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***Making Effective
Antimalarials
Affordable
and Accessible***



*Working document prepared by
The Malaria Consortium*

**How the Roll Back Malaria Partnership can promote
universal access to effective antimalarial drugs:
Examples of antimalarial drug policy and drug
management systems from Malawi, Kenya, Cambodia and
Senegal**

**A background paper for the Fourth RBM Global Partners Meeting
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The underlying principle of equity in health care requires that [health care] be distributed according to need and regardless of ability to pay. In practical terms this means providing universal access to the poor to comprehensive good quality health services without regard to financial barriers. The government will need to assume a key role in ensuring that the principle of equity is interpreted into specific and concrete actions through the design and monitoring of overall health policy¹.

¹ World Health Organization (1998). *The World Health Report 1998: Life in the 21st Century, a vision for all*. Geneva: World Health Organization.

Abbreviations

ADB	African Development Bank
ADD	Accelerated Development Districts
AIDS	Acquired Immunodeficiency Syndrome
AFRO	Africa Regional Office of the World Health Organization
AMC	Average Monthly Consumption
AMREF	African Medical Research Foundation
Aus Aid	Australian Aid Agency
BI	Bamako Initiative
CA	Cooperative agency
CBHC	Community Based Health Care
CEU	Euro
CFA	Currency of French Africa
CHAM	Christian Hospital Association of Malawi
CHSU	Community Health Sciences Unit
CIDA	Canadian International Development
CMS	Central Medical Stores
CNM	National Malaria Centre
CoCom	Coordination Committee for Health
CPA	Comprehensive Package of Activities
CPE	Cambodia Pharmaceutical Enterprise
CQ	chloroquine
CT	Combination Therapy
DA	District Assembly
DANIDA	Danish Aid Agency
DCVBD	Division of Communicable and Vector Borne Diseases
DFID	Department for International Development (UK)
DHMT	District Health Management Team
DMC	District Malaria Coordinator
DP	Directorate of Pharmacy
DRF	Drug Revolving Fund
EANMAT	East African Monitoring of Antimalarial Therapies
EC	European Community
EDP	Essential Drugs Programme
EU	European Union
GDP	Gross Domestic Product
GNP	Gross National Product
GTZ	German Cooperation
HFC	Health Financing Charter
HIV	Human Immunodeficiency Virus
IDA	International Drug Association
IEC	Information, Education, and Communication
IMCI	Integrated Management of Childhood Illness
JICA	Japan International Cooperative Agency
GMP	Good Manufacturing Practice
GoK	Government of Kenya

GTZ	German Cooperative Agency
ITN	Insecticide Treated Nets
KEMSA	Kenya Medical Supply Agency
LHL	Norwegian Association of Tuberculosis Control
MEDS	Mission for Essential Drug Supplies
MCU	Malaria Control Unit
MOA	Ministry of Agriculture
MOE	Ministry of Education
MoEF	Ministry of Economics and Finance
MOF	Ministry of Finance
MoH	Ministry of Health
MOHP	Ministry of Health and Population (Malawi)
MLG	Ministry of Local Governments
MPA	Minimum Package of Activities
MSCU	Medical Supplies Coordinating Unit
NGO	Non-Governmental Organisation
NHIF	National Hospital Insurance Fund
NMCC	National Malaria Control Committee
NMCP	National Malaria Control Programme
NQCL	National Quality Control Laboratory
NPDS	National Pharmacy of Drug Supplies
PDIS	“Programme de Developpement Intégré de la Santé (Programme of Integrated Health Development)
PHC	Primary Health Care
PMPB	Pharmacy, Medicines, and Poisons Board
PNDS	“Plan National de Développement Sanitaire” (National Plan of Health Development)
PPB	Pharmacy and Poisons Board
PSI	Population Services International
RBM	Roll Back Malaria
SP	Sulfadoxine/Pyrimethamine
SWAps	Sector Wide Approaches
TB	Tuberculosis
TBA	Traditional Birth Attendant
UNDP	United Nations Development Programme
UNHCR	United Nations High Commission for Refugees
UNICEF	United Nations Children’s Education Fund
UTL	Useful Therapeutic Life
WB	World Bank
WHO	World Health Organization
WPRO	Western Pacific regional Office of the World Health Organization

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Summary

The World Health Organization defines equity in health care as “equal access to available care for equal need, equal utilization for equal need, and equal quality of care for all². It is estimated that one-third of the population in developing countries lack access to essential therapy. The challenge for any national malaria control programme is to ensure that effective antimalarial drugs are easily accessible by the populations at risk of the disease. The key policy elements that can influence the level of access are rational drug selection and use, affordability, adequate allocation of resource, reliable health and supply systems and adequate information and education to health providers and patients.

Access to antimalarial treatment is complicated by emerging resistance to existing therapies. Replacement therapies require strengthening of health systems and represent substantial increases in expenditure by resource-constrained governments and households.

The country case studies covered by this report describe disparate epidemiological and political-economic contexts. Multi-drug resistance in Cambodia is widespread and much of the country is inaccessible with limited health facilities. Cambodia has adopted the use of combination therapy nationally in concert with the Mekong malaria initiative and is in the process of providing pre-packaged combinations to the private sector. These initiatives have however been supported largely by external agencies. Malawi and Kenya changed their drug policy from chloroquine to sulphadoxine/pyrimethamine (SP) in 1993 and 1998 respectively. Increasing resistance to the new first-line drug has placed pressure on the national governments in these countries as well as other East African countries to assess options and to garner international support to address the financing of replacement therapies such as combination therapy which are likely to cost more than twenty times SP and chloroquine. Chloroquine is still effective in Senegal and other West African countries. However, a large proportion of the population has inadequate access to effective case management mainly due to poor provider knowledge and inefficient drug management systems.

While the countries studied display diverse health care infrastructure with varying degrees of the different barriers to the access of antimalarials, some common themes can be drawn out. The health systems are marked by insufficient and inefficient allocation of resources, poor drug management systems in the public sector, which commonly leads to shortages particularly during periods of high transmission. Much of treatment seeking for malaria occurs in the private, informal sector due to inefficiencies in the public sector and inaccessibility of government health facilities. Rational drug use is constrained by a lack of knowledge on antimalarial drugs and their use in the community and among health care providers in the public and private sectors. Financial barriers due to high user fees or high

² World Health Organization (1999). *Enhancing equity in health: Guidelines for assessing inequalities, addressing inequities, and building equity in health and health care*. Geneva: World Health Organization.

drug cost prevent early diagnosis and treatment of malaria cases. Often patients resort to truncated treatment courses or cheaper sub-standard or counterfeit drugs.

Partnerships are required to devise strategies to 1) improve drug management and quality control 2) integrate good-clinical practice into existing facility based health services to promote rational drug use 3) increase community awareness of malaria recognition and good home-management through appropriate information, education and communication messages 4) carry out appropriate operational research toward optimal delivery of prompt and effective case management 5) increase affordability of antimalarials by fostering partnerships for reducing cost of therapies and promote drug development 6) pilot alternative finance mechanisms and explore subsidies for drugs costs for the poor 7) increase geographical access to antimalarials through partnerships with NGOs and community based organisations by contracting out of services in areas not covered by public health facilities.

Chapter 1 describes general issues relating to access to antimalarials, antimalarial drug policy, drug management and methods of financing. Chapter 2 is a precis of chapters 3,4, 5 and 6 to summarise the key factors affecting access to antimalarials in the four countries; Kenya, Cambodia, Malawi and Senegal. Interventions where the Roll Back Malaria partnership can play a role are proposed relating to support of the health system, drug management and drug delivery. The strategies are presented in the context of the key themes of the meeting. Chapters 3, 4, 5 and 6 are descriptions of country case studies (Kenya, Cambodia, Malawi and Senegal) to evaluate the health care infrastructure and factors that influence access to antimalarials.

There are major opportunities for partner coordination and to develop interaction of public and private sectors to increase access to antimalarials. While strategic considerations in individual countries vary and are discussed in more detail in the detailed country analyses, some common mechanisms for action are presented below:

Engaging all actors: the private sector

- Private vendors are capable of providing a valuable service to the community in places where formal health provision is poor or lacking. With training, support and supervision, the capacity of drug vendors to give health education could be improved and provide a source of information to customers regarding new medicines. The strategy to include the private sector should be based on a two-way information exchange rather than an authoritarian emphasis on regulation and control.
- Franchising of outlets to the private sector for malaria treatment
- Encourage private insurers. Proving an enabling environment for expansion of private sector insurance (thereby creating competition and potentially reducing cost)
- Encourage employer based health insurance (urban centres)
- IEC messages (partnership with the private sector to “piggy-back” malaria treatment messages onto commercial advertising)

- Include of selected private practitioners in laboratory and clinical training by the national malaria control programme
- Provide drug sellers with appropriate protocols of the use of the antimalarials that they are selling
- Establish mechanisms for information exchange between health services and the private sector
- Collaboration with pharmaceutical industry to negotiate lower prices for essential antimalarials
- Collaboration with pharmaceutical industry to promote drug development
- Collaboration with local pharmaceutical industry to promote drug development
- Collaboration with pharmaceutical distributors to promote wider distribution of antimalarials in rural areas

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Engaging all Actors: NGOs

- Strengthen malaria treatment to the community level through partnerships with NGOs. The strength of NGOs lies in their logistics and community mobilisation activities.
- Enhanced and co-ordinated efforts at service outreach and community-based health activities might be needed to counter widespread distrust of and limited access to static public sector services and to mobilise demand. This can be achieved through partnerships with NGOs
- Develop social movements with NGOs for marginalised risk groups
- Explore and scale up contracting in and out activities of facilities through partnerships with NGOs
- Involve NGOs with community-based health expertise to create community based finance schemes to increase access to essential antimalarials.
- Encourage community based health insurance
- Support social marketing of antimalarials

Engaging all Actors: the role of Government

- Establish social insurance schemes
- Establish clear mechanisms for exemptions in health centres and referral hospitals
- Improve access by the poor to information about exemptions in health facilities
- Where user fees exist, create user fee payment scheduling or deferral to (seasonal financial barriers due to agricultural economy)
- Create equity funds to in overcome some of the difficulties regarding exemptions
- Provide an enabling environment for community based health insurance
- Increase salaries in public health facilities
- The roles and responsibilities at each level of health care need to be re-defined (particularly in the context of health sector reform)

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Drug management

- Drug procurement and supply should be carried out by open tender. To increase transparency and to benefit from economies of scale, procurement can be contracted out to a procurement agency (e.g. Crown agents or IDA) or to an international agency (e.g. UNICEF)

- Create efficient systems of forecasting of drug requirements through (technical advice from WHO-Essential Drugs and Medicines and Management Sciences for Health).
- Create efficient storage facilities to prevent “leakage” of drugs from the public sector to the private sector

Quality of Services

- Create provider incentives (increase in wages should be accompanied by clearly stated job assignments, performance expectations, targets and discipline to change ingrained work habits)
- Supervision of health centre staff by district level health workers

Regulation

- Strengthen the pharmacy inspectorate to regulate drug quality, providers and licensing of premises
- Development of an appropriate framework of laws and regulations
- Strengthen customs administration to prevent illegal drugs into the country (partnership of MoH with Customs departments)
- Strengthen regulation to shut down illegal pharmacies (this requires collaboration of several ministries) and to enforce registration of drugs

➤

Management and Administration

- Provide management training to mid and high level managers in fund management
- Create open systems of accountability

Information and education

- Simplify procedures for accessing district level financing
- Malaria information and awareness campaigns are needed to address misinformation and to improve health-seeking behaviour. This will require extensive partnerships with the media and should be guided by operational research.
- Strengthening IEC to messages to encourage use of health centres for diagnosis and treatment
- Develop health education messages which encourage consumer demand for and compliance with effective treatment from all providers
- Training of health educators to work in schools and teacher training colleges, and in women’s health and rural development.
- Continued training of health centre staff

Working through all avenues

IMCI

- IMCI is a cost-effective means of supporting malaria control. National malaria control programmes should strengthen links with IMCI to promote integrated management of malaria in communities

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Reproductive Health

- Strengthen partnerships with Reproductive Health Programmes for delivery of presumptive intermittent treatment to pregnant women with



Essential Drugs Programme

- Ensure that *national* antimalarial drug policy is in concert with the national drug policy

Central Medical Stores

- Improve drug procurement and management



Community based health workers

- Local midwives and TBAs hold positions of trust in the minority communities and, in areas far from formal health provision, are the channel most often chosen by pregnant women for birthing. They understand the beliefs and speak the language of the people, and therefore represent an important health provision resource for delivering presumptive intermittent treatment.



Communities

Create partnerships with *communities* for community pre-payment schemes to provide immediate access to treatments when needed



Intersectoral Action (outside of MOH)

- Involvement of communities in government and NGO cost-recovery schemes
- Ministry of Education (health education messages to households on recognition of signs and symptoms of malaria, curriculum development in schools)
- Ministry of Planning (rural development and education)
- Ministry of Transport (rural development)
- Ministry of Agriculture

Quality Assurance

- Technical assistance is required for inter-country collaboration, action and regulation of illegal importation of sub-standard drugs
- Strengthening of the national quality control laboratory for quality control prior to registration, on receiving supplies through the Central Medical Stores and for post-marketing surveillance

Operational research

Operational Research is required to promote evidence based decision making and to identify appropriate interventions for increasing access

- Operational research into barriers to access is a priority particularly in the areas of treatment seeking behaviour, provider behaviour and economic analysis. A wide range of stakeholders should be involved
- There is a need to assess current financing schemes, their impact on access, exemption mechanisms used service improvement, transparency in resource management, community involvement and staff motivation.
- Investigate drug vendors decision and motivation regarding antimalarial drugs
- Operational research is required to guide IEC messages to the public.

