

**PRESIDENT'S INITIATIVE ON MALARIA**

**NEEDS ASSESSMENT**

**ANGOLA**

9-18 August, 2005

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## **EXECUTIVE SUMMARY**

Angola has been selected as one of three countries to receive funding during the first year of the President's Initiative on Malaria. The objective of this Initiative is to assist African countries, in collaboration with other partners, to rapidly scale up to 85% coverage of vulnerable groups with four highly effective interventions: artemisinin-based combination therapy (ACT), intermittent preventive treatment (IPT) for malaria in pregnancy, insecticide-treated mosquito nets (ITNs), and indoor spraying with residual insecticides (IRS).

As part of the planning process for this Initiative, a team from USAID, CDC, WHO, UNICEF, the Angolan National Malaria Control Program, and the Rational Pharmaceutical Management Plus Project of Management Sciences for Health carried out an assessment of the current status of malaria prevention and control activities in Angola and identified any unmet needs. In addition, the team evaluated the feasibility and potential of several high-impact activities that would build momentum for malaria control and the President's Initiative on Malaria in Angola and could be initiated during the next 3-6 months.

Malaria is a major cause of morbidity and mortality in Angola and the government considers control of the disease a very high priority. Angola has recently received a 2-year, \$27.5 million malaria grant from the Global Fund to Fight AIDS, Tuberculosis and Malaria and, with support from WHO, UNICEF, and other national and international partners, a scaling up of malaria prevention and control interventions has already started.

Areas identified by the assessment team as needing additional support and attention include: (1) improving communication and coordination among partners working on malaria control in Angola; (2) improving the working environment and providing logistic support to the National Malaria Control Program; (3) building capacity of the National Malaria Control Program at the national, provincial, and municipal levels; (4) strengthening malaria surveillance as part of the national health information system; (5) improving the quality of laboratory diagnosis of malaria and extending the use of microscopy and rapid diagnostic tests to more peripheral levels of the health system; (6) strengthening the Ministry of Health's pharmaceutical management system; (7) ensuring safe and effective implementation of ACT nationwide; (8) supporting effective scale up of IPT for pregnant women through antenatal clinics and other approaches; (9) improving the current level of knowledge about malaria transmission in Angola, especially in urban and epidemic-prone areas; (10) scaling-up nationwide coverage with ITNs through a variety of strategies; (11) introducing well-organized IRS programs in areas where it is cost-effective and appropriate epidemiologically; (12) improving malaria epidemic surveillance, detection, and response; (13) and strengthening the monitoring and evaluation capacity of the National Malaria Control Program. A list of potential activities in each of these areas was agreed upon by team members.

Two high-impact activities that could be carried out during the next 3-9 months were discussed with the Ministry of Health and other partners:

1. distribution of long-lasting ITNs as part of a nationwide measles immunization campaign scheduled for June 2006; and
2. IRS with synthetic pyrethroids in epidemic-prone areas of the southern provinces of Namibie, Huila, Cunene, and Kuando Kubango.

It was agreed that both of these activities would fit well within the National Malaria Control Program strategy for 2005-2009 and should be carried out.

It is expected that the activities funded by the President's Initiative on Malaria will support existing National Malaria Control Program strategies and plans and will complement the funding and efforts of other partners. The Ministry of Health expressed its gratitude to the U.S. Government and its firm commitment to work together to reduce malaria morbidity and mortality in Angola. Ministry of Health staff also expressed their hope that the expanded and intensified malaria control efforts supported by the President's Initiative on Malaria and the Global Fund and could serve as a model for other disease control programs in the country and help strengthen overall capacity within the Ministry of Health.

## ABBREVIATIONS

ACT – artemisinin-based combination therapy  
 AM-LUM – artemether-lumefantrine  
 ANC – antenatal clinic  
 AQ – amodiaquine  
 ARC – American Red Cross  
 AS - artesunate  
 CIDA – Canadian International Development Agency  
 CQ – chloroquine  
 DHS – demographic and health survey  
 DNM - Direccção Nacional de Medicamentos  
 EML – essential medicines list  
 FBO – faith-based organization  
 GFATM – Global Fund to Fight AIDS, Tuberculosis, and Malaria  
 GoA – Government of Angola  
 IDA – International Drug Association  
 IDP – internally displaced persons  
 IEC – information, education, communication  
 IMCI – integrated management of childhood illnesses  
 IPT – intermittent preventive treatment  
 IRS – indoor residual spraying  
 ITN – insecticide-treated net  
 KAP – knowledge, attitudes, and practices  
 LLIN – long-lasting insecticide-treated net  
 LUM - lumefantrine  
 MICS – multiple indicator cluster survey  
 MMSS – Malaria Medicines and Supply Service  
 MoH – Ministry of Health  
 MSF – Medecins Sans Frontieres  
 NMCP – National Malaria Control Program  
 NGO – non-governmental organization  
 PSI – Population Services International  
 RBM – Roll Back Malaria  
 RDT – rapid diagnostic test  
 SP – sulfadoxine-pyrimethamine  
 UNDP – United Nations Development Programme  
 UNICEF – United Nations Childrens’ Fund  
 WHO – World Health Organization

## **INTRODUCTION**

### **President's Initiative on Malaria**

In July 2005, the United States Government announced a new five-year, \$1.2 billion initiative to rapidly scale up malaria prevention and treatment interventions in high-burden countries in sub-Saharan Africa. The goal of this Initiative is to reduce malaria-related mortality by 50% after three years of full implementation in each country. This will be achieved by reaching 85% coverage of the most vulnerable groups---children under five years of age, pregnant women, and people living with HIV/AIDS---with proven preventive and therapeutic interventions, including artemisinin-based combination therapies (ACTs), insecticide-treated nets (ITNs), intermittent preventive treatment (IPT) of pregnant women, and indoor residual spraying (IRS).

The Initiative will begin in 2006 in three countries, Angola, Tanzania, and Uganda. Proposed funding levels are \$30 million in FY06, \$135 million in FY07, \$300 million in FY08 and FY09, and \$500 million in FY10. The aim is to cover a total population of 175 million in up to 15 countries by 2010.

In implementing this Initiative, the United States Government is committed to working closely with host governments and within existing national malaria control strategies and plans. Efforts will be coordinated with other national and international partners, including the Global Fund to Fight AIDS, Tuberculosis, and Malaria (GFATM), Roll Back Malaria (RBM), the World Bank Malaria Booster Program, and the non-governmental and private sectors, to ensure that investments are complementary and that RBM and Millennium Development goals can be achieved.

### **Objectives of the Needs Assessment Visit**

To facilitate the planning process for the President's Initiative on Malaria, a team from USAID, CDC, WHO, UNICEF, the Angolan National Malaria Control Program, and the Rational Pharmaceutical Management Plus Project of Management Sciences for Health visited Angola from 9-18 August, 2005. The objectives of this visit were to:

1. assess the current status of malaria prevention and treatment interventions within Angola, and identify unmet needs and investment opportunities for the President's Initiative on Malaria;
2. establish a timeline and next steps for the purchase of commodities and for implementation of a limited number of high impact malaria prevention and/or treatment interventions over the next 3-9 months; and
3. brief partners on the President's Initiative on Malaria and to provide them with a longer-term vision of activities, including the planning visit scheduled for September, in which in-country and international partners are expected play an active role in development of a 5-year strategy and a detailed 1-year implementation plan for the Initiative as part of the national strategy and plan.

The agenda of the team and of the persons contacted and documents consulted are shown in Annexes 1-3.

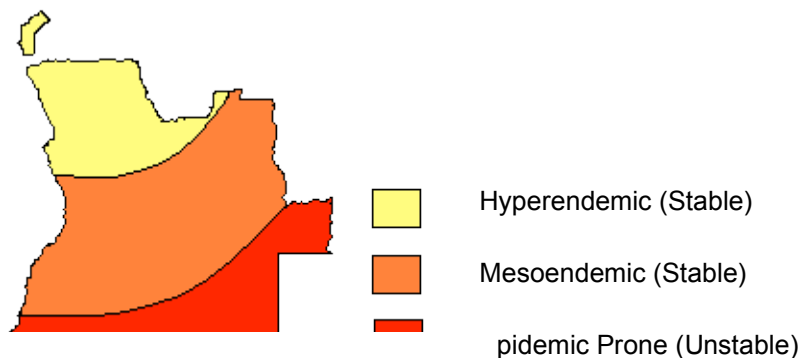
## BACKGROUND

Angola recently emerged from almost three decades of civil war that severely impacted its development, particularly the health sector. It is estimated that 80% of the health facilities were looted or destroyed during the war and that the existing health system covers only about 30% of the Angolan population, with even lower utilization rates. The remaining health infrastructure is limited by a lack of qualified and motivated health staff outside the capital, weak drug and medical supply and management systems, and a weak primary health care network. Geographic, economic, and cultural barriers to accessing quality health care continue to be important limiting factors to improving health in the country.

The population of Angola is estimated to be 17 million; approximately 25% of the total population lives in the capital, Luanda. Under five mortality is one of the highest in the world with 250 deaths per 1,000 live births and maternal mortality is about 1,280 per 100,000 live births. The war also had a devastating impact on the Angolan social fabric, with thousands of people leaving the country and approximately 1 million internally displaced. Many of these refugees are now returning to their homes and villages, increasing the pressure on an already overextended health system. Life expectancy in Angola is about 45 years and the fertility rate about 7.2 children per woman. Angola is ranked 162 out of 173 countries in terms of human development index with 68% of its population living in poverty and 28% in absolute poverty.

## MALARIA SITUATION IN ANGOLA

Malaria is a major public health problem in Angola and is the principal cause of morbidity and mortality in the country, especially among children under 5 years of age and pregnant women. Population migration and environmental degradation have compounded an already serious situation. Malaria is endemic nationwide, being hyperendemic in the northern part of the country and along coastal lowlands of the Atlantic Ocean. The highlands of central and the southern provinces of Angola have a lower incidence, with a mesoendemic unstable profile. The southern provinces bordering Namibia are epidemic-prone areas. The peak malaria transmission season extends from March to May, with a secondary peak in October/November. *Plasmodium falciparum* is responsible for >90% of all infections.



There are five anopheline species thought to be responsible for malaria transmission in Angola. The primary vectors, found throughout the country, are *Anopheles gambiae* ss and *A. funestus*. *Anopheles melas* is found in coastal areas while *A. arabiensis* is found predominantly in the southern unstable mesoendemic areas. In addition, *A. pharoenisis* is believed to transmit malaria in Angola.

In 2004, Angola reported 3.2 million cases of malaria, two-thirds of which occurred in children under 5 years of age. Twenty-five percent of all malaria cases are reported from the Province of Luanda; Huambo, Benguela, Bie, Huila, Malange, Uige, and Moxico are the next most malarious provinces. Pregnant women, children under five, and people living in epidemic-prone areas are more vulnerable to the severe forms of malaria and their chances of dying from malaria and malaria-related complications are higher than the Angolan population as a whole. Approximately 38,000 malaria-related deaths were reported in 2004. Malaria accounts for 35% of the overall mortality in children, 25% of overall maternal mortality and is the cause of 60% of hospital admissions for children under five and 10% for pregnant women. Anemia due to malaria is a major cause of morbidity and mortality in both children and pregnant women and malaria is a leading cause of low birth weight in the newborn. Integrated management of childhood illnesses (IMCI) has been recently introduced and scaling up of activities is expected in all provinces, as soon as financial resources are made available.

The Government of Angola (GoA) subscribes to international commitments including the RBM Abuja declaration and Millennium Declaration and the Millennium Development Goals. Currently only 3.6% of the national GDP and 4.1% of the Government of Angola's budget is spent on health, but with the end of war the government pledges and financial commitment to health are expected to increase. The GoA has expressed its firm commitment to reduce malaria morbidity and mortality in Angola and has prioritized 59 of the 164 municipalities (districts) in the country, which make up 70% of the total population, as target areas for improving health care.

## **CURRENT STATUS OF MALARIA CONTROL INTERVENTIONS**

### **Malaria Surveillance**

The National Epidemiological Surveillance System is managed by the Programa Nacional de Vigilância Epidemiológica, which is part of the Department of Hygiene and Epidemiology. Although considered the best functioning health information system in the country, this program has limited human and financial capacity and lacks nationwide coverage, standardized procedures for the collection and analysis of data, and an effective communication system to ensure timely reporting. It is comprised of sentinel sites in each province. At the local level, trained personnel gather information on morbidity and mortality on each of the major endemic diseases within their catchment areas, forward it to health centers and hospitals, where it is collated and forwarded first to the provincial level and then to the central level. For malaria, the NMCP receives weekly reports on malaria cases and deaths from the province of Luanda and the 4 epidemic-prone

provinces in the south (Namibie, Cunene, Kuando Kubango, and Huila). The remainder of provinces report on a monthly basis. The reliability of information collected by the National Epidemiological Surveillance System is unknown.

