Enhancing AMI Technical Support for Sustainable Malaria Vector Control:

A 3 - year joint work plan

by

PAHO, CDC and RTI

1. Introduction

The Amazon Malaria Initiative (AMI) aims at containing and eliminating malaria in the amazon basin. One of the main line of interventions is *"Improve decision-making in malaria vector control"*, with a specific activity of assisting beneficiary countries in "*Implementing integrated vector control through selective control application*". AMI seeks to generate shared experiences/lessons on evidence-based interventions, through functional networking with other countries in the region and globally.

Countries in the region of the Americas have had significant successes in malaria vector control in the past, with noted deployment of long-lasting insecticidal nets and indoor residual spraying. Some countries developed and still maintain significant national capacities in terms of vector control infrastructure (laboratories) and high caliber entomologists. However, for a number of countries, technical, managerial and operational capacities for effective malaria vector control have diminished over time. Even for those countries with excellent institutions on entomology, national malaria control programs (NMCPs) still face significant challenges, as these centers of excellence are focused on research and often not effectively mobilized to support the routine programmatic decisions of the NMCPs. The onset of decentralization in some countries also led to distortions in the distribution of relevant technical competencies, and resources, leaving vector control at the sub-national levels inadequate in many areas. Non-health stakeholders/sectors are less involved as may be desirable for effective management of local vectors of malaria, mostly as a result of inadequate institutional arrangements for inter-sectoral action.

A number of AMI countries have also indicated frustrations with access to harmonized indicators and simplified and user-friendly aids on standardized methods for vector surveillance. Another priority area often mentioned by countries is the need to further enhance national policies and institutional frameworks to address these constraints and improve the mobilization of all relevant national assets for cost-effective and sustainable control.

Feedback from countries and AMI Steering Committee meetings indicate that the vector control sub-activities of the Initiative have lacked a visible overarching operational goal; vector control partner activities seem to be developed in isolation and coordination is less than desirable. Cognizant of the above concerns, the vector control partners (CDC, PAHO and RTI) met in October 2011 to review ongoing activities, identify shared end-goals for vector control consistent with the overall AMI objective, and identify opportunities for enhancing coordination and joint action. An outcome of the meeting was a harmonized 3-year work plan – integrating current activities and identifying priority actions that will

provide a sustainable framework within which to progressively build upon, and evaluate actions and impacts.

1.1 Providing a framework to contextualize and measure efforts on vector control

The World Health Organization recommends national transition to integrated vector management (IVM) to improve the scale up, impact and sustainability of vector control. Defined as *"a rational decision-making process for the optimal use of resources for vector control"* (WHO 2008), IVM provides a framework for ecologically sound, cost-effective and sustainable management of the local vectors of malaria and other human diseases. The IVM approach enables in-depth evaluation of the national status of vector control and to devise realistic modalities to address a broad range of constraints. The key elements of IVM are summarized in Box 1.

Box 1: KEY ELEMENTS OF IVM

1. **Advocacy & social mobilization**: IVM principles are embedded in the development policies of all relevant agencies, organizations and civil society.
2. **Legislation:** Regulatory and legislative controls for public health and pesticide management are well established, reviewed and kept relevant.
3. **Collaboration within the health sector and with other sectors**: Functional collaboration within and between public and private sectors. Effective channels of communication among policymakers, vector borne disease control programs and partners.
4. **Integrated approach**: Rational utilization of available resources, including appropriate integration of non-chemical and chemical vector tools and methods and multi-disease control approaches.
5. **Evidence-based decision-making**: Strategies and interventions are adapted to local ecology, epidemiology and resources, guided by operational research and routine monitoring and evaluation.
6. **Capacity-building:** Essential physical infrastructure, financial resources and adequate human resources developed at all levels to manage programs

Resolution CE142.R9[1], of the 142 Session of the Executive Committee of PAHO in 2008, recommended promotion of IVM as an integral part of vector-borne disease management among members states. The resolution also urged support to countries in the planning, implementation, monitoring, and evaluation of IVM activities and appropriate capacity building.