1 General issues related to access to antimalarials

1.1 Background

Effective case management is essential to achieving the Roll Back Malaria (RBM) goal of reducing mortality due to malaria by 50% by 2010. However, case management and early diagnosis and treatment are determined by the availability of effective and affordable treatments and accessibility to health facilities that provide them.

The management of malaria is further complicated by increasing drug resistance to available antimalarials. Resistance to chloroquine, the mainstay of malaria treatment since its discovery in the 1940s, has reached unacceptable levels in southern and eastern Africa, where many countries have been forced to abandon its use as first line therapy. In West Africa, reported rates of resistance vary widely but tend to be lower than Central and Southern Africa. Until recently, SP was the obvious successor to chloroquine, however, resistance to SP is developing quickly. It is anticipated that its useful therapeutic life (UTL) will be short, as it was in parts of Southeast Asia. Replacement therapies cost in the region of 30 to 400 times the cost of SP. In African countries where more than 50% of the total population is at risk and the *total* recurrent expenditure on all essential drugs is less than US\$0.50, this represents an urgent dilemma.

In Southeast Asia and Oceania, mefloquine and combinations using artemisinin and its derivatives are currently the recommended first-line therapies in areas of resistance to SP and multi-drug resistance. Public health facilities are inconveniently located and unregulated growth of the private sector had led to a proliferation of unqualified practitioners, illegal pharmacies and counterfeit drugs.

The basic principle of an antimalarial drug policy is to provide safe, effective, good quality, accessible and affordable antimalarial drugs to the populations at risk of malaria according to the epidemiological setting, but at the same time promote rational drug use to delay or prevent the development of antimalarial drug resistance. Poor policies lead to a lack of access to appropriate drugs, weak regulation, incorrect diagnosis and inappropriate prescribing practices by both public and private sector providers leading to irrational drug use, sub-standard pharmaceutical products, poor patient compliance with prescribed treatments and a lack of public awareness on the consequences of inappropriate drug use.

The purpose of this report is to provide background information using case studies for The Fourth Global Partnership Meeting to Roll Back Malaria to be held in Washington, DC, USA on 18 and 19 April 2001 hosted by the World Bank. The objective of the meeting is: "expanding the capacity of the RBM Partnership to get to scale" aimed to address how malaria-affected countries and their partners

mobilise action beyond malaria control programmes, beyond the public health sector and beyond the public sector.

This report analyses the barriers to access to effective antimalarials using four country case studies: Kenya, Cambodia, Malawi and Senegal and how the RBM partnership can promote universal access to antimalarial drugs. Key informants were identified and questionnaires were developed and in-depth interviews were conducted wherever possible. Gaps in information were identified and e-mail consultations were carried out. Literature reviews were carried out to identify published and unpublished papers, ministerial documents and reports.

This consultancy was limited by the inability to conduct face-to-face in depth interviews with relevant stakeholders and having to rely on telephone conversations and e-mail interviews. In the case of Kenya, there was limited time available by both the National Malaria Control Programme Manager and the Advisor to the National Malaria Control Programme as the new National Malaria Strategy 2001-2010 was being launched one week prior to the consultancy.

The sections on Malawi and Senegal are based on information collected by and reports prepared by other consultants.

1.2 Malaria and poverty

Malaria and poverty are inextricably connected. A recent study at Harvard revealed that countries with severe malaria had income levels in 1995 only 33% of countries without malaria after controlling for factors such as tropical location, colonial history etc. Countries with severe malaria grew 1.3% lower per year and a 10% reduction in malaria was associated with 0.3% higher growth per year. Malaria is responsible for almost 10% of the burden of disease in sub-Saharan Africa and causes between 600,000 and 900,000 deaths of children under five years of age every year. It is a major economic burden for households, who spend between \$2-\$25 on malaria prevention methods and between \$0.20 and \$15 on treatment each month³.

1.3 Access

Pharmaceutical “access” is the timely availability, within varied physical and economic conditions of quality pharmaceuticals to those patients that need them. Many factors determine the level of access: appropriate use, supply management, infrastructure conditions economic issues, legislation and regulation, manufacturing and research and development decisions. Access is determined by:

- Accessibility (physical or geographic access)
- Affordability (financial access which is linked to equity)
- Acceptability (linked to health seeking behavior)
- Availability
- Appropriate use of a drug for a defined condition (linked to rational use)

³ LSHTM (1997) *Health Economics and Financing Exchange - Economic Evaluation of Malaria Control in Africa*

The World Bank African Development indicators define access to health services as the percentage of the population that can reach appropriate local health services by local means of transport within one hour.

Expanding access to essential medicines requires an understanding of the local epidemiological, economic, regulatory and cultural context. It is a process that requires the participation and support of a range of stakeholders beginning with the government and extending to the private sector. Many access barriers originate in organisational or institutional problems, such as a lack of political will and poor governance, stagnant economic growth or a greater emphasis on secondary versus primary care. In most endemic countries, access of rural communities to health care is constrained by insufficient clinics, pharmacies and health personnel. Some government policy decisions may have a negative impact on pharmaceutical access.

Following their independence, many developing countries made health care one of the rights of citizens. Health services were made available for free. However, government resources have not been sufficient to maintain the existing health systems, meet increasing demand due to population growth, increase access to services for those not covered by existing systems and improve the quality of care. Concerns about the ability of governments to finance the public delivery systems coupled with the poor performance of these systems have led to an expansion of the private sector. This is particularly so in the treatment of malaria as the greatest burden of the disease lies in resource-poor countries with poor health facilities with limited access. Much of treatment seeking occurs in the private informal sector and mothers treat their children at home with antimalarials bought in shops or local drug vendors. Most drug policies ignore the private sector and fail to recognise and promote its role as a provider of health care.

Accessibility

Often, public health facilities are inconveniently located and have restricted opening hours. Private health facilities and shops are generally more accessible as they are located in areas of demand.

Availability

This is determined by an effective drug management cycle to ensure that adequate supplies of the recommended drugs are available at all levels where treatment seeking occurs. It is also determined by drug resistance, which may limit the availability of effective drugs.

Affordability

Affordability is a major consideration for countries in choosing which drugs to recommend. In the absence of adequate resources, cheaper and possibly epidemiologically inferior drugs are used.

Affordability refers to affordability by the government to purchase the drug for distribution through the public health sector, but of equal importance is the affordability by the individual household to pay the absolute costs of the drug.

Attempts by governments to generate resources for the public sector have led to the introduction of user fees (section 1.5).

Acceptability and health seeking behaviour

Adherence to treatment is a major component for the success of any public health system and is influenced by both behavioural and economic factors. It is determined by duration of treatment, number of daily doses, speed of clinical response, antipyretic effects, side-effects, market-price relative to household economy or affordability, presentation, packaging and health education. Acceptability may also refer to behavioural patterns related to utilisation of public and private health facilities and factors that influence this

The analysis of health seeking behaviour is thus essential in developing and implementing of a rational drug policy and in analysing barriers to access. Information on the factors which influence the consumer's and provider's recognition and interpretation of childhood fevers and subsequent choice of therapy will assist in the development and implementation of the policy, including adherence to treatment, the effectiveness and hence the development of drug resistance. Furthermore, if a treatment does not produce the expected result, patients and caretakers may re-interpret the cause. It is widely accepted that human behaviours including inadequate dosing, incomplete courses of therapy, indiscriminate and inappropriate use have contributed to the emergence and spread of resistant parasites. New treatment policies may replace long-familiar drugs and well established patterns of care seeking and health care practice with less familiar drugs and practices that may fall short of patients' and caretakers' expectations.

As most malaria treatment occurs in the home, changing the first line drug in the public sector alone may not have a substantial impact. The role of the private sector in this case is crucial in ensuring distribution systems reflect the policy and that the recommended treatment is available at the peripheral health services that serve the populations. Household and community level antimalarial drug use represents an opportunity for malaria control programmes in most African nations. In Africa, shops are the main source of antimalarials. However, often, the course of treatment given is sub-optimal. How to improve prescribing practices, how to involve drug vendors and other informal sector providers and how to successfully replace one drug with another will require operational research and careful documentation of programme experiences as they implement new policies. Studies have shown that in-service training could improve health workers ability to diagnose and treat clinical malaria and that treatment charts may result in more appropriate dosing of antimalarial medication.

1.4 Antimalarial drug policy

The basic principle of an antimalarial drug policy is to provide safe, effective, good quality, accessible and affordable antimalarial drugs to the populations at risk of malaria according to the epidemiological setting, but at the same time promote rational drug use to delay or prevent the development of antimalarial drug resistance.

An antimalarial drug treatment policy must thus aim to delay drug resistance through correct diagnosis and more rational drug use. An effective policy must have:

- A clear analysis of the technical, social and economic issues related to malaria control, antimalarial drug resistance, potential interventions and the consequences of action or inaction.
- An analysis of the decision making environment
- Consensus building among relevant stakeholders (policy makers, researchers, control staff, donors, private providers, industry and user representatives)
- Having a supervisory body to oversee the development, implementation and revision of the policy
- Having a regulatory body to ensure adherence to policy components

1.4.1 Factors affecting antimalarial drug policy and selection of antimalarial drugs

The area of antimalarial drug resistance and policy making is a dynamic area and situations in each country may vary by epidemiology, transmission, drug resistance patterns and political-economic contexts. The primary indicator for changing antimalarial treatment policy is a high level of treatment failure of the currently used antimalarial drug. Conditions that signal a need for a re-evaluation of the drug policy are:

- Evidence of increased malaria associated mortality and morbidity
- Consumer and provider dissatisfaction with the current policy
- Evidence from therapeutic efficacy tests
- Evidence from new drugs, strategies and approaches

Box 1: Factors influencing the selection of antimalarial therapies:

- Efficacy and half-life
- Effectiveness
- Acceptability and adherence to treatment (including formulations)
- Quality
- Cross resistance
- Adverse effects
- Drug interactions and contra-indications
- Use in special groups e.g. pregnancy and infants
- Health systems capacity to implement policy
- Cost, affordability and cost-effectiveness of drug and alternative regimens
- Reported resistance
- Useful Therapeutic Life (UTL)

1.4.2 Health care infrastructure and systems capacity to implement policies

Effective antimalarial drug policies depend on existing systems to ensure access to quality essential drugs and health care. Various national strategies exist to finance, distribute and dispense safe, effective and good quality drugs to those who need them. It is essential to recognise that in many countries health care is sought outside of the formal health facilities. The role of the government in ensuring quality of service through this sector should be assessed. The health system requires political support and financial, managerial, technical and human resources to manage the drug supply and effectively implement the policy. These should be assessed in the context of health sector reform and decentralisation.

1.4.3 Combination Therapy

Rationale for use

In Africa, which accounts for the majority of the global malaria burden, chloroquine resistance is widespread, and has reached unacceptable levels in southern and eastern Africa, where many countries have been forced to abandon its use as first line therapy. Furthermore, resistance to the replacement therapy, SP is developing quickly in Malawi, the United Republic of Tanzania and Kenya. It is anticipated that its useful therapeutic life (UTL) will be short. The fear is that effective and affordable replacement options will soon be depleted and most of the newer antimalarials are much more expensive than chloroquine and SP. Measures to delay the development of resistance to maximise the UTL of the few remaining effective drugs are thus essential, whilst still ensuring that safe, effective, usable and affordable treatment is accessible to those at risk.

There is growing international interest in using antimalarial combinations containing an artemisinin derivative as first-line treatment with the aim of delaying the onset and spread of resistance to both the artemisinin drugs and their partner drug. This interest results from experience with the combination of artemisinin and mefloquine on the Thai-Burmese border, where the introduction of mefloquine-artesunate coincided with the stabilisation of mefloquine resistance, which had been rapidly increasing. At the same time, an overall reduction in malaria incidence (perhaps due, at least in part, to the potent gametocytocidal action of artesunate and significant in vitro reversal in mefloquine resistance) were observed.

While it the value of combination therapy (CT) is recognised, evidence of the effectiveness of combination therapy in delaying the development of resistance is not yet available in Africa, although clinical trials using combinations of artesunate with amodiaquine, chloroquine, sulfadoxine pyrimethamine [SP], and mefloquine are in progress. Furthermore, implementation of policies recommending combination therapy requires a functioning health system with effective methods of diagnosis.

Affordability

Of primary concern is the substantial increase in cost associated with CT. Firstly the actual cost of the drugs themselves both to the government and to the household is a factor limiting its introduction in many developing countries, particularly in Africa, where chloroquine and SP both cost in the region of US\$0.10. The addition of a three day course of an artemisinin derivative to mefloquine, increases the cost of treatment by approximately 50% but would increase the cost of a chloroquine or SP treatment by more than 20 fold. Populations at risk that live on less than US\$1 a day want to cure their current episode of malaria. They are not willing and cannot be expected to pay the incremental societal cost of prolonging the useful therapeutic life of the drugs by using them in combination.

Secondly, financing the cost CT is not enough. Implementation requires additional costs associated with diagnostic material, information and education, packaging, rational use, training and strengthening health systems.

