2018 Rotarians Against Malaria Conference, Gold Coast, Queensland

Conference Day One: Saturday 25th August 2018

Introduction

The 2018 National RAM Conference was held at the Institute of Glycomics, Griffith University, Gold Coast, Queensland – in Rotary District 9640. Seventy (70) delegates attended the Conference over the two half-days. The Conference offered a wide range of malaria related topics with over 15 speakers from research institutes; RAM; and RAM's partner countries in Papua New Guinea (PNG); the Solomon Islands; Timor Leste, and our new partner West Timor in the Nusa Tenggara Timur (NTT) province, Indonesia. Most of the speakers' presentations are available via media resources on the link below.

https://ram.rawcs.com.au/gallery/media-resources/

Acknowledgements

RAM wishes to thank the many Rotarians and volunteers for their hard work in the planning and day-to-day running of the successful Conference. Many people helped to look after our international delegates. Thank you. Undoubtedly, the Conference Committee was the key Conference driving force and many people played important roles such as in providing great wholesome foods. We thank the following people for their generosity – Liam Huges for audio-visual and IT support; Karin Kolenko for the donation of bottled water; Simon Jeanes and Regina Tucker for organising the food and tea/coffee. We enjoyed great mini-cup cakes! Finally, a huge thank you to the Institute of Glycomics, Griffith University, who provided use of their facilities; and gifts to the speakers. The Institute also provided RAM delegates several pre-conference sessions at the malaria laboratory on Saturday morning. The laboratory sessions were well attended by delegates.

Conference Opening

Rotary District Governor Terry Brown, District 9640, extended a warm welcome to all delegates and declared the Conference open. Following on from DG Brown, Dr. Chris Davis, the General Manager, Institute of Glycomics, welcomed delegates to the Institute. He acknowledged the connection with the Institute's core program and Rotary District 9640 in the unique malaria vaccine research. He highlighted the Institute's many research programs and human clinical trials that have translated into diseases treatment such the pneumococcus vaccine. Dr. Davis mentioned Professor Michael Good and Rotarian Dr. Danielle Stanisic's world first clinical trial with human subjects. It was clear that the vaccine development at the Institute of Glycomics would not have been possible without the dedication and financial support from Rotary District 9640.

With the formality aside, Dr. Bruce Anderson (RAM Scientific Committee Coordinator) announced that at the recent Rotary International Convention in Canada, Rotarian Drake Zimmerman (Illinois) awarded our National RAM Manager Dave Pearson with the "Malaria Maniac of the Year" on behalf of the Rotarians Eliminating Malaria – a Rotary Action Group (REMaRAG). This award was in

recognition of Dave's work in advancing RAM and providing a model of practice that could be followed outside of Australia by Rotary International.

Dave Pearson, National RAM Manager, welcomed delegates to the 2018 annual Conference. He extended special thanks to Steven and Doreen Carroll whose donation has increased funding for the malaria vaccine project. He also thanked Dr Danielle Stanisic, PDG Dai Mason, and their Conference Committee; RAM Executives; and Rotarians who have so generously looked after our international guests.

Dave highlighted that the goal for RAM is *Happy healthy kids eager to contribute to the economic world*. RAM works in partnership with the governments of PNG, Solomon Islands, and Timor Leste. As with global trend, progress has reversed with increases in malaria incidence in PNG and Solomon Islands. Dave shared information on RAM's work and malaria elimination progress in PNG, Solomon Islands, and Timor Leste. Recently, RAM conducted a trip to Timor Leste, and was successful in obtaining the Rotary Global Grant of USD251,334 for LLINs and sprayer machines for pregnant women in Timor Leste.

RAM's vision is to contribute towards achieving malaria elimination. To achieve malaria elimination and eventual eradication, RAM would like to see Rotary International focus next on malaria disease after polio eradication. As reflected at the recent Malaria World Congress, Rotary is recognised as a potential global partner in malaria elimination.