2. Objectives of the Joint Work Plan on Vector Control

Consistent with the recommendations of PAHO and to directly support the achievement of the vector control objectives of AMI, the vector control partners (PAHO, CDC and RTI International) have

[1] www.paho.org/english/gov/cd/cd48-13-e.pdf

developed the following joint 3-year work plan to enhance coordination and technical support to countries.

2.1 Overarching objective

The overall objective of the joint work plan is that:

All AMI/RAVREDA countries are able to undertake ecologically sound, cost-effective and sustainable management of the local vectors of malaria and respond adequately to changes in local eco-epidemiology.

2.2 Specific objectives

1) Countries strengthen/establish national IVM policies, strategies, and work plans
2) Countries develop the necessary human resource and infrastructure to generate and utilize relevant data on the local eco-epidemiology of malaria transmission to inform decision making on vector management. This includes capacities for effective entomological surveillance and monitoring.
3) Countries develop the requisite competencies and capacities to plan, implement and deliver quality interventions and evaluate the outcomes and impacts of interventions.
4) Appropriate institutional arrangements are established by countries, for effective mobilization of all relevant national resources and stakeholders, including research and academia for joint action for vector control.
5) An effective regional mechanism is established to enable sharing of experiences, lessons and exchange of ideas
6) Partner institutions in AMI/LAVREDA provide well-targeted technical support, to facilitate effective national transition in IVM and to achieve the broader goals of AMI.

3. Details of work plan

The joint work plan is summarized as Annex 1 to this report. The following sections explain the how the specific objectives will be met, including the role of partners and deliverables for each of the 3 years. The work plan envisages a two-prong approach:

Approach 1: Current discrete on-going/planned partner vector control activities under AMI will continue. These discrete activities have been contextualized in the joint plan – showing how they form part of activity groupings that will contribute to achieving the specific objectives. Activities include current support by CDC and partners in Nicaragua & Guatemala to assist evaluations of the durability, longevity & coverage of LLIN distribution. This activity is anticipated to lead to the development of protocols on best practices to inform future implementation. Other on-going activities include clarifying the species complex of *Anopheles (Kerteszia) neivai* by CDC, as well as the development of updated taxonomic keys by PAHO.

Approach 2: A core principle for developing this joint work plan is to support the creation of overarching national and regional contexts on priorities for the effective management of malaria vectors in the Amazon Basin; the acceleration of national transition to IVM; and providing a sounder basis for rationalizing future technical support by AMI partners to countries.

As a first step, a detailed review of the current status of vector control and the opportunities for increasing operational efficiencies and maximizing sustainable reduction in local disease burdens, will be undertaken beginning in the first half of 2012. This review has been termed, Vector Control Needs Assessment (VCNA), and forms part of the WHO Strategic Framework on IVM. Beginning in the first half of 2012, countries will be divided into groups of 6 and supported to undertake VCNAs

The specific objectives of the VCNA are:

a. Review the policy framework and institutional arrangements for vector control;
b. Review the burden of vector-borne diseases and the status of their control, including the planning, implementation and management of operations and existing constraints;
c. Identify opportunities for addressing the constraints and facilitating national transition to IVM, including processes to utilize the findings of the VCNA reports for the development of national IVM strategies and work plans.

A workshop will be organized to train country leads and selected consultants on the VCNA process and also afford a more detailed review of the IVM concept. Participating countries will subsequently be grouped into teams of 6 and supported to undertake VCNAs (consultants and staff of AMI partners, will work with NMCPs, as needed).

3.1 Linking VCNA outputs to achievement of specific objectives

The VCNA process will:

a. Provide a sound basis for enhancing/developing overarching national IVM strategies and work plans. The IVM strategies will foster appropriate policy and institutional frameworks for effective and sustainable vector management.
b. Assist prioritization of needs for vector control by each country and identify viable options for addressing them. Emphasis will be placed upon needs to achieve the 6 objectives of this joint work plan.
c. Enable the integration of the discrete, on-going activities of AMI partners into the broader context of national strategies

The individual national VCNAs should also provide opportunity to identify common issues and opportunities among the countries and enable cross cutting/region-wide programming by AMI.