The National Health Information System (HIS) monitors all aspects of health delivery, including human and financial resources, medical supplies and equipment, medicines, infrastructure, and utilization. This information is used for monitoring and planning purposes. Although all facilities use standardized forms for record keeping, shortages of forms has been a problem. Data on service utilization and consumption of supplies and medicines are tabulated at the facility level on a weekly and monthly basis and are aggregated at the next level in the system (municipal, district, or provincial). In some areas, the transfer of information occurs at the time supplies are delivered, but when deliveries are delayed, this function is compromised. There is also no system for feedback of information to the facilities.

A National Malaria Information System is in the process of being established within the NMCP to gather information on the level of coverage of malaria control interventions from epidemiologic and other health surveys.

### **Diagnosis**

The treatment of malaria in most MoH facilities in Angola is based predominantly on clinical diagnosis. Laboratory confirmation of diagnosis is recommended but not required for administration of antimalarial drugs. Only 10% of health facilities have laboratories and even in these there are serious shortages of staff, equipment, and reagents. Microscopy is only performed in hospitals and larger health centers in urban areas. Experience with rapid diagnostic tests (RDTs) is limited, although they are being used in some health facilities supported by non-governmental organizations (NGOs). Most MOH laboratory staff are responsible for a variety of diagnostic tests, in addition to malaria microscopy.

A goal of the new National Malaria Control Strategy for 2005-2009 is to make malaria microscopy available in all health facilities with a laboratory and electricity. Microscopic confirmation of the diagnosis is also recommended for patients with symptoms of malaria who have not responded to presumptive treatment and in cases of severe malaria. As yet, there is no firm national policy about the use of RDTs, but it is expected that their use would be reserved for: (1) facilities where microscopic diagnosis is not available, (2) low transmission areas, (3) camps for internally displaced persons (IDPs), (4) epidemic situations, (5) in hospital emergency departments where the demand exceeds the capacity of the microscopy laboratory, and (6) for home management of malaria.

Clinical diagnosis would be used in facilities without laboratory support in areas of stable transmission. Although not stated as such in the written strategy, it appears that in areas with stable transmission, children under five with symptoms suggestive of malaria would be treated presumptively.



Strengthening laboratory capacity is a high priority for the National Malaria Control Program (NMCP) and standard guidelines for malaria diagnosis are under development. Field training of microscopists is taking place and once this capacity building effort is complete, the NMCP estimates that 60% of diagnoses nationwide will be presumptive, 30% will be based on the use of RDTs, and 10% will be based on microscopy.

Senior laboratorians from the National Institute of Public Health apparently make periodic supervisory visits to provincial laboratories for refresher training and quality control of laboratory procedures, including malaria microscopy. NMCP staff also review the quality of microscopy during their supervisory visits, but there is no established schedule for any of these visits. National authorities state that 10% of blood smears seen at the peripheral facilities are sent to the central level for re-examination, but it is unclear how well this system functions.

The GFATM (Round 3) grant will provide 100 binocular microscopes (together with microscopy supplies and reagents) and has budgeted \$500,000/year for the purchase of 492,000 Paracheck<sup>®</sup> rapid tests/year for use in MOH facilities. The JICA project in Benguela Province will purchase an additional 49 microscopes and microscopy supplies.

## **Treatment**

During 2003-2004, antimalarial drug efficacy testing for chloroquine (CQ) and sulfadoxine-pyrimethamine (SP) was carried out at 8 sites and testing of amodiaquine (AQ) at one site. Levels of resistance were >50% for CQ, as high as 22% for SP, and 22% for AQ. Given these high rates of resistance, the MoH decided to change to artemisinin-based combination therapy (ACT), as recommended by WHO.

While antimalarial drug efficacy studies on ACTs were being conducted, the MoH approved the use of AQ as the new first-line drug for the treatment of uncomplicated *P. falciparum* malaria as an interim policy. In spite of this, CQ has continued to be used in most health facilities. Exceptions are the province of Uige, where AQ plus artesunate (AQ-AS) was introduced during the Marburg virus outbreak. Those supplies are running out and it is not clear that there will be stock to replace it. In addition, AQ-AS, or artemether-lumefantrine (Coartem<sup>®</sup>; AM-LUM) are being dispensed at the sites in which the ACT drug efficacy studies had been carried out, as well as by NGOs at some of the health facilities they support.

In 2004, an additional series of 28-day *in vivo* drug efficacy studies of AQ monotherapy, AQ-AS, and AM-LUM were conducted at sites in 4 provinces by the MoH with support from WHO and MENTOR using the standardized WHO standardized protocol. An additional study in Huambo was conducted by Medecins San Frontieres (MSF-France) following the same protocol. Nearly 10% of a total of 85 patients treated with AQ at four sites in Luanda, Bie, Melange and Huambo had treatment failures. No treatment failures were observed in 159 patients treated with AQ-AS at 5 sites in Cabinda, Huambo, Bie, Bengala, and Luanda or 155 patients treated with Coartem<sup>®</sup> at 4 sites in Cabinda, Huambo, Bie, and Luanda.

Following completion of these studies, a consensus meeting was held in September 2004 and the first-line drug for the treatment of uncomplicated *P. falciparum* malaria in Angola was changed to AM-LUM. If adequate supplies of AM-LUM are not available, it was agreed that AQ-AS would be used as an alternative.

Quinine is the first-line drug for the treatment of severe malaria, with artemether as an alternative.

### **Malaria in Pregnancy**

It is estimated that only 40% of pregnant women in Angola make at least one antenatal clinic (ANC) visit. These low ANC attendance rates are thought to be due in large part to the fact that many health facilities, especially those serving rural areas, were badly damaged or destroyed during the civil war.

Intermittent preventive treatment (IPT) with two doses of SP was approved as a national policy in September 2004. This policy applies to the entire country, including Luanda and the epidemic-prone areas in the south. Guidelines for prevention and treatment of malaria in pregnancy are in their final stages of development. It is expected that IPT will be implemented in a phased fashion throughout the country, but a detailed implementation plan has not been prepared. Training and IEC materials for IPT are under development. Although IPT has not yet been implemented in MoH facilities, it is already being used by some NGOs in the health facilities that they support.

Quinine is the recommended treatment for malaria in pregnant women.

The Round 3 GFATM grant will purchase 1.3 million tablets of SP for IPT in Year 1 and 2.0 million tablets in Year 2. This will be sufficient to provide two treatment courses of IPT to a total of 217,000 pregnant women in Year 1 and 333,000 women in Year 2. The GoA will also purchase 1.2 million SP tablets and has apparently agreed to cover the full cost of SP for IPT and quinine for the treatment of severe malaria in the future.

### **Pharmaceutical Supply Management System**

#### Overview:

The MoH currently provides antimalarials to health facilities through the main pharmaceutical supply system. Under the GFATM Round 3 proposal antimalarial drugs are expected to be managed through this system. However, years of war have rendered many of the essential entities, functions, and processes required for ensuring access to safe, effective and affordable quality medicines ineffective or non-operational. In the last two years, with support from the European Union, the MoH started move toward improving this situation.

An important development in this regard has been the drafting of a comprehensive National Medicines Policy which is expected to be adopted before the end of the year. It is based on the WHO model for a national medicines policy and covers all key components, including the development and maintenance of a national essential medicines list, procurement, distribution, use, financing mechanisms, human resources. The current draft is very generic without much specificity to the Angolan situation and references several regulatory and operational entities and processes, which either need to be reactivated or created, such as the national drug registration system and a pharmacovigilance program. In this sense, the document lays out the roadmap for developing a national supply system, public and private, which will ensure access by the population to safe, effective and affordable quality products.

Given that many key agencies and systems are not yet in place or fully functional, the GFATM proposal proposes that procurement functions be carried out by WHO while providing for support not only for the program of activities under the NMCP but also for strengthening the system in general. These represent opportunities and challenges and for the PMI.

#### Policy and strategy for malaria:

The DNM is responsible for determining the medicines and supplies that are to be supplied to MoH primary care facilities. There are three lists that correspond to the contents of kits that are distributed to all MoH health posts, health centers (those with doctors and those without). The DNM and the Essential Drugs Program were involved in discussions with NMCP regarding the changes in malaria treatment and the kit contents were updated following the change in policy with the elimination of CQ. The new treatments will be transitioned in as existing stocks of CQ in the public health facilities are depleted. Three hundred trainers have been trained on the new malaria treatment policy but they have not yet embarked on the provincial-level trainings. Various NGOs that have been following the change in malaria policy have already started to provide treatment according to the new policy with their own supplies.

Currently there is no consideration for phasing out CQ from the private sector, and virtually all malaria products, including AM-LUM and other ACTs, can be found in private pharmacies. The NMCP will be receiving support through the GFATM to conduct several workshops on the appropriate use of antimalarials in the private sector. Plans have not yet been finalized with regard to the implementation of this activity.

#### Quantification for malaria:

Medicines for Angola's primary care system are managed through a kit system. The quantities of medicines to be ordered are based on the recommended standard treatments for the key priority conditions to be treated and the number of patients expected to be treated within a given time frame. Essential medicines, including antimalarials (currently AQ and quinine), are provided in kits with quantities of items calculated to treat 1,000 cases. Facilities receive a given number of kits according to expected utilization of

services in that facility. Expected utilization is based on past distribution and not on actual consumption. Data on health services utilization and population of catchment areas is practically nonexistent.

The quantities of antimalarials per kit correspond to the expected cases and the following treatment protocols:

*Uncomplicated malaria:*

AM+LUM 20 mg tablets (to be provided in separate kits)

Adults: 4 tablets twice for three days (total 24 tablets)

Children: >5 kg – 14 kg – 1 tablet twice day for 3 days (6 tablets)  
 15 kg – 24 kg – 2 tablets twice day for 3 days (12 tablets)  
 25 kg – 34 kg – 3 tablets twice day for 3 days (18 tablets)  
 >35 kg – 4 tablets twice day for 3 days (24 tablets)

Amodiaquine 200 mg tablets (4,000 tablets per MoH kit)

Adults: four tablets for two days, 2 tablets for one day (10 tablets total)

Children: two tablets for two days, 1 table for one day if >10 kg (5 tablets)

*Severe malaria and malaria in pregnant women:*

Quinine 300mg tablets (4,000 per complementary MoH kit)

2 tablets, three times a day x 7 days (42 tablets)

Quinine 300mg/2ml (25 amps per complementary MoH kit)

10mg/kg three times a day x 7 days

*IPT:* Sulfadoxine 500mg/pyrimethamine 25mg tablets (1,500 tablets per MoH kit)

3 tablets as a single dose repeated twice during pregnancy (6 tablets)

Procurement: According to the WHO, at least 30,000 kits are needed per year.

It is generally recognized, however, that the quantities of kits that the MoH has been able to provide are not sufficient to meet the needs of the population. Indeed, in the past year reports in the local and international media testified to frequent shortages that were often addressed by WHO or other donors. It is not clear the extent to which lack of funding or unpredictability of funding may be contributing to irregular supplies, although observed procurement practices would seem to suggest this is a factor.

The MoH manages the funds for all centralized expenses including the procurement of medicines for primary care (including antimalarials). In 2004, approximately \$7.1 million was spent on medicines, with another US\$2.2 spent on managing their distribution (Health Sector Plan 2005). This supports the procurement of essential medicines for health posts and health centers and distribution to the post level, the costs for which are largely covered by the MoH. The MoH receives substantial support from donors for the procurement of essential medicines. It is not clear how many kits the MoH

actually procured in 2004, nor was the assessment team able to determine the plans for 2005.

In principle, procurement for medicines is conducted on an annual basis through international competitive tenders being administered and adjudicated by the Ministry of Planning. In practice, however, procurements have not been conducted on a regular basis. For example, the regular national procurement for kits for 2004/2005 has been delayed. The last tender that was floated in the last quarter of 2004 called for approximately 10,000 kits. Due to delays in finalizing the contract, the supplier awarded the tender has prepared and shipped only a reduced number of kits (approximately 1,000 kits) which is expected to arrive in port soon in order to avoid shortages in the facilities, but at the time of preparing this report the fate of the remainder of the original order is unclear. Meanwhile, the MoH is requesting an emergency order for an additional 1,900 kits for immediate delivery by air cargo. Typically, emergency orders are costly and air shipment is more expensive than sea freight. It was not possible to evaluate the effectiveness or efficiency of MoH pharmaceutical procurement practices as part of this assessment, but these events suggest that there are areas for improvement in efficiencies in procurement.

The National Hospital, four provincial hospitals, and provincial governments receive their budgets directly from the general budget and are used at their discretion to cover capital and recurrent costs, including medicines. However, some provinces have started to cover the shortfalls in the primary care system using their own funds. For example, two years ago the Government of Central Benguela launched a program to supply medicines on a quarterly basis to the health centers of the nine districts of the province.<sup>1</sup> Facilities in areas with access to private sector vendors have been supplementing their MoH stocks with stock that they purchase using funds generated from service fees.<sup>2</sup> There are no controls over the quality of drugs purchased from these private sector vendors. The facilities visited during this visit stocked both AQ and CQ that they either still had from their kits, exchanged with another facility, or that they had purchased in the private sector (including other antimalaria medicines). In light of this, prescribing practices are likely to vary considerably between facilities and provinces. Given unpredictable procurement practices, inaccurate quantification, and highly variable prescribing behaviors, it is unclear how the MoH will be able to control the phasing in of new treatments and the phasing out of the old.