Professor Tom Burkot, Getting to Zero: The Global Technical Strategy and Ensuing Events The presentation started with a historical overview of achievements in malaria disease management. Malaria cases were high between the years 1987 and 2007. However, this period saw the development of many malaria vector controls such as insecticide treated nets (ITNs) (now, LLINs), indoor residual spraying (IRS), intermittent preventive treatment of malaria (IPT) for pregnant women and children; rapid diagnostic tests (RDTs); and ACTs. With the advent of malaria controls, a gradual decline in malaria disease occurred between 2000 and 2015. Vector controls had contributed to reducing malaria transmission by 80%. Prof Burkot emphasises that vector controls with ITNs/ LLINs and IRS are successful even where vectors bite outdoors and early. He said *Indoor strategies kill "outdoor" mosquitos.*

Prof Burkot's key message was on the World Health Organisation's (WHO) (2015) Global Technical Strategy 2016 – 2030 for malaria elimination. The strategy provides global, coordinated approach to malaria elimination. The document describes what a country should do and how. Fundamentally, Prof Burkot emphasised that it is *Important to maintain access to interventions that do work*. He warned that scaling back is not an option, in particular, in areas where there are receptivity and vulnerability. In closing, Prof Burkot advised that to get to zero cases, investing in people is priority.

Prof G Dennis Shanks. Australian Army Malaria Institute. *Why it will be hard to eliminate malaria?* Eliminating polio could be the single best thing for malaria elimination, as it frees up resources for malaria elimination. As Prof Shanks stated, *It's going to be hard to eliminate malaria.*

Elimination means killing the last parasite in a population/area. Leaving a few asymptomatically infected persons risks future epidemics. The hardest part will be getting rid of relapsing (Vivax) malaria. The last parasite is Plasmodium Vivax (*Pv*). He stressed that *You must get the last parasite.* Prof Shanks said that the challenge is to convince people to continue to spend resources on eliminating residual parasites in human reservoir when there are other competing demands. Decreased cases means less interest in malaria elimination.

Prof Shanks emphasised that huge use of antimalarial drugs and insecticide impregnated nets cannot be sustained indefinitely. We need to apply new strategies using current tools. At the same time, there is a need to prepare for the future by applying new strategies using new tools. The goal is to get rid of malaria and prevent resurgence. Globally, malaria elimination is set for achievement in the year 2030. Given the current situation, Prof Shanks was cautiously optimistic with his closing advice that we need to *Maintain sense of progress and success. Compete for resources. And, new tools are needed for high transmission areas but a great deal can be done with what we have now.*

Associate Professor Helen Evans, AO, The Nossal Institute for Global Health at the University of Melbourne. Co-Chair of the 1st Malaria World Congress, Melbourne. Prof Helen Evans provided an overview of the Malaria World Congress (MWC) that was held in Melbourne, in June 2018. She shared Prof Feasham's call to **"**…make your commitment and go for it". The Global Fund to fight AIDS, Tuberculosis and Malaria (the Global Fund) was an example of making commitment first and then acting on the commitment to make it happen.

Prof Evans outlined the key objectives of the MWC and the three key themes that framed the Congress. An important outcome of the MWC was the establishment of a civil society organisation (CSO) collective called "CS4ME". The message is that we need to partner with civil society and community actors for malaria elimination.

She highlighted that focusing on malaria has the economic return of 6:1 dollar and is sustainable. The economic benefits provide a strong case for investment in malaria elimination. She highlighted that *Inaction will lead to malaria resurgence and past efforts will be lost*. As in the Congress Statement of Action, *The Status Quo is not OK*. Prof Evans praised Rotary. She said that Rotary's strengths and 'can do' attitude have valuable influence. Rotary's role was acknowledged throughout the MWC. Collaborative action is important and Rotary has a significant role to play in malaria elimination.

Tim Freeman, RAM PNG Program Manager. *Chasing Malaria in PNG* In PNG, the Global Fund contracts RAM to manage: net distribution, drug distribution, health facility visits, management of finances for Institute for Medical Research, Global Fund (IMR) and National Department of Health (NDOH); and 'Chasing Malaria' project. In collaboration with the PNG government, RAM has delivered approximately 1.2 million LLINs each year. RAM also distributes LLINs to vulnerable groups: pregnant women, schools, and prisons. RAM is working closely with the National Department of Health Supply Division to fill in stock shortages of ACTs and RDTs throughout PNG. Tim revealed the challenges in working in PNG.

RAM supports a program referred to as the Chasing Malaria programme in collaboration with WHO, NDoH Malaria Programme, Central Public Health Laboratory (CPHL) and Central Province Health Authority (PHA). RAM works with schools and communities trying to destroy breeding sites through filling in puddles of water, larviciding, covering water places, fish. As a result of World Malaria Awareness Day (MAD) 2018, RAM carried out malaria prevalence surveys in primary schools. Nets were given to RDT positive cases. The testing revealed high number of malaria cases. At Kuriva school, 33.3% of students tested positive but were asymptomatic. At another school in Berere, 64.1% of students tested positive. In the future, RAM will work with communities in the Chasing Malaria programme.

