RBM Vector Control Working Group

Entomological Monitoring and IVM Work Stream

Progress Against 2011 Work Plan – Dr. Raman Velayudhan

Dr. Velayudhan presented the IVM work stream, describing the process for producing guidance on national IVM policy development and ultimately its uptake by national programmes. The example of a combined lymphatic filariasis and malaria control programme was described. Here the three essential components, institutional arrangements, regulatory frameworks and decision-making criteria and skills have been developed. Key available IVM publications include "The Handbook for IVM", "Guidance for policy development on IVM" and the "Core structure for training curricula for IVM". A Monitoring and Evaluation guide for IVM and case studies are currently under development.

Discussion
Participants felt that there was a need to measure the impact that vector control interventions for malaria have had on other tropical diseases, including lymphatic filariasis. It was reported that in Tanzania the vector of tick-borne relapsing fever, *Ornithodoros moubata*, has been virtually eradicated. This could be another example worthy of documenting.

A major theme of discussions was the need to strengthen capacity for entomological monitoring, as this expertise is vital in supporting the continued use of insecticide-based control methods. It was noted that a relatively small proportion of the funding currently going into countries for the implementation of vector control interventions would be required to establish and maintain the requisite levels of entomological expertise. It was reported that the EMRO Regional Commission has developed a resolution in this area and WHO-EMRO is working with countries to set aside funding. North Sudan is apparently the only country in Africa to have 2 MSc level entomologists in each district, as well as 75 sentinel sites. The North Sudan experience is worth documenting, including the positive experiences in maintaining staff commitment and retaining trained staff.

4th Entomological Monitoring and IVM Work Stream Meeting

Wednesday 8th February 2012
IFRC, Salle V, Geneva, 9:00-12:00

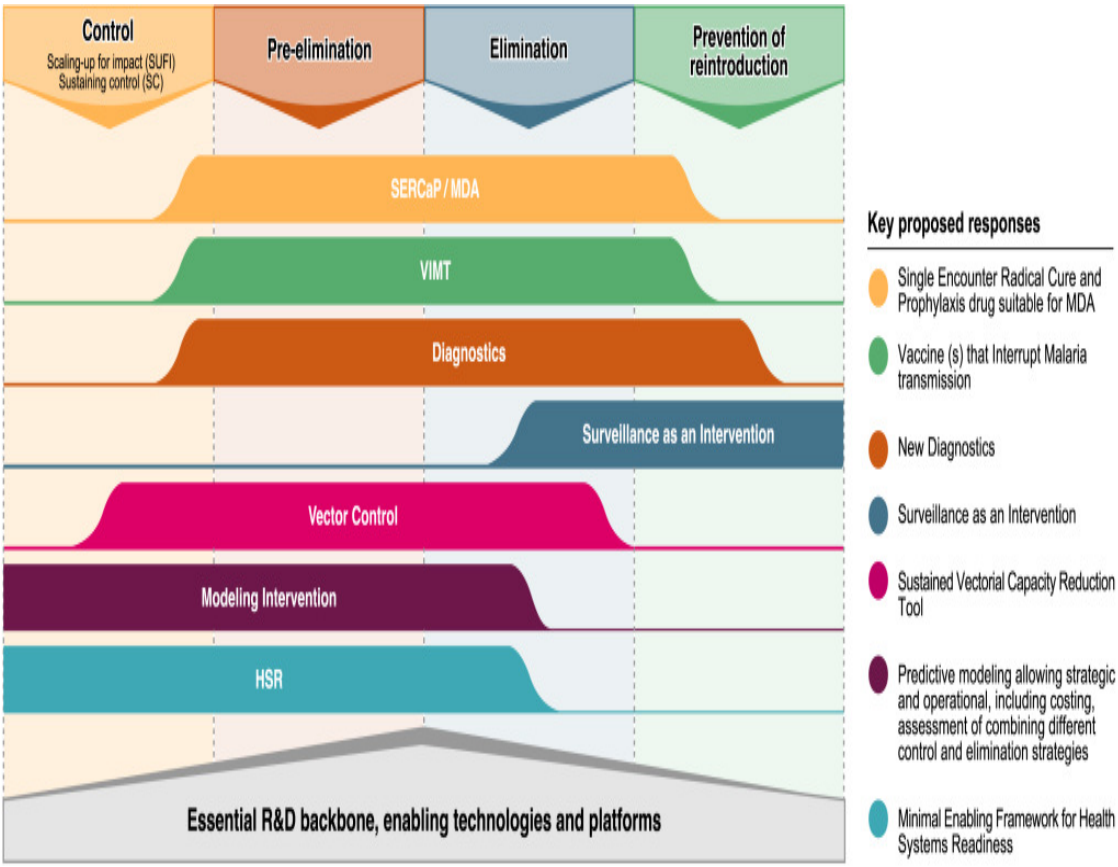
Co-leaders: Dr. Jacob Williams and Dr. Raman Velayudhan
Rapporteur: Dr. John Silver

The group meeting began by reviewing the progress made in IVM activities especially for advocacy, capacity building and networking of IVM. The meeting also took note of the publication of three key documents by WHO recently. These are guidance on policy development for IVM, core curriculum for IVM and the Handbook on IVM.

