



Pan American Health Organization



Regional Office of the
World Health Organization

Transcending politics and using evidence-based treatment policies and public health approaches in combating malaria: The Amazon Malaria Initiative (AMI) and the Amazon Network for the Surveillance of Anti-malarial Drug Resistance (RAVREDA) Partnership

Historical Antecedents

- **1998 (Brazil):** group of experts convened to review a protocol for surveillance of the effectiveness of anti-malarial drugs; developed standardized method for evaluating the therapeutic effectiveness of anti-malarial drugs used in the management of *P. falciparum* cases in the Americas; prepared preliminary standards for evaluation of the therapeutic effectiveness of Chloroquine against *P. vivax* - reviewed in 2000 by a group of experts convened by PAHO and again in December 2001 at a WHO meeting on monitoring anti-malarial drug resistance.
- Within the framework of the **Roll Back Malaria** Initiative in the Americas, PAHO supports Amazon countries in the establishment of a surveillance network system that follows the protocol adapted by PAHO.
- **March 2001 (Bahia, Brazil):** Third Meeting of the Surveillance Network for Emerging Infectious Diseases in the Amazon Countries. **The Amazon Network for the Surveillance of Anti-malarial Drug Resistance (RAVREDA)** was formed by Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname, and Venezuela, with technical support from PAHO.



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PAHO. Available at: <http://www.paho.org/spanish/ad/dpc/cd/ravreda-ami.htm>



Birth of the partnership and how it works ...



USAID
FROM THE AMERICAN PEOPLE



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- **October 2001:** Office for Infectious Diseases in Latin America and the Caribbean of the United States Agency for International Development (**USAID/LAC**) partnered with PAHO and the Centers for Disease Control and Prevention (**CDC**) and launched the **Amazon Malaria Initiative (AMI)**.
- Management Sciences for Health's *Rational Pharmaceutical Management Plus* (**MSH/RPM Plus**) program and United States Pharmacopoeia's *Drug Quality and Information* (**USP/DQI**) also joined the initiative in 2002.
- **AMI** contributes to the world goal of Roll Back Malaria to significantly reduce the global malaria burden through interventions tailored to meet local needs.
- Since 2002, alongside the AMI partners, PAHO has been coordinating technical cooperation and project activities in the Amazon countries
- Amazon countries account for 94% of *P. falciparum* cases in the Americas; PAHO focal points in the countries coordinate execution of activities in 6 of the 8 target countries of the Amazon basin (Brazil, Colombia, Ecuador, Guyana, Suriname and Venezuela); support for Peru and for Bolivia is provided through the USAID country programs, in coordination with PAHO; (since 2006, country activities in all 8 countries are coordinated through PAHO)
- CDC, MSH-RPM Plus, and USP/DQI provide technical assistance in carrying out and implementing national- and regional-level activities.

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AMI – RAVREDA



The Amazon Malaria Initiative (AMI)

- launched in 2001 by **USAID/LAC**.
- Implemented by four USAID partners:
 - **PAHO**, which functions as the AMI secretariat as well as lead technical support to RAVREDA.
 - Centers for Disease Control and Prevention of the United States (**CDC**).
 - Management Sciences for Health's *Rational Pharmaceutical Management Plus* (**MSH/RPM Plus**) program.
 - United States Pharmacopoeia's *Drug Quality and Information* (**USP/DQI**) program.
- **Links Media** officially joined AMI in Sept. 2007
- Steering committee meets twice a year (September in WDC; March in a member country and coincides with annual technical meeting)

The Amazon Network for the Surveillance of Anti-malarial Drug Resistance (RAVREDA)

- the network organized in 2001 by Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname, and Venezuela, along with PAHO, in response to the challenge of anti-malarial drug resistance in the Amazon.
- partnered with international institutions and local organizations in the countries to achieve its goals, which have now been expanded to include the various components of the **Regional Strategic Plan for Malaria in the Americas 2006–20100**, as aligned with national and global strategies and goals.
- French Guiana is currently an observer, while efforts are also in progress to link with Mexico and the Central American countries.