3.2 Major areas of action

- The AMI partners, in close coordination with countries, will detail critical/minimal competences and activities that should be in place for credible national malaria vector control. As part of the VCNA process, each country will be supported to detail out the critical mass and placement of human resources and basic infrastructure for effective management of local vectors. Based on the VCNA, national plans of action will be developed to address the needs and countries will be supported, as much as possible, to implement the plans during the subsequent years.
- Support will be provided to strengthen national capacities to generate and manage relevant local data to inform national decisions. Particular emphasis will be placed on entomological monitoring (based on a harmonized entomological indicators and surveillance schemes for the AMI region). Tools being developed by the AMI partners (e.g. operational guidelines, as well as videos and

manuals on standardized entomological monitoring methodologies) will be linked with tailored training opportunities to develop the critical mass of field level competencies within countries for routine entomological surveillance and M&E of interventions.

- Particular emphasis will be placed on facilitating the implementation of national surveillance schemes, particularly on insecticide susceptibility and resistance monitoring. Information generated will be used to build national profiles on resistance and collated into a region-wide profile to develop overarching resistance management strategies for the region. Enhanced and picture-based taxonomic keys will be developed to assist the identification of local vector species. Partners will undertake targeted training on the use of the keys to facilitate quick assimilation and utilization of the keys.
- Existing guidelines on LLIN and IRS deployment will be harmonized and adapted to assist country decisions on the selection, deployment and evaluation of the outcome and impacts of these interventions. In particular, the evolution of deployment strategies that enable early detection and response within local areas as suppressed malaria transmission approaches elimination. Emphasis will be placed on measures to reduce the lag time between detection and response.
- Opportunities for exchanging expertise and lessons learned between countries will be aggressively pursued to build strong communication and ‘bridges of learning’. In addition, the AMI partners will roll out a platform for collating, managing and pro-active exchange of national experiences and lessons learned (including a central depository for regional information on vector control).

1. Annex 1: Objectives, activities and deliverables of joint 3-year work plan

Objective 1: Countries establish/strengthen national policies, strategies and work plans on IVM						
Area of work	**Activity**	**Partners**		**Deliverables**		
			Role	**Yr 1**	**Yr 2**	**Yr 3**
Capacity building	Conduct orientation workshops on IVM and how to conduct VCNA for partners, and Program managers of VCNA countries and consultants		RTI to lead in close collaboration with AMI partner focal points to plan, and conduct workshop	(1) workshop conducted (2) report of workshop	Information sharing workshop on IVM (1) to evaluate all findings of VCNA, (2) review progress on IVM strategy dev for set 1 countries and (3) , prepare second set of VCNA countries	Information sharing workshop on IVM (1) to evaluate all findings of 2nd set of VCNA, (2) review progress on IVM implementation dev for set 1 countries and (3) , review progress on IVM strategy dev for set 2 countries
Policy , Strategy and work plans on IVM	Conduct, as part of VCNA, a review of country policies and strategies in terms of adequacy for IVM implementation	RTI PAHO CDC	Undertake TDY to selected countries; engage inclusion of national stakeholders; conduct relevant data collection and evaluation; develop report in close coordination with NMCPs and AMI partners; country validation workshop on VCNA report	(1) VCNA Report on country status and prioritizing needs for IVM (Guatemala, Colombia, Ecuador, Bolivia, Guyana*),	VCNA Report on country status and prioritizing needs for IVM (second set of 6 countries)	
	Support development of National IVM strategies assessment countries based on the VCNA, to provide overarching policy framework for sustainable management of local malaria vectors	RTI PAHO CDC	Support establishment of national steering committee; draft IVM strategy with NCMP utilizing VCNA report and other information; seek national stakeholder input; country validation workshop on IVM strategy	Initiate support to first set of 6 countries to enhance existing MVC strategies into comprehensive National IVM strategy following VCNA completion	• Facilitate initiation of IVM strategy implementation for first set of 6 countries, including elaboration of implementation work plans • Initiate enhancement of National IVM strategy for second set of 6 countries	(1) Facilitate initiation of strategy implementation for second set of 6 countries (2) Continue implementation of strategy for first set of 6 country (3) reports on lessons and experiences

