



The Amazon Malaria Initiative: Overview

WHAT IS AMI?

The United States Agency for International Development (USAID) Latin America and Caribbean Bureau, Office of Regional Sustainable Development launched the Amazon Malaria Initiative (AMI) in 2001 to improve the control and treatment of malaria in Amazon Basin countries. Current AMI partner countries are Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, and Suriname. AMI is funded by USAID (\$5 million USD/year) and complements ongoing USAID mission bilateral programs as well as other regional and global efforts to combat malaria. In particular, AMI is closely connected with the Amazon Network for the Surveillance of Antimalarial Drug Resistance (RAVREDA).

MALARIA IN THE AMAZON BASIN

Within the 21 Latin American and Caribbean countries in which malaria is endemic, the vast majority of cases occurs in Amazon Basin countries. The malaria burden in this region worsened in the 1990s due to many factors, including:¹

- the increased prevalence of the parasite *Plasmodium falciparum*, which causes a more severe form of malaria than that caused by *P. vivax* (the predominant malaria parasite in the region);
- the emergence of *P. falciparum* resistance to commonly used antimalarial medicines;
- movement of non-immune people into malaria endemic areas and across borders, potentially impacting malaria control in neighboring regions and other countries;
- the establishment of highly competent malaria-transmitting mosquitoes, e.g., *Anopheles darlingi*;
- climate fluctuations; and
- low levels of funding for national malaria control programs (NMCPs).

Currently, there is no vaccine to prevent malaria; however, significant progress has been made in AMI partner countries to improve prevention and control through a variety of interventions. All partner countries are working towards achieving international goals for malaria control. As of July 2010, Bolivia, Ecuador, and Suriname have each met their Roll Back Malaria/Millennium Developmental Goals.²

AMI GOALS AND PRIORITIES

Goals

1. Ensure malaria control programs incorporate selected best practices.
2. Improve malaria control at the sub-regional level.
3. Contribute to decreased malaria morbidity and mortality.

Priorities

- Provide effective malaria control and treatment by:
- a. Assessing efficacy of currently used medicines and suitable replacements;
 - b. Choosing and implementing new treatment policies;
 - c. Improving diagnostic quality assurance and quality control;
 - d. Expanding access to diagnostic tests and good quality antimalarial medicines;
 - e. Strengthening vector surveillance and control; and
 - f. Disseminating information.

¹ CDC. Activities in the Amazon Region: Malaria in the Amazon Region. http://www.cdc.gov/malaria/malaria_worldwide/cdc_activities/amazon.html. (accessed July 6, 2010)

² Pan American Health Organization. Health Topics. Malaria. Interactive Malaria Statistics. http://new.paho.org/hq/index.php?option=com_content&task=view&id=2632&Itemid=2130 (accessed July 6, 2010)

“AMI’s multipronged, evidence-based approach assesses the effectiveness of current medicines, develops new treatment policies, and improves medicine quality and accessibility. AMI improves diagnostic accuracy, promotes integrated vector control, and devises social media tactics that serve to educate the people of the Amazon Basin regarding prevention measures and access to effective treatments.”

— Dr. Jaime Chang, USAID

AMI INTERVENTIONS

- Antimalarial Medicine Resistance
- Diagnostic Quality Assurance and Access to Diagnosis
- Antimalarial Medicine Quality
- Antimalarial Medicine Access and Use
- Surveillance and Information Management
- Vector Control, Insecticide Resistance, and Entomology
- Communication and Information Dissemination

AMI INTERVENTIONS AND PROGRESS

In collaboration with NMCPs and international technical partners, AMI first targeted areas in need of improvement and then conducted specific related activities and interventions in the following areas:

Antimalarial Medicine Resistance. Medicine efficacy studies showed that *P. falciparum* exhibited resistance to existing first-line antimalarial medicines. As a result, AMI partner countries modified their official malaria treatment programs and now administer antimalarial medicines in combination. In collaboration with RAVREDA, AMI has established a network of sentinel sites for ongoing surveillance of medicine efficacy using standardized protocols. This surveillance provides partner countries with reliable information on the distribution and intensity of resistance to antimalarial medicines. The surveillance network currently is used to monitor the efficacy of the combination therapies introduced.