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PAHO. Available at: <http://www.paho.org/spanish/ad/dpc/cd/ravreda-ami.htm>

AMI – RAVREDA Innovative Partnership

- USAID
- PAHO/WHO
- Management Sciences for Health
- Centers Disease Control
- US Pharmacopeia
- Links Media
- Eight Amazon Countries
- PAHO/WHO
- National Malaria Control Programs
- National Institutes of Health
- Quality Control Laboratories
- Local Research Institutes
- Universities
- Public Health Laboratories



Amazon Malaria Initiative. AMI Partners' Presentation. USAID-LAC Bureau (Washington DC: April 2007)

Areas of Work 2002-2007

- Establishment National Committees; Steering Committee
- Resistance surveillance studies (*in vivo*, *in vitro*, molecular)
- Treatment Policy Implementation
- Quality of Malaria Diagnosis
- Access and Use of Anti-malarials
- Quality of Anti-malarials
- Vector Control
- Stratification and Analysis of Information
- Information Dissemination

* Extension of efforts in Meso-America



Amazon Malaria Initiative. AMI Partners' Presentation. USAID-LAC Bureau (Washington DC: April 2007)

AMI Thematic areas

- 1 Surveillance of anti-malarial resistance
 - a. *In vivo*
 - b. *In vitro*
 - c. Molecular markers
- 2 Drug policy implementation
- 3 Access and quality of diagnosis and treatment
 - a. Improve access to diagnosis (Rapid test)
 - b. Quality of diagnosis
 - c. Drug quality
 - d. Drug availability and use
- 4 Vector control based in evidence
- 5 Epidemiological stratification