Albino Bobogare, Solomon Islands Director of the National Vector Borne Disease Control Program. *Overview of Malaria incidence (API) and control in Solomon Islands.* RAM commenced support for Solomon Islands in the early 2000. Solomon Islands has high Annual Parasite Incidence (API) (number of confirmed cases during one year multiply by 1,000 and divided by the population under surveillance). In 2014, API reached lowest 50 cases per 1,000 but increased in 2016 and 2017. The problems could be due to reduced effectiveness of vector intervention in population; reduced diagnostic; decreased reporting from 400 health facilities.

Mr. Bobogare highlighted that Central Islands and Malaita provinces have low 100-250: 1,000 cases. Nonetheless, Malaita province has 44% of all country cases. Thus, the Ministry of Health (MoH) has emphasised the need to focus on Malaita province for impact towards reduction of malaria towards pre-elimination in the country. He presented on the malaria program components emphasising that health promotion other cross-cutting health systems are vital for effective performance.

There are many challenges to malaria elimination. For example, the current health reform agenda is a challenge to malaria elimination at health facility level. Mr. Bobogare outlined requirements for quality data at the health facilities. He presented the Government's plan for health systems reform with emphasis on decentralisation and integration. Within this context, malaria program is not a core program but integrated. In closing, Mr. Bobogare highlighted that in decentralisation, there needs to be a robust health system in place at all levels including, at the health facility level, to support malaria elimination.

Ben Ricki Kiokimo, Solomon Islands Director of Health Promotions. *Settings approach in Solomon Island.* With 80% of the population living in the villages, Mr. Kiokimo's presentation flags the need for community participation in health promotions. He highlighted the Health Promoting Village model as a key approach that is / will be applied in all provinces. In this model, RAM is a partner and has provided basic tools for village cleaning.

In reference to the role of the government, a thought provoking question posed by Mr. Kiokimo was *Are we tap turners or floor moppers?* In the analogy *to turn the tap,* communities are seen as partners with the government in health promotion. Ben emphasised that intersectoral collaboration for prevention, protection and promotion of health aspect must be by people. He said that *People are part of the problems and solutions.*

The Healthy Village approach has contributed to reduced malaria cases in the majority of villages between 2011 and 2014. As part of the Healthy Village, RAM provides basic tools for village clean up. Isabel Province has had the highest need with 120 villages who have received tools from RAM. In Malaita Province, 63 villages have received tools and many more require support. Malaita is the most populated in the country with the most malaria cases. Mr. Kiokimo highlighted the challenges to malaria elimination. In closing, he emphasised that there is a need to work with communities.

Assoc. Prof. Harin Karunajeewa, The Walter and Eliza Hall Institute of Medical Research *Clinical trials to improve malaria treatment and controls in the South Pacific*. Prof Harin's key message was that it takes a long time of nine (9) to 15 years from the time of drug discovery to getting the new drug approved for use. The drug discovery phase or drug pipe-line where large numbers of drugs are discovered takes 3 to 6 years. Only 1 in 1000 drugs discovered gets to clinical trial stage lasting up to six to seven years. And, only 1 in 1,000 gets to the Food and Drug Administration (FDA) review stage that may take up to two years for approval. Prof Harin highlighted the link between malaria drug research, changes in treatment policy, and reduction of malaria incidence. A major challenge to malaria drug research is the financial costs. The average cost for clinical trials is US$36,500 per person. The prohibitive costs means that clinical trials are reducing.

Dr Rob James (MD)**. Project Manager. The Walter and Eliza Hall Institute of Medical Research –** *An Approach to P.vixax Malaria Elimination in the Solomon Islands. The ACT-Radical Study***.** Dr. James shared information on their research project in Guadalcanal Province, Solomon Islands, where they applied three different anti-malaria medication regimes in the treatment of *Pv* malaria. One of the medications used was Primaquine – a drug that causes damage to red blood cells and anaemia in patients with G6PD deficiency. Patients on Primaquine were monitored for haemolysis (breakdown of red blood cells). Dr. James related some of the challenges of conducting research in the Solomon Islands. A challenge is the low community awareness of malaria management; and low treatment compliance.

