "There is still a huge gap in our understanding of diseases, particularly dengue, which is very common in our country but hardly seen in the West. We are on our own to fill this gap and we must not give up, even if we stumble, we must try over and over again. It is our disease, affecting our own people and we cannot run away, hoping for discoveries from the West."

Being a medical doctor himself, the Minister sat through the 45-minute-long CRC named lecture by a world renowned epidemiologist, Dr Elizabeth Barret Connor. She shared her inspiration journey in research in Gender and Aging for the past 30 years, particularly the story of how she courageously took on the challenge in her very first research project in epidemiology - an area she was unfamiliar with then. "Have courage and never say no too early!"

The two-and-a-half-day conference was attended by a total of 520 participants from all over the country. Speakers from both abroad and local institutions were carefully selected and invited. With the main theme of "Research that Matters to Society" and focusing on "Aging", a huge spectrum of talks from 17 distinguished speakers were spelled out for the participants.

Among the speakers, Prof Dr Maria Rosario (Happy) G. Araneta, an epidemiologist from University of California San Diego shared her research quest to understand the link between metabolic syndrome and ethnicity. On the lighter side, she also presented her studies on the effects of yoga and zumba dancing in metabolic syndrome which was clearly well received by a large section of our young audience.

Another speaker from USA is Prof Lo Eng Haw from Harvard Medical School. He was a local Penang boy who has made a name in stroke research. His impressive work on Stroke at the basic science and cellular level were published in many top scientific journals such as Nature and Science. His talk, "When Stroke Strikes the Aging Brain - Cell-cell Signaling" surprisingly did not lose the audience which were mostly of clinical background. The feedback from the ground was that it was one of the best basic science talk that we ever had.



Professor Dr Elizabeth Barrett-Connor giving a talk in the conference

The conference was not all only about how advanced the world out there. We had a list of our country's top researchers sharing their works in the conference. Our Deputy Director General of Health, Dr Shahnaz Murad was well known for her work in Immunogenicity of Rheumatoid Arthritis. Her research on specific rheumatoid arthritis biomarkers among Asians paved ways for further works to understand the immunogenicity of our own patients' population.

In the field of academic research, we were very proud to have Prof Dato' Dr Ruszymah Bt Hj Idrus and Prof Yuen Kah Hay to share their works. Prof Dr Ruszymah captured the audience with her impressive presentation

on her research in skin tissue engineering. The product of her discovery "Myskin" was patented and successfully used in human patients. Prof Yuen on the other hand, was a key scientist in the research of tocotrienol, an isoform of Vitamin E found in palm oil. He found them to be effective in slowing down aging process of brain cells and received worldwide recognition for his work.

We accepted a total of 160 posters nationwide with on a variety of clinical research areas. Eminent clinical researchers were selected to make up the panel of judges. We had Prof John Chan Kok Meng, Prof Yeow Toh Peng and Prof Asrul Akmal in the panel and they came to a consensus that it was too difficult to shortlist just three submissions for oral presentations for Dr Wu Lien Teh's Young Investigator Award. Instead, they requested to add another category of award with 3 posters for Best Posters Award during the conference after went through all the posters.

It was an absolute pleasure to have worked with many interesting characters throughout the months of preparation for this conference. We were very glad to receive so many constructive feedbacks from both the participants and speakers. On behalf of the organising committee, I would like to thank everyone who have involved directly or indirectly, in making the 9th NCCR a successful meeting of clinical researchers. See you in 2016.

New staff who joined CRC in 2015

Medical Officers

1. Dr. Sharon Ng Shi Min
   Pegawai Perubatan UD44 - 29.06.2015
2. Dr. Malarkodi a/p Suppamutharwyam
   Pegawai Perubatan UD44 - 29.06.2015
3. Dr. Woon Yuan Liang
   Pegawai Perubatan UD44 - 28.09.2015
4. Dr. Peter Tok Seah Keng
   Pegawai Perubatan UD44 - 28.09.2015
5. Dr. Wong Xin Ci
   Pegawai Perubatan UD44 - 28.09.2015
6. Dr. Lee Keng Yee
   Pegawai Perubatan UD44 - 04.01.2016
7. Dr. Kavita Jetly a/p Jagjit Kumar Jetly
   Pegawai Perubatan UD44 - 04.01.2016
8. Dr. Narwani Binti Hussin
   Pegawai Perubatan (Pakar Kesihatan Awam) UD54 - 05.01.2015
9. Dr. Chan Hiang Ngee
   Pegawai Perubatan UD48 - 04.02.2015
10. Dr. Leong Chin Tho
    Pegawai Perubatan UD48 - 05.10.2015
11. Dr. Mohd Kamarulariffin Bin Kamarudin
    Pegawai Perubatan UD44 - 05.05.2015
12. Dr. Ang Choon Seong
    Pegawai Perubatan UD44 - 23.02.2015

Pharmacists

1. Ng Ru Shing
   Pegawai Farmasi U48 - 30.03.2015
2. Chan Wai Seong Christopher
   Pegawai Farmasi U48 - 17.08.2015
3. Lim Ming Tsuey
   Pegawai Farmasi U48 - 03.08.2015
4. Mah Kar Yee
   Pegawai Farmasi U48 - 30.11.2015
5. Lim Wei Yin
   Pegawai Farmasi U44 - 16.03.2015
6. Siti Rahmah @ Noor Syahireen Binti Mohammed
   Pegawai Farmasi U44 - 01.04.2015
7. Tew Mei Mei
   Pegawai Farmasi U44 - 17.08.2015
8. Chua Kin Wei
   Pegawai Farmasi - 17.11.2015
9. Lee Yi Lin
   Pegawai Farmasi U44 - 23.03.2015
10. Yang Su Lan
    Pegawai Farmasi U41 - 17.08.2015
11. Chia Shui Yee
    Pegawai Farmasi U41 - 14.12.2015

Research Officer

1. Norshahida Binti Abdul Hamid
   Pegawai Penyelidik Q41 - 02.03.2015

IT officers

1. Fauziah Binti Che Mustafa
   Pegawai Teknologi Maklumat F48 - 15.09.2015
2. Gobibaskaran a/l Govindaraju
   Pegawai Teknologi Maklumat F44 - 16.11.2015

Staff Nurses

1. Juhanah Binti Gimbo
   Jururawat U29 - 14.09.2015
2. Ammar Rafidah Binti Saptu
   Jururawat U29 - 14.09.2015
3. Vanitha a/p Arumugam
   Jururawat U29 - 14.09.2015

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1. Shashila Binti Ab Manap
   Pembantu Tadbir (P/O) N22 - 27.03.2015
2. Sazlinahazami Binti Mohd Salleh
   Pembantu Tadbir (P/O) N17 - 27.04.2015
3. Jipri Bin Jimi
   Pembantu Tadbir (P/O) N17 - 22.06.2015
4. Yassin Kamarul Jamal Bin Harsat
   Pembantu Tadbir (P/O) N17 - 14.09.2015
5. Mardiana Binti Sharif
   Pembantu Tadbir (P/O) N17 - 14.09.2015
6. Abdullah Bukhari Bin Zakaria
   Pembantu Tadbir (P/O) N17 - 14.09.2015

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   Pembantu Operasi N11 - 05.05.2015

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