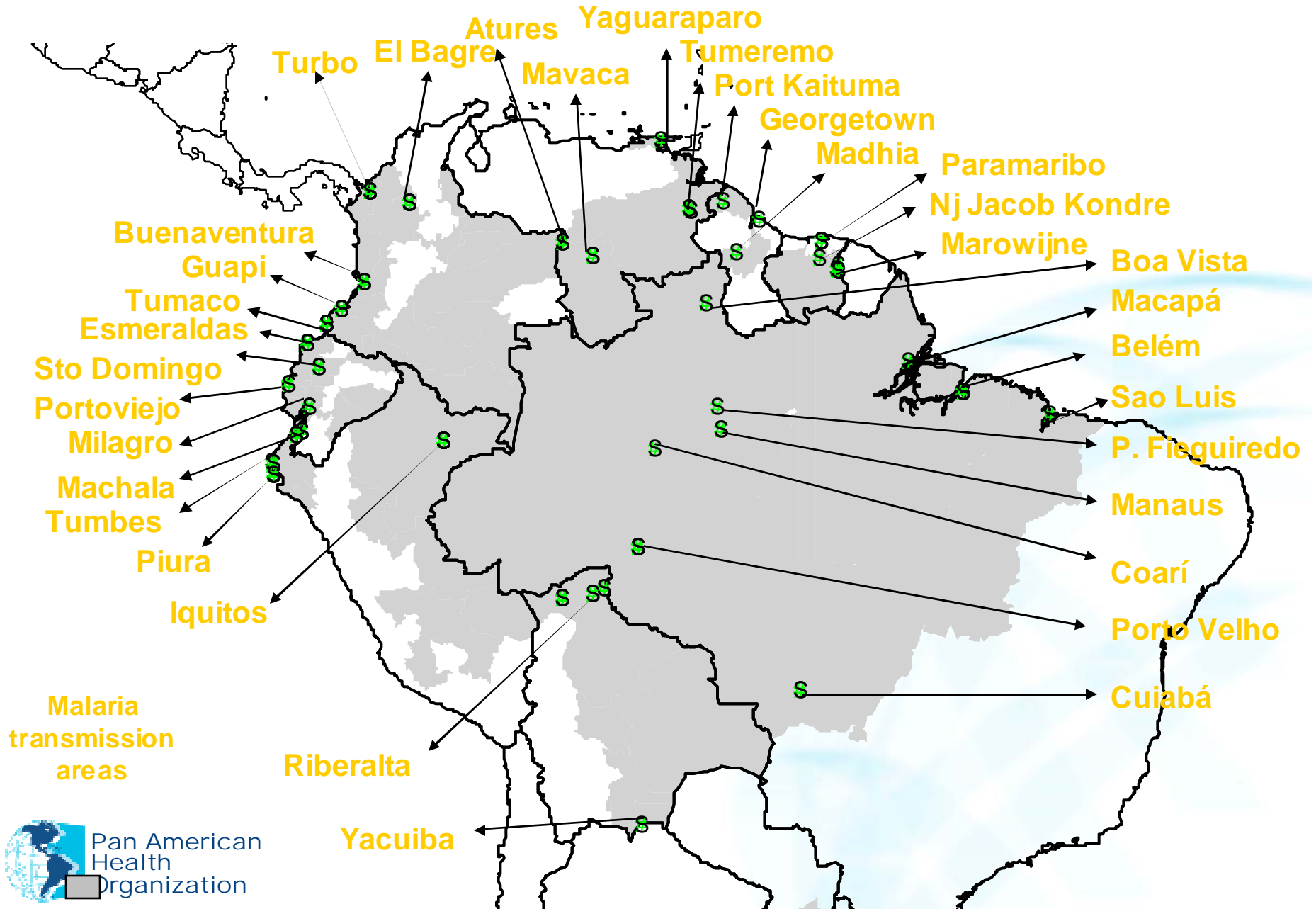


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Amazon Malaria Initiative. AMI Partners' Presentation. USAID-LAC Bureau (Washington DC: April 2007)

RAVREDA / AMI sentinel sites for efficacy studies 2002 - 2004

2007



Amazon Malaria Initiative. AMI Partners' Presentation. USAID-LAC Bureau (Washington DC: April 2007)

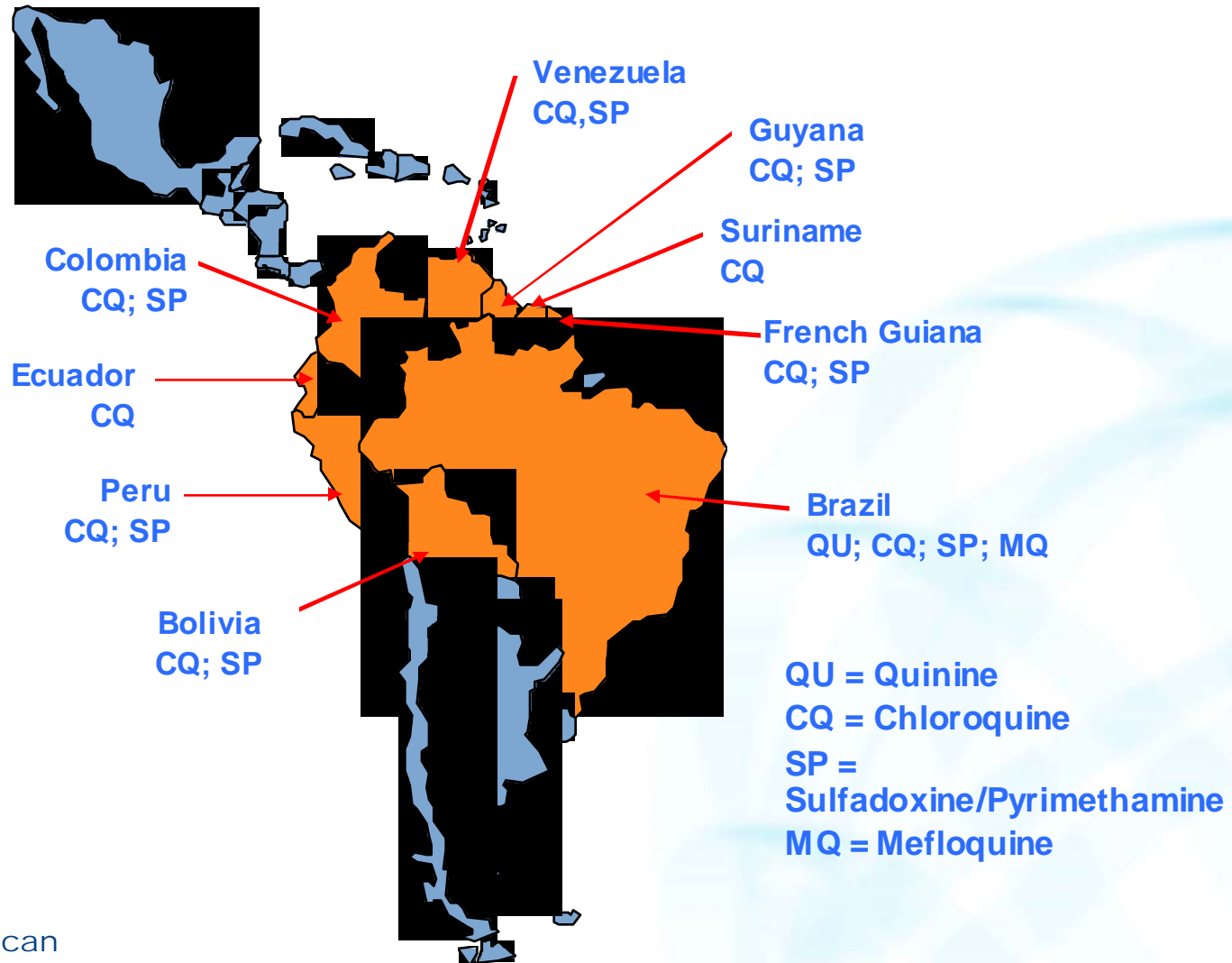
1 Monitoring antimalarial drug resistance

