

USAID/PAHO Project for the Prevention and Control of Antimalarial Resistance in the Amazon:
Proposed Work Plan for the period October 2002 through September 2003--
Country Workplan, Brazil

Intermediate Result 1 - Reliable and standardized malaria drug efficacy information available. **Indicators:** 1) Number of target countries that have selected an adequate number of sentinel surveillance sites, including a reference laboratory, and initiated training activities. 2) Number of target countries where the WHO/PAHO protocol has been adapted. 3) Number of target countries that initiated anti-malarial drug resistance studies based on the WHO/PAHO protocol.

Activities	Tasks	Staff , Other Human Resources, and Other Inputs	Product	Month/ Year	Remarks
A1.1. Establish a regional network for surveillance of drug resistance and monitoring of activities under the coordination of PAHO	1. Formalize an advisory committee	FUNASA/CENEPI/ASDCE/GT, Malária, PAHO/OMS and Universities	Advisory committee formalized and operating	March 2003	
	2. Participate in RAVREDA Coordinating Committee to standardize protocols, resistance testing methods, evaluation of progress indicators at national and regional level and quality control mechanisms.	National coordinator, collaborating centers and National Reference Laboratory	Protocols standardized at regional level. Management indicators and quality control protocols established	Sep-03	

Activities	Tasks	Staff , Other Human Resources and Other	Product	Month/Year	Remarks
A.1.2 Establish national sentinel surveillance networks with quality control in each target area to assess the efficacy of antimalarial drugs.	1. Equip the sentinel sites, collaborator centers and reference laboratory to control resistance level . 1.1. Procurement of laboratory equipment and materials.	FUNASA/CENEPI/ASDCE/CG LAB/National coordination RAVREDA, Reference laboratory and collaborating centers/SES & SMS	12 sentinel sites, 3 collaborating centers and 1 reference laboratory equipped and structured in according with established parameters.	Oct/02	
	2. Extend the national resistance surveillance net to increase the number of sentinel sites operating in the second year	National coordinating, collaborating centers and National Reference Laboratory	At least 12 sentinel sites operating		
	2.1. Procurement of vehicles (cars and motorcycles)			July 03	
	2.2. Procurement of supply of materials and basic inputs.			Until Sep 03	
	2.3.Human resources contracted temporally	4 technicians at superior level, 5 secretaries & 3 data-entry clerks		Jan-Sep 03	
	3. Quality-control activities 3.1.supervision of sentinel sites 3.2. local and national laboratory QC system 3.3. database		Quality-control system, instruments and protocols in operation.	Until Sep/03	

Activities	Tasks	Staff , Other Human Resources, and Other	Product	Month/Year	Remarks
A.1.3 Provide training to improve national capability to conduct the surveillance network of antimalarial drug resistance in all target areas.	Training for high level health professionals, in activities related with diagnosis, protocol implementation, sample collect and submit and data collect and analysis (5 days duration)	Trainers and high level health professionals assigned from collaborating centers	High-level health professionals from selected sentinel sites trained	until Sept/03	
	2. Training of middle level health professionals from selected sentinel sites, in activities related to microscopy diagnosis, standardized protocol application, sample collect and remittance (15 days during)	Trainers and mid-level health professionals from selected sentinel sites	Two mid-level health professionals trained in selected sentinel sites	until Sept/03	
	3. Monitoring and evaluation of network operation in the second year (supervision and meetings)	National coordination, reference laboratory, collaborating centers, advisory committee and executing group	The network operating, monitored and evaluated during the second year At least 40% of the total sentinel sites in operation. Third-year network activities planned.	Until sept/03	

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A.1.4. Study findings reviewed, alternative treatments evaluated, and consensus on appropriate treatment protocols reached.	1. Implement and execute <i>P. falciparum</i> and <i>P. vivax</i> resistance studies to 100% of patients included, with application of treatment schemes recommended by Ministry of Health (FUNASA) according with the standardized protocols, evaluation of efficiency, adherence, therapeutic failure and parasitological resistance.	Collaborating Centers, and 12 sentinel site localities	Therapeutic efficacy evaluation methodology implemented in sentinel sites selected.	until Sept/03	
	2. Implement and execute <i>in vitro</i> study of the <i>P. falciparum</i> sensibility to cloroquine, mefloquine, quinine and artemisinin in patient samples with parasite persistence. Samples collecting and preparing in liquid nitrogen. <i>P. falciparum</i> parasites adaptation in permanent culture and micro tests.	Reference laboratory, collaborating centers and some sentinel sites selected.	Sample collection in sentinel sites selected and evaluation for <i>in vitro</i> sensibility studies.	until Sept/03	
	2.1. Implement and execute a randomized study for detection of resistant populations in sentinel localities				
	3. Implement and execute drug resistance molecular study for antimalarials, samples collection, preparation and transport, and PCR tests for detection of mutations associated with antimalarial drug resistance.	Reference laboratory and collaborating centers	Samples collected analyzed	until Sept/03	