Diagnostic Quality Assurance and Access to Diagnosis.

Diagnosis by either symptoms alone or by microscopy without guidelines has resulted in incorrect diagnoses and ineffective treatment. Funding and technical assistance (TA) was provided to partner countries to improve the competency of microscopists, and improve the efficiency of diagnostic performance monitoring methodologies. AMI led the development of guidelines and recommendations for improving diagnostic quality assurance/quality control (QA/QC) systems in the Amazon Basin.

Antimalarial Medicine Quality. Poor quality antimalarial medicines may exacerbate the burden of malaria. AMI (i) raised awareness about the need for improved medicine quality in Amazon Basin countries, (ii) assisted in implementing a decentralized methodology to monitor and control medicine quality, and (iii) strengthened the Official Medicine Control Laboratories (OMCL) by providing laboratory training and supplies, and guidance on quality management systems. AMI has worked to increase awareness about antimalarial medicine quality issues among all Amazon countries and has encouraged the strengthening of proper QA/QC systems for medicines at the national and local levels. As a result, AMI countries currently perform routine assessment of the quality of antimalarials at the time of procurement and when dispensed to patients at sentinel sites.

Antimalarial Medicine Access and Use. Malaria is a treatable disease, when patients receive the appropriate diagnosis and effective medications in time, and adhere to treatment instructions. AMI (i) improved policies for antimalarial medicine dispensation and use, (ii) standardized procedures for medicine management and consumables supply for malaria diagnosis and treatment, and (iii) provided TA to AMI countries in antimalarial medicine pharmaceutical management. Periodic analysis of antimalarials availability and fostering of South-South collaboration during AMI activities are resulting in fewer stock-outs or resolving them through inter-country exchanges and donations of medicines.

Surveillance and Information Management. Entomological surveillance is critical to the control of malaria. AMI developed a strategy to implement an insecticide resistance surveillance system employing field-ready bioassays.

Vector Control, Insecticide Resistance, and Entomology.

AMI has worked to improve the development and implementation of vector control strategies in Amazon countries by promoting the rational selection of vector control measures and improving the monitoring of resistance of malaria vectors to insecticides. AMI provided (i) basic entomology training and certification for vector control workers, and (ii) began entomological evaluation of insecticide-treated bed nets. AMI promoted the use of standardized tools and protocols; developed the strategy and tools for integrating entomological surveillance with epidemiological surveillance; introduced a simple method (the bottle method) for assessing resistance of malaria vectors to insecticides, as well as methods to evaluate insecticide impregnated bed nets; and, contributed to improving partner countries' capabilities in entomology and vector control through training.

Communication and Information Dissemination.

Initially, AMI did not include a communications strategy to design and implement targeted messages for audiences, such as policymakers, healthcare providers,

and researchers. Since 2007, information, education, and communication strategies to reach key audiences have been implemented. AMI has (i) established lines of communication and collaborative relationships with national and international partners to increase awareness of AMI's activities and achievements, (ii) disseminated key materials to increase knowledge and awareness of malaria in the Amazon Basin, and (iii) produced media and outreach materials, such as technical reports and articles, a Website, press releases, fact sheets, and media advisories.

COMPLEMENTARY PROGRAMS AND RESULTS

AMI's efforts complement those of other regional and international efforts [such as RAVREDA; President's Malaria Initiative; Roll Back Malaria Partnership; Global Fund to Fight AIDS, Tuberculosis, and Malaria; Mekong Regional Initiative; and PAMAFRO (Malaria Control in Border Areas of the Andean Countries: A Community Approach)]. The establishment of partnerships among countries, technical partners, and international programs has helped to ensure the effectiveness and sustainability of investments in malaria prevention and management. The success of AMI can be measured in terms of lives saved and illness averted. Since AMI's inception in 2001, there has been a significant decline in malaria morbidity and mortality rates in AMI countries (Table 1).