Objective 2: Countries develop necessary human resource and basic infrastructure to generate and utilize relevant data on the local eco-epidemiology of malaria transmission to inform decision-making on vector management.						
		Partners		**Deliverables**		
Area of work	**Activity**		**Supporting**	**Yr 1**	**Yr 2**	**Yr 3**
Develop country capacities and competencies	Support comprehensive VCNA in 6 priority countries (refer to objective 1)	All		Needs for HR and infrastructure identified as part of VCNA for first 6 countries		
		All			Needs for HR and infrastructure identified as part of VCNA for 2nd set of 6 countries	Plan of actions and options for developing local competencies developed and implementation
	Develop detailed implementation plan for HR and basic infrastructure based on VCNA.	All			Implementation plans for HR and basic infrastructure (insectaries, entomology labs, equipment, supplies etc) develop for first set of 6 countries	Action plans for HR and basic infrastructure (insectaries, entomology labs, equipment, supplies etc) develop for second set of 6 countries
		All			Prioritize and implement action plan on HR and basic infrastructure/supplies	
	Assist countries to monitor insecticide resistance as part of national surveillance schemes	All		Annual country specific profiles compiled		
	Undertake ongoing monitoring of insecticide resistance and annual update of regional tables	All		Develop an annual update of regional profile on vector resistance		

Objective: 3. Countries develop the requisite competencies and capacities to plan and implement quality interventions and evaluate the outcomes and disease-level impacts.						
		Partners		Deliverables		
Areas of work	Activity		Role	Yr 1	Yr 2	Yr 3
Develop country capacities and competencies	National Vector Control Needs Assessment VCNA countries (refer obj 1)	All	(refer Objective 1)	Report of VCNA detailing competency and capacity needs	Needs for competencies and cap identified as part of VCNA for 2nd set of 6 countries	
	Develop detailed implementation plan strengthen program management and priority competency/skill areas based on VCNA.	All			Implementation plans develop for first set of 6 countries	Implementation plans develop for second set of 6 countries
					prioritize and implement plans; report and disseminate	
Generic Tools	Increase capacity in the identification of malaria vectors in the region through the development of updated taxonomic keys	CDC	Clarify species complex of *Anopheles* (Kerteszia) *neivai* to input into keys	interim report on progress	final report on findings	field test, finalize and publish and disseminate taxonomic keys
		PAHO	Develop updated and picture-based taxonomic keys	interim report on progress	Updated taxonomic keys completed	
	Conduct targeted training on the use of new taxonomic keys for target countries	PAHO, CDC		Training conducted and countries utilizing new taxonomic keys		
	For countries where VCNA indicates need for introducing and/or enhancing the delivery of specific intervention - conduct country level training for various categories of workers (program management, field and lab workers, etc)			Develop targeted training programs	Conduct training of various skill categories and strategic approaches to interventions, based on specific country needs	
	Adapt existing USAID's NMCP management assessment toolkit that was [developed by HS20/20 and RTI]	RTI, PAHO, CDC		Toolkit adapted and translated and used of part of VCNA process	Dissemination of toolkit	