#### Distribution of kits:

As decentralization policies were implemented and the infrastructure of the country crumbled, this system became much less predictable. Distribution from the ports to the lower levels is contracted out to local distributors since relatively few MoH and NGO facilities have vehicles of their own for this purpose. No formal distribution plan

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<sup>1</sup> During this assessment it was not possible to ascertain where the medicines were obtained nor the prices paid. However, provincial officers have been known to fly to Namibia and South Africa to purchase medicines.

<sup>2</sup> There is no formal mechanism to track these transactions at this time.

currently exists, but schedules must consider that some areas become impassable during the rainy season both by car and by plane. As the distribution system for supplies was also intended to support the Health Information System by collecting reports from facilities and bringing them to the next level, when the distribution function fails, the information system fails as well.

The lack of a formal distribution plan probably contributes to the periodic shortages. The terms of the contracts are either CIP (carriage and insurance paid) in which seller pays freight, insurance and charges to the destination port including customs clearance) or DDP (delivery duty paid) in which the seller pays all charges up to place of destination, in this case, to a warehouse in Luanda, Benguela or Namibe, and excludes duties and taxes. The average lead time for delivery of an international shipment is between three to four months and port clearance can take an additional month. Most shipments require that the vendor covers the cost for clearance. A serious clearing agent can reduce delays which can damage shipments and spoil products. In principle, most provinces have a warehouse and many municipalities also have some storage capacity. According to WHO, the provinces of Bengo, Bié, Kuando Kubango, Moxico, Zaire and Uíge provinces do not have sufficient storage capacity. Some of these were destroyed or badly damaged during the war, or are otherwise inadequate for receiving and storing supplies. The planned UNICEF assessment of the distribution system to take place in September will no doubt provide valuable information and recommendations to address this situation.

Another likely contributor to the reported shortages at the facility level is the very nature of the kit system and the lack of reliable service utilization data to understand real needs. The “push” system is generally recommended for situations in which the information system and capacity at the local level is low and as such may be considered an appropriate solution to the current context in Angola. However, the kit system can also contribute to shortages and gluts at the facility level as it is not sensitive enough to adjust to the needs of individual facilities and their catchment populations. Health facilities are also motivated to inflate service utilization rates in order to justify requests for more kits and by doing so aim to avoid some shortages, but may also be contributing to gluts of medicines that may not move as quickly as expected.

#### Implications for the GFATM Round 3 grant for malaria.

The stated objective in the GFATM Round 3 proposal is for 60% of the risk population to have access to and make use of effective treatment for malaria by the end of the two year period. Quantities for procurement of medicines with funds from the GFATM Round 3 proposal were based on these targets. Originally, the quantification was based on the best available date: extrapolations from 1971 census data to obtain estimates of the size of the target population<sup>3</sup> in 59 municipalities of interest and the number of malaria episodes per year, plus the known rate of health services utilization (both MoH and NGO facilities).

In 2004, the funds (total of \$5,217,040) were reprogrammed to accommodate GFATM recommendations regarding treatment with ACTs. Given the relatively higher cost of

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<sup>3</sup> See NMCP Strategic Plan 2005-2009.

Coartem<sup>®</sup>, the only prequalified ACT at the time, the original quantities to be procured were reduced. WHO/MMSS has been notified regarding the expected procurement for Coartem<sup>®</sup> and funds have recently been transferred to WHO. The first deliveries are expected to arrive in December 2005.

The final quantities to be procured weighed more heavily in support of treatment for pediatric cases, but even so, the contribution of the GFATM funded supplies would cover only one third of the estimated needs by the end of Year 2 if the estimates are accurate (see table). A significant assumption is that this population does have access to services and that utilization rates can be expected to reflect this. This is a morbidity-based method that does not take into account utilization rates. It is reasonable to expect that utilization may be less than expected. Given the various weaknesses in the data, this estimates may be considered to be very conservative.

**Estimates for Coartem<sup>®</sup> using targeted 60% of population for 59 municipalities (5,880,000)  
Assumes endemic areas**

	Packing	Est. total treatments needed	No. blisters to be procured under Y1 Round 3	Projected Gap	No. blisters to be procured under Y2 Round 3	Projected Gap
5 to 14 Kg	(Under 3yrs)	1,528,800	256,107	1,272,693	385,160	1,143,640
15 to 24 Kg	(3 to 7 yrs)	1,058,400	731,733	326,667	1,097,600	-39,200
25 to 34 Kg	(8 to 11 yrs)	720,300	80,000	640,300	120,000	600,300
Above 35 Kg	(above 12 yrs)	1,719,900	80,000	1,639,900	120,000	1,599,900
<b>Totals</b>		<b>5,027,400</b>	<b>1,147,840</b>	<b>3,879,560</b>	<b>1,722,760</b>	<b>3,304,640</b>
<b>% needs met</b>			<b>23%</b>		<b>34%</b>	

In order to compensate for the gaps in Coartem<sup>®</sup> coverage, the MoH made a commitment to supply kits with AQ and SP to supplement the supplies provided under the GFATM grant and allow for a phasing out of AQ. According to the NMCP, the transition phase of three years will be characterized by facilities exhausting their current supplies of CQ and switching to AQ until Coartem<sup>®</sup> is available. The prevailing assumption is that stockouts are more the rule than existing supplies so pipeline issues are not a concern. However, the true status of the current stock positions for CQ or AQ at the facilities is not known due in large part to the decentralized way in which medicines are being procured, together with the fact that the feedback mechanism on consumption and stock levels from the facilities to the central level are not functional.

The timely distribution of the MoH kits is imperative to ensure that the target population has access to effective treatment. The current delays in procurement do not inspire confidence in the ability of the MoH to make this commitment. Indeed, the weaknesses in the MoH system influenced the recommendation by the GFATM Local Funding Agent that WHO be responsible for the GFATM antimalarials procurement.

According to the NMCP, Coartem® procured with GFATM funds will be distributed via the existing MoH system in separate kits presumably to maintain tighter control, although it is not clear how this will be coordinated with the existing kit distribution.

Currently, there is no detailed implementation plan that specifies how distribution of ACTs will be accomplished. In discussions with the NMCP it was explained that the intent is that there will be separate kits with the GFATM medicines and that these will accompany the regular MoH kits to the 59 priority municipalities. There are likely to be physical space and scheduling implications of combining these that should be carefully considered. Supplies may need to be flown in to some provinces as well especially if distribution is expected to take place during the rainy season when many roads are unpassable. The planned UNICEF study should inform the design of the distribution plan that considers this as a priority.

#### NGOs and the Private Sector and ACT management:

NGOs have been able to fill some gaps in medicines and supplies through their own purchases (local or imported). There is no mechanism for NGOs to provide information on a regular basis to MoH on the services and supplies they provide or receive. Some of the larger and more visible ones have been actively involved in promoting the change in the malaria policy and have already been providing Coartem® or other ACT for some time. The MENTOR Initiative, for example, has been supporting the national policy and purchasing AQ +AS in blister packs from MSF-Holland for Huambo and Zaire, where they apparently have a strong collaborative relationship with the provincial health directors and the NMCP. They expect to begin purchasing Coartem® when it becomes more readily available.

Similarly, large companies that offer health services (e.g., Esso, Chevron, Coca Cola, Odebrecht, etc.) follow their own treatment protocols, formalized or not, and generally import their supplies. Although the value and volume of these purchases was not determined at part of this assessment, it is not considered to be an amount significant enough to impact on the MoH quantification exercise.

#### Appropriate Use for Case Management and Prevention:

Standard treatment guidelines and protocols are intended to make explicit the recommended treatments and minimize unnecessary and unsafe practices. Since the change in malaria treatment policy in 2004, guidelines have been prepared for the treatment of uncomplicated malaria, MIP and IPT. Activities have taken place to help disseminate the new treatment standards among NGOs who have been particularly careful to train their staff in the appropriate use of the medicines they are providing. MENTOR included training when they introduced Coartem® and RDTs. A large scale roll-out training for MoH staff is planned to occur as part of the GFATM Round 3 grant.

Draft guidelines also exist for malaria for community-based IMCI and home-based management of malaria. These are considered to be very important components of the national malaria strategy as the health system is fairly weak and in malaria-endemic



areas, access to curative and diagnostic services is limited. These strategies aim to improve the ineffective self-medication practices that are reportedly very common in these endemic areas. However, concerns still exist among MoH staff about the possibility that these strategies may further promote poor self-medication and that patients who might otherwise go to a health center will decide not to.

Draft guidelines and supporting IEC materials have been prepared with the involvement of key partners and stakeholders in the MoH and NGOs. They have yet to be pilot tested and finalized.

Little is known about prescribing and dispensing practices in the public and the private sectors in general. Although the basic concepts of essential medicines and rational drug use are part of the basic medical and nursing curricula, the lack of controls over the availability and use of products not recommended for treatment, including those used to treat malaria, is a threat to effective case management. In the public and NGO sectors these products come from purchases outside of the MoH supply, donations, or may be imported by expatriate practitioners.

These concerns were supported by anecdotal information and observations made during this assessment. The dispensaries of the facilities visited as part of this assessment all stocked items that were not on the kit lists and one health center had clearly marked “hospital use only” products on hand. Some staff at the facilities visited in Luanda were not yet aware of the change in national malaria treatment policy, but all were still recommending and prescribing CQ as a first-line treatment. They also prescribed other malaria treatments not consistent with the current national policy.

The proposed National Medicine Policy recommends periodic studies of prescribing practices in order to inform appropriate managerial, educational or regulatory interventions. Such studies are badly needed, as they might uncover key problems in prescribing medicines such as prescribing incorrect doses, strengths, drugs, and combinations of drugs.

#### Financing and resource mobilization for malaria and GFATM Round 5:

Implementation of the GFATM Round 3 has been delayed for a variety of reasons, including the need for reprogramming of needs. The grant focuses on introducing and scaling up malaria prevention and treatment activities to 59 priority municipalities over a period of two years. Of the total grant, \$2.3 million is earmarked for the procurement of medicines, and \$558,000 for RDTs. This stage should yield important information about program implementation and identify weaknesses to be addressed prior to expansion to other municipalities. Under Round 5, the NMCP proposes that the next expansion phase be extended to an additional 41 municipalities to cover an additional 25% of the population (total of 85%). Much will depend on the performance of the grant during the coming year. Delays in awarding Round 5 grants may be expected to put a serious halt to progress.

Round 3 funds will not be sufficient to ensure complete coverage with ACTs, but will contribute greatly to improving access to more appropriate treatment as ACT is transitioned in. However, this will depend on the ability of the MoH to successfully complement the GFATM procurement. Having a system in place that can efficiently and effectively ensure the distribution of supplies, incurring minimal waste and loss, will also impact on the ability to meet targets. More timely and reliable data will become available on services utilization and stock availability will also become available and will help to understand what the true needs and gaps are.

Both UNDP and UNICEF feel strongly that without GFATM support under Round 5, the overall objectives of treatment and prevention of malaria will certainly fail. Even so, in order to complete the transition and ensuring access to ACT as the first line therapy, the MoH and partners will certainly need to consider more sustainable approach to maintaining an effective malaria program. This will have to address the issue of cost recovery through such mechanisms as user fees or dispensing charges, topics that are currently being considered by the MoH for basic services as these occur in practice already but are not supported by any national policy or controls at this time.

A funding gap of approximately \$2 million was identified in the GFATM Round 3 grant for training needs to support appropriate use and management of medicines. The PMI may initially consider supporting these activities as they contribute to the ensuring appropriate management of products which will continue to be a concern for any donor supporting antimalarial drug supply.

### **Insecticide-Treated Nets (ITNs)**

Coverage and distribution: Since 1998, the NMCP has promoted the use of ITNs as one of the essential components of malaria prevention and control in Angola, focusing particularly on municipalities in areas of stable malaria transmission. It is estimated that by the end of 2005, approximately 1.9 million nets will have been procured and/or distributed by UNICEF, WHO, Population Services International (PSI), JICA, the private sector and the MoH in the 59 targeted municipalities where 70% of the population resides.

Free and subsidized ITNs are distributed through a wide range of different strategies including social marketing, health facilities and, to a very limited extent, community-based systems. Until 2003, conventional nets were distributed and the majority of these nets were treated through a network of community treatment centers in 16 of 18 provinces organized by UNICEF and the MoH. Re-treatment rates at these centers with pyrethroid insecticides have been less than 10% in these centers based on the number of nets re-treated compared to the total number of nets distributed. Poor re-treatment rates may be due to cultural factors, such as reluctance to have nets re-treated with nets from other households as well as the inconvenience of bringing nets to central re-treatment facilities.