- *In vivo* drug efficacy trial results used in first line treatment policy decision making: use of Artemisinin-based Combination Therapy (ACT) for *P. falciparum* infections

 - 82 studies completed

- Selective use of *in vitro* monitoring of susceptibility to antimalarial drugs and molecular markers as an early warning system

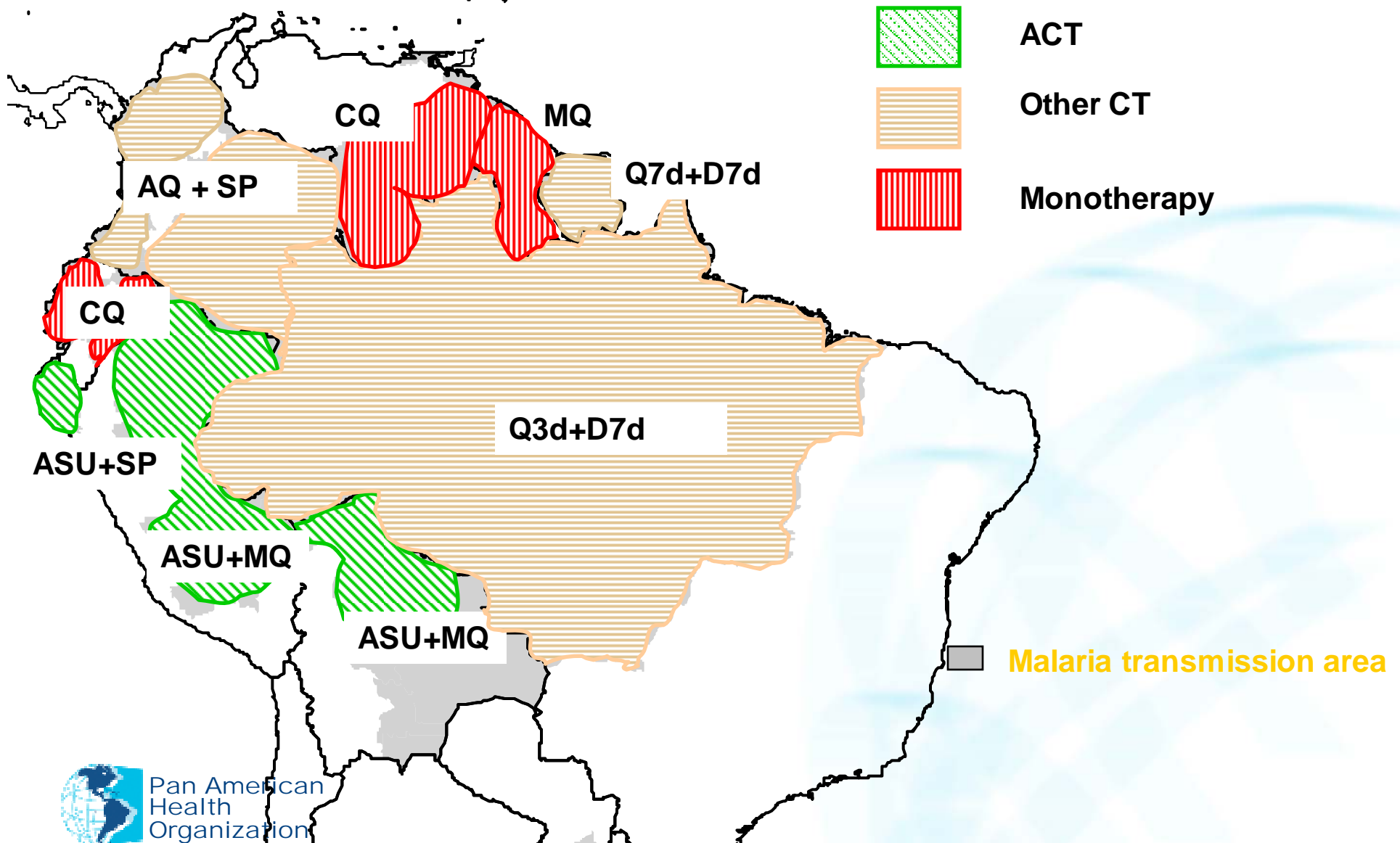
Suspected / Confirmed Anti-malarial Resistance