The major issues discussed by the group are below:

1) Entomological monitoring for malaria elimination

The role of entomological surveillance in malaria elimination was discussed. Dr Williams introduced the topic and highlighted the role through the publication of Alonso *et al* 2001:



The main role of entomological surveillance is to prevent and reduce spread of residual transmission or new active foci. It also plays a role in:

- Early warning & detection system (currently epi-focus)
- Implications for vector control/contribution
    a. ID early indicators on VC
    b. Reorienting program management and implementation
        Deploying appropriate intervention mix to prevent or control outbreak
    c. Pre-emptive intervention strategy
    d. Reducing lag time b/n outbreak and deployment

2) Capacity building

Dr A.P. Dash gave a presentation on the initiative of south East Asia region to address IVM. A two week course was organised at the vector control research centre Pondicherry to train program managers on IVM. Over nine countries from SEAR attended the workshop which also included field activities. Participants have commented the course very well and plans are underway to hold follow up activities.

The meeting also heard the plans of global alliance to hold a follow up workshop in Africa and RTI/USAID to hold another workshop in American region.

3) WHO position statement on Lymphatic filariasis – Malaria Integrated Vector Management

The World Health Organization (WHO) promotes integrated vector management (IVM) to improve the cost effectiveness of vector-control operations, and to strengthen the capacity of programmes, partnerships and intersectoral collaboration in their efforts to control vector-borne diseases. The IVM approach aims to contribute to achieving the global targets set for vector-borne disease control by making vector control more efficacious, cost-effective, ecologically sound and sustainable.

This position statement addresses the use of IVM for two of the most important vector-borne diseases: malaria and lymphatic filariasis. The IVM approach is useful and appropriate for jointly managing control activities against malaria and lymphatic filariasis in terms of planning, implementation and monitoring, particularly in areas where both infections are transmitted by the same species of mosquito vectors. IVM may concurrently reduce the incidence of both diseases so that control efforts have synergistic effects. In this way, IVM enables resources to be used more efficiently to control multiple vector-borne diseases and thus they have a greater impact on public health than would be the case with control programmes aimed at a single disease. The multi disease strategy can be applied to other vector-borne diseases within the framework of IVM and an integrated approach to controlling neglected tropical diseases.

Malaria and lymphatic filariasis are the two vector-borne diseases that account for the largest global burdens of mortality and morbidity, respectively. More than half the world's population is at risk of at least one of these diseases. There is overlapping geographical distribution of these diseases in large areas of Africa, Asia and the Americas. Historically, there is evidence that efforts to control malaria have inadvertently resulted in the interruption of transmission of lymphatic filariasis in some areas, such as the Solomon Islands. *Anopheles* mosquitoes transmit both malaria and lymphatic filariasis and many other types of mosquitoes also transmit lymphatic filariasis. Vector-control methods can effectively reduce transmission of these infections. In Africa, where *Anopheles* mosquitoes transmit

both the malarial and lymphatic filariasis parasites, scaling up coverage of insecticide-treated mosquito nets and implementing indoor residual spraying will reduce the transmission of both these diseases. The *Culex* mosquito is the most widespread and important vector of lymphatic filariasis in Asia, eastern Africa and the Americas. This mosquito can be readily controlled by improved sanitation. In addition, malaria vector control activities using insecticide-treated mosquito nets and indoor residual spraying will impact *Culex* mosquitoes and reduce transmission of both lymphatic filariasis and malaria. Using an IVM approach allows programmes to control malaria and lymphatic filariasis to coordinate and benefit from each programme's activities, thus enhancing their overall impact on public health. In particular, the recent and unprecedented scaling up of coverage of malaria vector-control activities that has occurred since 2006, especially in Africa, is likely to have substantial additional public-health benefits in sustaining the elimination of lymphatic filariasis. These benefits must be taken into account in assessing the cost effectiveness of interventions that are jointly targeted against the vectors of both diseases. The strategies of all vector-control programmes should be based on IVM. Vector control implemented as a multidisease approach through IVM is recommended for malaria and lymphatic filariasis in:

- Areas co-endemic for malaria and lymphatic filariasis;
- Areas where the vectors of malaria and lymphatic filariasis are both affected by the same vector-control interventions (insecticide-treated mosquito nets, indoor residual spraying, and larval control).

As part of their integrated strategy to control multiple diseases, WHO will be organising a planning meeting with member countries in Accra, Ghana in March 2012.