Because of the disappointing re-treatment rates, the 2005 Strategic Plan of the MOH (drafted in 2004) encouraged the introduction of long-lasting insecticide-treated nets (LLINs). All nets procured under the Global Fund grant are LLINs (currently a product mix of Olyset<sup>®</sup> and Permanet<sup>®</sup> nets). Distribution of different LLINs will be segmented to different geographic areas as there are unique IEC messages pertaining to their use that should be communicated to the populations using each type of net. National coverage data are unavailable but in 2000, a Multiple Indicator Cluster Survey (MICS) conducted by UNICEF estimated household coverage at 10%. A more recent survey by UNICEF focused largely on areas where they had been working in Luanda, Benguela, Cabinda and Bengo Provinces. A total of 6,000 families selected in a quasi-random design were surveyed. Forty-nine percent of families slept under a bed net. Twenty-two percent of children under 5 and 18% of pregnant women slept under a net. Fifty percent of nets had been treated but it was unclear when the treatment occurred. In 2002, UNICEF reported 25% coverage in these regions.

Policy and strategy: The draft ITN policy and strategy in Angola supports a market segmentation approach, including free distribution of nets to pregnant women and children under five, subsidized distribution to the general population, and commercial sector distribution in urban areas. Given the low re-treatment rate for conventional nets, the GoA encourages the distribution of LLINs. Should supplies of LLINs be inadequate to cover all target groups, the MoH would prioritize distribution of LLINs to refugee camps, provinces with hyperendemic transmission, and areas with epidemics in the southern provinces.

Free distribution to vulnerable groups: The draft national ITN policy and strategy supports distribution of ITNs free of charge to vulnerable groups including pregnant women, children under five years of age, people living with HIV/AIDs, orphans and vulnerable children (OVCs), internally displaced persons (IDPs), and refugees. Currently, the main distribution strategy planned for scale-up, and supported through the Round 3 GFATM grant, is through the public health system, targeting pregnant women attending ANCs and young children receiving DPT3 vaccinations by UNICEF, WHO, Population Services International (PSI), JICA, the private sector and the MoH by UNICEF, WHO, Population Services International (PSI), JICA, the private sector and the MoH. UNICEF funds piloted this approach in 3 municipalities, and GFATM Round 3 funds with UNICEF as sub-recipient will expand this strategy to all health facilities in 41 municipalities in highly endemic areas. It is expected that 418,958 nets will be distributed through this route in the first year of GFATM Round 3 implementation, achieving approximately 60% coverage of pregnant women and 70% coverage of infants in the target municipalities. This distribution system will be accompanied by a comprehensive training and communication package.

Although it is hoped that distribution through static health facilities will increase utilization of health services, and lead to health system strengthening, access to these facilities remains relatively low. Understanding the reasons for low utilization of health facilities would make a significant contribution to increasing bed net coverage in

pregnant women and children. Low utilization of health facilities may be a function of a combination of a number of factors including cost, access and quality of services.

Seventy percent of GFATM procured ITNs are directed at free distribution through public health distribution systems from both Round 3 and Round 5 (awaiting decision). The GFATM Round 5 proposal would support the scale-up of this strategy to all malaria endemic municipalities in the country. The GFATM is purchasing only double-sized (190 x 180 x 150cm) rectangular LLINs.

This distribution strategy will be supplemented through EPI outreach and campaign approaches including measles campaigns and child health days, depending upon availability of funds. The Canadian International Development Agency (CIDA), American Red Cross (ARC) and UNICEF are considering integrating LLITN distribution into the June 2006 measles campaign.

Subsidized distribution: Much of the general population cannot access, for either financial or geographic reasons, commercially priced nets. A highly subsidized net distribution system is targeting these rural populations, largely through community-based organizations, NGOs and FBOs, as outlined in the strategic plan. Levels of subsidy will be established at the local level.

Currently PSI sells subsidized nets to pregnant women in 15 health facilities in Luanda at a cost to the end user of approximately US\$2.80, with a planned expansion to a total of 28 health facilities in the next year. Approximately 4,000 ITNs are sold through this system each month. Twenty percent of the Round 5 GFATM grant will use this approach through PSI working through community-based groups.

Commercial sector distribution: In order to encourage long-term sustainability of ITN distribution in-country, the national ITN strategic plan supports the development of commercial sector distribution through market priming. PSI introduced social marketing of higher-end conical nets through the commercial sector in Luanda using funds from the GFATM and other partners. Currently, approximately 12,000 ITNs are sold each month for US\$7.00 to the end user through a network of 1,450 commercial selling points. If funding becomes available, PSI would expand social marketing to other urban areas in the country. Ten percent of GFATM Round 5 procured nets would be distributed through commercial distribution.

It is estimated that the number of LLINs provided by partners and the Round GFATM Round 3 grant, together with LLINs that would be procured by a successful GFATM Round 5 proposal (if it were fully funded) should be sufficient to achieve 85% coverage of pregnant women and children under 5 by the third full year of the President's Malaria Initiative (2010) (see table below). This estimate is based on data supplied for the GFATM Round 5 proposal for the estimated population of Angola in 2010 (n = 20,299,583), and assumptions that 85% of the population lives in malarious areas with stable transmission, 20% of the population under children under 5 and 5% are pregnant women. This estimate also assumes that only LLINs will be available and that all LLINs

less than 4 years old will remain functional. This analysis does not account for any loss of nets due to damage. However, this is offset by the reality that the mean number of individuals using a net is generally greater than one (e.g., a mother and one or more children or several young children sharing a net). This calculation does not take into account any ITNs that would be distributed during the June 2006 measles immunization campaign.

### *Projection of the Number of LLINs to be Provided through the GFATM Round 5 proposal if successful*

Year	Population of Angola	Non-endemic Semi – arid	Population in Endemic Areas	Number of Pregnant Women and Children <5	Number of New LLINs to be distributed	Number of LLINs <4 yrs old
2005	17,681,600	2,652,240	15,029,360	3,757,340	819,000	0
2006	18,176,684	2,726,502	15,450,182	3,862,545	413,231	1,232,231
2007	18,685,631	2,802,844	15,882,787	3,970,696	445,295	1,677,526
2008	19,208,829	2,881,324	16,327,505	4,081,876	1,200,000	2,877,526
2009	19,746,676	2,962,001	16,784,675	4,196,168	1,200,000	4,077,526
2010	20,299,583	3,044,937	17,254,646	4,313,661	1,200,000	4,458,526

The MoH would like to encourage local net production. The Sheba Company is studying the feasibility of establishing a bed net factory in Benguela in 2006. It is anticipated that the conventional nets produced in this factory would be treated with K-O TAB 123 prior to distribution.

Tariffs: The MoH is in the process of addressing the issue of taxes and tariffs on nets and insecticides. Although Angola is a signatory to the Abuja declaration, tariffs remain high at approximately 50% since nets are classified as luxury goods. Netting fabric is imported at lower tariffs than prefabricated nets while insecticides including pyrethroids for re-treatment of bed nets may be imported duty free by NGOs. ITNs imported by UNICEF and PSI are also not subject to tariffs. However, goods imported into Angola require customs clearance. This service generally is subject to fees of 15 to 20%.

### **Indoor Residual Spraying and other Vector Control Measures**

Limited indoor spraying with residual insecticides has been carried out during the last 3 years in two municipalities in Cabinda Province. Approximately 5000 kg of a donation of DDT by the Government of Namibia is stored in the southern provinces, but DDT has not been used in Angola since 1985-86 and the current policy of the GOA prohibits DDT use. An exception may be made within a 10-25 mile zone along the Angolan-Namibian border as Namibia presently uses DDT for IRS. It is the intention of the GOA that DDT stocks will, when exhausted, not be replenished.

In the malaria epidemic-prone southern provinces, the MOH is supportive of the use of IRS for malaria prevention. In 2002, 52 Angolans received training in IRS by the Government of Namibia. Temporary workers to implement IRS are available in the

epidemic-prone provinces but additional training would have to be provided in the application and safe use of insecticides and sprayers before wide-scale IRS campaigns could be undertaken. There are inadequate supplies of quality backpack sprayers, insecticides and secure storage facilities at present to support a large-scale IRS campaign. Expertise in the logistics and management of a large IRS are also limited at present and would require training to increase the MOH capacity. Discussions to address transportation needs for IRS in the epidemic-prone areas were held with the Angolan Army. Tariffs are not paid on insecticides but a clearing agent's fee must be paid at the port of entry.

The decision of the Government of Angola not to use DDT means that anopheline vector control will rely, predominantly, on the use of other insecticides such as lambda cyhalothrin. However, a recent study by the Angolan MoH found that 18% of the anophelines tested in Cabinda Province were resistant to pyrethroid insecticides.

Larviciding with *Bacillus thuringiensis* for *Anopheles* control and *B. sphaericus* for *Culex* control has been undertaken in Luanda and Cabinda Provinces. Quantitative data on the productivity of different breeding sites is not available, nor has the effectiveness of larviciding on either adult mosquito populations or malaria rates in humans been measured.

Insecticide space spraying (e.g., fogging and/or ultra-low volume applications) has taken place in limited locations by private companies, such as by Odebrecht and Chevron, as well as by MENTOR in Huambo and Zaire Provinces and by the Angolan Army at the request of the provincial government in Luanda Province. The Angolan Army applies alpha-cypermethrin using truck mounted ULV sprayers. ULV spraying in Luanda is not recommended by the NMCP. These space-spraying exercises have not been evaluated; hence, evidence is lacking to support space spraying as a cost-effective component of an integrated malaria control program.

### **Epidemic Detection and Containment**

The National Epidemiological Surveillance System collects weekly malaria reports from the four epidemic-prone provinces in the South (Namibe, Kunene, Huila, and Kuando Kubango). Data on the number of cases, deaths, and age groups is reported to the province level which is then transmitted to the central level. Not all municipalities report on a regular basis. Since the reliability of this information is unknown and delays occur in releasing data to the NMCP, the data is of limited use for detection of epidemics.

The response of the MoH and the NMCP to epidemics is very much reactive. Little or no epidemic forecasting is done. Municipal- and provincial-level epidemic control plans do not exist, and there is lack of adequate attention to epidemic control at the provincial level and poor communication between the different levels of the healthcare system. In addition, lack of adequate supplies of drugs, insecticides, backpack sprayers, and poor road conditions compromise a timely response to epidemics.

## **HIV-AIDS and Malaria**

There are an estimated 240,000 persons living with HIV/AIDS in Angola and the adult prevalence is estimated to be 3.9% (1.6-9.4%). The prevalence is highest in Luanda and along the northern and southern borders with Zaire and Namibia. The National AIDS Program has clinics in most cities where testing and counseling are offered. The WHO 3 x 5 Program intends to have 5,500 patients on treatment by the end of 2005.

## **Monitoring and Evaluation of Malaria Control Activities**

The NMCP recognizes the critical importance of a strong monitoring and evaluation component to their program. As a result of the civil war, the health information systems in Angola are very weak and the quality of the available information is not clear. The last large demographic survey (MICS) was conducted in 2000 and no up-to-date information exists on key coverage indicators, such as number of families with ITNs or patients receiving appropriate treatment.

The NMCP has been working to establish a National Malaria Information System. This system is intended to support the larger National Epidemiological Surveillance System by conducting and/or collating data from municipal- and household-level surveys building on previous work done with WHO and UNICEF. In addition, the NMCP intends to conduct entomological, parasitological, and KAP surveys on an ad hoc basis. WHO has been supporting the development of this component through direct technical assistance in selected provinces and is expected expand this effort under the GFATM Round 3 grant to all provinces. An epidemiologist within the NMCP staff in Luanda will be placed in charge of this effort and a workshop on monitoring and evaluation and integrated disease surveillance has already been conducted.

The amount of funding allotted to monitoring and evaluation activities in the Round 3 GFATM grant varies considerably among the Sub-Recipients: \$225,000 for the NMCP; \$230,000 for UNICEF; US \$88,000 for PSI; and \$9,000 for WHO.

## **Human Resources**

According to the MoH's Annual Health Sector Plan (2005), there are approximately 45,500 MoH employees. Since 55% of all workers are administrative or support staff the MoH is concerned that this represents an imbalance in staffing and a need to "train up" some of the lower-level technical staff in order to create a better balance. The MoH is also concerned about the high concentration of health professionals in the urban areas, with approximately 35% of all health workers concentrated in Luanda alone, while there is a chronic shortage in the periphery, especially of the more highly trained cadres.

The two largest schools for training technical professionals in Angola are the Faculty of Medicine and the Institute for Nursing. There is no Faculty of Pharmacy at this time, and to study pharmacy practice or pharmacology, one must go abroad. Private schools for

training health professionals are operating in Luanda, suggesting that the demand exceeds capacity.

The MoH has drafted a Plan for Human Resource Development (Plano de Desenvolvimento de Recursos Humanos) for the entire MoH that includes the following basic strategies for both pre- and in-service human capacity building:

- Define human resource needs that correspond to standardized basic services by level of care
- Develop and implement a course to raise the skills and knowledge level of the lowest level auxiliary staff
- Develop and implement a curriculum for mid-level care needs to be revised to reflect the standard set or package of services to be offered in the various types of clinics
- Support professional training with priority to management, IMCI, maternal health sexually transmitted diseases
- Promote standardized graduate training (national or international) that would be regulated to ensure quality
- Develop and implement a management program for managers (for different levels of care) which could include hospital administration.