	Develop training material on Entomology: (i) training videos on various standardized entomological methods and	RTI, PAHO	Lead development of tools and manuals	Training videos finalized and disseminated	Countries utilizing tools in training and as reference. Dubbing videos to English and Portuguese	Countries utilizing tool in training and as reference source.
	(ii)accompanying training manual	RTI		Training manuals finalized and field validated	Update, publish and disseminate	
	Adapt existing IRS guidelines (WHO, PMI/RTI) into a comprehensive IRS manual addressing the full cycle of implementation (products separate pieces)	RTI	lead the adaption of existing guidelines	harmonized and adapted guidelines prepared	field test and finalize	
		PAHO				
		CDC	Support review of guidelines			
	Develop comprehensive guidelines for LLIN implementation incorporating prior regional experience and lessons learned	ALL		Conduct peer review and finalize draft LLIN implementation guidelines	Finalize guidelines for LLINs based on field testing	Evaluate need for update of guidelines to incorporate new findings and field experiences from CDC and other field evaluations
Support for Implementation (M&E)	Monitoring and evaluation of LLIN coverage, use and durability under different operational conditions	CDC	CDC entomologists work with partners in Nicaragua & Guatemala to assist evaluation of durability, longevity & coverage of the LLINs that will be distributed in late 2011/early 2012.	(i) Protocols adapted to local context and utilized, (2) End of year and travel reports	ongoing data collection and reporting	Protocols validated and final report prepared

<table>
<tr><th colspan="6">Objective 4: Appropriate vector control information systems are established as an integral part of national disease surveillance systems to enable effective mobilization of all relevant country resources and stakeholders for vector control.</th></tr>
<tr><td rowspan="2">Areas of work</td><td rowspan="2">Activity</td><td colspan="2">Partners</td><td colspan="3">Deliverables</td></tr>
<tr><td>Primary</td><td>Supporting</td><td>Yr 1</td><td>Yr 2</td><td>Yr 3</td></tr>
<tr><td>Structure/ organization</td><td>Assist countries to develop structures to facilitate the flow of information between national stakeholders</td><td>ALL</td><td></td><td colspan="2">Establishment of functional national intersectoral steering committees as part of IVM processes</td><td></td></tr>
<tr><td rowspan="4">Develop country capacities and competencies</td><td rowspan="4">Clarify minimum requirements and information routing for effective collection, management, reporting and decision-making on national IVM implementation</td><td rowspan="4">ALL</td><td></td><td>Needs for info system identified as part of VCNA for first 6 countries</td><td>Needs for info system identified as part of VCNA for 2nd set of 6 countries</td><td></td></tr>
<tr><td></td><td colspan="3">Support strengthening of relevant infrastructure for information system</td></tr>
<tr><td></td><td colspan="3">Support critical training on data collection management and reporting</td></tr>
<tr><td></td><td colspan="3">Support national schemes for data management and utilization for policy and program improvement</td></tr>
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Objective 5: An effective regional mechanism is established and moderated by AMI to enable sharing of experiences, lessons learned and exchange of ideas.						
		Partners		Deliverables		
Areas of work	Activity	Primary	Supporting	Yr 1	Yr 2	Yr 3
Structure/organization	Development of a central depository for regional information of vector control			Report of partner evaluation on options for regional information system	Mobilize resources, including funding to create the depository	Develop information system and modalities for information exchange

Objective 6: Partner institutions in AMI/RAVREDA provide well-targeted technical support and address knowledge gaps in disease transmission and control to facilitate effective national transition to IVM and to achieve the broad goals of the initiative.						
		Partners		Deliverables		
Areas of work	Activity	Primary	Supporting	Yr 1	Yr 2	Yr 3
Develop country capacities and competencies	Conduct with partners, training workshops based on the outcomes of needs assessment: Entomology technicians (field & lab) training and program managers orientation	All				
	Provide technical assistance in vector surveillance as requested by AMI partners					
Generic Tools	Development of a tool to define LLIN failure	CDC		Protocols for data collection developed and lab trials conducted	Field testing and report	Tool developed
Support for Implementation (M&E)	Provide technical assistance as requested by AMI partners			Technical assistance provided as needed and report prepared		
Operational Research	Support evaluations of mosquito behavior in response to IRS and ITNs	CDC		Guidelines for the use of experimental huts to monitor Latin American Anopheline behavior will be developed, as well as specific protocols for the experiments	Technical report on the results of the evaluation developed and disseminated	
	Strategic Orientation document on entomological surveillance for IVM	ALL		Review, update and validate document	Update as needed to include	

Notes:

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