Policy Analysis of a Regional Malaria Control Strategy in the Americas: Guyana Case Study

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Introduction
Latin America & the Caribbean achieved a 60% reduction in malaria cases from 2002-2012. With most of the "quick wins" already attained, the current challenge is to reduce the cases of malaria among highly mobile populations such as itinerant gold miners or "*garimpeiros*" and indigenous communities in the Amazon forest.

Research Question
What activities can the Pan-American Health Organization and national governments undertake in the next 5 years to continue to make progress in the fight against malaria?

Why Guyana?
1) Amazon basin country
2) Malaria endemic throughout
3) Highest malaria incidence and mortality rates in the Americas
4) High concentration of malaria within specific populations

Methods
- Reviewed the "Regional Strategic Plan for Malaria in the Americas: 2006 – 2010" and related literature
- In-depth interviews with 4 health care providers (supply-side) and 4 past malaria sufferers (demand-side) in Region 9, Guyana
- Thematic content analysis

Key Findings
1) Populations of miners, loggers and associated professions are most at risk; many patients are lost to follow-up due to labor migration and have a higher probability of non-compliance, which results in malaria transmission to other populations, such as Amerindians.

   Non-compliance and widespread sale of Artecom (non-approved arteminisin monotherapy) in mining areas increase risk of drug resistance, and also complicate later diagnoses.

2) Microscopy labs are far from mining and logging camps, inhibiting proper diagnosis and initiation of treatment. In addition, uneven access to the formal health system is exacerbated by distrust of the Government of Guyana and marginalization of most at-risk populations.

Map of Guyana with high-transmission areas highlighted

All regions of Guyana have some malaria risk. However, most transmission occurs in Regions 1, 7, 8 and 10, where illicit mining and logging activities take place. Region 9 once accounted for 25% of all malaria cases, but since 2000 has made significant strides to reduce malaria transmission.

Illegal gold mining in the Amazon basin

Standing water around mining and logging areas creates an ideal breeding ground for *Anopheles darlingi*, the Amazon basin's most common malaria vector.

3) Quinine is used to treat severe malaria, despite strong evidence favoring a shift to artesunate.

   Highly effective human resources such as community health workers (CHWs) and laboratory technicians are often not available when needed.

4) Complacency in the face of success has led to a lack of funding that brings with it the risk of malaria resurgence. As a result, residual spraying of insecticide is at a near standstill.

Policy Recommendations
1) Enhance surveillance of drug resistance.

   Conduct direct outreach to miners and loggers on dangers of Artecom.

   Standardize treatment guidelines, share information, coordinate disease reporting and control of outbreaks across borders.

2) Introduce Rapid Diagnostic Tests (RDTs) for parasitic diagnosis where microscopy is not available.

   Partner with informal drug vendors to administer RDTs and halt sale of Artecom, separate health outreach personnel from law enforcement, and ensure cultural competence of health workers.

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3) Make artesunate available and promote its use to treat severe malaria.

   Expand training and strengthen oversight of human resources, as well as improve overall health system access and quality.

4) Advocate for sustained attention to malaria with robust funding to support vaccine development, etc.

   Resume insecticide spraying.