TABLE I. CHANGES IN MALARIA MORBIDITY AND MORTALITY IN AMI PARTNER COUNTRIES SINCE AMI'S INCEPTION*

Country	No. of confirmed cases		Change (%)	No. of deaths		Change (%)
	2001	2008		2001	2008	
Bolivia	15,765	9,748	-38.17%	0	0	0.00%
Brazil	388,303	315,630	-18.72%	142	51	-64.08%
Colombia	231,272	79,230	-65.74%	58	22	-62.07%
Ecuador	108,903	4,986	-95.42%	0	1	0.00%
Guyana	27,122	11,815	-56.44%	—	10	—
Peru	78,544	44,409	-43.46%	25	—	—
Suriname	16,003	2,086	-86.96%	23	0	-100.00%
Total	865,912	467,904	-45.96%	248	84	-66.13%

* Source of Data: Pan American Health Organization. Health Topics. Malaria. Interactive Malaria Statistics. http://new.paho.org/hq/index.php?option=com_content&task=view&id=2632&Itemid=2130 (accessed July 6, 2010)

PARTNERSHIPS ARE KEY TO THE SUCCESS OF AMI

AMI was established as a collaborative effort among international technical partners and Amazon Basin partner countries. The technical partners provide expertise (Table 2) and collaborate with the national ministries of health and national malaria control programs (NMCPs) to proactively address malaria prevention and control. Partner countries collaborate with one another, maintain an ongoing exchange of information, and share expertise.

TABLE 2. ROLES OF AMI TECHNICAL PARTNERS

Partner	Role
CDC	Participates in the initiative's planning process. Provides TA in areas such as entomology and vector control, malaria diagnosis, molecular epidemiology, and malaria treatment to support the implementation of regional and national-level activities. The emphasis is on specific technical aspects, such as <i>in vitro</i> diagnostics, and vector control tools.
Links Media	Participates in the initiative's planning process. Assists USAID and other AMI partners in the design and implementation of AMI's communication strategy. Develops dissemination plans, provides support for the identification of target audiences, and develops communication materials. Provides editorial support to the partners for the development of scientific and technical documents and articles. Disseminates AMI information to the media, and through multiple information channels, including the AMI Website.
MSH/SPS	Participates in the initiative's planning process. Provides TA in pharmaceutical management with a focus on (i) medicine availability, prescribing and dispensing practices, and patient adherence to treatment regimens, and (ii) management of the supply chain, including quantifying needs and identifying and correcting weaknesses in the system for supplying malaria medicines and supplies.
PAHO	Participates in the initiative's planning process and coordinates this process under USAID direction. Provides general TA and oversight to countries. Provides TA in malaria surveillance and entomological surveillance and control. Coordinates planning, monitoring, and evaluating for PAHO regional and in-country activities financed through PAHO. Coordinates the development and dissemination of standard policies, strategies, interventions, guidelines, and protocols. Prepares an aggregated general report in coordination with other partners.
RTI	Participates in the Initiative's planning process. Provides specialized TA in malaria eco-epidemiology, entomological surveillance, and control systems. Supports the development of training materials on entomology to facilitate national vector control capacity strengthening.
USAID/LAC and USAID/Peru	Participates in the initiative's planning process. Provides specialized TA in malaria surveillance and entomological surveillance and control systems (e.g., design, monitoring, evaluation). Leads the initiative's planning process. Provides general coordination and TA.
USP/DQI	Participates in the initiative's planning process. Provides specialized TA in quality assurance (QA) of antimalarials and insecticides, with a focus on (i) implementation of proper quality control processes throughout the supply chain, and (ii) strengthening of OMCL capabilities to analyze medicines and provide trustworthy and reliable results.

Disclaimer

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