

# *Cross-Border Pilot Effort on Self-testing and Self-treatment for Malaria among Miners across the Brazil – French Guiana – Suriname Border*

Background Document for Session 7

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**Pan American  
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## INTRODUCTION

Artemisinin-based combination therapies (ACTs) are the recommended treatments for *Plasmodium falciparum* malaria in all malaria endemic areas of South America. Resistance of *P. falciparum* to the artemisinin drugs has already been detected in the Greater Mekong subregion of Southeast Asia and would represent a major setback to malaria control efforts if it were to develop in or spread to South America. Although artemisinin resistance has not been confirmed in the Americas, the interior of Guyana, Suriname, and French Guiana and bordering areas of Brazil and Venezuela (together known as the Guiana Shield) share many characteristics with the Greater Mekong subregion that increase the risk for selection of resistant parasites. These characteristics include higher levels of transmission of *P. falciparum* than in the rest of the Amazon Basin, highly mobile populations, ready availability and widespread use of a variety of antimalarial drugs of questionable quality, including artemisinin monotherapies, and lack of access to and use of formal malaria diagnostic and treatment facilities.

The Framework for Artemisinin Resistance Prevention, Containment, and Elimination in South America was consolidated in November 2014 to prevent the development of artemisinin resistance in South America, and to contain and eliminate resistance if it should be confirmed. A longer-term objective of the framework is to eliminate *P. falciparum* malaria, as this will be the only sure way to avoid the selection of resistant parasites. While some activities geared towards responding to the recommendations in the framework were implemented with the support of USAID through the work of the Amazon Network for the Surveillance of Antimalarial Drug Resistance (RAVREDA) since 2014, targeted and intensified efforts are deemed essential especially in the light of the goals of the Global Technical Strategy (GTS) for Malaria 2016-2030, the commitments outlined in the Plan of Action for Malaria Elimination in the Americas 2016-2020, and the targets expressed by countries in their respective national malaria plans.

The cross-border pilot effort on self-testing and self-treatment for malaria among miners across the Brazil – French Guiana – Suriname border is a joint targeted and intensified response from the three countries in support of the implementation of the Framework for Artemisinin Resistance Prevention, Containment, and Elimination in South America. Also known as the Malakit Project, the pilot efforts aims to assess a new malaria strategy targeting gold miners working illegally in French Guiana, based on the distribution of self-diagnosis kits and self-treatment against *P. falciparum* in cross-border areas. The main objective of the intervention is to increase coverage of malaria diagnosis and treatment among illegal miners in French Guiana. Secondary objectives include the improvement in the use of anti-malarial treatments against *P. falciparum* as per WHO recommendations; reduction in the prevalence of malaria among illegal gold miners in French Guiana; and reinforcement of appropriate knowledge, attitudes, and preventive practices among the same target population.

The aim of this document is to update the Malaria Technical Advisory Group on the pilot project which the three countries plan to implement and the proposed engagement or role of PAHO/WHO in the process.

## BACKGROUND / OVERVIEW OF THE MALAKIT PROJECT

A population of small scale miners (estimated from 5,000 to 20,000 people), mainly of Brazilian citizenship, is working throughout a large area of the Amazon forest of French Guiana (FG). This

population is clustered into small to medium mining camps which can accommodate from a dozen to hundreds of miners. Two recent major active case detection studies have shown a high prevalence of malaria in these mining populations. In the Eaux Claire active case detection study conducted by Pommier de Santi, et. al., 209 miners living in one mining camp of the Eaux Claire area were tested in a week and indicated that 19.9% miners were positive by RDT, 16.0% by microscopy, and 47.1% by PCR (44.4% *Pf*, 34% *Pv*, 21.7% *Pf+Pv*) . Based on the ORPAL epidemiological study conducted by Douine, et. al in 2015 among 421 illegal gold miners working in 68 different mining sites in French Guiana, 4.3% were positive by RDT and 22.3% were positive by PCR (47.9% *Pf*, 37.2%, *Pv*, 10.6% *Pf+Pv*). These studies have likewise documented the following:

- **Lack of Access to Diagnosis in the Mining Area.** Due their remoteness, there is severely limited access to health services in the mining camps, and miners do not regularly have access to malaria diagnostic tests. This access is mainly through Malaria Service Deliverers (i.e. Community Health Workers) on the Suriname side of the border, financed by the Suriname Ministry of Health (in cooperation with the Global Fund).
- **Incomplete Use of the Treatment in the Mining Areas.** ACTs (mainly Artecom®) are widely available in mining sites throughout the black market, but are expensive (1 or 2 grams of gold – equivalent to 35 to 70 U\$). This leads to an important and damaging misuse of the treatment, with majority of the miners stopping the treatment as soon as their malaria symptoms have disappeared.
- **Challenges of French Health Care Regulation in the Mining Areas of French Guiana.** Currently, French law does not allow for unlicensed medical personnel to perform malaria diagnostic tests and/or provide malaria treatment. This legal and regulatory environment makes the use of community health workers or Malaria Service Deliverers impossible in French Guiana, since the practice would be illegal. In addition, due to the situation of miners (being illegally on French territory, dispersed throughout the jungle, and working in illegal activities), it is extremely difficult to have continuous presence of medical staff in mining camps. Therefore, the options for the delivery of malaria service should be innovative and perhaps non-traditional.
- **High Cost of Interventions in the Mining Camps:** In addition, camps can only be reached after hours or days of walking in the jungle, and formal interventions by French Guiana authorities need to be done through helicopter. Even in Suriname, the network of Malaria Service Deliverers is expensive to maintain, and is financed largely by a Global Fund grant. Complicating the situation even more, security can be an issue in camps.
- **Difficulties of Traditional Malaria Community Health Workers:** In addition to the legal realities, traditional community health workers would also be extremely challenging in the mining areas, since only miners stay regularly in camps, and it is difficult and expensive to bring supplies to the camps. Given this, alternative solutions could be studied focused on empowering selected people living in the camps to be trained to promote proper use of treatment while they are in resting sites in Suriname or Brazil.
- **Opportunities for Interventions at Resting Sites:** Brazilian miners come to FG usually by directly crossing the border from Brazil or by flying to Suriname and then reaching the mining sites in FG. Once on the FG territory many of these miners regularly travel to the Surinamese border to

what are referred to as “resting sites”. Miners regularly leave the camps to go to these “resting sites” at supply nodes spread out along the borders of FG/Suriname and FG/Brazil. Majority of miners travel out of the forests to the resting sites in Suriname and Brazil approximately every 3 months. Most of the mining population traveling to Suriname goes to anyone of the 3 main resting sites, where they stay for a minimum of a couple days to a few weeks to gather the necessary supplies. Their movements can intensify with the presence and operations of the French military who are currently working to contain the mining by displacing the miners from the camps. French Military action can lead to waves of miners crossing the border “en masse” towards Suriname and Brazil. When staying in the resting sites the miners are easily accessible for diagnosis and treatment. It is a strategic moment to use their “downtime” to implement health related interventions, including testing, treatment, and potentially training for self-diagnosis and self-treatment.

- **Potential for Resistance:** The high level of transmission of malaria associated with the absence of diagnosis and incomplete usage of ACTs makes mining camps a hot spot for risk of emergence of malaria drug resistance and a high reservoir for infection. This situation further jeopardizes the possibility of malaria elimination in the region, and could undermine the significant gains made in the border areas and in French Guiana and Suriname during the last decade.

Given the current situation described, conventional Test, Treat, Track malaria interventions that rely either on a network of health clinics and/or a network of community health workers are deemed unfeasible in these mining areas. To mitigate the situation and to continue to make progress toward malaria elimination, the pilot project will implement an approach whereby miners would be trained and educated to act as their own “Malaria Service Deliverers,” and would be provided with the tools they need to self-test, self-treat, and “self-track” while working in the mining areas.

The concept for the pilot project has undergone extensive discussions among technical and political personnel among the three countries, in consultation with PAHO/WHO and external experts since July 2016. The project has been affirmed to be a joint responsibility of the country counterparts (from Brazil, French Guiana, and Suriname) who have been designated as members of the overall scientific committee and institutional / political coordinating committee. Overall coordination will be done by the ARS, French Guiana; and each country will form their respective scientific and coordination teams / structures to ensure appropriate implementation of activities. An appropriate form of official agreement between the three countries (to be signed by the Directors of Health of each country) will be pursued by the political coordination committee.