Edgar Pollard, PhD Candidate. James Cook University. *Insecticide impregnated outdoor screens***.** Mr. Pollard is a RAM PhD scholarship recipient who is in his final year of his candidature. His research highlighted the need for outdoor malaria vector control tools because mosquitoes are biting from 6pm onwards. In his research, he studied the use of mosquito barrier screens over 80 nights in the Solomon Islands and Cairns, Australia, to determine best practice such as type of colour; screen thickness and height. Mr. Pollard's findings suggest that black and green screens are superior. Thickness of the screen is important and thick screens do not work as well. Other factors to consider are the need to allow airflow with recommended screen thickness of 70% shading with a minimum height of at least 1.2meter. The barrier screens were placed in three areas, close to houses, around village and at larval sites. Further research is needed to measure impact of the screens as vector control; the impact of sun and weather exposure on the screens; and community acceptability of the screens. In conclusion, the screen is a potential new malaria vector control tool.

Malaria Video Competition – Viewing of the malaria videos took place at the Conference dinner on Saturday 25th August. Thank you to Virginia Turner for her

work in driving and coordinating the video competition. Conference delegates enjoyed the opportunity to view and judge three videos submitted by primary school children in Victoria and Queensland. The children were required to film a video on the protection of babies and young children from malaria. Results were as follows: Brighton Primary School, Victoria, won first prize of $700: Balwyn North Primary School, Victoria, won second prize of $400; and the third prize of $300 went to Faith Lutheran Junior School, Thornlands, Queensland. All videos can be viewed on the RAM website. As advised by Virginia, if the competition is to continue, we need to start preparing schools to enter this national RAM competition in 2019.

Conference Day Two: Sunday 26th August 2018

RAM Annual General Meeting. Dave Pearson, National RAM Manager, presented RAM's financial review and budget allocation for PNG, Solomon Islands, Timor Leste and NTT (Indonesia) in 2018-2019. An additional source of funding for RAM in this year is the USA251,334 Rotary Global Grant for RAM in Timor Leste. There is also the potential for RAM to apply for a DFAT funding for the Solomon Islands. RAM procedures document review will be undertaken in the coming year. Dave announced that Dr. Jenny Kerrison (PhD) is the new National RAM Deputy Manager. Nominations were called for the vacant positions of RAM National Secretary and Media and PR Officer. These positions remain available.

PDG Graham Jones, Project Manager Rotary District 9640 Malaria Vaccine Support Project provided an update on the PlasProtecT Malaria vaccine project that is undertaken at the Institute of Glycomics, Griffith University. The project was launched on 27 March 2017. This is a multi-district Rotary project. The initial target was $500,000. Rotary D9640 is close to achieving $500,000. With new clinical trials challenges, the project has a new fund raising target of $1 million.

Professor Michael Good Principal Research Leader and National Health and Medical Research Council Senior Principal Research Fellow, Institute of Glycomics, Griffith University**.** *Malaria: the path to discovering a whole parasite vaccine*. Malaria is in the 10 top causes of death in low-income countries. Four of 10 deaths occur in children. Natural immunity takes about 5 years to develop in areas of endemic exposure. Gains over last few years were due to bed nets (have biggest impacts); drugs; and *further gains will need something else***.** Prof Good emphasised that *Vaccines save lives.* Vaccines are the most cost effective way to improve public health. Developed elsewhere, the first malaria vaccine RTS,S had 18-36% efficacy during first 3-4 years after vaccination but 4-7% efficacy over 7 year period. At the Institute, research is focused on whole parasite blood stage vaccine that promises to improve vaccine efficacy.

Dr Danielle Stanisic, Senior Research Fellow, Institute of Glycomics, Griffith University. *Development of a Whole Parasite Blood-Stage Malaria Vaccine*. Dr. Stanisic presented on the evaluation and testing of vaccines which takes a long time as they progress through the pre-clinical laboratory and animal studies; human clinical studies (phases 1,2, 3); and approval and license. In the PlasProtecT Malaria vaccine research, a pilot clinical study will identify the correct vaccine dose, safety and tolerance. More clinical trials will be conducted.

Dr. Arnand Odedra. Clinical Research Fellow, QIMR Berghofer Medical Research Institute. Infectious Diseases and microbiology Specialist Registrar, UK*. Using the induced blood stage malaria model to develop new interventions against malaria.* Dr. Odedra described how malaria was induced in volunteers, to allow testing of new medicines on infected volunteers. One of the malaria medicines was Tefanoquine that was tested on 12 subjects volunteers who were successfully treated and did not develop malaria. He also briefly spoke about research to study the transmission model of malaria from healthy volunteers to mosquitoes and transmit on to others. The human challenge models show utility in malaria research and has the potential to accelerate drug development and improve understanding of biology of malaria.