Mechanisms to address issues of affordability of new drugs must be explored through brokering widescale partnerships. Methods of drug financing and to increase resources must be explored to provide universal access to antimalarials.

1.5 Drug financing and cost recovery in health

Political and economic changes resulting in decentralisation and privatisation are having a significant impact on the organisation, management and financing of the health sector. Governments are examining methods for the management and financing of these services. One of these methods is cost-recovery using user fees.

User fees are payments made by individuals or households in exchange for the use of health services and goods (drugs). The concept is not new and has been implemented in many developing countries either officially or unofficially. In many parts of the world e.g. Cambodia, charging users is a widespread unofficial practice, with "gratitude payments" to health workers used to ensure patients' access to care of acceptable quality.

User fees are used to generate resources to finance services and to improve efficiency. However, user fees may have an impact on the health seeking behaviour of patients, particularly if they are poor. Thus they have the potential to create an inequitable health care system in which only those who can afford to pay for services have access. Most systems with user fees have a caveat, which supports exemptions and waivers for those who are unable to pay. Revenue from fees are used to cross-subsidise the poor.

Early expectations that cost-recovery in the health sector might prove an important source of additional resources raising as much as 15 to 20% of total government expenditure, have not been met. A combination of relatively low fees, low ability to pay as marked by high formal or informal exemption rates and "leakage" have kept national cost-recovery levels in health in Africa to an average of 5% or less. There are several well-documented accounts of large and sustained drops in attendances at government health facilities from different countries. There is some evidence

that the needs of marginal populations are not being met because of limitations to access to care caused by the introduction or increasing of fees. High fee levels are likely to deter precisely those people who most need access to care. The problem facing policy-makers in severely resource-constrained countries is that when fees are absent or are set too low, revenues are usually insufficient to enable the supply of services to meet demand. As a result, quality and efficiency are compromised.

Furthermore, supporting conditions are needed to allow additional revenue to be converted into improved access to care for marginal populations. Creating these conditions can be costly, requiring increased investments in infrastructure, in health and in other sectors, such as rural banking.

In spite of the unsatisfactory results so far, cost-recovery in health in poor countries is now widely accepted as an instrument of health policy. A clearer understanding of supporting conditions such as exemptions and waivers needed is emerging.

In countries where the cost of the basic package of essential clinical services is beyond the means of government, selective user charge and targeting mechanisms are needed as means of resource mobilization. However, systems of very low tariffs that remain unchanged for many years are also common (e.g., Ghana prior to 1985, Botswana, Jamaica, Lesotho, and Turkey). These have been seriously eroded by inflation since the time they were last reviewed, and their failing importance as a source of funds has led to increasing negligence in their collection.

The most compelling case for user charges in the poor countries has been their capacity to provide an emergency boost for the recurrent costs of health care provision such as the purchase of drugs. In Kenya, over half of such expenditures have been for maintenance, and the purchase of emergency drugs. Where the drugs procurement, distribution and prescribing systems are sufficiently well managed to ensure that available drugs are rationally chosen, cost-recovery can facilitate an improvement in the quality of care. Studies have shown that fees tied to a receipt of certain goods or services such as drugs are better received than general consultation fees⁴. There is some evidence of additional beneficial efficiency effects from some small scale projects where it has been possible to retain and use revenue from cost-recovery to improve the quality of services offered. Furthermore, they often have related to efficiency and equity benefits such as more appropriate use of health facilities and use of primary health facilities as opposed to referral hospitals⁵.

There is some evidence that cost-recovery schemes by non-governmental organizations achieve higher collection rates than the averages in government facilities. Likely explanations may be lower costs, and a combination of higher prices, more energetic fee collection and greater willingness to pay. Thus

⁴ Collins D, Quick J, Musau S, Kraushaar D (1996). *Health Financing Reform in Kenya: The fall and rise of cost-sharing 1989-94*. Stubbs Monograph Series No. 1. Boston: Management Sciences for Health.

⁵ Gilson L (1997). The lessons of user fee experience I Africa. *Health Policy and Planning* **12**(4): 273-85.

partnerships with NGOs through contracting of services may promote increased resource mobilisation.

1.5.1 Community financing

Zaire is a good example of self-financing in health following the declaration in 1986 that government responsibility would be limited only to the payment of salaries. Several zones in Zaire have implemented innovative health financing arrangements, with a heavy reliance on user charges and some insurance arrangements with support from external non-governmental agencies.

The Bamako Initiative which focused initially on improving the supply of drugs through community-managed payment and purchasing systems is an example of a community financing scheme. Similar initiatives have been taken, often with support from external non-governmental agencies in other countries, such as Mali, Senegal, and Benin. There is some evidence that revenues from such community financing schemes have led to improvements in the quality of available services. In some countries, the revenues generated through drug fees were used to attain tangible improvements in health services⁶ and availability of drugs.

1.5.2 Community Participation

One method of alternative financing to increase access to essential drugs is community participation. Funds generated are used to recover some operating costs such as essential drug supply, salaries of support staff, incentives for health workers and investment in community activities. Community cost-sharing may be based on user fees, pre-payment for services, local taxes and various income-generating activities. In addition, communities may help to pay for health care costs by contributing labour or making direct financial contributions for the maintenance or improvement of health infrastructure.

A World Bank evaluation of 16 African countries⁷ found that in Benin, Burundi, Cameroon, Guinea, Mauritania, Senegal and Togo, the utilisation of health services seems to have increased in addition to the increased availability of drugs. Community financing and management have contributed improving access to basic care for low-income, however, the very poor are still unable to pay for services. In most countries with a user fee system, a fee exemption and waiver system has been established with the help of village health committees, however, clearer policies and strategies need to be developed. Local management committees are often formed to manage services. The roles and responsibilities of the community organisation need to be defined together with the framework of management.

⁶ McPake B (1993). User charges for health services in developing countries: A review of recent economic literature. *Social Science and Medicine* 36(11): 369-83.

⁷ Nolan B, Turbat V (1995). Cost-recovery in public health services in sub-Saharan Africa. Washington, DC: World Bank.

1.6 The drug management cycle

Inefficient management of essential drugs in the public sector is responsible for much of the drug shortages experienced in government health facilities in developing countries.

The following description provides an understanding of the drug management cycle:

1.6.1 Selection

Essential Drug Lists are increasingly being adopted by developing countries to improve supply of drugs, rational prescribing and lower costs. In most cases, the selection of essential drugs is limited to public sector facilities. A limited list is prepared for prescribing and supply in this sector. The WHO criteria for the selection of essential drugs are based on: the relevance to the pattern of prevalent diseases, proven efficacy and safety, evidence of performance in a variety of settings, adequate quality, including stability and bioavailability, favourable cost-benefit ratio interns of the total treatment cost, preference for drugs that are well known with good pharmacokinetic properties and possibilities for local manufacture and single compounds. In most countries, in order for a drug to be imported/distributed/sold in the public and private sector, it must be registered with the pharmaceuticals licensing authority in accordance with the laws of that country. Under optimal circumstances, the registration of drugs for the private and public sectors should be based on the evaluation of efficacy, safety and quality. In some countries, cost and need are also criteria for registration.

1.6.2 Procurement

The procurement cycle includes most of the decisions and actions that determine specific drug quantities required to be purchased, prices and the quality of drugs received. Most countries procure through a tender process either directly or through a procurement agency. Quantities should be determined based on a reliable estimate of actual need. Unfortunately, in most developing countries there are never enough resources to purchase quantities that are actually needed as this depends on the governmental allocation for essential drugs from the total health budget.

1.6.3 Distribution

Public distribution includes wholesale distribution and retail dispensing by government managed drug supply and health services as well as distribution through state owned enterprises (state corporations). Private distribution includes private-for-profit wholesalers and retailers and not-for-profit essential drugs supply services.

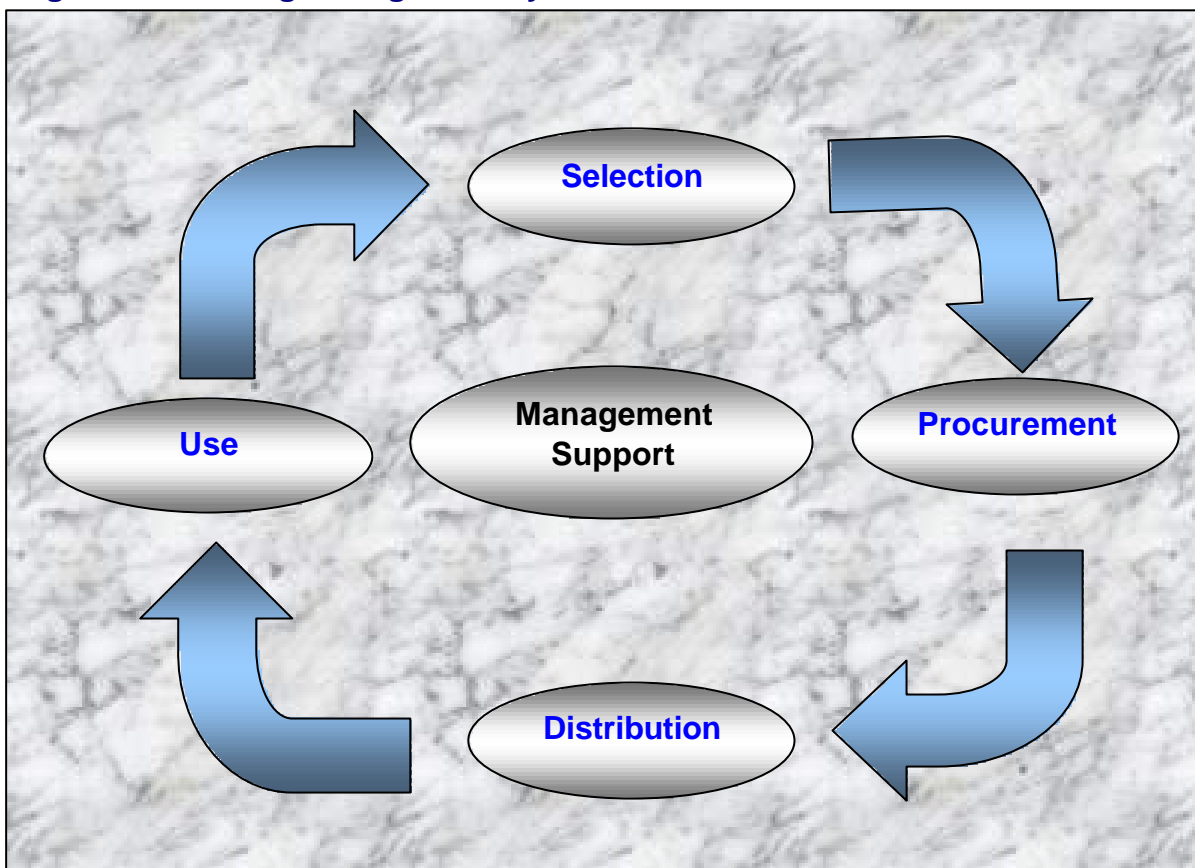
In most developing countries with a functioning public health system, there is a central medical store (CMS) with several regional warehouses that serve hospitals and major health centres, which then distribute to primary care facilities. In some countries drugs are distributed in the form of “essential drugs kits” with a fixed set of drugs in pre-determined quantities. This “push system” is being replaced by

many countries with a “pull system” whereby drugs are supplied according to need in line with decentralisation and empowerment of districts.

1.6.4 Use

This incorporates the use by the provider for the patient or the use by the patient himself. The aim of any drug management system is to deliver the correct drug to the patient who needs the medicine at the appropriate dosage with appropriate information and for that patient to adhere to the prescribed treatment. Rational use thus depends on information and training of the provider and information to and compliance by the patient.

Figure 1. The Drug Management cycle⁸



⁸ MSH/WHO/DAP. *Managing Drug Supply, 2nd edition*. Hartford, CT: Kumarian Press; 1997. Management Sciences for Health in collaboration with World Health Organization, Action Programme on Essential Drugs. Edited by Quick JD, Rankin J, Laing RO, O'Connor R, Hogerzeil HV, Dukes MNG and Garnet A.

1.7 Affordability

The role of the government in financing health services and pharmaceuticals reflects in part by the recognition that health is a fundamental right to which all sections of society should have equal access. The level of financing for essential drugs varies dramatically among countries and regions. Private expenditure for pharmaceuticals in developing countries typically accounts for 50 to 90% of all spending on drugs.

1.8 Systems for financing and distribution of drugs

There are four basic models of pharmaceutical financing and distribution:

1.8.1 Fully public centralized model

Drugs are financed, procured and distributed by a centralized government unit. While this model has the advantage of serving the marginal population and thus promoting equity as well as being able to procure drugs at low cost due to monopsony and economies of scale, it does not offer incentives for technically efficient behavior by the distributor and the total amount spent is constrained by government budget.

1.8.2 Social health insurance reimbursement system

Public funding from centralised budgets and social health insurance premiums is used to re-imburse pharmacies and patients for drugs provided through private pharmacies. These include those that are contracted to the private sector. This has the benefits of the increased efficiency of the private sector, however may have higher administrative expenditures and limited finance.