The NMCP is responsible for planning, organizing and supervision of all malaria control activities in the country. It has a staff of 11 based in Luanda, including the Coordinator and Deputy Coordinator (both physicians), 2 physician-malariologists, 2 biologists, an entomologist, an IEC technician, an administrator, and about 5 laboratory/entomology technicians. Round 3 GFATM funding has been used to hire full-time malaria coordinators for each of the 18 provinces; these staff are paid through WHO rather than being NMCP staff. There are no malaria control workers at the municipal or lower levels.

The human resources needs of the NMCP mirror those of the larger ministry. Through the GFATM proposal for Round 3, support was requested for recruiting six staff at central level and 36 at the provincial level to directly support the NMCP. Also specified was training for MoH staff to be able to participate in the various activities in support of the information and monitoring and evaluation system. This is in addition to the need to providing in-service training to staff providing clinical services to ensure proper implementation of new treatment guidelines. One of the concerns that was expressed by the NMCP about being able to recruit and train-up lower-level health care workers to carry out some of the needed activities, including those required for community and home-based management, is the low level of functional literacy that characterize this cadre.

### **Coordination of Malaria Prevention and Control Activities:**

Coordination and communication between the NMCP and multilateral, bilateral, and local partners working on malaria in Angola needs to be improved. The GFATM Country Coordinating Mechanism does not meet a regular basis and malaria-related



issues cannot be discussed in detail. In addition, both the Round 3 and Round 5 grant proposals were written without full participation by all partners. Different partners often do not have a full picture of what others are doing, leading to confusion, duplication of effort, and frustration.

A Malaria Task Force has been formed around the GFATM proposal made up of MoH, WHO, UNICEF, PSI, and GFATM staff. This group holds monthly meetings, but other potential partners and NGOs working on malaria are usually not invited to these meetings. Malaria technical working groups exist as part of the Task Force, but they meet only irregularly. Other than the Country Coordinating Mechanism and this Task Force, no other formal mechanism exists to coordinate malaria-related activities in Angola.

## **PARTNERS' ROLES AND CAPABILITIES**

### **Ministério da Saúde**

Malaria is considered a very high priority by the GoA. Ministry of Health staff expressed their hope that the expanded and intensified malaria control efforts supported by the GFATM and the President's Initiative on Malaria could serve as a model for other disease control programs in the country and help strengthen overall capacity within the MoH. An organogram of the MoH is shown in Annex 5.

The NMCP in Luanda occupies extremely cramped quarters in the basement of the MoH. There is only limited computer and telephone/fax support and staff have no internet/e-mail access. The NMCP has only one vehicle provided by WHO.

National Malaria Control Program staff, with support from WHO and UNICEF, have been responsible for the changes in national malaria treatment and IPT policies and for preparation of a National Strategic Plan for Malaria Control for 2005-2009. Draft documents/guidelines are either planned or in preparation for (1) case management of severe malaria, (2) laboratory diagnosis; (2) epidemic preparedness; (4) ITN policy; (5) IPT; (6) vector control; (7) monitoring and evaluation; and (8) community IEC. The NMCP has conducted training courses at both the central and provincial levels on malaria diagnosis, management of uncomplicated and severe malaria, prevention and treatment of malaria during pregnancy, and vector control. In addition, they have taken responsibility, with support from the WHO National Programme Officer and WHO/AFRO, for antimalarial drug efficacy studies at 8 sites during the past year.

With GoA funds, the MoH purchased 120,000 ITNs in 2003, 60,000 ITNs in 2004, and 55,000 ITNs in 2005. The MOH has also agreed to purchase 1.2 million tablets of SP each year for the next 2 years for IPT to complement the quantities provided for in the GFATM Round 3 grant. No SP is budgeted for in the Round 5 grant, since the GoA has agreed to supply all SP for IPT during the life of that grant. The GoA also purchases AQ, SP and quinine, but the amounts were not available at the time of the team visit.

### **Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM)**

Round 3: Angola has an approved Round 3 GFATM grant of \$27.5 million for two years with the possibility of increasing this to a total of \$42 million in the third year. The Round 3 grant was signed in January 2005 and implementation began on 1 April, 2005. It will focus on the 59 high priority municipalities (70% of Angola's population). The objectives are to increase coverage with ACTs, IPT, and ITNs to 60% of the population in the 59 targeted municipalities and to build capacity within the NMCP.

Price-Waterhouse-Cooper is the Local Funding Agent and UNDP is the Principal Recipient, with WHO, UNICEF, and PSI as Sub-Recipients.

WHO, together with the MoH, is responsible for implementation of malaria case management including the procurement of ACTs, SP, and quinine for treatment of uncomplicated malaria in pregnant women (\$5.2 million), RDTs (\$1.1 million), microscopes and supplies (\$263,000), and indoor residual spraying (IRS) of 15,000 households in the 4 southern provinces (\$296,000). Approximately \$3.2 million is set aside for hiring personnel and capacity building. The WHO component of the grant includes a small monitoring and evaluation component (\$9,000). As part of the Round 3 grant, monthly salary incentives will be paid to 6 staff members of the NMCP.

UNICEF is responsible for the purchase of LLINs (\$9.9 million). This funding will focus on 41 of the 59 municipalities targeted by the MoH which have stable transmission; 3 other municipalities are funded directly by UNICEF. UNICEF is also responsible for training and communication campaigns among health workers and in communities, implementation of IMCI (\$724,000), support to IMCI among NGOs (\$1.8 million), and monitoring and evaluation (\$230,000).

Population Services International will be responsible for procurement and distribution of ITNs (\$974,000), both subsidized and commercial, especially in urban areas. Costs for brand development and media campaigns are included (\$378,000). The PSI budget also includes costs for personnel and office supplies (\$845,000) and for monitoring and evaluation activities (\$88,000).

Round 5: A Round 5 grant proposal for malaria was recently submitted by the GoA to the GFATM. It requests a total of \$115.8 million over 5 years (ranging from \$18-26 million/year) to start in September 2006. Its goal is to reduce malaria morbidity and mortality in Angola by 60% by 2011. Its objectives are to:

1. increase to 70% the proportion of the population at risk of malaria who have access to and use accurate diagnosis and effective treatment;
2. increase to 70% the proportion of 70% of pregnant women and children under 5 sleeping under an ITN;
3. increase to 60% the proportion of pregnant women in all municipalities with stable malaria transmission who receive two doses of IPT;

4. strengthen monitoring and evaluation capacity at the national, provincial, and municipal levels;
5. strengthen the capacity of the NMCP to manage and coordinate malaria prevention and control activities.

The MoH and UNDP are joint Principal Recipients; Sub-Recipients are WHO, UNICEF and the NMCP. PSI is no longer a Sub-Recipient, but will be an implementing partner under the direction of the NMCP. About 90% of the funding would go to UNICEF and WHO and 10% to the MoH. No funding is directly provided to NGOs, the private sector, or academic or research facilities.

Approximately 50% of the total budget will be spent on ACTs, with 15% for LLINs in Years 1 and 2 and rising to 35% during the last three years. As with Round 3, 70% of the ITNs would be distributed free of charge; 20% highly subsidized, and 10% for the commercial market. About 8% of the total budget will be used for monitoring and evaluation, and 15-25% on human resources and health systems strengthening. A total of \$750,000/year is available for purchase of RDTs and is expected to cover 40% of the over five population.

According to the plan, pilot trials of community-based management of malaria would be carried out as part of Year 1 and Year 2 activities, but would begin nationwide in Year 3.

### **World Health Organization**

The WHO has been a major partner in supporting the efforts of the NMCP to re-establish malaria control activities nationwide, while strengthening program managerial capacity and establishing systems and norms for malaria control at all levels of the health care system. Day-to-day technical support is provided by a National Malaria Programme Officer; an International Malaria Programme Officer arrived in Angola about 2 months ago. Additional support is provided from the WHO Africa Regional Office in Harare.

WHO-Angola receives \$110,000/year in regular budget funding for malaria; supplementary budget funding has averaged about \$1 million/year. As Sub-Recipient of the Round 3 GFATM grant, WHO will receive \$5.3 million in Year 1 and \$4.6 million in Year 2. All purchases of antimalarial drugs with GFATM funds will be handled by WHO.

### **UNICEF**

In UNICEF Angola, malaria falls under the Child Health and Reproductive Health projects; there is currently no UNICEF malaria officer in Angola. Over the last five years, support to malaria control has been focussed largely on ITN distribution particularly expanding the distribution and integration of ITNs into primary health care. UNICEF also provides support to the MoH in policy and strategy development, including support to the GoA to develop a strategic plan for the reduction of child and maternal mortality, support to the NMCP to finalise a five-year Malaria National Strategic Plan and national guidelines for the promotion and use of ITNs. UNICEF is also supporting a

consultancy investigating the removal of taxes and tariffs on ITNs/LLINs. UNICEF Supply Division has pre-booked approximately 6 million LLINs for distribution in 2006 (these pre-booked nets are available for procurement by any country on a first come first served basis).

UNICEF Angola works in all provinces and municipalities of the country. In 2004, the UNICEF country program utilised approximately \$31 million in support of program interventions for women and children in Angola. The UNICEF-Angola malaria budget (excluding the GFATM) is \$577,000 for 2005 and will rise to \$800,000 in 2006.

As a GFATM recipient, UNICEF will receive \$ 5.3 million in 2005 and \$8.0 million in 2006 for support to ITN programming in 41 focus municipalities. Using these funds, UNICEF will procure and distribute approximately 1.23 million LLINs in the next two years, (440,000 in the first year; 792,100 in the second year) to achieve 60% coverage of pregnant women and 70% coverage of young children in these 41 municipalities. Distribution will be supported by training of health staff and a comprehensive communication strategy including the use of participatory communication as well as print materials to increase awareness about ITNs and malaria. UNICEF is currently supporting a team of consultants to review the procurement, logistics and supply infrastructure of the Ministry of Health, as part of its GF malaria programme. Consultants have been identified and begin work in the next month.

### **World Bank**

The HAMSET Project, a 5-year, \$24 million AIDS, tuberculosis, and malaria project was initiated in September 2004. Activities are focused in 7 provinces: Lunda Sul, Benguela, Huila, Cabinda, Cunene, Kuando Kubango, and Luanda. Since the GFATM Round 2 Angola malaria grant had already been approved, malaria funding under this project was limited to \$120,000 over 5 years. The major activities which are being supported are training of MOH health professionals and community-based education related to ITNs. No commodities are being purchased.

### **USAID**

In 2002 and 2003, USAID provided approximately \$1 million/year to strengthen the NMCP. This funding was channeled through the WHO Africa Regional Office and supported the salaries of the WHO National Programme Officer and provincial malaria control officers in the provinces of Luanda, Malange, and Huambo, technical assistance from WHO Africa Regional Office, training, and antimalarial drug efficacy studies. Since approximately \$300,000 of this funding remained at the end of 2003, no additional funding was provided during 2004; however, \$250,000 was provided during 2005 for training and technical assistance.

### **JICA**

The Government of Japan is providing \$2 million over two years for malaria prevention and control activities in Benguela Province, including 180,000 LLINs (Olyset<sup>®</sup>), 49 microscopes and supplies for malaria microscopy, and 9 vehicles. Funding has also been set aside for the purchase of 200,000 AQ-AS treatments and for training. Twenty-five percent of the commodities are expected to arrive in December 2005 and the remainder in March 2006.

### **Faculdade de Medicina (Medical School)**

There are two major opportunities during the 6-year medical school curriculum when students are taught about malaria. One is during the fourth year when the students, as part of a course on Community Medicine, receive instruction on MoH national policies related to the major endemic diseases, including malaria. The other is during a rotation on the field campus in Caxito, which provides training in outpatient care and community interventions in malaria, schistosomiasis, trypanosomiasis, and leprosy. There is a lack of opportunities for research activities for medical students, but interest was expressed in strengthening that part of the curriculum.

### **Exxon-Mobil**

Exxon-Mobil has been active in providing support to various public health programs in Africa over the past several years. More recently, as part of its African Health Initiative, the company decided to focus on activities that will make a significant contribution to reducing the burden of malaria in five oil-producing African countries where the company has major investments. One of these countries is Angola. It is hoped that this funding will be able to support the scale-up of already existing programs with proven track records and can document continued success. Exxon-Mobil has committed \$7 million for 2005 and will increase funding to \$10 million/year in 2006. Funding for these activities comes from the Exxon-Mobil Foundation and from revenues generated by oil production in each country.

In the past, Exxon has been engaged in collaborative efforts that focused on training health professionals, educating community members, distributing ITNs, and supporting research to develop affordable new antimalarial drugs and counteract drug resistance. Through these programs, Exxon-Mobil has contributed to substantial progress in responding to malaria at the national and international levels. In Angola, Esso has contributed to a variety of efforts, including support in the form of medicines, ITNs and other supplies to NGOs for malaria treatment and prevention, as well as a donation to Soyo hospital in Zaire Province for drugs. They are now looking for new partners/opportunities that specifically will address the malaria situation in Angola and during the last few months several NGOs have submitted proposals for funding to Esso-Angola.

