# final performance evaluation of the amazon malaria intiative

# Executive Summary

PURPOSE OF THE EVALUATION

The main purpose of this evaluation was to identify the contribution of the Amazon Malaria Initiative (AMI) to the ability of National Malaria Control Programs (NMCP) to respond to the challenges of malaria control in eleven partner countries, over 2001-2015. The secondary objective was to evaluate the potential capabilities of these countries to address the evolution of malaria scenarios. Furthermore, the study identified the main challenges that Latin American countries will face vis-à-vis future malaria scenarios, in order to provide recommendations to the United States Agency for International Development (USAID) and other international cooperation agencies on how and where to invest resources. In addition, we assessed the implementation of recommendations from the mid-term evaluation.

PROJECT BACKGROUND

AMI is a USAID initiative aimed at reducing regional malaria-related mortality and morbidity through prevention and control efforts in eleven partner countries. Six of these partner countries pertain to the Amazon Basin (Brazil, Colombia, Ecuador, Guyana, Surinam and Peru) and five are located in Central America (Belize, Guatemala, Honduras, Nicaragua and Panama). Since its inception in 2001, AMI has worked in coordination with the Ministries of Health of the partner countries through their NMCPs, as well as national and international partners (Centers for Disease Control and Prevention [CDC], Links Media, Management Sciences for Health [MSH] and the United States Pharmacopeia [USP]). The program became a cornerstone of the Pan American Health Organization (PAHO) Regional Program on Malaria and an important component in the fight against malaria in the Americas.

AMI conducts a variety of activities through its partners, such as providing technical assistance, disseminating technological innovations, organizing annual meetings, facilitating knowledge exchanges, and providing small funding for pilot projects, among others. Each NMCP plans the activities to be supported by AMI according to national policies and based on its epidemiological profile and health priorities, which are then facilitated by PAHO. Based on best practices, innovations and lessons learned, AMI focused its activities on six lines of work (LOW).

AMI has provided direct technical support to the NMCP of partner countries and indirectly has reached out to other countries in the Americas by integrating its activities with *the Red Amazónica de Vigilancia de la Resistencia a los Antimaláricos* (RAVREDA). AMI has assisted in efforts towards the prevention, control, and eradication of malaria in the Americas within the framework of the PAHO regional strategy and plan of action against malaria. It is not possible to directly attribute specific progress in controlling regional malaria to AMI, since other funding sources have contributed to the implementation of large-scale malaria control interventions during the same period in many countries. Previous evaluations of AMI conducted in 2007, 2012 and 2014 highlighted progress and positive AMI contributions, as well as its key role as a regional initiative, which fomented interaction between partner countries and other key organizations and promoted the adoption of practices, interventions and innovations whose effectiveness had been validated by the NMCPs.

The activities of the program’s six LOWs[[1]](#footnote-1) have demonstrated significant achievements and progress in the eleven partner countries. The total number of malaria cases reported to PAHO in AMI’s partner countries decreased significantly from the onset of AMI until 2015. Additionally, there have been significant contributions from AMI, its partners, and partner countries toward the development and strengthening of technical and managerial capabilities of the NMCP in the partner countries.

There are issues that remain to be addressed. The 2014 AMI Mid-Term Evaluation identified the need to improve activity planning and monitoring and proposed the alignment of AMI with the PAHO strategy and the use of USAID/AMI funds for the institutionalization of RAVREDA at PAHO. In addition, the intensity of malaria reduction and progress achieved has been inconsistent among countries, and some countries have reported recent increases in malaria cases. Finally, the constant change in malaria transmission scenarios in the Americas raises new challenges to which AMI must continually adapt.

EVALUATION QUESTIONS AND METHODOLGY

The evaluation used a qualitative-quantitative mixed methods approach and triangulated study data to answer evaluation questions and sub-questions. The methodological approach also addressed the cross-cutting factors of culture, gender, and special populations, including indigenous communities, dispersed groups, mining camps, and border populations, among others.

1. How have the capacities of partner country NMCPs changed as a result of AMI contributions since 2001?
2. Are existing capabilities sufficient to respond to evolving malaria transmission scenarios? If not, what capacities are missing?
3. What are the main challenges presented by the evolution of regional malaria transmission scenarios that donors must address in order to optimize the use of limited resources?

Box 1: Key Evaluation Questions

The methodology included:

a. In-depth key informant interviews;

b. Content analysis of select documents;

c. Case studies;

d. Analysis of quantitative data obtained from a document review; and,

e. Analysis of malaria in epidemiological databases

from partner countries and the region.

Furthermore, we identified some limitations such as the risk of reporting bias during in-depth interviews, the limited number of systematized experiences, the multiple epidemiological contexts, unobserved scenarios, and limited field visits. These limitations were taken into account in adequately interpreting the findings and reaching conclusions.