1.8.3 User fees at government health services

Drugs are supplied by state-owned medical stores or wholesalers and dispensed by government health facilities and paid for (either in part or fully) by patient fees. This arose from the inability to sustain a fully centralized system. Few developing countries are able to raise substantial amounts through such user fees. They have been shown to affect use of government facilities and thus have implications for equity. Furthermore, if providers have financial incentives to prescribe more drugs or more expensive drugs this may affect rational drug use.

1.8.4 Fully private model

Patients pay the entire cost of drugs from private retail pharmacies and drug vendors. In some countries this accounts for over 90% of drug distribution, much of which are non-prescription sales. This often presents problems with low quality drugs, irrational drug choices and incomplete courses of therapy. A fully private model has the potential for inequities as the treatment received is determined by the ability to pay.

1.8.5 Non-governmental Organisations (NGOs)

NGO's play an important role in the financing and provision of health services in many countries. The share of health services and health financing through this sector can be as high as 50% of all curative services. Besides having a direct role in financing and provision, this sector may also influence policy and decision

making. Through outreach activities and experience with community mobilisation NGOs generally have better geographical access to populations.

1.8.6 Public/private mix

The role of the private sector in developing countries in the delivery of antimalarials must be recognised. Private vendors are capable of providing a valuable service to the community in places where formal health provision is poor or lacking. With training, support and supervision, the capacity of drug vendors to give health education could be improved and provide a source of information to customers regarding new medicines.

1.9 Public vs. private expenditures

Public sector expenditure

This includes government budgetary allocation (central, regional and local) for antimalarial drugs as well as compulsory social health insurance schemes.

Private expenditure

This includes out-of-pocket expenses by individuals and households, private health insurance, community drug schemes, cooperative schemes, employers schemes and financing through other non-governmental entities.

Most countries have a combination of two or more of these models above or may selectively apply the models for targeted groups of the population.

Table 1. Public and private actors in the pharmaceutical market⁹

Function	Public Sector	Private not-for-profit	Private for-profit
National drug policy	Ministry of health (focal point) Other government ministries	Professional associations Consumer groups Health care providers	Pharmaceutical companies Health care providers
Drug development	National research institutions Government research grants State universities	Private universities Private foundations/trusts Research institutes	Research based pharmaceutical companies
Drug registration and regulation	National drug control authority	Consumer organisations	Selected contract services (e.g quality control testing)
Production/importation	State importation monopolies State owned production Central medical stores	Essential drugs production NGO/mission essential drugs services	Multinational factories Locally-owned factories
Wholesale distribution	Central medical stores State wholesalers Regional distribution	NGO/mission essential drugs services	Private large-scale wholesalers Private informal wholesalers
Drug information	National formulary and treatment guidelines Hospital and university drug information centres	Drug information centres Consumer groups	Media Industry
Prescribing/advice	Government hospitals, health centres and dispensaries Publicly supported community health workers	Mission hospitals Mission clinics Community health workers	Private hospitals and clinics Community health workers with user fees
Dispensing/retail sale	State owned pharmacies Publicly supported community health workers		Pharmacies Dispensing clinicians Other drug outlets

⁹ World Health Organization (1997). Public-private roles in the pharmaceutical sector. Implications for equitable access and rational drug use. *Health Economics and DrugsDAP Series No. 5*. Geneva: World Health Organization; WHO/DAP/97.12.

2 Access to antimalarials in Kenya, Cambodia, Malawi and Senegal

Malawi and Kenya changed their drug policy from chloroquine to sulphadoxine/pyrimethamine (SP) in 1993 and 1998 respectively. Increasing resistance to the new first-line policy have placed pressure on the national governments in these countries as well as other East African countries to assess options and to garner international support to address the financing of replacement therapies such as combination therapy which are likely to cost more than twenty times SP and chloroquine. Chloroquine is still effective in Senegal and other West African countries. However, a large proportion of the population has inadequate access to effective case management mainly due to poor provider knowledge and inefficient drug management systems.

While the countries studied display diverse health care infrastructure with varying degrees of the different barriers to the access of antimalarials, some common themes can be drawn present. The health systems are marked by insufficient and inefficient allocation of resources, poor drug management systems in the public sector, which commonly leads to shortages particularly during periods of high transmission. Much of treatment seeking for malaria occurs in the private, informal sector due to inefficiencies in the public sector and inaccessibility of government health facilities. Rational drug use is constrained by a lack of knowledge on antimalarial drugs and their use in the community and among health care providers in the public and private sectors. Financial barriers due to high user fees or high drug cost prevent early diagnosis and treatment of malaria cases. Often patients resort to truncated treatment courses or cheaper sub-standard or counterfeit drugs.

2.1 Kenya

The government plays a vital role in the financing and delivery of health services in Kenya. 50% of all health care institutions are governmental. NGOs and donors provide input through strengthening of service delivery in health facilities.

User fees exist in all health facilities except dispensaries for consultation and medical supplies, however, often shortages of drugs exist and patients are required to purchase them from private facilities.

Drug procurement in the public sector occurs by international tender through a procurement agency. Currently essential drugs are supplied through a combination of government funds and donor support.

Some alternative sources of funding for essential drugs exist. In an effort to increase geographical access to essential drugs using community management, UNICEF initiated the Bamako Initiative pharmacies. Community Health Workers were trained and revolving funds for drugs were created. However, many of these pharmacies were closed due to poor fund management. Several NGOs are creating similar outlets.

The private sector is an important provider of health in Kenya. 90% of malaria cases are first treated at home and 50% are only treated at home.

53% of Kenyans are below the US\$ 1/day poverty line which has implications for affordability and access to essential drugs including antimalarials.

Two-thirds of the population in Kenya is at risk of stable malaria transmission. Kenya changed its drug policy for uncomplicated malaria in 1998 from chloroquine to drug sulphadoxine/pyrimethamine (SP). However, SP is already showing evidence of reduced sensitivity¹⁰. Replacement options are at least ten times the price of SP. The fear among policy makers is that they will soon be faced with no safe affordable alternatives to manage the disease. Combination therapy offers a solution and has the potential to prevent the progression of resistance, however it entails a substantial increase in cost at the governmental and household level as well as a supporting health care infrastructure to support its rational use. It is unlikely that the Government of Kenya will have the capacity to sustain a twenty to thirty fold increase in its malaria drug budget. Presently, public sector delivery of antimalarials (SP) is dependent on bilateral funding.

The Ministry of Health (MoH) and its partners must begin to address these dilemmas at an early stage and create mechanisms to support the evolving drug policy.

Kenya's ability to increase access to antimalarials is constrained by several factors:

Financial equity and access

- Patients have to pay high consultation fees to private providers in the peripheral areas in the absence of any other type of facility (governmental or informal shops). Often mothers will choose to treat their children at home with medicines left over from previous episodes or with anti-pyretics.
- Low salaries in the public health facilities force physicians and health workers to spend more time in their private practices and gives them few incentives to improve quality. Staff shortages are common.
- User fees are a deterrent in the referral centres and exemption mechanisms for the poor are inefficient.
- Although there is one social insurance scheme there is little competition. Other private schemes are available, however, are expensive.
- Replacement options to SP are expensive and constitute significant out of pocket expenditures to patients

Geographical access

- In rural areas health facilities and hospitals are often distant, roads are poor, transport is expensive and patients frequently travel by foot due to inadequate

¹⁰ Nzila, M.A., et al., *Towards an understanding of the mechanism of pyrimethamine/sulfadoxine resistance in Plasmodium falciparum: the genotyping of dihydrofolate reductase and dihydropteroate synthase of Kenyan parasites*. Antimicrobial Agents and Chemotherapy, 2000. **44**(4): p. 991-996

transport facilities. The Bamako pharmacies initiated by UNICEF with revolving drug funds provided the mechanism for increased access however, many have closed down due to managerial problems and inadequate accounting systems for resources.

Quality of services in the public health sector

- There are limited resources available to the MoH for malaria case management and thus the quality of its services are poor. Patients are reluctant to use the
- Inadequate incentives are offered to providers to offer quality service.

Inadequate of knowledge and irrational use

- Knowledge of malaria diagnosis and treatment in the general population is low
- Provider knowledge of malaria treatment, both private and public sectors is inadequate
- There is frequent underdosing with drugs bought from shops leading to inadequate treatment and an increase in drug resistance

Sub-standard drugs

- High circulation of sub-standard drugs
- Insufficient post-marketing surveillance

Allocation of resources

- Insufficient allocation of governmental resources to health essential drugs. An evaluation of expenditures between 1988 to 1993 demonstrates that while expenditures seem to have increased from 1988 to 1993 using current prices, when translated into international dollars, the real value of expenditures actually fell from Ksh. 3,000 million in 1988-89 to Ksh. 1,800 million in 1993-4¹¹.

Drug management

- The allocation of personnel and drugs is centralised. Therefore, facility managers have little control over the allocation of the resources. However, the drug procurement and management system is undergoing reform to make them more independent from the MoH by getting parastatal status as KEMSA (Kenya Medical Supply Association). The new organisation is to be run as a private institution with a board of director and open systems of management and accountability. The initial capital at KEMSA will form a revolving drug fund (RDF) centrally and district allocations will be made into RDF at facility level. It is expected that districts and facilities will manage and plan drug supplies.
- Inefficient drug procurement and management leads to shortages in the public sector
- Seasonal increases are not estimated thus leading to shortages

¹¹ MSH/WHO/DAP. Financial Planning and Management in *Managing Drug Supply*, 2nd edition. Hartford, CT: Kumarian Press; 1997. Management Sciences for Health in collaboration with World Health Organization, Action Programme on Essential Drugs. Edited by Quick JD, Rankin J, Laing RO, O'Connor R, Hogerzeil HV, Dukes MNG and Garnet A.

Regulation and legislation

- After the change in the national antimalarial drug policy from chloroquine, SP was de-regulated (it was a prescription only medicine). However, currently, it remains a Part II (Schedule IV) poison. Thus manufacturers may not legally supply it to unlicensed premises, thereby limiting its accessibility in shops which are a major source from which treatment seeking for malaria occurs¹²..
- Inadequate regulation for rational drug use

Organisation, management and supervision of health facilities

- Lack of supervision in governmental health facilities leading to poor practice and quality and inadequate case management
- Inefficient collection of user fees

Diagnosis and prescription practices

- Inadequate diagnosis leading to overprescription of drugs, particularly in the private sector. This has led to an increase in drug pressure and treatment failures.
- There is inadequate diagnosis in the remote areas due to unavailability of microscopes and trained staff.

Partnerships and collaboration

- Insufficient collaboration of the Malaria Control Unit with the Pharmacy and Poisons Board.

2.2 Cambodia

Households bear the burden for health in Cambodia. The government contributes 5% of the total sector funding. Out-of-pocket expenditure constitutes 82-84%. There is a high level of external input in the health sector, however, coordination among donors and NGOs is inadequate and duplication of activities is common.

Public health facilities are marked by high user fees and inefficiency and a referral of patients to private practices run by public health workers. Frequent shortages of drugs are experienced due to inefficient drug management systems. 70% of the drugs budget is funded by the government. Drugs purchased by the government are expensive due to a lack of competition in drug suppliers (monopoly of supplier). Geographical access to public health facilities is low and the poor tend to use governmental health services much less the middle and upper-income groups. There is an uncontrolled growth of the private sector, which has poor prescription practice and irrational drug use. There are more than 2000 illegal pharmacies. Much of treatment seeking for malaria occurs in the private sector, which is often expensive. The circulation of counterfeit and sub-standard drugs in the private sector is high. Patients often buy truncated courses of treatment and sub-standard drugs to save costs.

¹² Mwenesi H (1994). The role of drug delivery systems in health care: the case of self-medication. *African Journal of Health Sciences* **1**: 42-48.

Alternative forms of financing of health services and drugs are being explored by the government in collaboration with NGOs. Facilities in pilot districts are being contracted in or out and staff incentives are being offered in an effort to improve the quality of services in government health facilities.. Community based risk pooling and pre-payment schemes are currently being explored.

Multi-drug resistance in Cambodia is widespread and much of the country is inaccessible with limited health facilities. Cambodia has adopted the use of combination therapy nationally in concert with the Mekong malaria initiative and is in the process of providing pre-packaged combinations to the private sector. These initiatives have however been supported largely by external agencies.

The barriers to access to antimalarials in Cambodia are summarised below:

Financial equity and access

- In both urban and rural areas, user fees at public facilities are being introduced. Unfortunately, user fees have not always eliminated informal fees resulting in double charging in some cases. Where double charging occurs, or where exemptions are granted sparingly, the poor may not be able to afford treatment. For the urban working-poor, long waiting times at public facilities can mean lost earnings.
- Exemption mechanisms are inadequate especially in referral centres. Hospitals do not advertise the existence of exemption mechanisms. Providers have no mechanism to be reimbursed for any fees and discourage exemptions. The inability of government to respond has led to an escalation of fees in the referral centres even further.
- Low salaries thus health workers find other means to earn the income (“informal fees” and deferring patients to their private practices) they need to survive.
- There is no social insurance scheme or other affordable health insurance schemes. Many of the social financing needs have been based in urban areas in and around Phnom Penh.

Geographical access

- Cambodia’s predominately rural agricultural population is widely dispersed with a few large urban centers. In rural areas health centers and hospitals are often distant, roads are poor, and patients frequently travel by foot due to inadequate transport facilities.
- There is a high incidence of malaria and mortality among non-immune forest workers. The malaria transmission areas are remote resulting in difficult access by the risk populations to the public health system.