### **Other Private Sector Partners**

Odebrecht: Odebrecht is a large civil engineering and construction with more than 10,000 workers in Angola, primarily in the provinces of Luanda, Benguela, Cabinda, Lunda Sul, and Lunda Norte. They carry out environmental management and larviciding of breeding sites, fogging with synthetic pyrethroids three times a week, and have an IEC program for malaria in the areas where their workers and their dependants reside. Between 1998 and 2003 they reported 6,000 cases of malaria in their workers and families which were treated with CQ: SP was used in cases of CQ failure. Pregnant women are provided with IPT with SP.

Chevron: Chevron has approximately 2,500 workers in Angola mostly in the provinces of Luanda, Cabinda, and Malange. The company has provided ITNs for all of their workers' families. They also operate three medical clinics for workers and their families. Malaria diagnosis in these clinics is based on microscopy or RDTs; infections are treated with SP or quinine. Fogging is carried out in Malange.

### **NGOs/PVOs**

Africare: Africare oversees a community-based malaria control project in a target population of 98,000 in two municipalities of Bie Province. Community volunteers in the project area and drug sellers have been trained on malaria. In 2005, a total of 8,500 LLINs were distributed to pregnant women and children under five. An additional 12,000 LLINs have been ordered and will be sold at a subsidized price of \$1-2/net. Africare has collaborated with MSF-Belgium in the training of health workers at 9 health centers on case management of malaria and are already implementing AQ-AS treatment for uncomplicated malaria at one health center with plans to expand to two more. They are also working with UNICEF to implement IPT with SP at the same health centers.

Care: Care is supporting a maternal and child health project in two municipalities of Bie Province. A total of 1,300 ITNs were distributed to high-risk families along with information about their correct use. In urban areas of Luanda Province, an effort is being made to engage local authorities, civil society, and community members in reducing the risk of malaria.

CORE: CORE, a consortium of NGOs including Catholic Relief Services, Save the Children, Africare, Salvation Army, and Care, is currently overseeing a network of approximately 10,000 community volunteers involved in the polio eradication program in the provinces of Benguela, Bie, Luanda, Moxico, Mbanza Congo, and part of Kwanza Sul. They are in the process of preparing a proposal that would expand the scope of work of these volunteers to include ITN distribution and IEC related to malaria.

Christian Children's Fund: In August 2005, CCF started to work on educational campaigns among health professionals and communities in the provinces of Huila, Namibe, Cunene, and Luanda to promote education on IRS.

Goal: Goal has been working in Angola for more than 10 years. It provides support for general health care, water and sanitation in Luanda, Moxico, and Luanda Sul and trains community health promoters. It started malaria work in 2003 with distribution of 6,000 highly subsidized ITNs to pregnant women and children under five.

Management Sciences for Health (MSH): In 2002, MSH began a 3-year USAID Maternal and Child Health Program to improve the quality of integrated maternal and child health and reproductive health services in 15 health centers in Luanda and Bie and Kwanza Sul. The program, which will come to a close in September 2005, provided clinical and management training of clinic staff as well as community mobilization for basic health care. Malaria specific activities included support for the appropriate administration of rapid diagnostic tests, distribution of ITNs, IPT for pregnant women, and the provision of presumptive treatment for children with fever. Courses were conducted on IPT and malaria epidemiology and treatment and diagnosis for clinic and laboratory staff. The program also established a community mapping system to support the follow-up of patients.

Malaria Emergency Technical and Operational Support (MENTOR): MENTOR has received funding from Exxon-Mobil (commodities) and from USAID (administration and logistics) for malaria control activities in Angola beginning in November 2003. They have supported other NGOs in training related to malaria prevention and treatment. Most of their activities have focused on the provinces of Zaire and Huambo. In Zaire Province, these activities have included the distribution of AQ-AS and RDTs for malaria case management in returning IDPs, support for implementation of IPT, IRS in schools and hospitals, and the provision of long-lasting ITNs to maternity wards and orphanages. An additional shipment of 13,000 ITNs has just been received. In Huambo, in addition to support for implementation of IPT and retreatment of approximately 10,000 ITNs, they will be carrying out a pilot evaluation of insecticide-treated plastic wall linings for malaria prevention among returning IDPs. In an effort to improve timely malaria reporting from epidemic-prone areas in southern Angola, Argos systems for data collection has been purchased for 12 sites.

Population Services International: PSI uses social marketing to distribute branded ITNs/LLINs using health communication to create a market for ITNs/LLINs. Rectangular Permanet<sup>®</sup> nets are targeted to pregnant women and children under 5 at 15 ANCs in Luanda at a cost to the user of \$2.80, which includes a \$0.50 incentive for the clinic. Currently an average of 4,000 of these nets are being sold each month. Conical Permanet<sup>®</sup> nets are marketed to consumers for \$7.00 through a private distribution system consisting of 1,450 points of sale within Luanda. Approximately 12,000 of these nets are being sold/month. PSI also has 10 sales agents positioned in 9 other provinces (Benguela, Cabinda, Huambo, Huila, Namibe, Cunene, Malange, Lunda Norte and Lunda Sul). Thus far, PSI has distributed 46,000 subsidized ITNs through the public and private sectors with the potential to expand using existing private sector logistics mechanisms as well as through additional public hospitals and clinics. PSI has also indicated willingness to expand into a time-limited free net distribution of LLINs by working with a consortium of CBOs and NGOs including the Luanda Urban Poverty Programme, Cruz

Vermelha de Angola, Oxfam and Goal during DPT3 vaccinations and measles immunization campaigns.

Save the Children: Although Save the Children has no previous experience working on malaria in Angola, it has recently submitted a proposal to Esso-Angola for an ITN distribution project in two municipalities of Kwanza Sul. A total of 50,000 ITNs would be distributed to women of reproductive age and children under 5 years through existing Save the Children distribution centers, along with information about their correct use. These centers are located close to health centers and distribute food, seeds, and tools to the local population. No decision has been made about whether the ITNs would be provided free of charge or at a subsidized price.

World Learning: This organization works together with other Angolan NGOs (Ação Humana, Luta pela Vida, Cuidados de Infância) to advocate for improvements to the public health system and for increasing the government budget for health. It does not have any current activities related to malaria, but promotes discussions among the participating NGOs and the community.



## POTENTIAL AREAS FOR INVESTMENT BY THE PRESIDENT'S INITIATIVE

### Communication/coordination

There is a lack of coordination and communication among partners involved in malaria prevention and control in Angola. If the NMCP and its director are to assume true leadership of the malaria control effort in Angola, they will need to develop more efficient mechanisms for communication and coordination with the variety of different partners involved in malaria activities. This group should meet on at least a monthly basis to develop and then implement a work plan for the next 6-9 months with clearly defined roles and responsibilities. An assistant should be hired to handle the administrative aspects of this group. Working groups within the malaria sub-group should be established to deal with specific issues such as ITNs, IPT, and case management, with full participation of appropriate partners.

- Support and participate in monthly meetings of the Malaria Task Force, which should be made up of representatives of NMCP, WHO, UNICEF, GFATM, private sector, NGOs and the President's Initiative on Malaria;
- Support and participate in working groups within the Malaria Task Force on:
  - surveillance, monitoring and evaluation
  - diagnosis and treatment
  - malaria in pregnancy
  - ITNs and IRS
  - epidemic detection and response
  - behavior change and communication
  - monitoring and evaluation
  - program management

### Capacity building of the NMCP

Strong and effective leadership by the NMCP will be critical to the success of malaria control efforts of the MoH in Angola and by extension, of the GFATM grant and the President's Initiative. This will require staff training and development, as well as increased working space and logistical support in Luanda. At the provincial and municipal levels, the capacity of the NMCP to conduct, supervise, and monitor malaria prevention and control activities is limited or non-existent. Successful implementation of the new treatment, IPT, and ITN policies will depend on a well-trained and active malaria staff at all of these levels.

#### Central level:

- work with other partners to upgrade NMCP office space in Luanda
- install computers, and communication support, including telephone, fax, and e-mail at NMCP offices in Luanda
- assess staff training and development needs and develop plan to fulfill those needs
- facilitate transport/per diem for staff to ensure access to the field for supervision, training, and monitoring and evaluation

Provincial and municipal levels:

- conduct a needs assessment for building capacity/infrastructure of NMCP at the provincial and municipal levels
- together with partners, develop a plan for support and capacity building at the provincial and lower levels.

**Malaria surveillance/Health Information System**

A reliable and well functioning surveillance system and health information system will be crucial for monitoring trends in malaria morbidity and mortality and guiding the NMCP's implementation of control measures. The existing National Epidemiological Surveillance and National Health Information Systems are weak and do not meet all the needs of the MoH or the NMCP. Efforts to improve malaria surveillance in Angola should also attempt to build capacity in the National Epidemiological Surveillance System.

- Conduct an evaluation of the malaria component of the existing National Epidemiological Surveillance System, including its role in early detection of malaria epidemics
- Reach consensus among partners and develop a plan to improve the quality and timeliness of malaria surveillance and reporting at the municipal, provincial, and national levels through the National Epidemiological Surveillance System
- Tailor the surveillance system in the 4 southern provinces to the needs of epidemic-prone areas.
- Support conduct of malaria indicator surveys
- Support maintenance of sentinel sites for malaria surveillance, drug efficacy monitoring, and insecticide resistance testing.

**Diagnosis**

Only 10-20% of all malaria diagnoses in Angola are based on parasitological examinations. With AM-LUM treatment costing 15-20 times more than CQ, reliable diagnosis will be critical to target the use of AM-LUM to infected patients and reduce the excessive use of antimalarial drugs that results when patients are presumptively treated for malaria.

- Develop a strategy and plan for the use of microscopy and RDTs at different levels of the health system and in different epidemiologic settings in the country;
- Provide on-the-job training for MoH laboratory workers and establish a standardized training course for new laboratory workers;
- Develop and implement a plan for quality assurance of microscopy and RDT diagnosis, including supervisory visits and a systematic review of a predetermined percentage of blood smears;
- Evaluate the complementary roles of microscopy and RDTs in different settings in Angola
- Ensure that the above have been completed before ordering additional supplies of RDTs

## **Treatment with ACT and Support to Pharmaceutical Supply System**

As the GFATM sub-recipients and the NMCP plan to work within the MoH system for the distribution of medicines, it is important that the weaknesses in the supply system be addressed as soon as possible to facilitate support for malaria treatment and IPT implementation under the President's Initiative on Malaria:

- Ensure that the MoH drug management system is functioning adequately and monitor distribution of ACTs purchased by the WHO with GFATM funds before purchase/delivery of ACTs under the President's Initiative.
- Although various components of an ACT implementation plan have been presented, develop a consolidated detailed implementation plan that addresses:
  - Importing, quality control, storage, and inventory management
  - Coordination with the MoH on quantification and distribution
  - Appropriate use
  - Training of health workers
  - IEC for patients
  - surveillance for adverse drug reactions
  - monitoring of implementation/evaluation of coverage
  - promoting correct use of ACTs in the private sector
- Request an opportunity to review and discuss the final report of the UNICEF assessment of the MoH pharmaceutical supply system when it is completed and provide support for already planned system strengthening activities, such as training in drug management, improvements in the pharmaceutical management information systems.
- Assist with implementation of ACTs in areas served by the MoH; involve national and international NGOs in ACT implementation in areas that are currently underserved by the MoH.
- Assess the performance of supply systems supported by the provincial authorities and their impact on the national malaria program goals. The results of an assessment of these issues will inform the planning for further expansion of the malaria program.
- Promote the appropriate prescribing and dispensing of ACTs in the public and private sectors. This includes supporting the already planned NMCP workshops with the private sector and training of health workers. An additional supporting activity would be an evaluation of current practices to inform interventions. This activity should be institutionalized through the creation of pharmacy and therapeutics committees at least at the national and provincial hospital levels.
- Support implementation of the IEC plan, including finalization of materials and roll out.
- Assess antimalarial drug quality in the private sector. The private sector clearly has a significant role in the availability of medicines to patients either through the health facilities or directly in the marketplace yet there are no mechanisms to control for product quality. Results from this research should be used to inform the design of an appropriate quality assurance program as well as to generate needed political support for implementation.
- Develop critical components of a drug quality assurance program:

- product quality testing and surveillance system that can identify substandard and counterfeit products is needed. Appropriate cost-effective procedures to achieve this include basic visual and physical inspection, colorimetric and simple disintegration tests and thin layer chromatography. This basic model can be built upon if and when more resources become available.
- drug registration system based on selective criteria to inventory the products permitted to circulate in the marketplace. Methods for establishing criteria for registration and the tools to manage data needs already exist (e.g., WHO has a guide for establishing a computer-based drug registration system that has been used in various countries in the region) and there is relevant experience in the region that should be considered.
- a national drug information program to support drug registration, pharmacovigilance activities, and the national technical committee responsible for managing the national essential medicines list.
- Conduct a feasibility study of alternative models for a sustainable malaria medicines supply system. Current discussions tend to focus on the shorter term plans.
- Support antimalarial drug efficacy monitoring at sentinel sites.

