Vector Control Capacity Building and Information Sharing: how APMEN’s accelerating malaria elimination in Asia Pacific

Speaker: Htin Kyaw Thu
Programme Coordinator (VCWG)
Technical Specialist, Malaria Consortium

Leo Braack
Technical Coordinator (VCWG)
Senior Vector Control Specialist, Malaria Consortium

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Number of Indigenous Cases

0
1 – 20,000
20,001 – 100,000
100,001 – 500,000
500,001 – 1,000,000

Source: World Malaria Report 2018
Key vector control challenges in Asia-Pacific

- High species diversity of vectors in many morphologically indistinguishable species groups/complexes
- Outdoor biting and animal feeding
- Forest transmission and cross-border migration
- Shortfalls in entomological expertise and capacity
Online Resources Exchange Network for Entomologists (ORENE)
Website for information exchange
Key Features of ORENE

- Forum & ask the experts
- Directory of entomologists and institutions
- Resource center for latest guidelines, SOP, case studies
- Receive latest news, articles, and updates
APMEN
Online Resource Exchange Network for Entomology (ORENE)

A Community of Practice for Vector Biologists in the Asia Pacific Region

https://orene.org
CASE STUDIES

[Image of Anopheles and AeDES mosquitoes]

https://orene.org
Vector surveillance guidelines, strategies, and SOPs

Anopheles: Vector control guidelines, strategies, and SOPs

Laboratory and insectary SOPs

Anopheles: Study design

Publications

Understanding and documenting the presence and characteristics of local mosquito populations in malaria endemic regions is crucial for the development of targeted and meaningful vector control (VC) interventions. Breeding habitats and behaviours vary according to different Anopheles vectors, and can also be affected by changing epidemiological, ecological, and structural features.

https://orene.org
2nd Malaria Vector Surveillance for Elimination (MVSE)

1st Malaria Vector Surveillance for Elimination (MVSE)

MVSE is the flagship training program initiated by APMEN. It specifically targets capacity gaps in vector identification (morphology and molecular) and mapping, insecticide-resistance testing, and data-informed decision-making for vector control strategies.

MVSE-Brief Download
2nd MVSE Course Booklet-2019SEP26Download
Lecture Notes for Day 1Download

https://orene.org
Useful Links

Vector LearningXchange  
malaria consortium  
IVCC  

RBM Partnership  
To End Malaria

https://orene.org
Sumitomo Chemical and APMEN partner to eliminate malaria in Asia Pacific

Entomology: a missing link for Asia Pacific...

APMEN organized 2nd International Training Course on Malaria Vector Surveillance for Elimination (MVSE) in partnership with Kasetsart University, 29 September to 11 October 2019

New Report on Malaria Eradication from Lancet Commissions

APMEN supports long-term career development for Entomologists
Malaria Vector Surveillance for Elimination (MVSE)
Capacity Building Model for Entomologists
Malaria Vector Surveillance for Elimination (MVSE)

- Capacity building model to improve **vector surveillance skills**
- 14-days course, 1st MVSE hosted by Institute of Medical Research (IMR), Malaysia, 2nd MVSE hosted by Kasetsart University, Thailand

![Morphological identification](image)

![Applying GIS for vector mapping](image)

![Field sample collection](image)

![Insecticide susceptibility assays](image)

[https://orene.org/training_group/malaria-vector-surveillance-for-elimination-mvse/](https://orene.org/training_group/malaria-vector-surveillance-for-elimination-mvse/)
Course contents

1. Malaria vector biology and identification
2. Basic GIS for vector mapping
3. Sampling and processing of malaria vectors
4. Mosquito identification using bench aids and pictorial keys
5. Malaria: Current status globally, regionally, background to malaria control – Elimination continuum and Challenges
6. Adult Mosquito Insecticide Susceptibility Bioassays (WHO tube and CDC bottle):
7. Methods and purposes of mosquito colony establishment and maintenance: Basic infrastructural considerations, egg, larval, pupal, adult considerations, Aedes, Culex and Anopheles
8. Quality control of Anopheles spp. identification
Course evaluation

**Knowledge assessment** (Pre/Post training)

**Practical skill assessment** (Post-training)

Passing score
Impact

• Developed a much needed capacity building model for Vector Surveillance for NMCPs

• All front-line entomologists from all 21 APMEN countries trained

Future Strategies

• Improvements and refinement for the current model

• To replicate and integrate this model to in-country capacity building initiatives
Key lessons learnt from this training

• Standardizing which keys to be used
• Wide species diversity makes difficult which specimens to be used for ID and making specimens more geographically representatives
• Need for adequate space, equipment, and facilitators
• Opportunity to include other genera of vector borne-diseases common to the region
• Opportunity to include molecular diagnosis methods
• Linking knowledge to practical application and decision making exercises

Theory
• Brief lectures
• Mosquito classification, taxonomy, bionomics and associated infectious diseases

Practicum
• Laboratory/morphological ID
• Basic Morphological Diagnosis
• Using keys (dichotomous or interactive WRBU/Lucid ID keys

How to search resources
• Literature
• Taxonomic names from WRBU catalogs and other websites
Conceptual model of future MVSE

- Vector Surveillance
- Vector Mapping (GIS)
- Morphological Identification
- Molecular Methods
- Insecticide Resistance Monitoring

- Expand the focus from *Anopheles*
- Geographic representation of Specimens
- Problem-solving approach
“Entomologists play a key role in the national malaria program. Having specifically trained at MVSE Training Program, it allows the entomologists within the National Department of Health as well as in our research arm is a step forward for PNG as this will highlight the interest and substantiate the importance of the entomological information produced in the vector surveillance movement towards vector-borne disease control and elimination in my country.” -- Ms. Naomi Vincent, Vector Borne Disease Surveillance Officer, National Department of Health, Papua New Guinea
RBM – APMEN Linkages in Capacity Building

- South-to-South collaboration and sharing of resources
- Development of training manuals for field-level entomologists for NMCPs for foci investigation and response
- Development of curriculum for formal education medical entomology
- APMEN can assist in developing these curriculum and roll out of trainings
Thank you

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SUMITOMO CHEMICAL

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