Quality of services in the public health sector

- Limited level of resources available to the MOH means that the quality of its services are poor.
- Inadequate incentives are offered to providers to offer quality service

Inadequate of knowledge and irrational use

- Low knowledge of malaria diagnosis and treatment in the general population
- Inadequate provider knowledge of malaria treatment, both private and public
- Underdosing with drugs leading to inadequate treatment and an increase in drug resistance

Sub-standard drugs and practices

- The private sector is marked by irrational prescription practice
- There is a high circulation of counterfeit drugs.

Inadequate allocation of resources

- Resources are allocated on infrastructure rather than health need or ability to pay

Inefficient drug management

- The allocation of personnel and drugs is centralised. Therefore, facility managers have little control over the allocation of the resources.
- Inefficient drug procurement and management leads to shortages in the public sector
- Purchase of expensive drugs leading to inadequate quantities due to a lack of open competition in drug procurement and supply (monopoly suppliers to the government)

Regulation

- Registration processes for drugs are tedious therefore, most people do not bother and there are inadequate regulation procedures
- Unlicensed pharmacies with inadequately trained staff lead to irrational practices

Organisation, management and supervision of health facilities

- Lack of supervision leading to poor practice and quality

Diagnosis and prescription practices

- Inadequate diagnosis leading to overprescription of drugs, particularly in the private sector. This has led to an increase in drug pressure and treatment failures
- There is inadequate diagnosis in the remote areas due to unavailability of microscopes and trained staff (due to low salaries)
(With increased use of dipstick diagnosis this is likely to change)

2.3 Malawi

Malawi was the first country in the region to change its treatment policy for uncomplicated malaria from chloroquine to SP in 1993. Eight years after the change, treatment failures of 20% are being reported from sentinel sites. The situation is similar to Kenya in that there is no affordable alternative to replace SP. Amodiaquine may offer a temporary interim solution, but practitioners are reluctant to use it due to reports of toxic side-effects and cross-resistance with chloroquine may limit its useful therapeutic life. Combination therapy is being discussed but

insufficient resources will make it difficult for the government to sustain its implementation. Furthermore, at current prices it is unaffordable at the household level.

Treatment in public health facilities in Malawi is free, although user charges are being introduced in a phased manner. However, over 50% of treatment seeking for malaria occurs outside the formal health sector. 37% of the health facilities in the country are run by a church based organisation, the Christian Hospital Association of Malawi (CHAM). User fees are charged by CHAM.

The Central Medical Store (CMS), a self-accounting body, distributes drugs to government and CHAM health facilities. There are frequent shortages of essential drugs in the public health facilities due to unpredictable supply by the CMS and inadequate funding from the Ministry of Population and Health.

Community participation in drug financing is being explored through partnerships with NGOs.

The barriers to access to antimalarials are summarised below:

Financial equity and access

- Lack of social insurance schemes.
- Few alternative financing schemes such as community financing

Geographical access

- In rural areas health facilities and hospitals are often distant, roads are poor, transport is expensive and patients frequently travel by foot due to inadequate transport facilities. While these areas are better covered by the informal sector, geographical access to a drug outlet in some areas is poor.
- Inadequate referral of severe malaria cases at peripheral health units (commonly constrained by poor communication and lack of transportation facilities).

Quality of services in the public health sector

- Limited level of resources available to the MOPH means that the quality of its services are poor.
- Inadequate incentives are offered to providers to offer quality service.

Inadequate of knowledge and irrational use

- Low knowledge of malaria diagnosis and treatment in the general population
- Low knowledge of consequences of use of incorrect/incomplete drug dosages.
- As a cost-saving measure, SP is bought according to household financial capabilities, leading to poor case management and possible promotion of malaria parasite resistant strains.
- Inadequate provider knowledge of malaria treatment, both private and public
- Underdosing with drugs bought from shops leading to inadequate treatment and increase in drug resistance
- There is no national IEC strategy

- Use of alternative, usually traditional remedies by care givers leads to delays in seeking medical attention until late in the course of the illness.
- Insufficient coverage of malaria in school curricula deprives communities of a ready source of health information on malaria case management

Sub-standard drugs and practices

- Circulation of sub-standard drugs

Allocation of resources

- Insufficient and inefficient allocation of governmental resources to health and essential drugs.
- Inadequate funding to the NMCP
- Budget cuts prevent delivery of priority intervention packages as recommended

Drug management

- Inefficient drug procurement and management and unpredictable supply by the CMS leads to shortages in the public sector e.g. Shortages of parenteral quinine for treatment of severe cases especially during peak malaria season compromises case management

Organisation, management and supervision of health facilities

- Lack of supervision leading to poor practice and quality
- Staff shortages
- Inadequate management capacity at the district level leads to poor resource management

Diagnosis and prescription practices

- Inadequate diagnosis leading to overprescription of drugs
- Lack of functioning laboratory facilities (staff and equipment) at referral centres leads to delays in making proper diagnoses, especially for severe disease.

Partnerships and collaboration

- Insufficient collaboration of the NMCP with the PMPB
- Lack of collaboration with Health Education
- Insufficient collaboration with the pharmaceutical industry
- Lack of collaboration with other IEC activities of the MOPH

2.4 Senegal

The health care system is largely decentralised in Senegal. The government contributes 51% to health financing.

Essential drugs are supplied to the public health facilities by the National Pharmacy and Drugs Supplies (NPDS), which has recently been reformed and is financially independent. District level committees manage funds for drugs. A user fee system is in operation at governmental and private health facilities. Patients have to pay for consultation and drugs.

Drug costs are subsidised in the public health facilities, however, profits on drugs in the private sector are high. Financial access to health care and services in Senegal is generally poor. The government has recommended that no profit be added to antimalarial drugs in health facilities particularly in the high transmission season, however, this is seldom implemented.

Self-treatment practices for malaria are high (upto 74% has been reported). Knowledge of malaria treatment is generally low. Approximately 36% of children less than five years with febrile illness receive appropriate treatment.

Some community insurance schemes (health mutuals) are in operation in selected areas.

5-15% of chloroquine failures are reported in Senegal. Chloroquine remains the first-line therapy. until. Combination therapy is being discussed as a possible option when unacceptable failure rates to chloroquine are confirmed. However, as in all African countries, how financing of CT will take place is unclear.

Barriers to access to antimalarials are summarised below:

Financial equity and access

- Although drugs purchased from government health facilities are subsidised, there is regulation on the cost of drugs in the private sector where much of treatment seeking for malaria occurs.
- Antimalarial drugs in public health facilities are required to be available free of charge, particularly during the high transmission season. However, most facilities do not adhere to this policy.
- There are no effective exemption mechanisms for the poor in public and private health facilities.
- There is no social insurance scheme for employees working in other sectors apart from government or large industries.
- Insufficient resource allocation for antimalarial drugs in the governmental budget.

Geographical access

- In rural areas access to health centers and hospitals is poor
- There is a higher coverage of health facilities, both public and private in urban areas

Quality of services in the public health sector

- Limited level of resources available to the MoH means that the quality of its services are poor.
- Inadequate incentives are offered to providers to offer quality service

Inadequate of knowledge and irrational use

- Low knowledge of malaria diagnosis and treatment in the general population and frequent underdosing occurs

- Inadequate provider knowledge of malaria treatment, especially in the private informal sector.

Sub-standard drugs and practices

- The private sector is marked by irrational prescription practice

Inefficient drug management

- Inefficient drug procurement and management leads to shortages in the public sector. In the public sector the main difficulties of access to drugs are the accuracy of needs assessment of each health structures and the fact that these structures often fail to order essential drugs in due time. Private sector have more diversified source of supply while public sector is limited to the National Pharmacy of Drug Supplies.

Diagnosis and prescription practices

- Inadequate diagnosis leading to overprescription of drugs particularly in the private sector
- There is inadequate diagnosis in the remote areas due to unavailability of microscopes.

2.5 Strategies to improve access to antimalarials

There are major opportunities for partner coordination and to develop interaction of public and private sectors to increase access to antimalarials. While strategic considerations in individual countries vary and are discussed in more detail in the detailed country analyses, some common mechanisms for action are presented below:

2.5.1 Engage all actors

Private sector

- Private vendors are capable of providing a valuable service to the community in places where formal health provision is poor or lacking. With training, support and supervision, the capacity of drug vendors to give health education could be improved and provide a source of information to customers regarding new medicines. The strategy to include the private sector should be based on a two-way information exchange rather than an authoritarian emphasis on regulation and control.
- Franchising of outlets to the private sector for malaria treatment
- Encourage private insurers. Proving an enabling environment for expansion of private sector insurance (thereby creating competition and potentially reducing cost)
- Encourage employer based health insurance (urban centres)
- IEC messages (partnership with the private sector to “piggy-back” malaria treatment messages onto commercial advertising)
- Include of selected private practitioners in laboratory and clinical training by the national malaria control programme
- Provide drug sellers with appropriate protocols of the use of the antimalarials that they are selling

- Establish mechanisms for information exchange between health services and the private sector
- Collaboration with pharmaceutical industry to negotiate lower prices for essential antimalarials
- Collaboration with pharmaceutical industry to promote drug development
- Collaboration with local pharmaceutical industry to promote drug development
- Collaboration with pharmaceutical distributors to promote wider distribution of antimalarials in rural areas

NGOs

- Strengthen malaria treatment to the community level through partnerships with NGOs. The strength of NGOs lies in their logistics and community mobilisation activities.
- Enhance co-ordinated efforts at service outreach and community-based health activities might be needed to counter widespread distrust of and limited access to static public sector services and to mobilise demand. This can be achieved through partnerships with NGOs
- Develop social movements with NGOs for marginalised risk groups
- Explore and scale up contracting in and out activities of facilities through partnerships with NGOs
- Involve NGOs with community-based health expertise to create community based finance schemes to increase access to essential antimalarials.
- Encourage community based health insurance
- Support social marketing antimalarials

The role of the government

- Establish social insurance
- Establish clear mechanisms for exemptions in health centres and referral hospitals
- improve access by the poor to information about exemptions in health facilities
- Where user fees exist, create user fee payment scheduling or deferral to (seasonal financial barriers due to agricultural economy)
- Create equity funds to in overcome some of the difficulties regarding exemptions
- Provide an enabling environment for community based health insurance
- Increase salaries in public health facilities
- The roles and responsibilities at each level of health care need to be re-defined (particularly in the context of health sector reform)

Drug management

- Drug procurement and supply should be carried out by open tender. To increase transparency and to benefit from economies of scale, procurement can be contracted out to a procurement agency (e.g. Crown agents or IDA) or to an international agency (e.g. UNICEF)
- Create efficient systems of forecasting of drug requirements through (technical advice from WHO-Essential Drugs and Medicines and Management Sciences for Health).

- Create efficient storage facilities to prevent “leakage” of drugs from the public sector to the private sector

Quality of services

- Create provider incentives (increase in wages should be accompanied by clearly stated job assignments, performance expectations, targets and discipline to change ingrained work habits)
- Supervision of health centre staff by district level health workers

Regulation

- Strengthen the pharmacy inspectorate to regulate drug quality, providers and licensing of premises
- Development of an appropriate framework of laws and regulations
- Strengthen customs administration to prevent illegal drugs into the country (partnership of MoH with Customs)
- Strengthen regulation to shut down illegal pharmacies (this requires collaboration of several ministries) and to enforce registration of drugs

Management and administration

- Management training to mid and high level managers in fund management
 - Create open systems of accountability
- Simplification of procedures for accessing district level financing

Information and education

- Malaria information and awareness campaigns are needed to address misinformation and to improve health-seeking behaviour. This will require extensive partnerships with the media and should be guided by operational research.
- Strengthening IEC to messages to encourage use of health centres for diagnosis and treatment
- Develop health education messages which encourage consumer demand for and compliance with effective treatment from all providers
- Training of health educators to work in schools and teacher training colleges, and in women’s health and rural development.
- Continued training of health centre staff

2.5.2 Work through all avenues

IMCI

- IMCI is a cost-effective means of supporting malaria control. National malaria control programmes should strengthen links with IMCI to promote integrated management of malaria in communities.

Reproductive health

- Strengthen partnerships for delivery of presumptive intermittent treatment to pregnant women

Essential Drugs Programme

- Ensure that national antimalarial drug policy is in concert with the national drug policy

Central Medical Stores

- Improve drug procurement and management

Community based health workers

- Local midwives and TBAs hold positions of trust in the minority communities and, in areas far from formal health provision, are the channel most often chosen by pregnant women for birthing. They understand the beliefs and speak the language of the people, and therefore represent an important health provision resource for delivering presumptive intermittent treatment.

Communities

- Create partnerships with communities for community pre-payment schemes to provide immediate access to treatments when needed
- Involvement of communities in government and NGO cost-recovery schemes

2.5.3 Intersectoral action (outside of the MoH)

- Ministry of Education (health education messages to households on recognition of signs and symptoms of malaria, curriculum development in schools¹³)
- Ministry of Planning (rural development and education)
- Ministry of Transport (rural development)
- Ministry of Agriculture

2.5.4 Quality assurance

- Technical assistance is required for inter-country collaboration, action and regulation of illegal importation of sub-standard drugs
- Strengthening of the national quality control laboratory for quality control prior to registration, on receiving supplies through the Central Medical Stores and for post-marketing surveillance

2.5.5 Operational research

This is required to promote evidence based decision making and to identify appropriate interventions for increasing access

- Operational research into barriers to access is a priority particularly in the areas of treatment seeking behaviour, provider behaviour and economic analysis. A wide range of stakeholders should be involved
- There is a need to assess current financing schemes, their impact on access, exemption mechanisms used service improvement, transparency in resource management, community involvement and staff motivation.
- Investigate drug vendors decision and motivation regarding antimalarial drugs
- Operational research is required to guide IEC messages to the public

¹³ Brooker S, Guyatt H, Omumbo J, Shretta R, Drake L, Ouma J (2000). Situational analysis of malaria in school-aged children in Kenya-what can be done? *Parasitology Today* **16**(5);183-186.