### **Intermittent Preventive Treatment**

It is estimated that only 40% of pregnant women attend ANCs. To achieve 85% coverage of pregnant women with two doses of IPT in Angola, ANC attendance rates will need to be dramatically increased and/or other approaches to accessing pregnant women will have to be sought.

- Assess/field test options for increasing ANC attendance, including community-based distribution of IPT
- Work with the NMCP and other partners to finalize existing draft IPT implementation plan
- Work with the NMCP and other partners to develop and field test health worker training materials and IEC materials in support of IPT implementation
- Conduct health worker training; implement IEC plan
- No SP purchases will be required under the President's Initiative on Malaria, as needs are already met by the GFATM and MoH commitments

### **Epidemic Detection and Containment**

The provinces of Namibe, Cunene, Kuando Kubango, and Huila have areas which are susceptible to epidemics. Existing systems for epidemic detection and response in these areas are weak and poorly organized.

- Strengthen malaria surveillance and reporting in epidemic-prone areas, including early warning systems and thresholds for epidemic reporting
- Develop district-level epidemic response plans with a clear description of roles and responsibilities of different levels of the health system

- Establish stockpiles of supplies and equipment at one or more sites in the 4 southern provinces for a rapid epidemic response.
- After an epidemic occurs, conduct post-epidemic evaluations to assess the effectiveness of different control measures and improve and refine epidemic response plans.

### **Monitoring and Evaluation**

The capabilities of the NMCP for monitoring and evaluation of malaria prevention and control activities are limited. A rigorous monitoring and evaluation system is critical to both the GFATM and the President's Initiative on Malaria and will greatly assist the NMCP in evaluating the progress of their control activities. An ambitious monitoring and evaluation plan of activities is proposed under the GFATM Round 3 but was budgeted at only 2% of the award. Close collaboration among partners in development of a monitoring and evaluation plan will be critical to avoid duplication of effort and confusion.

- Together with the MoH and other partners, develop an integrated monitoring and evaluation for malaria that will meet the needs of the MoH, the GFATM, and the President's Initiative on Malaria.
- Strengthen capacity within the NMCP to analyze data, reach conclusions, and respond in a rational and timely fashion
- Support plans for a DHS survey in 2006, which will provide critical information to the MoH and other international and national organizations working in the health field in Angola, as well as provide baseline data on the coverage of key interventions for the GFATM and the President's Initiative on Malaria.

### **Insecticide-Treated Nets**

The principal vector control strategy in Angola is the distribution and use of ITNs. Low re-treatment rates of conventional nets justified the emphasis on the distribution of LLINs. The major obstacle to achieving 85% coverage of vulnerable populations is the efficacy and expansion of existing distribution systems. A second concern is the rate of deterioration of LLINs.

Assist the Angola MoH in strengthening the existing ITN distribution systems and developing innovative approaches to address gaps in those distribution systems:

Existing ITN distribution systems can be strengthened by:

- Understanding and addressing the low utilization rates of ANCs (this would also facilitate IPT coverage, diagnosis, monitoring and evaluation, clinical management and LLITN distribution)
- Providing logistic support for expansion of private and public distribution systems beyond the 43 municipalities in which net distribution systems are presently working to include the epidemic-prone areas
- Developing the capacity of the MOH for IEC to promote the use of LLINs, and the need for reactivating Olyset<sup>®</sup> nets after each wash

- Improving the monitoring and evaluation of ITN distribution systems
- Procuring additional LLINs, if needed, to address potential shortages resulting from the need to replace damaged nets and/or a more rapid expansion of ITN coverage than anticipated by the GFATM Round 5 (if shortages of LLINs continue, consider purchase of bundled ITNs and re-treatment campaigns)

Approaches to address gaps in the present distribution systems include:

- Rapid dissemination of LLINs linked to measles vaccination and other campaign approaches such as child health days
- Provision of LLINs to HIV/AIDS patients receiving antiretroviral therapy
- Operational trials of distributing LLINs during IRS operations
- Development of a mechanism for replacement of damaged nets. Possible mechanisms might include replacing damaged LLINs as part of a vaccination campaign in which LLINs are already being distributed or by a net exchange at ANCs or by institution of a voucher system whereby damaged nets could be exchanged at clinics and health centers for a voucher for a new net.
- Developing MoH capacity to ensure the quality of nets by monitoring insecticide concentrations on ITNs and the knockdown and killing efficacy of mosquitoes by nets under both field and laboratory conditions
- Establishing entomology sentinel sites to monitor for the development of resistance to insecticides in selected areas where LLINs and IRS are implemented as well as where insecticides are used for agriculture

The possibility of producing conventional bed nets in Angola highlights the need to evaluate the effective life of nets, both imported and domestically produced. This is important as the duration of mosquito killing and knockdown of KO TAB-123-treated nets has been inconsistent in the studies performed to date and KO TAB-123 has not yet been approved by WHOPEs for use on nets. In addition, the duration of efficacy of Olyset<sup>®</sup> and Permanet<sup>®</sup> nets under Angolan conditions is unknown (effective life will be determined by cultural practices including the frequency of washing and reactivation of Olyset<sup>®</sup> nets) and should be monitored.

Ensuring the efficacy of LLINs (and IRS) will require monitoring to ensure that insecticides are delivered at optimal concentrations and that significant physiological and behavioral-based resistance does not develop in field populations of the major vectors. Sentinel sites for monitoring mosquito populations for both physiological and behavioral resistance to insecticides as well as for measuring the impact of vector control activities on vector populations will need to be established. This is particularly important in Angola as LLINs rely on pyrethroid-class insecticides.

### **Indoor Residual Spraying and other Vector Control Measures**

While ITNs and LLINs will continue to play a prominent role in reducing malaria transmission in Angola, a systematic review of randomized control trials of ITNs showed that the protective efficacy of ITNs on child mortality is 23%. Achieving a 50% reduction in malaria mortality in Angolan children will require additional interventions.

IRS has proven to be effective in reducing morbidity and mortality due to malaria. Use of IRS was supported as a component in the Angolan NMCP in the Angolan Round 3 Global Fund proposal. Continued support for IRS is now needed.

The decision to limit the use of DDT for IRS means that other insecticides will have to be used for IRS. Studies in Kenya and South Africa have demonstrated that lambda cyhalothrin and deltamethrin can be more cost-effective in preventing malaria cases compared to ITNs. However, 90% of Angolan houses are constructed with traditional materials and studies in South Africa demonstrated that Daub walls reduce the effective life of IRS using pyrethroids. The unknown impact on effective pyrethroid life of IRS in Angola coupled with the limitations imposed by the available human resources, vehicles and spray equipment makes IRS for proactive epidemic prevention of uncertain efficacy where DDT cannot be used. Responses to epidemics will be further hampered by both poor roads and weather and will be absolutely dependent on rapid HIS reporting.

- Provide training for IRS team leaders in the MoH including TOT for supervisors
- Support IRS operations in the epidemic-prone provinces by leasing vehicles and providing salaries for temporary workers
- Acquire needed sprayers and safety equipment, insecticides and facilities for appropriate storage
- Build logistics and management of large-scale IRS operations including planning, training, procurement planning, data management and use of GPS/GIS within the MoH
- Analyze available data to predict epidemics
- Analyze of the effective duration of efficacy of IRS in Angola using different insecticides

With possibly a third of the population of Angola living in Luanda, it is essential for the cost-effective allocation of resources to determine the risk of malaria transmission in the urban and suburban areas of Luanda. A cursory inspection of this metropolitan area during the dry season suggests that appropriate ecologic conditions for anophelines and malaria transmission may be limited to peripheral areas of the major cities at this time of year. In the epidemic-prone southern provinces, anopheline breeding sites may be limited by the number of breeding sites. Identification of the most productive breeding sites in urban and epidemic-prone areas could lead to cost-effective malaria control strategies that target the immature mosquito stages. Hence, operational research will be needed to:

- Define and map the risk of urban malaria transmission in Luanda and other urban areas.
- Establish an evidence base for larval control efforts for both larvicide applications and source reduction campaigns.

## ANNEX 1

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**MALARIA TEAM IN-COUNTRY AGENDA**


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**Trent Ruebush - USAID, Thomas Burkot – CDC, Alexandre de Oliveira – CDC,  
 Maria Miralles - RPM, Joachim da Silva – WHO/AFRO, Melanie Renshaw –  
 UNICEF ESARO, MoH participant  
 Luanda, August 9 – 18, 2005**

**Tuesday, August 9****Team Arrival****Wednesday, August 10**

- 08:00 Security briefing @ USAID
- 10:30 – 13:30 Meeting with Director Filomeno Fortes & his team @ DNCM- confirmed  
 Participants: Malaria Team and Cathy
- 14:00 Meeting with Pierre Pirlot & Angers Spiers (UNDP/GF) @ UNDP- confirmed  
 Participants: Core Malaria Team and Cathy
- 17:00 Meeting with Diana Swain (USAID Director) @ USAID- confirmed  
 Participants: Core Malaria Team

**Thursday, August 11**

- 09:00 Meeting with Dr. Nkanga (UNICEF) @ UNICEF - confirmed  
 Participants: Malaria Team and Cathy
- 10:15 Meeting with Dr. Kinanga & Dr. Bakari Sambow (WHO) @ WHO  
 Participants: Malaria Team and Cathy - confirmed
- 11:30 Joint meeting on Malaria @ USAID - confirmed\*  
 Participants: Core Malaria team and PSI\*, MSH\*, MENTOR\*,  
 CORE\*, CARE (Tiago Muti)\*, CRS\*, Africare\*, MSF/Holland, CCF,  
 SC/US\* and Goal
- 12:30 Lunch – w/ Jacques Mathieu (CDC) - confirmed**
- 14:00 Meeting with Private Sector @ USAID - confirmed  
 Participants: Core Malaria Team and Cathy  
 (Judith Aguiar - Chevron, Jorge Preto, Gilberto Menezes & Rahel  
 Hailemichael – Odebrecht)
- 16:00 Meeting with Bill Cummings (ESSO) @ USAID - confirmed  
 Participants: Core Malaria Team



17:00 Meeting with Diana Gourvenec + Pedro Jaime (PSI) @ USAID - confirmed  
Participants: Malaria Team & Cathy Bowes.

### **Friday, August 12**

08:00 Visit Health Facilities with PSI - confirmed  
Malaria Team

09:00 Visit with National Malaria Control Program Entomologist to look at mosquito breeding sites around Luanda. MOH Entomologist & Dr. Nilton  
Participants: Thomas Burkot - confirmed

11:00 Meeting w/ George Duprez @ HAMSET (MoH) - confirmed

14:00 Meeting w/ Dr. Filomeno Fortes & Team @ PNLP - confirmed

### **Saturday, August 13**

**Open**

### **Sunday, August 14**

**Open**

### **Monday, August 15**

11:00 Meeting w/ Dr Cristovão Simões (Faculty of Medicine) @ FM  
Participants: Core Malaria Team & Cathy Bowes

**12:00 Lunch – Open.**

14:30 Meeting with Vice Minister Jose Van-Dunem @ MoH - confirmed  
Participants: Core Malaria team + Cathy Bowes

### **Tuesday, August 16**

10:00 Meeting with national NGOs @ PNLP

11:00 Meeting with Dr. Nilton Saraiva and staff @ PNLP

13:00 Meeting with Fatoumata Diallo, WHO Representative

### **Wednesday, August 17**

08:00 Meeting with the Minister of Health @ - confirmed  
Participants: Malaria Team & Cathy Bowes

10:00 De-briefing with Mission Director @ Diana's Office - confirmed

14:00 De-briefing with Ambassador Cynthia Efird @ US Embassy - confirmed  
Participants: Core Malaria Team, Cathy Bowes

16:00 Reception @ Esso Hotel

**Thursday, August 18**

**Team departure**

**ANNEX 2****Persons Contacted**Ministério da Saúde de Angola

Dr. Sebastião Veloso, Minister of Health  
Dr. José Van-Dunem, Vice Minister of Public Health  
Dr. Filomeno Fortes, Coordinator, National Malaria Control Programme (NMCP)  
Dr. Nilton Saraiva, Deputy Coordinator, NMCP  
Dra. Elisa Miguel, NMCP  
Dr. Cani Jorge, NMCP  
Constancio João, Pharmacist, National Program of Essential Drugs

United Nations Development Program

Jorge H. Romero, Global Fund Manager-UNDP  
Dr. Angus Spiers, Global Fund, Malaria Specialist

World Health Organization

Dra. Fatoumata Diallo, Country Representative  
Dr. Bakari Sambow, International Malaria Program Officer  
Dr. Kinanga Kiaco, National Malaria Program Officer

UNICEF

Mário Ferrari, Representative  
Dr. Nkanga K. Guimarães, Project Officer, Child Health