Dr. Merita Monteiro, Head of Communicable Diseases, Ministry of Health, Timor Leste. *Progress, challenges and way forward of National Malaria Program toward Malaria Elimination in Timor Leste.* The background success to malaria elimination was presented. Timor Leste has made huge progress to reduce Annual Parasite Index (API) (malaria cases/1,000 population/year) of 37 in 2009 to API of zero (0) in first quarter in 2018. The country's vision is a 'malaria-free' Timor-Leste by end 2020. The malaria elimination program's three objectives were outlined. In 2017, Timor Leste achieved 103% with long-lasting insecticidal nets (LLINs) (i.e 3% above target). Eighty-two per cent of pregnant women have received LLINs. It was also noted that 101% of a target of 31,201 households received indoor residual spraying.

A major challenge to Timor Leste's malaria elimination plan is imported malaria cases from NTT Indonesia with more than 95% of the cases reported at the border areas between the two countries. The lack of funding for LLINs is another challenge to Timor Leste. The estimated budget required in 2019 is USD248,978 and in 2020 is USD324,581.

Dr. Manel Yapabandara, Technical Advisor for the National Malaria Program, Department of CDC, Ministry of Health, Timor Leste – *Observations on the successful Timor Leste National Malaria Program.* Dr. Manel has worked in Timor Leste for over a decade as a malaria Technical Advisor with the World Health Organisation (WHO). In 2017, she left WHO to join the Ministry of Health (MoH). She shared her story of how Timor Leste reduced malaria cases from 226,230 in 2006 to only 5 imported cases between January to July 2018. Timor Leste is in malaria elimination phase. Dr. Manel highlighted four key factors that contributed to the success in Timor Leste, these are:

- Detail and complete Situation and GAP analysis
- Good National Malaria Strategy and detail costing
- Strong Long Term Technical Support
- Major financial support mainly from the Global Fund starting from 2002 and Rotarian Against Malaria, Australia starting from 2006

Dr. Theresia Sarlyn Ralo, Head , Disease Prevention and Control, NTT Provincial Health Office – *Malaria in Indonesia's Nusa Tenggara Timor (NTT) Province.* West Timor is part of NTT province and is in the western half of Timor island. Dr. Ralo highlighted that malaria cases have reduced in Indonesia between

2012 and 2017. In 2017, 72% of Indonesia did not have malaria and only two per cent of Indonesia is considered as high endemic areas. She provided a comprehensive picture of the state of malaria in NTT province.

Malaria is endemic in NTT province and has the second highest number of malaria cases in Indonesia. Fifteen per cent of the malaria cases in Indonesia were from NTT province. The population of NTT province is 5,609,275. Forty-two (42) per cent of the population in the province (nine of 22 districts) lives in low endemic areas and 24% of the population (7 of 22 districts) in high endemic areas. In 2017, there was Annual Parasite Incidence of 5.39 per 1,000 in NTT and three deaths from malaria disease. Malaria elimination efforts in NTT province are supported by the Governor's regulation no.11, 2017 on malaria elimination in NTT. Several non-government organizations (NGOs) are working with communities in this field. The NTT districts bordering with Timor Leste are: Belu, Malaka and *Timor Tengah Utara* (TTU). Details on the villages that are endemic for malaria were available in the presentation. Dr. Theresia recommended that cross-border work with Timor Leste needs to focus on: (1) early diagnosis and treatment; and (2) improve resources at the service.

Due to a late finish of the presentations, RAM program planning was not done and the closing speech was not presented.

Closing Notes

Dr Jenny Kerrison (PhD), National Deputy Chair for RAM. *Closing Speech (not delivered).* Congratulations to all who have made this RAM Conference a success. District 9640 has done a wonderful job of hosting us.

As DG Terry Brown D9640 said, the Conference has certainly been very informative with presentations on recent researches, innovations and updates on malaria elimination progress in our partner countries. RAM's vision is to support our partner countries to achieve malaria elimination. To support these countries, RAM must advocate to Rotarians that malaria kills many more people than some other diseases. Our partner countries' presentations were humbling and are the reasons that drive RAM and our presence at this Conference.

A clear message conveyed over the last two days was that innovations and researches are important to develop better tools for use in malaria elimination. In the meantime, as advised by Prof Dennis Shanks, we need to *maintain sense of progress and success. …[and] a great deal can be done with what we have now.* If we are daunted by the enormity of our tasks ahead, Assoc Prof Helen Evans reminded us of Prof Feasham's advice (speaker at the first Malaria World Congress in Melbourne) when he said *Make your commitment and go for it.*