FINDINGS

Findings are presented by evaluation question.

1. Change in capacity of NMCP as a result from AMI contributions

**Improved countries’ critical capacities.** The results of efficacy studies conducted with the support of AMI have allowed improvements in countries’ critical capacities, such as updated malaria treatment policies, and plans and/or strategies for monitoring the effectiveness and resistance to antimalarials that respond to changes in the transmission of malaria in the Americas.

**Improved access to diagnosis and routine treatment of malaria.** Partner countries improved access to these services by establishing permanent training and improving supervision capabilities.

**Strengthened microscopic diagnosis quality management.** This was achieved using rapid diagnostic tests based on performance evidence and on molecular features of (HRP2/HRP3) parasites circulating in the region.

**Studies on the quality of prescription practices and startegies to ensure quality drugs and supplies.** Studies have also been conducted assessing the quality of prescribing practices and treatment adherence monitoring. Strategies to ensure the quality of drugs and supplies based on epidemiological scenarios were established. AMI contributed to improve procurement and logistic processes that respond to demand.

**Establishment of vector control policies.** Regarding entomological surveillance, AMI supported partner countries to establish vector control policies and vector map reports for country-specific epidemiological scenarios. Monitoring of insecticide resistance and the effectiveness of spraying and impregnated nets were also improved.

**Improved epidemiological surveillance.** Partner countries also improved their epidemiological surveillance through the use of individual reports, disaggregated for border and other populations in special circumstances.

**Design of communication and education strategies.** On the communications approach, work has been done with healthcare personnel to design communication and education appropriate strategies, in addition to advocacy with decision-makers, communication/education for populations, and community participation.

**Joint solutions through netwoks.** AMI´s innovative contribution to support networking and exchange among countries to identify joint solutions is recognized.

1. Response capacity vis a vis evolving malaria scenarios

*Response capacity to previous scenarios*

AMI has been capable to respond to changing malaria scenarios by expanding its emphasis in all of its LOW, developing activities in each LOW that respond to the changing epidemiologic scenarios. The nature of AMI as an initiative, country leadership in defining their own objectives, the diverse technical capabilities of AMI partners, and the flexibility in applying funds all contributed to the robust adaptability and responsiveness of the initiative.

Strengthened capabilities contributed to malaria control and to preventing re-introduction in malaria-free zones. New scenario challenges were identified, addressed and characterized.

However, some countries have had slower progress in reducing malaria cases, some show increases in the malaria incidence rates in recent years, and other countries have had strong re-emergences and have practically returned to pre-AMI figures. These scenarios call into question whether the elimination of malaria is realistic in the medium-term. As such, what additional capacity is required to face malaria transmission scenarios in the upcoming 3-5 years?

*Additional response capacity required for future scenarios*

**The additional response capacity required for medium-term scenario focuses in remote and endemic places**. In this scenario, there is a need for increases capacity to monitor the efficacy of artemisinin treatment and resistance and extend and ensure diagnosis and quality treatment to remote and special populations. This will require more decentralized diagnostic capabilities as well as training and performance evaluation of microscopists using panel slides at sub-national and local levels. The introduction of new, potentially effective, drugs, such as tafenoquine, is an important opportunity to consider. However, more information is needed regarding glucose-6-phosphate dehydrogenase (G6PD) deficiency in different endemic areas, especially if tafenoquine begins to be used in mass treatment strategies without prior diagnostic confirmation.

**The medium-term scenario requires improvements in the storage and logistical management of antimalarials and supplies, where quality evaluation and supervision should expand to sub-national and local levels.** The capabilities developed by countries with the support of AMI are valuable, but they tend to be more concentrated in the national and sub-national levels and should be sufficiently strengthened at the local level.

In regard to the additional capacity for integrated vector management and surveillance, **a set of vector control interventions with demonstrated efficiency according to each scenario, and which consider vector adaptive capacities is still required**. Similarly, an entomological surveillance that is systematic, continuous, and adapted to major epidemiological scenarios is needed. Regarding epidemiological surveillance, future medium term scenarios require comprehensive and detailed analyses focused on remote endemic populations living in special conditions. These analyses should capture these populations’ micro-epidemiology to permit individualized responses to each scenario. Also, epidemiologic surveillance should be tightly integrated with the entomological surveillance component. **Political commitment and sustained investment in the face of fewer cases of malaria will be crucial in the medium term scenario**. To this end, NMCPs should develop increased communication capacity toward decision-makers, healthcare personnel and population, adopting an intercultural approach for each audience.

1. Identification of main challenges in changing scenarios of malaria transmission

The main institutional, management, and technical challenges are identified in face of the different malaria transmission scenarios:

*Institutional challenges*

* Maintain and increase political commitment for malaria control and investment in low incidence contexts.
* Sustain capacities through decentralization, health reform and new healthcare delivery models.
* Respond promptly to unexpected political and institutional instability and staff shortages.