After final discussions during a meeting convened by the countries and hosted by the Agence Régionale de Santé (ARS) of French Guiana in Cayenne, it has been decided that the project will be carried out jointly by Brazil, Suriname and France as follows:

- **Implementation:** Distribution of self-diagnosis and self-treatment kits to people working illegally at gold-mining sites in French Guiana; along with the provision of training. This distribution will take place at resting sites and health centers in French Guiana using trained facilitators.
- **Monitoring of the study:** Proactive data collection will be conducted by facilitators / collaborators in the resting sites and via gold miners themselves through a mobile application (following the monitoring plan indicated in the protocol)

- Performance assessment / Evaluation: The final evaluation of the project will be carried out in a cross-sectional study "Orpal bis", with a questionnaire on behaviors, attitudes and practices and blood sampling to measure the prevalence of Plasmodium carriers before / after the intervention. The same study (Orpal) was carried out in 2015 along the Surinamese border, and will be carried out before implementation along the Brazilian border. Depending on the results, the sustainability of the action will be determined by the Health Authorities.

The protocol for the pilot (presented as an annex to this document) is scheduled to be submitted to the Ethics Review Board of each country and for funding to the Programme de Coopération Interrégionale Amazonie (PCIA) in June 2017. The pilot is proposed to run for a period of three years beginning in January 2018.

## PROPOSED ROLE / ENGAGEMENT OF PAHO

The Plan of Action on Malaria for Malaria Elimination 2016-2020 provides a comprehensive framework for the Region of the Americas to develop tailored programs for accelerating towards malaria elimination. Resolution CD55.R7 clarifies the mandate or role of PAHO in the implementation of the plan as follows:

- Support the implementation of the Plan of Action for Malaria Elimination and provide technical cooperation, including capacity-building efforts needed for countries to develop and implement national plans of action;
- Coordinate Region-wide efforts to eliminate local malaria transmission and prevent its potential reestablishment in malaria-free areas, in collaboration with countries and partners;
- Advise on the implementation of national malaria strategic plans;
- Continue to advocate for the active mobilization of resources among countries, as well as globally, and encourage close collaboration to forge strategic partnerships that support the implementation of national and cross-border efforts, including those targeting vulnerable and hard-to-reach populations;
- Employ tailored approaches addressing the social determinants of health and providing for inter-programmatic collaboration and intersectoral action;
- Report to the Governing Bodies on the progress of the implementation of the Plan of Action and the achievement of its targets at mid-term and at the end of the implementation period

Furthermore, as Regional Office of WHO, PAHO subscribes to the following core functions:

- Providing leadership on matters critical to health and engaging in partnerships where joint action is needed;
- Shaping the research agenda and stimulating the generation, translation and dissemination of valuable knowledge;
- Setting norms and standards and promoting and monitoring their implementation;
- Articulating ethical and evidence-based policy options;
- Providing technical support, catalyzing change, and building sustainable institutional capacity; and
- Monitoring the health situation and assessing health trends.

Given these, PAHO's approach in supporting the Malakit Pilot Project is outlined as follows:

- Continuing overall coordination of the implementation of the Framework for Artemisinin Resistance Prevention, Containment, and Elimination in South America; including the creation of platforms or mechanisms to address legal and / or policy-related impediments to malaria elimination;
- Technical guidance to countries in implementing interventions that are aligned to their national strategic plans and consistent to WHO recommendations / guidelines.
- Technical support and guidance in refining the concept and protocol of the Malakit Pilot Project (completed);
- Technical and logistical support to the coordinating committee for the Malakit Pilot Project (for the duration of the pilot);
- Linkage with additional prospective donor agencies -e.g. Global Fund, USAID, Gates Foundation, etc.;
- Technical collaboration in the monitoring and evaluation of the pilot project, analysis of the results, and consolidation of conclusions and recommendations;
- Facilitation of the expanded application of the strategy (if effective) in similar settings

After approval is obtained from the corresponding Ethics Review Board of each country, the protocol for the Malakit Pilot Project will be submitted for the approval of the PAHO Ethics Review Committee to enable the PAHO Regional Malaria Program to engage more extensively in the project. The Malaria TAG will also be updated accordingly on the progress of the pilot for corresponding feedback and guidance.

## REQUESTED ACTION BY THE MALARIA TAG

While this document is being presented for information purposes, comments and feedback from the Malaria TAG are encouraged.

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