

Framework for Prevention, Containment and Elimination of Artemisinin Resistance in South America

**Amazon Malaria Initiative Meeting
Rio de Janeiro, 24-26 March, 2015**

Background

- **2011-12: therapeutic efficacy studies in Suriname and Guyana showed >10% of subjects with persistence of parasitemia**
- **Because of methodologic problems, WHO recommended confirmatory studies**
- **Those studies have now been completed:**
 - **re-examination of blood smears shows no evidence of delayed parasite clearance**
 - **no evidence of K-13 mutations**

Guiana Shield



Although no evidence of artemisinin resistance found, transborder areas of the Guiana Shield share many features with Greater Mekong subregion:

- low to moderate levels of *P. f.* transmission
- highly mobile populations with limited access/use of formal malaria diagnostic and treatment facilities
- access to wide range of antimalarial drugs, including artemisinin monotherapies and ACTs of unknown quality, through unlicensed drug sellers

Threat of Artemisinin Resistance

- **Development of resistance to the artemisinin drugs would represent a serious threat to malaria control efforts in the Americas**
- **As a result, it was felt that NMCPs should prioritize efforts to try to reduce the risk of development of resistance**
- **To provide guidance to NMCPs, a “Framework for Prevention, Containment, and Elimination of Artemisinin Resistance in South America” has been prepared**

Objective

- **Protect ACTs as an effective treatment for *P. falciparum* in the Americas**
- **Since the only sure way to avoid the development of resistance to the artemisinins will be to eliminate *P. falciparum*, Framework recommends that countries make *P. falciparum* elimination a priority**
- **Presents various options for prevention, diagnosis, treatment of malaria that each country will need to adapt to its own setting**

Design of Framework

- **Current document is a close-to-final version of the Framework**
- **Focus of the Framework is on Amazon Basin** which (with the exception of Haiti) reports 98% of all cases of *P. falciparum* in the Americas
- **Within the Amazon Basin, particular focus is on the Guyana Shield**
- **Central America not included in Framework:**
 - very low levels of *P. f.* transmission
 - CQ still effective; only sporadic use of ACTs for treatment of imported cases

Design of Framework - 2

- **Framework is based on two WHO documents:**
 - **Global Plan for Artemisinin Resistance Containment (GPARC - 2011)**
 - **Emergency Response to Artemisinin Resistance in the Greater Mekong Subregion (2013)**
- **Takes into account the Sept 2014 WHO update on artemisinin resistance with new definition of “partial” resistance, incorporating evidence of recently-described molecular marker for artemisinin resistance – mutations in K-13 domain of *P.f.* genome**

Recommended Activities

Guyana Shield

- **Successful artemisinin resistance prevention effort will require achieving and sustaining high coverage with prevention and treatment activities**
- **Will be challenging given difficult access to area and highly mobile populations who infrequently visit health facilities**
- **Selection and prioritization of activities will need to take into account different behaviors and preferences of local populations**

Recommended Activities – 2

Guyana Shield

- **Increase number and geographic distribution of passive case detection (PCD) posts in areas with transmission of *P. falciparum***
 - moderate-sized/larger mining and logging camps
 - work with private drug sellers – provide training, free ACTs, and rapid diagnostic tests, which they could charge for. Would have to agree to report on cases of malaria and stop selling other antimalarial drugs

Recommended Activities – 3

Guyana Shield

- **Increase use of active case detection (ACD) to complement PCD**
 - where local residents are not seeking treatment at PCD posts
 - where residents are not complying with malaria control measures
- **Strengthen supply chain management systems**

Recommended Activities – 4

Guyana Shield

- **Increase coverage with vector control measures – especially ITNs**
- **Strengthen supervision of malaria field workers**
- **Collaborate with miners owners and their associations to improve prevention and treatment of malaria at work sites**
- **Improve the analysis and use of epidemiologic data collected through ACD and PCD to guide malaria control activities**

Supportive Actions

- **NMCP field workers need to dedicate 100% time to malaria; consider incentives**
- **NMCPs will require government and donor commitment to a steady stream of funding**
- **Strengthen coordination between NMCPs of countries making up the Guyana Shield**
- **Ministries of health will need to work to eliminate artemisinin monotherapies and unregistered antimalarial drugs in the private sector**

Supportive Actions – 2

- Continue regular monitoring of therapeutic efficacy of first-line antimalarial drugs
- Advocacy and communication to build political support and help secure funding for resistance prevention and *P.f.* elimination
- Operations research to test new tools for resistance prevention and *P.f.* elimination as become available
- Continue efforts to monitor availability and quality of antimalarial drugs in private sector

Priorities for Implementation

- **Update/revise national malaria control plans**
- **Continue to improve case detection and treatment**
- **Work with miners and owners to secure their cooperation and participation in malaria control activities**
- **Strengthen sub-regional cooperation:**
 - **prevent sale and use of artemisinin monotherapies**
 - **coordination meetings between countries making up Guyana Shield**

Activities in other Amazon Basin Countries

- Intensify surveillance for ACT resistance
- Increase vector control activities to continue driving down transmission
- Strengthen case detection and ensure rapid and complete treatment of confirmed cases, including primaquine
- Work to eliminate artemisinin monotherapies and unlicensed ACTs in the private sector

What role can AMI/RAVREDA play?

- Assist with quality control of TES
- Continue providing technical assistance to improve supply chain management, quality control of drugs, vector control, behavior change and communication, etc.
- Work with NMCPs to ensure scientific rigor in operational research/program evaluations
- Help fill gaps in funding for antimalarials, rapid diagnostic tests, ITNs, etc.
- Support sub-regional coordination meetings

Meeting of Guiana Shield Countries, Paramaribo – Nov. 2013

- **Finish revisions to Framework document**
- **Finalize K-13 mutation assays for Suriname**
- **Complete re-examination of blood smears for both Guyana and Suriname**
- **Planning for advocacy focused on threat and prevention of artemisinin resistance**
- **TES in areas of Brazil bordering Guyana and Suriname a high priority**