3 Kenya

3.1 Background

Malaria is one of the leading causes of mortality and morbidity in Kenya. In recent years, the situation has worsened with growing parasite resistance to affordable antimalarials such as chloroquine and SP. Some 20 million (two thirds of the population) are exposed to stable malaria transmission (Coast and Lake Victoria) and 8.5 million live in highland, agricultural previously unaffected areas of where epidemics are increasing in frequency. Malaria accounts for 30% of all outpatient attendances and inpatient admissions¹⁴ and approximately 15% of all deaths reported. It is estimated that 26,000 children below the age of 5 years (72 children every day) die of malaria annually and over 145,000 children will develop severe complications of infections including cerebral malaria and severe anaemia¹⁵. It is estimated that over 6,000 primigravid women will develop severe, malaria-induced anaemia each year in Kenya. An estimated 8.2 million malaria outpatient diagnoses are made in government facilities each year. In excess of 22,000 patients require inpatient admission and management for severe malaria.

Approximately 8.5 million Kenyan's are at risk of epidemic malaria. Among epidemic prone populations little immunity to malaria is developed during childhood years. This leaves both the child and adult populations at significant risk of severe morbidity and death from a malarial episode.

The burden of malaria on the Kenya economy is significant. It is estimated that 170 million working days per year are lost by workers aged 15-60 years in Kenya due to absenteeism due to malaria¹⁶.

The greatest burden of malaria is felt at the household level in poor, rural communities where income is dependent on agriculture. Productivity is affected by the debilitating nature of malaria illness. This, together with days lost by mothers/caretakers attending to a sick child, accounts for substantial indirect costs of malaria at the household level. The direct costs of malaria, in terms of travel to and from health facilities and the cost of drugs, are additional financial burdens on a family's income.

Recent epidemics in the very productive highland areas have had a dramatic effect on the nation's economy due to reduced productivity and the direct costs of controlling epidemics. Furthermore, epidemics contribute to absenteeism rates as high as 60% among school children.

¹⁴ Ministry of Health (1998). Malaria: A situational analysis for Kenya. September 1998.

¹⁵ Snow RW et al.(1998). Models to predict the intensity of *Plasmodium falciparum* transmission: applications to the burden of disease in Kenya. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, **92**: 601-606.

¹⁶ Ministry of Health, Republic of Kenya (1992) *Kenya National Plan of Action for Malaria Control, Five Year Plan and Budget*.

The goal of the National Malaria Strategy is to reduce mortality and morbidity due to malaria by 30% by the year 2006 and maintained through 2010 by creating a coordinated, enabling environment for all stakeholders to maximise the access by communities at risk to effective, evidence based preventive and curative interventions. Guaranteeing the populations at risk access to quick and effective treatment is one of the four strategic approaches to be adopted in Kenya.

Kenya has been recognised as the epicentre for chloroquine resistance across the continent. Chloroquine is no longer effective in the management of over 60% of clinical episodes¹⁷ and has been abandoned as the recommended first line drug. The current first line drug sulphadoxine/pyrimethamine (SP) is already showing evidence of reduced sensitivity¹⁸. Replacement options are at least ten times the price of SP. The fear among policy makers is that they will soon be faced with no safe affordable alternatives to manage the disease. Amodiaquine is already being used in the private sector and may provide an interim solution. However, cross-resistance with chloroquine may result in amodiaquine having a very short useful therapeutic life. Combination therapy offers a solution and has the potential to prevent the progression of resistance, however it entails a substantial increase in cost at the governmental and household level as well as a supporting health care infrastructure to support its rational use. It is unlikely that the Government of Kenya will have the capacity to sustain a ten to thirty fold increase in its malaria drugs budget. 53% of Kenyans are below the US\$ 1/day poverty line which has implications for affordability and access to essential drugs including antimalarials. The Ministry of Health (MoH) and its partners must begin to address these dilemmas at an early stage and create mechanisms to support the evolving drug policy.

¹⁷ Rapuoda BA, Ouma JH, Otieno JA, Khan B, Omar S (1998). Status of antimalarial drug sensitivity in Kenya. *Malaria and Infectious Diseases in Africa*, **8**: 25-43

¹⁸ Nzila, M.A., et al., *Towards an understanding of the mechanism of pyrimethamine/sulfadoxine resistance in Plasmodium falciparum: the genotyping of dihydrofolate reductase and dihydropteroate synthase of Kenyan parasites*. *Antimicrobial Agents and Chemotherapy*, 2000. **44**(4): p. 991-996

Table 2: Basic statistics and economic indicators¹⁹

Total Population (1999)	29,549,000
GDP (US\$billions)	10.6
GDP growth (%)	1.6%
GNP per capita (1999) (US\$)	360
Under 5 mortality rate	124 (per 1000 live births)
% of population with access to health services (rural/urban)	-
Total public expenditure on health as a percentage of GDP	4.6%
Public expenditure as percentage of total expenditure	64.1%
Annual household expenditure for health (US\$ per capita)	6
Annual donors/lending agencies contribution to the health sector (US\$)	
Total recurrent budget for essential drugs (US\$millions) (1997-8)	10.6
Reported number of malaria cases (1995)	4,343,190

3.2 Health Care Infrastructure

The government plays a vital role in the financing and delivery of health services. The government, NGOs and private health systems are organised and implemented at four levels: national, provincial, district and community levels. At each level, curative, preventive and promotive services are offered. Currently there are over 3,200 health care institutions nationwide. The MoH administers over 50% of these and the Ministry of Local Government just over 3%. The remainder are operated by the private, mission and NGO sectors (over 40%). The MoH has approximately 1,500 dispensaries, 550 health centres, and 125 hospitals with the Kenyatta National Hospital located in Nairobi and employs 69% of its health personnel²⁰. Dispensaries provide basic consultation services and essential drugs while health centres generally have a pharmacy and a laboratory. The expansion of the primary health care system in Kenya has created a vast number of community health workers supported by the MoH and its NGO and mission partners.

District Health Management Teams, (DHMT) trained in programme management in turn train the Divisional Health Teams on the concepts of Primary Health Care (PHC) and malaria control activities at the community level and management

¹⁹ World Bank (1999). *World Development Indicators*.

²⁰ Ministry of Health (1995). *Kenya National Five-Year Plan of Action for Malaria Control 1996-2000*.

concepts. The MCU monitors district level activities and the information is used to improve control activities nationally. Reports are provided to the WHO Country Office. Many of the districts (those earmarked previously for the WHO accelerated programme for implementation of malaria control) have Malaria Coordinators.

Over 70% of the MoH recurrent expenditure is used for salaries and staff allowances (MoH, 1994). NGOs and donors provide input through strengthening of structures for general service delivery in health facilities. Those involved in malaria are SIDA, Aga Khan Foundation, missionary groups like Catholic Mission, Africa Inland Church, Pentecostal Association of God, CPK, World Vision International and AMREF. Many donors and NGOs are supporting the development of community based health care programmes that rely on active community participation in the delivery of health services.

The emphasis of malaria control has shifted from a vertical approach to community based malaria control. Some malaria control activities are integrated into other activities at the community level using the experiences gained from the Bamako Initiative (see section 2.5).

Malaria is defined as the highest priority in the Health Sector Strategic Plan (HSSP) for 1999-2004. The Interim Poverty Reduction Strategy commits the government to effective implementation of the malaria control plan. The Ministry of Health is committed to advocate for resource allocation from public expenditure for malaria control.

The health reform activities include a planned expansion of governmental and non-governmental provision of services to deliver at least a basic package for curative services at an acceptable level. This entails decentralisation and regulation at all levels.

Over the last years, public health facilities have suffered from continuous short supplies of drugs. Patients are advised to buy drugs and medical products including sutures and other products for elective procedures from private pharmacies.

3.3 The Essential Drugs Programme

Kenya was one of the first African countries to adopt the essential drugs concept in 1981. In 1992 the MoH decided to intensify its efforts to rationalise the pharmaceutical sector by implementing the list as a basis for drug management in the public sector and developing treatment guidelines. A national drug policy was formed in 1993, however has had problems with implementation due to resource constraints.

Drugs procured for the public sector (except donations) must be on the National Essential Drugs List. A wider range of drugs is found in the private sector. The Pharmacy and Poisons Act (Cap 244) defines the legislation controlling the possession and supply of pharmaceuticals. While systems of regulation are present, the inspectorate is weak and almost any drug can be bought over the

counter in a private pharmacy. The range of drugs available in shops and informal drug vendors is more limited.

3.3.1 The Drug Management System

Procurement Distribution and Supply

In the early 1990s it was decided to provide drugs in the form of essential drug kits, with the main argument that it would save as it would minimize leakages from the system. The Central Medical Stores (CMS) of the Essential Drugs Programme determines the quantity levels of the kits. The contents are predetermined based on the type of facility (level of care e.g. hospital or health centre) and the requirement based on the prevalence of disease which is a function of geographic location and season. The CMS has a central unit based in Nairobi with storage facilities in the provinces from which distribution to the district hospitals and health centres takes place. Essential Drugs are procured by Crown Agents by open international tender. Quantities are based on requirements as submitted by the Medical Supplies Coordinating Unit, but determined by the actual budgetary governmental allocation for essential drugs and donor support. Changing epidemiology and requirements for drugs have made the 'push system' inefficient resulting in excessive stocks of unneeded drugs and shortages of others. Ten years later, this 'push' system is being replaced by a 'pull' system now seen to be necessary in the decentralisation process for increased efficiency and the empowerment of districts.

Donor pressure to increase the efficiency of the drug supply has led to a process of reorganisation of the MSU to make them more independent from the MoH by getting parastatal status as KEMSA (Kenya Medical Supply Association). The new organisation is to be run as a private institution with a board of director and open systems of management and accountability. The initial capital at KEMSA will form a revolving drug fund (RDF) centrally and district allocations will be made into RDF at facility level. The reform of essential drug supply and programming is an inherent part of the national health reform process.

The MoH Kenya has been benefiting until the recent past from donor support in the provision of essential drugs. Until 1998, DANIDA was the major supporter for Essential Drugs in Kenya. Presently, there is no one donor to the essential drugs programme and drugs are financed through a combination of government funds and external support. UNICEF provides some assistance in the form of emergency health kits, to supplement MoH resources in drought affected areas. It also provides assistance including drugs in communicable disease outbreaks. Ensuring adequate financial support, procurement and distribution of essential drugs remains a problem for the MoH.

The MoH budget for essential drugs is US\$10.6 million. The MoH budget contribution for essential drug and vaccine procurement has increased in the last few years. In a period of 2-3 years the MoH budget for vaccine procurement has increased from virtually nothing to about US\$ 1 million per annum.

Over the last twenty years, Kenya's pharmaceutical market has increased eight-fold. . Despite international competition, local production has grown and more than twenty local producers hold 25% market share, manufacturing a variety of pharmaceuticals including antimalarials. A local manufacturing company, Cosmos Ltd. has undertaken to produce artesunate locally and are awaiting registration of the product. The product will be available on request to institutions and is expected to cost in the region of Ksh. 300 (US\$4).

All drugs manufactured and imported into the country are required to be registered. Registration requires the submission of relevant documents regarding the biochemistry, clinical trial results, toxicology, etc. to the Pharmacy and Poisons Board (PPB), the legislative body governing the Pharmacy and Poisons Act^{21 22}. Before registration any new product, additional quality control is carried out by the National Quality Control Laboratory (NQCL) an autonomous body constructed with donor funds.

3.4 The Mission for Essential Drugs Supplies (MEDS)

The Mission for Essential Drugs Supplies (MEDS) is an autonomous not-for-profit organisation established in 1986 by two Kenyan religious organisations, the Catholic Secretariat and the Christian Health Association to supply good quality essential drugs at a reasonable cost to over 500 church-managed health units throughout Kenya, which constitute 36% of the country's rural health services. It supplies drugs to over 300 hospitals, health centres and dispensaries. It also sells to several NGOs. MEDS has the approval of the Ministry of Health. It uses a revolving fund financed by governmental and non-governmental organisations in three European countries, Kenyan sponsor organisations and drug purchases. One of MEDS methods for keeping drug prices down has been bulk buying from local producers²³.

3.5 Bamako Initiative

The Bamako was initiated by UNICEF and involves community-managed pharmacies. Community health workers and Traditional Birth Attendants (TBA) were trained and start-up supplies of essential drugs, mosquito nets and delivery kits were provided and revolving funds were created. While some of these are still in operation and a few new Bamako pharmacies were created through community initiation many of these suffered from poor management and use of resources and were closed down. Several NGOs have emulated the concept by creating revolving funds to enhance community participation and community financing of essential drugs.