U.S. Embassy

Ambassador Cynthia Efirid

USAID-Angola

Diana Swain, Director  
Cathy Bowes, Health Officer

CDC-Angola

Dr. Jacques Mathieu, Coordinator  
Dr. Anna Pérez Zaldivar

World Bank

Dr. Ndoza Kulosa Luwawa, HAMSET Project  
 Dr. Ana Leitão, HAMSET Project  
 Dr. Jorge Duprez, HAMSET Project

Faculdade de Medicina

Cristóvão Simões, Director

Non-governmental Organizations/Private Voluntary Organizations

Joaquim Canelas, MENTOR Initiative  
 Dr. James Yebe, MENTOR Initiative  
 Pedro Jaime, Population Services International  
 Diana Gourvenec, Population Services International  
 Dr. Jaime Benavente, Management Sciences for Health  
 Scott Campbell, Catholic Relief Services  
 Fern Todoro, World Learning  
 Md. Anwar Hossein, Save the Children-USA  
 Mary Daly, Christian Children's Fund  
 Elsa M. dos Viveiros F. Gabriel, Christian Children's Fund  
 Fabienne Laurenzio, Medair  
 Andréa Visser, Medair  
 Uuko Watasuz, AAR Japan  
 Ntoni Mvemba Salomai, SCAM  
 João Mbozo Antonio, I.C.U.E.S.  
 Avelino Ngofu, Associacao Cristao de Juvens  
 Moji Terry, Africare  
 Sophia van der Wardt, MSF-Holland  
 Andréa Marchiol, MSF-Spain  
 Maryse Duclous, MSF-Belgium  
 Alelaide Matos, MSF-France  
 Hirondina Cucubica, Projecto Reforzo  
 Paulo Louro, Sheba  
 Santiago Esteves, ITM  
 Paula Figueiredo, Consaúde  
 James Titelman, CICCI  
 Mizalala J. Paulo, AMEGA

Private Sector

Bill Cummings, Esso-Mobil Angola  
 Judith de Aguiar, Chevron  
 Dr. Jorge Preto, Odebrecht  
 Dr. Gilberto Menezes, Odebrecht  
 Dr. Rahel Hailemichael, Odebrecht

## ANNEX 3

### Documents Consulted

#### Antimalarial Drugs

- Estudo de monitorização da eficácia terapêutica in vivo a combinação amiodaquina-artesunate e sulfadoxina-pirimetamina-artesunate no tratamento da malária não complicada por *plasmodium falciparum* em crianças dos 6 aos 59 meses no Kuito-Bie: Relatório preliminar, 2003 (Powerpoint presentation)

#### Financing

- Public Financing of the Social Sectors in Angola, UNDP, IOM, UNICEF, WHO, August 2002
- Angola National Health Expenditures-1998-2002, WHO

#### Fragile States

- Providing Health Services in Countries Disrupted by Civil Wars: A Comparative Analysis of Mozambique and Angola 1975-2000, Enrico Pavignani and Alessandro Columbo, March 2001 (Powerpoint presentation)

#### General Health

- Population, Health and Human Well-Being: Angola Country Profile, Earth Trends 2003
- Nationwide Measles Supplemental Immunization in Angola
- Vitamin A Distribution in Tanzania, Uganda and Angola
- Annual Program for the Health Sector (2005). (Republica de Angola, Ministerio da Saúde. Programa Anual do Sector, 2005.)
- Republica de Angola, Ministerio da Saúde, Direção Nacional de Saúde Pública. Atenção integrada às doenças da infância na comunidade (AIDI-C): Diretrizes nacionais (Draft, no date).

#### Global Fund Documents

- GFATM-General Description of 2006-2008 Grant and Procurement Status, edited e-mail communication-Mauricio Cysne, July 18, 2005
- GFATM-Need Estimation for House Spraying Insecticide, Entomological Kits, Equipment, and Vehicles to Meet Targets in 59 Angola Municipalities (tables)
- GFATM-Need Estimation for Anti-malaria Drugs, Test Kits, Microscopes to Meet Targets in 59 Angola Municipalities (tables)
- WHO Report on a Mission to Angola to Provide Support for the Development of the GFATM 5th Round Malaria Proposal and Implementation of the 4<sup>th</sup> Round, Dr Joaquim Da Silva, June 8, 2005
- WHO Report on a Mission to Angola to resolve the issue of WHO support costs for program support, management and implementation of the GFATM Round 3 Grant, Dr Joaquim Da Silva, March 11, 2005

### **Insecticide-Treated Nets and Insecticides**

- Angola Indoor Residual Spraying and Integrated Vector Management Operations Assessment, Manuel F. Lluberas, RTI consultant, December 15, 2004
- Partnership for the Sustainable Social Marketing of Long-Lasting Treated Nets in Angola-submitted to USAID by PSI, January 2004
- Termos De Referencia Para Um Projecto Integrado De Luta Antivectorial Em Angola No Quadro Da Iniciativa Do Governo Norte Americano Para O Combate À Malaria
- Relatório Final do Programa de Avaliação do Impacto da Utilização de Mosquiteiros Tratados com Insecticida
- Goodman et al., 2001, *Tropical Medicine and International Health*, 6:280-295
- Guyatt et al., 2002, *Tropical Medicine and International Health*, 7:298-303
- LeSueur et al., 1993, *Journal of the American Mosquito Control Association*, 9:408-413
- Lengeler, 2005, *The Cochrane Library*, Issue 3
- Ribeiro and Mexia, 1970, *Mosquito News*, 30: 611-614.

### **Maps**

- Angola political boundaries, Department of Peacekeeping Operations, United Nations, January 2004
- Angola topography, 1990
- Angola vegetation, University of Texas, 1970

### **National Malaria Control Program-Angola**

- Programa Nacional De Controle Da Malária: Documento de Base, Republica de Angola, Ministerio da Saúde
- Situação da Malária na República de Angola. Ano 2003. OMS-Angola, March 5, 2004 (powerpoint presentation)
- National Malaria Control Program: Annual Progress Report for 2002-2003
- Plano estratégico nacional para o controlo da malária em Angola para o período 2005-2009.
- Malaria in Pregnancy Policy and Implementation Guidelines. Draft 1.003 May 2004.
- Workshop de consenso para aprovação do plan estratégico quiquenal de controlo da malaria em Angola, Fevereiro 2005.

### **Oil Sector**

- Angola Country Analysis Brief, Department of Energy, January 2005
- See World Bank documents

### **Pharmaceutical Management**

- República de Angola. Ministerio da Saúde. Direcção Nacional de Medicamentos. Manual de Gestão de Medicamentos (versão 1996 e 2005).
- República de Angola. Ministerio da Saúde. Política Nacional de Farmácia (draft).

- Toto, Mampuya Nziuki. Study of simple malaria case treatment at the household level. July to September 2002 (UNICEF).

#### **USAID-General Health**

- Promoting Stability by Improving Family and Workforce Health in Angola: Recommendations for a New USAID Health Program 2006-2011, February 2005
- Radar Graphs: Angola Health System Assessment-draft document

#### **USAID-Malaria Specific**

- Malaria Program considerations, Trenton K. Ruebush, February 24, 2005 & Maternal Health/Birth Spacing: Technical Considerations for USAID/Angola, Mary Ellen Stanton, February 24, 2005
- Trip Report, Trenton K. Ruebush, April 2004
- WHO Travel Report: A Mission to Support Training and Implementation of Drug Efficacy Studies, Malaria in Pregnancy & WHO-USAID Malaria Control Project in Angola, Dr Noel Chsaka & Dr Joaquim Da Silva, May 28, 2004

#### **World Bank**

- World Bank Project Appraisal Document on a Proposed Grant to the Government of Angola for a HIV/AIDS, Malaria and Tuberculosis Control Project, November 29, 2004
- World Bank Project Information Document Appraisal Stage: HIV/AIDS, Malaria and TB Control Project, December 14, 2004
- Corporate Social Responsibility in the Oil Sector in Angola: World Bank Technical Assistance Study, Amanda Blakely et al, January 2003.

#### **World Health Organization**

- WHO Country Cooperation Strategy: Angola-2002-2005, WHO Regional Office for Africa, Brazzaville

#### **World Malaria Report 2005**

- Section II, Malaria Control by Region: Africa
- WHO World Malaria Report, Angola Country Profile, April 27, 2005

## ANNEX 4

### Inventory of Sources of Malaria Medicines and Supplies

Medicines	Agency	Source of Funds	Area Served	Intended Duration of Supply	Date of Procurement	Volume	Lead times (prep. of tenders; delivery)	Delivery Date (expected)
AQ	EU	EU	National	Donation?	On hold	2,000 kits (8 million tablets)		
AQ	MoH	MoH budget	National	Emergency supply		1,900 kits (7.6 million tablets)		
AQ	MoH	MoH budget	National		January 05	6,800 kits (27.2 million tablets)		May 05
AQ	MoH	MoH budget	National		?	9,000 kits (38 million tablets)	6 months prep; 3 months for delivery	First 1,000 kits only August 05
AS	MENTOR		Zaire and Huambo	Pilot for one year	?			?
AQ-AS	Africare/MSF Belgium		Bie (1 center)					
AQ-AS	JICA	JICA	Benguela					December 05 and March 06
AM; AS/AM	MENTOR		Zaire; Huambo	Safety stock is maintained of 16,000 treatments	April 05	AM 6,305 ampoules; AS/AM 9,160 ampoules	Delivery 3 months	June 2005?
Coartem®	MSF		2 districts in Huila and 1 district in Bie					
Coartem®	WHO	GFATM (R3-year 1)	59 priority municipalities	One year	Sept. 05	13,677,438		
Coartem®	WHO	GFATM (R3-year 2)	59 priority municipalities	One year	Sept. 05	17,924,160		
CQ; SP	Odebrecht	Private	Luanda, Benguela, Cabinda, Lunda Sul and Norte					
Kits	CARE		1 district in Central Bie					
Kits	Novimundo		1 district in Huambo					
Kits (hospital)	Prov. Govt. Benguela	Provincial funds	Benguela			For provincial hospitals		June/July 05
Quinine	WHO	GFATM (R3-year 1)	59 priority municipalities	One year	Sept. 05	2,785,709		
Quinine	WHO	GFATM (R3-year 2)	59 priority municipalities	One year	Sept. 05	4,178,563		
SP	EU	EU	National	?	On hold	2,000 kits		
SP	MENTOR		Zaire and Huambo	"program period"	April thru June 05	6,800 kits		May 05
SP	MoH	MoH budget	National		January 05	9,000 kits (13.5 million tablets)	3 months prep; 3 months for delivery	First 1,000 kits August 05
SP	MoH	MoH budget	National			1,900 kits (2.85 million tablets)		



SP	MoH	MoH budget					
SP	Odebrecht	Private	Luanda, Benguela, Cabinda, Lunda Sul & Norte				
SP	UNICEF	UNICEF					
SP	WHO	GFATM (R3-year 1)	59 priority municipalities	One year	Sept. 05	1,326,528	
SP	WHO	GFATM (R3-year 2)	59 priority municipalities	One year	Sept. 05	1,989,792	
SP; Quinine	Chevron	Private	Luanda, Cabinda, Malange				
	Esso		Soyo Hospital, Zaire				

Supplies/ Equipment	Agency	Source of Funds	Area Served	Intended Duration of Supply	Date of Procurement	Volume
Microscope	WHO	GFATM (R3-year 1)	59 priority municipalities	One year	Sept. 05	60
Microscope	WHO	GFATM (R3-year 2)	59 priority municipalities	One year	Sept. 05	40
Microscope	JICA	JICA	Benguela			49
RDTs	WHO	GFATM (R3-year 1)	59 priority municipalities	One year	Sept. 05	492,937
RDTs	WHO	GFATM (R3-year 2)	59 priority municipalities	One year	Sept. 05	492,937
RDTs	MENTOR		Zaire and Huambo	Safety stock of 20,000		102,500

Nets	Agency	2004	2005
LLINs	UNICEF	45,000	499,000
	MoH	65,000	60,000
	Oil companies	40,000	?
	Commercial Sector	20,000	?
	WHO		
	PSI		80,000
	JICA (Olyset®)	90,000	90,000
	MENTOR		15,000
	Africare		12,850

Other	Agency	Location	Description
IRS sprayers	MENTOR	Zaire and Huambo	Maintains safety stock of 15 units
Alpha-lambda cyhalothrin	MENTOR	Zaire and Huambo	Maintains safety stock of 100 sachets
Fogging	Chevron	Malange	
Fogging	Odebrecht	Luanda, Benguela, Cabinda, Lunda Sul & Norte	

## ANNEX 5

## ORGANOGRAM OF MINISTRY OF HEALTH

MINSA- Ministério da Saúde

DNM- Direcção Nacional de Medicamentos

DNSP- Direcção Nacional de Saúde Pública

INSP- Instituto Nacional de Saúde Pública

PNCM- Programa Nacional de Controlo da Malaria

DPS- Direcção Provincial de Saúde

CCM- Mecanismo Central de Coordenação do Fundo Global

CN HIV-GE - Comissão Nacional de HIV/Sida e Grandes Endemias