*Management Challenges*

* Consolidate and institutionalize capabilities, processes, and LOWs at sub-national and local levels.
* Create and strengthen malaria control capabilities for populations living in remote and special settings.
* Improve community participation.
* Produce better evidence of intervention results and impact.
* Improve the ability of monitoring and evaluation to inform decision-making in heterogeneous epidemiological scenarios, especially in low transmission or near-elimination settings, such as evaluating prevention and response capabilities.

*Technical challenges*

* Characterize the micro-epidemiology of remaining transmission targets and design individualized control strategies for populations living in vulnerable, remote or special circumstances.
* Adapt successful interventions for the control of *P. falciparum* to *P. vivax*.
* Introduce new drugs and/or diagnostic techniques that are more effective or sensitive.
* Evaluate and implement effective integrated vector control interventions adapted to different epidemiological scenarios.

CONCLUSIONS

AMI contributed with an innovative work focus on networking and exchange among partner countries that allowed for joint solutions based on evidence. From 2001, AMI contributed to the development of objectively verifiable capacities in partner countries, which coincides temporally with a significant reduction of malaria cases in the region. Within the last 15 years, there is an approximate reduction of 74% in reported malaria cases. Progress has been greater in the monitoring of the efficacy and resistance to antimalarials, access to diagnosis and treatment, and in the management and control of quality of antimalarials. However, these and other capacities tend to concentrate at national and sub-national levels, making it necessary to expand and reinforce them in remote and endemic areas inhabited by populations at higher risk. Capacity expansion to these areas, including its consolidation and institutionalization constitutes a significant management challenge in partner countries.

Moreover, the role of the NMCP remains key and their capacity to communicate to ensure political commitment and sustained investment for malaria given low-incidence scenarios, re-emergence, decentralization, reform, and new delivery care models, among others. It is key to maintain the control in changing malaria transmission scenarios as well as to consolidate what has been accomplished. Elimination is an important goal, but achievable only in the long-term. Its search must continue, without distracting from efforts to solidify the foundations for malaria control and preventing reintroduction in the medium-term.

Recommendations

The main recommendation of this evaluation is to maintain the progress to date. Malaria elimination is still in the distant future, so it is very important to continue building strong programs, overcome current and upcoming crises and prevent re-emergence in settings where malaria is under control. Malaria control is not exclusive to the national level, but instead **requires a regional agenda** meriting support from the international cooperation, including PAHO, in coordination with partner countries.

Fifteen key recommendations are proposed. The first two are for USAID, twelve for the international cooperation and partner countries, and the last one for partner countries.

R01: USAID should continue supporting AMI with a focus on building technical and management capacities for malaria control in partner countries.

R02: USAID should concentrate its support on a medium-term horizon (next 3-5 years).

R03: International cooperation entities and partner countries should support the institutionalization of progress to date in malaria control at national and subnational levels in each partner country.

R04: International cooperation entities and partner countries should strengthen RAVREDA and expand it as a multidisciplinary network within and between partner countries.

R05: International cooperation entities and partner countries should strengthen and support policy advocacy for malaria control both regionally and nationally in partner countries.

R06: International cooperation entities and partner countries should promote better organization and governance and the incorporation of community participation for malaria control at national, subnational, and local levels in partner countries, particularly in the face of decentralization.

R07: International cooperation entities and partner countries should continue providing opportunities to disseminate successful experiences and lessons learned in malaria control.

R08. International cooperation entities and partner countries should promote the application of a community focus for malaria control.

R09. International cooperation entities and partner countries should provide and promote differentiated malaria control strategies and services in vulnerable and hard-to-reach populations, addressing specific issues such as the risk of re-emergence and the populations’ vulnerabilities.

R10. International cooperation entities and partner countries should monitor antimalarial drug efficacy and resistance.

R11. International cooperation entities and partner countries should continue to ensure access to diagnosis and treatment.

R12. International cooperation entities and partner countries should continue to strengthen the management and quality control of antimalarial drugs in partner countries.

R13. International cooperation entities and partner countries should continue supporting vector surveillance and integrated vector control in partner countries.

R14. International cooperation entities and partner countries should continue to strengthen systems at the national level and exchange networks for malaria control at the regional level.

R15. Partner countries should continue to prioritize epidemiological surveillance systems for malaria.

1. LOW 1. Antimalarial efficacy monitoring, resistance surveillance, and prevention of emergence of resistance to antimalarials

LOW 2. Access to quality diagnosis and treatment

LOW 3. Quality assurance and control of pharmaceuticals and other supplies for malaria

LOW 4. Vector surveillance and integrated vector management

LOW 5. Epidemiological Surveillance

LOW 6. Networking and systems strengthening [↑](#footnote-ref-1)