²¹ Government of Kenya (1998). *Laws of Kenya. Pharmacy and Poisons Act Cap 244*

²² Government of Kenya (1998). *Laws of Kenya. Pharmacy and Poisons Act Cap 245*

²³ MSH/WHO/DAP. *Managing Drug Supply, 2nd edition*. Hartford, CT: Kumarian Press; 1997. Management Sciences for Health in collaboration with World Health Organization, Action Programme on Essential Drugs. Edited by Quick JD, Rankin J, Laing RO, O'Connor R, Hogerzeil HV, Dukes MNG and Garnet A.

Table 3. Roles of different levels of the health system in malaria control

Level	Management of cases
Household	early recognition of symptoms, simple treatment with SP, basic nursing, timely care seeking
Village	Early recognition, simple treatment with SP, basic nursing and timely care seeking, record-keeping
Dispensary	Correct treatment using guidelines, provision of first aid and prompt referral for severe malaria cases, supervision of VHCs, CHWs and TBAs, record-keeping
Health Centre	Diagnosis and treatment using guidelines, simple microscopy and other tests, prompt referral, limited inpatient care, HIS
District level	Mobilisation of resources, training, support supervision, implementation of malaria case management package at all levels, liaison with non-Government/private facilities
Provincial level	Ensuring availability of drugs and supplies, training on use of guidelines, providing specialised treatment for severe cases, liaison with non-Government/private facilities
National Level	Developing malaria control policies, strategies, guidelines and training packages, developing cost-effective malaria package, mobilising resources, developing IEC materials, facilitating research and surveillance and disseminating findings, facilitating consultation and co-ordination with national stakeholders

3.6 Health and drug financing and cost-recovery

Following independence health and education services in the public sector were made free of charge to all users. Health became known as a “public good”. However, after the serious economic problem of the 1980s, the World Bank and International Monetary Fund sponsored a Structural Adjustment Programme that called for reduced government spending on service sectors resulting in increased privatisation and the introduction of cost-sharing. Health financing reforms were confirmed by the government in 1989-93 Development Plan²⁴. The strategies outlined in the plan were user fees and increasing the role of social financing through the National Hospital Insurance Fund (NHIF) (see below).

Fees were graduated according to facility level with no fees at the dispensary level. Cost sharing revenues were to be retained by the MoH in addition to budget support from the Treasury (planning for the use of the funds was to be at the local level – at the facility level for 75% at the district level for 25%). A waiver system was introduced to guarantee access by those unable to pay. User fees were to be used to encourage a more rational use of the services. The fee at the provincial, district and sub-district hospitals and the health centres were a monthly registration fee rather than a fee per visit. While a detailed implementation plan was being developed, the government suddenly announced the introduction of fees six weeks later without public information campaign, preparation and training of staff.

²⁴ Government of Kenya. *Development Plan for Kenya 1989-1993*.

Less than one year after the introduction of this fee, the President revoked the policy due to reduction in accessibility of services to the poor. A review of the situation indicated that as district health management boards had not been formed there was an inadequate disbursement of funds for the purchase of medical supplies and patients were referred to private facilities to purchase drugs. The revenue collected was far less than expected.

Despite the problems, some members of the government remained committed to cost-sharing. It was agreed that slower, more methodological approach should be taken to re-implement the programme and that a phased re-introduction would take place spanning three years. New fees were set at a lower level and increased gradually beginning at the provincial level. Assistance was provided to improve the quality and cost-effectiveness of diagnosis and treatment as well as drug management manuals. The introduction of new management practices and systems improvements in the planning and processing of expenditures have resulted in a more timely and appropriate use of funds, however, major inefficiencies remained in staffing and drugs. Shortfalls in recurrent budgets led to shortages in medical supplies.

An analysis of service utilisation showed that introduction of outpatient registration fees in 1989 resulted in a substantial decrease in outpatient attendances in hospitals and health centres. There was no compensatory shift to dispensaries or non-governmental facilities. Suspension of the outpatient fee in September 1990 led to prompt re-utilisation. In contrast, in hospitals the outpatient treatment fee resulted in an increase in utilisation, without affecting utilisation by economically vulnerable patients even though most patients were unaware of the waiver system. With the introduction of new management structures and more acceptable fee types, revenues increased significantly, including NHIF claims. User fees which includes consultation as supplies (subsidised) have been accepted particularly as patients receive medication for their condition. Treatment at dispensaries remains free.

While data shows that in 1993, only 2.1% of Ministry of Health recurrent expenditure is recovered through user fees in government health facilities. However, based on the 1993-94 figures, the cost of administering cost-sharing is less than 10% of revenue collected and thus has the potential of creating additional revenue²⁵.

- The programme recognised that cost-sharing and increased input of resources is not enough to solve financing problems. Reducing inefficiencies for improving quality and availability and improving cost-effectiveness by shifting resources, management structures for fund disbursement and supporting health infrastructure.

²⁵ Collins DH, Quick JD, Musau SN, Kraushaar DL (1996). *Health Financing and Reform in Kenya. The Rise and Fall of Cost Sharing, 1989-1994*. Management Sciences for Health, Boston.

- A study of the evolution of health expenditures over time shows that while the government expenditure for health has risen over from 1988-1993, when translated into current dollars using 1990 as the base year, the real value of expenditures fell from Ksh 3,000 million in 1988-9 to Ksh 1,800 million in 1993-4.

3.6.1 The National Hospital Insurance Fund

The NHIF is a semi-autonomous unit under the MoH provides statutory health insurance covering most people in formal employment including government employees and their dependents. Approximately a quarter of the population is covered by NHIF. A major potential source of revenue, the NHIF is not being tapped because of cumbersome claiming procedures imposed by the NHIF and because NHIF refuses many claims due to minor submission errors. Part of the health systems reform package in Kenya is to shift a larger share of financing of health services to NHIF and other insurance schemes. Approved insurance programmes will be allowed to compete with NHIF for members.

3.7 The Malaria Control Unit (MCU) and the National Malaria Control Programme (NMCP)

The Malaria Control Unit (MCU) was formed in 1994 to operate the National Malaria Control Programme. It currently falls directly under the Department of Preventive and Promotive Services in the Ministry of Health. It has overall responsibility (acting on priorities set by the National Malaria Coordinating Committee – see below) for planning, implementation and coordination of inputs and activities at all levels, and is the primary source of technical advice for the provincial and district levels. It is also responsible for liaising with other ministries, development partners, UN agencies and NGOs to coordinate actions and inputs and to develop and disseminate policy and strategies and keep them up to date, produce and disseminate national guidelines for components of the strategy, monitor and evaluate implementation and its impact, build capacity through training and advocate for malaria as a priority disease.

The MCU receives support from GoK, DFID, WHO, UNICEF and Beckton Dickinson. The financial flow from the GoK is provided through DCVBD.

As decentralisation proceeds, budgeting will be tied to annual work plans at all levels. At lower levels of the system malaria will be incorporated in budgets for delivery of the total health package. At national level, a budget will be attached to the MCU work plan and to malaria control activities. Resources come from the recurrent and development budget and will be raised through the budget allocation process. Resources are also made available through the NGO and private sector. Role of MCU should evolve into technical guidance, monitoring and evaluation, updating guidelines and quality control. However, adequate training and support in administration and financial management will have to be provided.

Among the key objectives of the National Malaria Control Plan is effective case management in health facilities and at home. In recent years the emphasis has

shifted to the promotion of community-based integrated approach to malaria control. Without an effective malaria co-ordination unit to support, lobby and broker partnerships for malaria control at a national level, it is likely that control activity will be fragmented, duplicated and undertaken inappropriately.

One of the targets of the national malaria control strategy is that 80% of all GoK facilities have a continuous and adequate supply of essential drugs for the management of malaria.

Effective implementation of the National Malaria Strategy will require new arrangements for malaria control finances. Currently the MCU is not well informed about the flow of GoK funds to districts for malaria control. It is not therefore in a good position to advise on needs and priorities, to intervene to remove blocks in flow of funds to peripheral levels, or to identify gaps that could be filled from other sources. There is no specific allocation of GoK funds for MCU running costs, apart from salaries. This limits the support it can provide to Districts and Provinces, adds to the administrative burden of the Programme Manager in finding other sources of funding for running costs, and hinders good planning. The Ministry of Health's development budget does not capture all the external funding available to the NMCP and hence it is not clear what resources are available.

3.7.1 The Malarone[®] Donation Programme in Kenya

The Malarone[®] Donation Programme began its operations in Kenya in 1999 in two pilot districts. Malarone[®] is a fixed dose combination of atovaquone 250mg and proguanil 100mg and is highly efficacious for the treatment of uncomplicated malaria. Due to its high cost (US\$42), Glaxo-Wellcome decided to donate it to endemic countries and pledged one million treatment courses globally. Kenya was the first country in which the programme began under strict eligibility criteria for patients who had failed treatment with SP in the pilot district hospitals. However, since its inception in 1999, less than 200 patients have been treated with Malarone[®]. While Malarone[®] is effective drug for the treatment of uncomplicated malaria, its high cost makes it unlikely that it will ever have a role in the National Antimalarial Drug Policy in Kenya.

3.7.2 The National Malaria Control Coordinating Committee

A multisectoral National Malaria Control Coordinating Committee advises the MoH on malaria control. It meets quarterly to receive progress reports from MCU. This allows the MOH and partners to jointly influence the management of national malaria action. Its members includes the MoH (all heads of MOH departments are members of the NMCC), external partners, research institutions, local NGOs and the private sector. The committee facilitates linkages between participating ministries, NGOs, local and international partners. The manager of the MCU is the secretary to this committee, which is chaired by the Director of Medical Services. It provides a forum for partners in the National Malaria Control Strategy to exchange information, coordinate malaria control plans and activities, monitor progress against objectives. Through the National Malaria Co-ordinating Committee, the

capacity of the MCU to provide policy co-ordination and to lobby for malaria control during national policy formulation and resource allocation discussions will be strengthened.

There is no standing group on case management but experts have met as necessary to discuss guidelines and other case management issues.

3.7.3 Resources and Support for Malaria

The government of Kenya allocates 30% of its recurrent health budget specifically for malaria control.

The National Health Strategic Plan indicates that 40 million Kenyan pounds are available for malaria control, as part of the Malaria package. 27 million for the essential public health package and 13 million for essential clinical package²⁶. In 1999/2000, the GoK allocated K£16.4 million for malaria (excluding personnel costs). Of this K£138, 000 is for malaria control, K£65 280 for vector control, K£142 200 for epidemic control, K£30 000 for environmental health and malaria control and the rest on drugs²⁷. To what degree this support is for activities at more peripheral levels and what is the considered allocation for the MCU is unclear.

Malaria activities within the public sector are currently supported from several sources. In general, the Government of Kenya covers salaries of health officials at all levels of the health service. In addition, the 2000-2001 GoK recurrent budget for health allocated Ksh. 5,798,000 for malaria control. The Head of the Division of Communicable and Vector Borne Diseases (DCVBD) advises on allocation of these funds to districts. District development funds also provide potential resources for malaria control. MCU activities are covered largely by funds from DFID and WHO. DFID has committed UK£500,000 in 2000/01 for strengthening malaria control activities as part of a five-year project²⁸.

Several donors support large-scale district-based programmes (UNICEF, DANIDA, USAID and JICA) with an emphasis on improving access to curative and referral services. Others are proposing to strengthen MoH capacity for drug supply and co-ordination and move toward greater decentralisation in health service management (World Bank). Other partner resources include the African Development Bank (ADB) Rural Health II project. An ADB loan of UA 8 million which has been operational 1999, WHO support amounted to US\$ 1,001,240. DFID support amounted to £1,660,000, UNICEF support amounted to Ksh. 250,000, EU support amounts to CEU 600,000 through Merlin⁴.

Other agencies make occasional contributions to the programme and fund activities directly. UNICEF provide supplies for Bamako Initiative ITN sites and for

²⁶ . One Kenyan pound=20 Kenyan shillings.

²⁷ Ministry of Health (1999). The National Health Sector Strategic Plan: 1999-2004. Health Sector Reform Secretariat, July 1999.

²⁸ Robb A (2000). Annual Review of the DFID supported "Strengthening Co-ordination for Malaria Control in Kenya". Conducted on behalf of DFID for the Malaria Consortium, 22nd May - 7th June 2000.

antimalarial drugs, and have offered support for the development of a MCP website. USAID supports the malaria prevention activities in two main ways: support for social marketing of ITNs through Population Services International (PSI), and support for the Bungoma District Initiative which is managed by AMREF and the CDC. It has also supported the production of a simplified case management guide for community health workers. Other activities are Merlin in Kisii district, Care in Siaya district, AMREF in Transmara district, and MSF-France in Homa Bay District. WHO support is for training in vector control, spray volunteers and health workers, supervision and Health Management Information Systems. UNICEF has provided bed nets and chemicals for indoor residual spraying and treatment of nets. Beckton Dickinson has provided one year of financial support for dissemination of clinical guidelines, a school health project, printing of forms for HIS, radio and IEC materials. Computers have been provided by Beckton Dickinson and WHO. UNICEF aims assist the MoH in a major ITN campaign to support the launch of the national malaria strategy in April. The goal is to “prime this strategy” and distribute 300,000 nets to antenatal mothers free of charge in a period around Africa Malaria Day.

WHO allocated US\$55,000 approximately for malaria activities in 2000/01, largely for capacity building for case management.

The cost of antimalarial drugs is met partly from the ministerial drug budget and partly from donor contributions. The MCU receives a small contribution to running costs through the DCVBD but the majority comes from external sources.