4) Monitoring and Evaluation of IVM

The WHO has developed a guidance document on M&E of IVM. The main purpose of this document is to guide countries in the monitoring and evaluation of the implementation of their national IVM strategy, which will help them making improvements where required. The secondary purpose is to propose standard methods that will facilitate the monitoring and evaluation at the regional and global level. The document developed is in line with the operational framework presented in the *Handbook for integrated vector management*. The specific target audience is the multidisciplinary technical working groups tasked with the development of procedures for monitoring and evaluation of IVM as well as those involved in carrying out the monitoring and evaluation activities. The challenge in M&E is how to measure the 'transformation of vector control'; how to assess the positive change taken place in each of IVM's components, from policy to capacity building. Therefore, the expected outcomes should be defined, and indicators that are specific to these expected outcomes and that will be easy to measure should be identified. Table 1 outlines the proposed outcome indicators of IVM. These indicators are discussed in detail in the document which is expected to be published soon.

Table 1. Proposed outcome indicators, arranged according to the main components of integrated vector management (IVM)

Component of IVM		Outcome indicator	Data type
Policy	1	National IVM policy in place	L
	2	National policy on pesticide management in place	L
Institutional arrangements	3	National steering committee on IVM in place	L
	4	National coordinating unit on vector control in place	L
			L
Organization and management	5	Standards for professions and a career track in vector control and public health entomology in place	L
	6	Number (and percentage) of targeted staff with job descriptions that make reference to vector control	N
Planning and implementation	7	National strategic and implementation plan on IVM in place	L
	8	Number (and percentage) of targeted staff trained on IVM	N
	9	Epidemiological surveillance system on vector-borne diseases in place	L
	10	Number (and percentage) of targeted sentinel sites with functional vector surveillance and insecticide resistance monitoring	N
	11	Number (and percentage) of operational research priorities on vector control that have been addressed	N
	12	Number of operational research outcomes on vector control that have been utilized by implementation programmes	N
Advocacy and communication	13	Advocacy meetings on IVM in place	L
	14	Number (and percentage) of targeted stakeholders that have allocated resources for vector control	N
Advocacy and communication	15	Number (and percentage) of targeted villages that received campaigns on behavioural change on vector control	N
	16	Number (and percentage) of targeted villages where communities have been mobilized on vector control	N
Capacity-building	17	Certified training courses on IVM and judicious use of pesticides in place at national or Regional level	N

L, logical data (yes/no); N, numerical data

Impacts of IVM are expected in terms of a reduced risk of transmission, a reduced disease burden, and an improved cost-effectiveness of operations, improved ecological soundness and sustainability. Indicators to measure the impact in these areas are proposed in Table 2,.

Table 2. Expected impacts and proposed indicators for measuring impact of integrated vector management (IVM)

Expected impact	Impact indicator
Reduced risk of transmission	Vector-related parameters
Reduced disease burden	Prevalence rate and incidence rate of vector-borne disease
Cost-effectiveness	Cost per disease case averted per year
Ecological soundness	Toxic units of insecticide used per disease case averted per year
Sustainability	Strategy in place that enables continued mobilization of resources for vector control

The meeting discussed these indicators and made some suggestions to improve the document further.

5) Develop a position paper on Landing catches

The meeting discussed the need for WHO /GMP to develop a position paper on ethical consideration for the use of human landing catches for monitoring and evaluation of the vector control interventions. It was suggested that RBM VCWG should create a small team to evaluate data assessing risk of these methods and work closely with NIH, CDC and other stakeholders to develop a concept note for submission to GMP.

Actions and 2012 Work Plan

1. Manuals: 3 documents
2. Guidance on "minimums": Competencies and skill sets; entomological M&S; program evaluation
3. Training: IVM TOT course organised in SEARO
    a. Modules for lower levels
    b. Post graduate courses in India (two groups)
4. Support Country Needs Assessment: PAHO Workshop on Vector Control Needs Assessment leading to support for select countries on VCNA
5. Meeting Ghana: Develop framework to assess impact of MVC investment on lymphatic filariasis and Loa-Loa endemic countries (5-9 March 2012)

Agenda	
9.00 - 9.30	***Welcome and introduction*** ***Adoption of the Agenda***
9.30 - 10.15	Malaria elimination and IVM Entomological surveillance Skill competencies/technical competencies Regional workshops PAHO (IVM, VCNA) Regional workshop (SEAR) ***Discussion***
10.15-10.30	IVM -case studies VCNA in Africa
10:30 – 10:45	Morning break / coffee and tea
10.45 - 11.15	IVM -case studies (continue) WHO position statement on IVM to control malaria and Lymphatic Filariasis Discussion
11.15 -12.00	Monitoring and evaluation indicators for IVM ***Discussion***
12.00 -12.15	Wrap up session
12:15 – 13:00	Lunch (sandwiches)

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