Amazon Malaria Initiative. AMI Partners' Presentation. USAID-LAC Bureau (Washington DC: April 2007)

Official first line treatment for uncomplicated *P. falciparum* malaria. 2002

2007



Amazon Malaria Initiative. AMI Partners' Presentation. USAID-LAC Bureau (Washington DC: April 2007)

2

Policy Change for *P. falciparum* in the Amazon countries 1998-2006

ART-LUM Coartem®		●			●		●	
MQ+AS			●			●		●
SP+AS	●		●	●		●		●
AQ+AS								
MQ					○			
Q+D/ Q+T		○				○	○	
Q								
AQ+SP								
CQ+SP			○					
CQ o SP	○			○		○		○
Country	Bolivia	Brasil	Colombia	Ecuador	Guyana	Peru	Suriname	Venezuela

● Current

○ Late Nineties

ART-LUM: Artemether-Lumefantrine, AS: Artesunate AQ: Amodiaquine, CQ: Chloroquine, D: Doxycycline, MQ: Mefloquine S/P: Sulfadoxine/Pyrimethamine, Q: Quinine, T: Tetracycline,



Amazon Malaria Initiative. AMI Partners' Presentation. USAID-LAC Bureau (Washington DC: April 2007)

3a

Improving access to diagnosis

- Training of Microscopists
- Use of Rapid Tests in Remote Areas
- Quality Control of Diagnosis

3b Improving Availability and Use of Antimalarials

Phase 1
2003-2004

Sensitization to role of good pharmaceutical management to reaching policy goals

Phase 2
2004-2006

Identification of causes of poor availability and use

Inadequate skills, lack of standardized procedures, poor record-keeping practices, lack of coordination between levels, lack of guidelines and training

Phase 3
2005-2007

Improve inventory and supply chain management

Technical assistance in procurement planning and quantification; inventory management; planning for storage and distribution

Improve prescribing, dispensing, and adherence

Promotion of pre-packaged treatments and written instructions

Phase 4
2007 →

Monitoring availability and use of medicines

Supervision and regular reporting monitoring tools introduced



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3c Improving drug quality

■ Consolidate quality assurance processes in anti-malarial drug procurement by the Ministries of Health:

- ✓ National control laboratories personnel trained in good drug quality practices and techniques (all countries)
- ✓ National control laboratory strengthened (equipments, commodities, staff skills) Bolivia, Ecuador, Guyana, Peru

■ Establish systems to control the quality of anti-malarials and their determinants in the services network:

- ✓ Drug quality monitoring using minilabs in all countries (more than 800 samples analyzed)



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4 Improving decision making in malaria vector control

- Development of strategy for improving vector control
- System for monitoring insecticide resistance
- Improving human resources capabilities in entomology and vector control