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	4. Promote FUNASA-MS's Malaria therapeutic committee meeting to evaluate the results of the Net. Revalidation of the antimalarial drug policy.	Malaria therapeutic committee	Evaluation of the results and policy established.	until Sept/03	

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Intermediate Result 2. Tools and approaches developed, adapted, tested and disseminated. Indicator: Number of sites identified in Brazil with trials of rapid tests for malaria diagnosis initiated.					
A2.1 Rapid tests for malaria diagnosis evaluated in selected sites and appraisal of their cost-effectiveness evaluated.	1. Rapid tests for malaria diagnosis evaluated in selected sites and their cost-effectiveness estimated				
	1.1.Purchase of two kits, tests implementation, training and supervision.	Collaborating Centers	Tests implemented (100%)	until Sep/03	
	1.2.Evaluation by Collaborator Centers	Executing group and Collaborating Centers	Results evaluated		
	1.3. Final evaluation meeting	National coordination, GT Malaria, Collaborating centers and Executing Group	Study conclusion obtained including cost effectiveness evaluation	Until Sep/03	
	2. Rapid tests to determinate anopheles mosquitoes infection rates evaluated				
	2.1.Purchase of two kits, tests implementation, training and supervision.	Collaborating Centers	Tests implemented (100%)	Until Sep/03	
	2.2.Evaluation by Collaborator Centers	Executing group and Collaborating Centers	Results evaluated	Until Sep/03	
	2.3. Final evaluation meeting	National coordination, GT Malaria, Collaborating centers and Executing Group	Study conclusion obtained including cost effectiveness evaluation	Until Sep/03	
	3. Manuals for severe and complicate malaria (adaptation and review of OMS second edition)				
	3.1 Edition, printing and distribution of the manuals for severe and complicate malaria	CENEPI	5000 copies printed, distributed to health services in the Amazon states and municipalities	Until Sep/03	

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Intermediate Result.3: Partnerships to improve malaria control in the sub-region enhanced. Indicator: Number of surveillance network of anti-malarial drug resistance activities carried out with technical assistance or exchanges between target countries					
A3.1 Subregional dialogue and planning for prevention and containment anti-malaria drug resistance facilitated.	Periodical meetings. Regional meeting (Belem, Bahia, Brazil) International exchange from national coordinators and participation in other country meetings to evaluate project progress, national nets situation and technical support in applied methodologies (difficulties solution and new findings)	2 Investigators per country: represents from advisor national committees, national coordinators and executing groups representatives and 2 experts from countries with experience in resistance surveillance network (eg.Africa)	Operating difficulties at national level salved, and new knowledge applied for the net at national and regional level.	Until Sep/03	
A3.2 Centers of excellence for regional training identified and supported.	1. Training of national network staff in previously identified excellence centers from RAVREDA countries able to offer training in evaluation of in vivo efficacy, in vitro sensitivity, genotyping, and drug dosage in serum, among others.	Brazilian and external experts	Treatment done and staff trained	until Sept/03	
	1.1. Training in Brazil: culture, resistance tests, molecular biology techniques, genotyping, etc.				
	1.2. Training in other countries: drug dosage in serum, genotyping, etc.				

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A3.3 South-to-south technical assistance and training activities executed.	1. Workshop in epidemiological surveillance in malaria and resistance , training in data management (EPI Info) and training in geoprocessing.	Trainers, international advisors and participants	Personnel selected trained	until Sept/03	
	2. Workshop and training in VectestMalária test validation for rapid determination of anopheles mosquitoes infection rates.	Trainers, international advisors and participants	Personnel selected trained	until Sept/03	
OBS. Change 19/10/2001 : US\$1,00 = ~R\$3,50					
Abbreviations used: CENEPI= Centro Nacional de Epidemiologic; ASDCE= Assessorial de Descentralização e Control de Endemias/CENEPI; GT-MALÁRIA= Gerência Technical de Malária/ASDCE/CENEPI; SIVEP-MALÁRIA= Sistema de Vigilância Epidemiológica da Malária/GT-MALÁRIA/ASDCE/CENEPI; CGLAB= Coordenação Geral de Laboratórios de Saúde Pública/CENEPI; SES= Secretarias Estaduais de Saúde; SMS= Secretarias Municipais de Saúde					