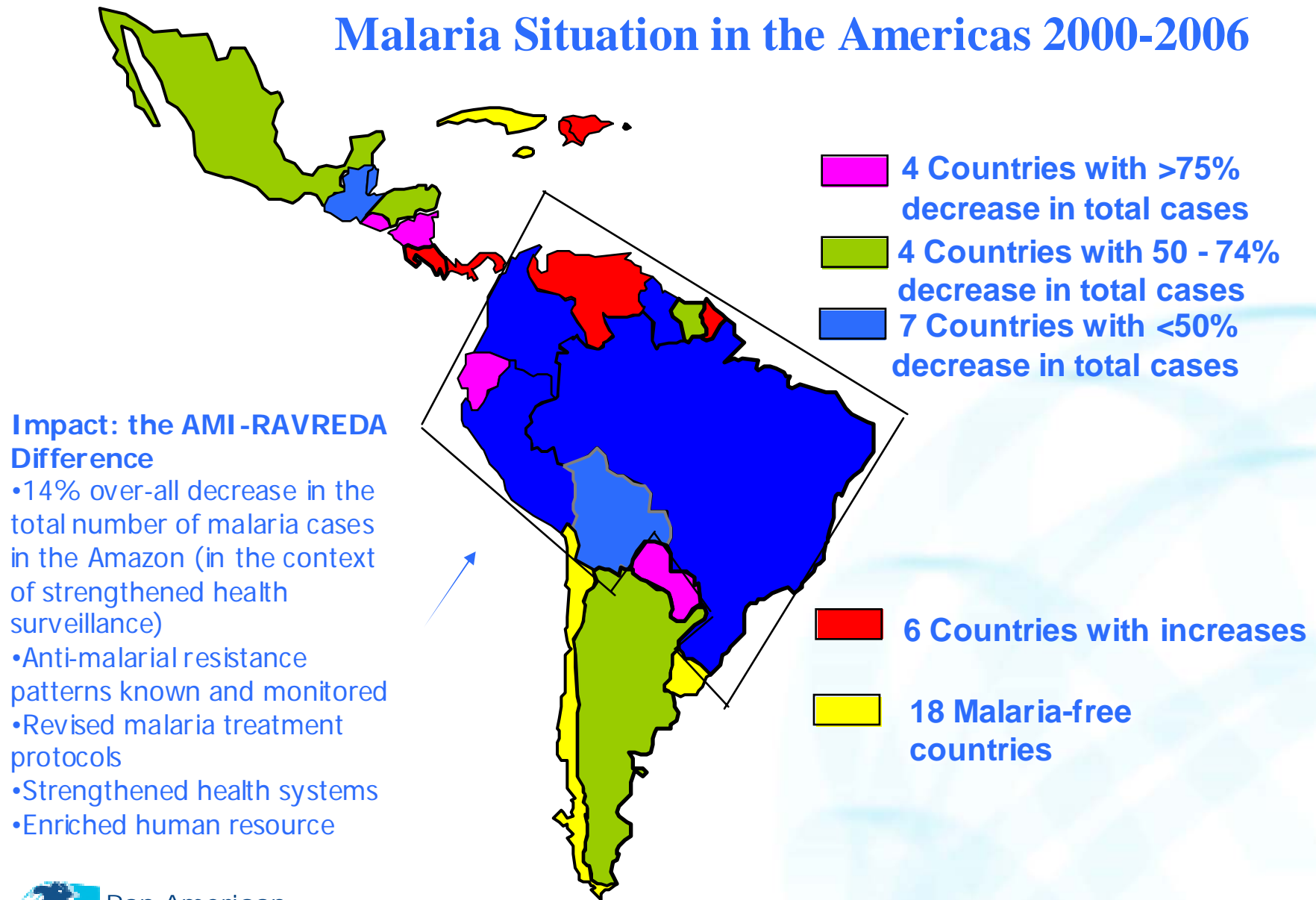


5

Stratification and improving malaria information systems

- Improved Malaria Information Systems integrated with Mapping designed in Ecuador and Guyana
- Integration of the malaria information system in the National Health Information in Colombia
- Analysis and stratification of Malaria in Brazil, Colombia and Suriname

Malaria Situation in the Americas 2000-2006



Impact: the AMI-RAVREDA Difference

- 14% over-all decrease in the total number of malaria cases in the Amazon (in the context of strengthened health surveillance)
- Anti-malarial resistance patterns known and monitored
- Revised malaria treatment protocols
- Strengthened health systems
- Enriched human resource



- Decrease *P. falciparum* fatality rate from 13 to 4 per 10,000
- 20% decrease in malaria cases for the entire Region

Some important lessons ...



- Today, the impact of AMI-RAVREDA resonates among communities and populations of the Amazon most vulnerable and heavily affected by the scourge of malaria – pregnant women and children; people living with HIV/AIDS; miners; loggers; plantation workers; indigenous groups; populations in areas of armed / social conflict; and people living in the border areas
- AMI-RAVREDA demonstrates to the world that reasonable amount of resources invested into effective partnerships that engage in relevant interventions yield affirmative results that positively impact lives of real people and their families.

NOVEMBER 6th is Malaria Day in the Americas

Theme for 2007: Making a difference for the Americas through advocacy and effective partnerships against malaria

Malaria is closer to home than you think ...

Malaria is a preventable and treatable infectious disease and each one can do something concrete and significant ...

Spare millions from the scourge of this disease ...

Be an advocate and partner: act now in your own home, neighborhood, and community ...

Be part of the solution in the Americas. Join the global fight against malaria.



For more details: <http://www.paho.org/english/ad/dpc/cd/mal-day-2007.htm>





Thank you