The MoH has increased its allocation to the MCU in recent years (from \$20,000 1996/97 to \$30,000 1997/98). Whilst a health sector development plan is in its preliminary stages of development, it is unlikely that recurrent resources from the MoH will increase substantially in the short term.

The Health Policy Framework plans to adopt a strategy to reduce the burden of disease among the Kenyan population. This will entail the quantification of the burden of disease and define interventions which can be employed to prevent or treat these diseases. It is therefore probable that disease-specific initiatives defined by the MoH will still be required as part of the health sector development plan. This project has been designed to support activities which, in the future, will not require substantial additional recurrent resources. It aims to support cost-effective interventions which will impact on the overall economic burden of disease and resource use by the MoH (rational supply and use of anti-malarial drugs).

The success of any strategy is the development of effective partnerships. These currently include:

Table 4. Within the Ministry of Health

Partner	Activity
Health Sector Reform Secretariat	Integration of malaria control activities with health sector reform agenda
Reproductive Health	Management of malaria in pregnancy, implementation of intermittent treatment, disseminating treatment guidelines
Division of Communicable and Vector Borne Diseases	Research and with the Disease Outbreak Management Unit (DOMU) on epidemic preparedness and response
Department of Curative Services	Malaria case management
Health Management Information Systems (HMIS) and Integrated Disease Surveillance (IDS)	Baseline data for malaria epidemiology, monitoring and evaluation of malaria activities
Environmental Health	Vector control and environmental assessment of development projects
Health Education	IEC and public information on malaria
Pharmacy and Poisons Board and National Quality Control Laboratory	Drug policy, registration, regulation, quality control and post-marketing surveillance
MSCU/KEMSA	Supply of antimalarial drugs to public health facilities
National Public Health Laboratory Service (NPHL)	Diagnostic services for malaria
Integrated Management of Childhood Illness	Case management of uncomplicated malaria at peripheral health facilities, appropriate referral practices for severe malaria, home-based management and prevention of malaria. Integration of malaria in IMCI protocol, collaboration in improving diagnostics and treatment practices
Kenya Medical Research Institute (KEMRI)	Research

Table 5. With other government ministries

Partner	Activity
The Office of the President	Advocacy for malaria and epidemic preparedness and response
Ministry of Finance (MoF)	Tax regulations e.g mosquito nets and yarns and mobilisation of resources
Ministry of Education (MoE)	Health curriculum for school children (part of life-skills curriculum review)
Ministry of Home Affairs, Culture and National Heritage	Community mobilisation for malaria
Ministry of Information and Broadcasting	IEC and public information for malaria

Table 6. Among International Agencies, Donors and Research Institutions

Partner	Activity
WHO	Technical advice and resource mobilisation for RBM initiatives
DFID	Policy support, provision of treatment courses of SP. Support to EANMAT, SWApS
UNHCR	Malaria treatment in refugees
	Logistics in malaria epidemic emergency relief (malaria outbreaks with famine)
UNICEF	Malaria epidemic emergency relief, provision of drugs and bednets, community IMCI activities,
JICA	District based integrated malaria control activities
USAID	Integrated malaria control (Bungoma District Initiative), support for social marketing of ITNs through PSI (see below)
SIDA	Donor
Wellcome Trust Research Laboratories/Kenya Medical Research Institute Collaborative Programme	Research Activities and support to the MoH
Centers for Disease Control/ Kenya Medical Research Institute Collaborative Programme	Research Activities
ICIPE	Operational research

Table 7. With Non Governmental Organisations

The main area of NGOs input is through the strengthening of structures for general service delivery (health facilities) where malaria is the most common disease. Many are supporting the development of community based health care programmes that rely actively on community participation in the delivery of services.

Partner	Activity
International Federation of the Red Cross	Malaria epidemic emergency relief
Merlin	Malaria epidemic emergency relief and bednet distribution
Aga Khan foundation	Integrated malaria control outreach activities
Plan International	Integrated malaria control outreach activities, health education
World Vision	Integrated malaria control outreach activities and bednet distribution
Population Services International	Social Marketing of insecticide treated bednets
AMREF	Integrated malaria control outreach activities/ community based ITN

	programmes
Medecins sans Frontiers (MSF) (Belgium, France and Spain)	Clinical studies on severe malaria (artemether vs. quinine)
Action Aid	Integrated malaria/control outreach activities
Adventist Development Relief Agency (ADRA)	Malaria epidemic prevention and control (MDA and nets)
Christian Children's Fund (CCF)	Integrated malaria outreach activities for children, ITN distribution
CISS (Community Initiative Support Services)	Integrated malaria control outreach activities and ITN distribution
Catholic Relief Services (CRS)	Integrated malaria control outreach activities and ITN distribution
Care International	Integrated malaria control outreach activities and ITN distribution
Plan International	Integrated malaria control outreach activities
Kenya Red Cross	Integrated malaria control outreach activities
Salawa Primary Health Care	Integrated primary health care and ITN distribution
Action Nord Sud	Construction of health posts and integrated outreach activities
MS-Kenya	Integrated outreach activities
SAIDIA (Samburu Aid Agency)	Integrated outreach activities and ITN distribution
Africa Inland Church	Integrated malaria control activities
Pentecostal Association of God	Integrated malaria control activities
Oxfam	Integrated outreach activities and ITN distribution

Table 8. Malaria partnerships with neighbouring countries

Partner	Activity
Uganda, Tanzania and Rwanda	Drug sensitivity testing through EANMAT

Table 9. Private Sector

Partner	Activity
Education Television Network (ETN)	Communication strategy for malaria control
Mediae Trust	IEC material development

3.8 Antimalarial drug policy and supply of antimalarials²⁹

Chloroquine resistance was first acknowledged in 1989 at a meeting organised by the Kenya Medical Research Institute following reports of parasitological failures across the country. However, chloroquine was still effective in relieving the symptoms uncomplicated malaria, it was safe and inexpensive and was thus retained as the first line therapy for malaria. By 1991 failures had dramatically increased and included cases of RIII resistance. The MoH recognised that there was an urgent need to revise the guidelines for the management of uncomplicated malaria. A technical committee was established for this purpose, largely dominated by researchers. While this committee met several times over the following four years, it was not 1995 that it was decided that new guidelines could not be produced without first resolving the issue of chloroquine resistance (by this time over 50% of studies had defined chloroquine failure according to day 7, day 14 or RI/RII/RIII definitions. This compared with a failure of 20% of studies on amodiaquine by day 7 or 14. Similar studies on SP showed no resistance).

The frequency of chloroquine failures in the country was unclear and the few studies from selected sites in Siaya and Kilifi Districts were not geographically representative of the whole country. Researchers who were members of this committee were asked to provide a summary of the evidence of chloroquine resistance to date. There was some reluctance on the other parts of the MoH to change policy as alternatives to chloroquine were considered to have a higher incidence to side-effects and were at the time more expensive. Also significant at the time was that the WHO has been critical of Malawi regarding their change in first line therapy to SP and a view was expressed by some that pharmaceutical companies may have a vested interest in the change to SP. In a meeting organised by UNICEF on epidemic preparedness in the same year, District Medical Officers of Health expressed their dissatisfaction with chloroquine as an effective therapy. Nearly 80% reported that their therapy consisted of chloroquine followed by SP. A summary of parasitological failures following chloroquine treatment was presented to the committee which demonstrated failures of 56% by day 7 in Western Kenya, 72% at the coast and 61% in non endemic areas. On the basis of these results, the technical committee recommended that SP replace chloroquine as it had a simple single dose regimen and by this time had a relatively low cost in comparison to other alternatives. However, the concern was that parasitological markers alone were not consistent with the growing trend towards measuring drug resistance by clinical indicators. In addition, unpublished data from Siaya District Hospital indicated that patients treated with chloroquine experienced a mortality rate of 20% compared to 4% of those treated with SP. There was also a lack of consensus regarding the appropriateness of the tests due to the study populations and inclusion criteria used. Subsequent studies were carried out in symptomatic populations recruited as outpatients. However, this had an element of selection bias as many of the patients did not visit hospital outpatient departments unless other drugs tried at home, failed. Furthermore, many of these tests were carried out with small sample sizes.

²⁹ Shretta R, Omumbo J, Rapuaoda B, Snow RW (2000). Using evidence to change antimalarial drug policy in Kenya. *Tropical Medicine and International Health* 5(11): 755-764.

At this juncture, the MoH were persuaded by AFRO to carry out sensitivity studies based on the new protocol. They provided a consultant to train the national team on these methods. Results of the first series of tests conducted in Kisumu indicated that 85% of children under 5 years had a poor response to chloroquine treatment. These represented a turning point in the consensus between the research and control community to change from chloroquine to SP. This change was endorsed by WHO in 1997. A new committee was formed with wider representation from implementers, research institutions, the Essential Drugs Programme and the National quality Control Laboratory to consider the implications of implementing the new policy. They recognised the difficulties of implementing sub-national policies. It was decided that a national policy would be the easiest option. However, results of a new study in Turkana revealed failure rates to chloroquine of only 7%. The guidelines thus recommended that SP would be the treatment of choice in “areas where malaria was chloroquine resistant” but continue to be used in “areas where malaria was chloroquine sensitive”. This made the choice of drug ambiguous given the limited coverage of the sensitivity data, which was later revised.

The second committee has little dialogue with other members of the MoH including the Executive Board, the Pharmacy and Poisons Board, and the committee comprising Provincial Medical Officers who oversaw revisions to essential drugs nor with providers of antimalarial drugs to the informal sector. This led to delays in the official launch of the guidelines and revisions to Essential Drugs Kits providing the public sector. Due to ineffective communication of research evidence and its implications for public health to those involved in policy implementation, several PMOs maintained that chloroquine was still an effective drugs and that they would continue to use it. Furthermore, SP had to be available in the peripheral levels of the formal and informal health sector. However, in 1998, SP was a prescription only medication (POM) and could therefore be dispensed only by qualified and registered medical and pharmacy staff, including community health workers. The Malaria Control Unit approached the Chief Pharmacist to deregulate the POM status in 1998, which was gazetted in October 1999. The status of chloroquine was changed to POM. Discussions with the Medical Supplies Coordinating Unit redesigning the essential drugs kit to support every level of the public health service.

Six years after the call by the MoH to review the scientific evidence of chloroquine failure, draft guidelines were issued. Guidelines were officially issued in 1998.

Although SP was de-regulated regarding its POM status, it still remains a Part II (Schedule IV) poison. Thus manufacturers may not legally supply it to unlicensed premises, thereby limiting its accessibility in shops which are a major source from which treatment seeking for malaria occurs³⁰.

³⁰ Mwenesi H (1994). The role of drug delivery systems in health care: the case of self-medication. *African Journal of Health Sciences* **1**: 42-48.

3.8.1 The current supply situation

Public sector delivery of sulphadoxine-pyrimethamine through the essential drugs programme is presently dependent on bilateral funding from the Department for International Development. In 2000, DFID provided 18 million (doses or tablets) of SP some time ago, under the provision that 20 % should be set aside to cater for malaria epidemics. As the rain season approaches and after unexpected heavy rains in January with increasing number of cases in the highlands, this buffer can not be traced. It seems to have been used up as part of the routine system, as the MoH allocation has not come forward, due to problems in the procurement process. Seasonal increase need to be estimated, in order for resources for antimalarials to be secured. In 1997, 1998, and 1999, the MoH requested for "emergency" supplies of supplementary antimalarials from DFID which were provided. With the introduction of KEMSA, it is expected that the districts and facilities will plan, budget and manage drugs and supplies. Support will therefore be needed to assist KEMSA and the health facilities adapt to their new roles.

This outlines key lessons for the development of antimalarial drug policies:

- Efficient surveillance systems
- Effective communication between researchers and policy makers
- Open dialogue between key stakeholders for the early preparation of antimalarial drug policy change
- Involvement of all relevant stakeholders
- Developing consensus agreement on evidence often requires stakeholders not intuitively obvious to the process. Implementation involves many parts of the health sector and consultation must begin well before launching a policy revision.
- Involvement of district level staff to ensure implementation
- The need to strengthen collaboration between the MCU and the EDP

3.8.2 East African Network for Monitoring Antimalarial Therapies (EANMAT)

EANMAT was initiated by the three East African countries; Kenya, Uganda and Tanzania in 1998 with funding from DFID and subsequently joined by Rwanda. There are eight operational drug resistance sentinel sites. A continuous collection of data for SP takes place during each malaria season. Other drugs being tested are amodiaquine and lapdap (previously chloroquine). The National Malaria Control Programme Manager is part of the secretariat. Donor support to EANMAT is due to end in 2002.

3.9 Information, Education and Communication (IEC)

A priority area of malaria control is to create demand among the population at risk through the promotion of public awareness of malaria and the curative and preventative interventions available. DFID has supported the MCU in the process of developing a staged communication strategy, a long-term strategy and an interim stage. Educational Television Network (ETN), which has been commissioned to develop a malaria IEC strategy. The interim stage has begun to develop with the assistance of a private sector organisation, Mediae Trust. Communication materials to be used are newspaper articles, leaflets and radio soaps.

In the process of developing information leaflets in Kiswahili, comments from the MCU were not taken into account by Mediae Trust and the MCU is proposing to redesign simpler leaflets for wider distribution.

A longer term strategy is to be adopted ensuring common socially and culturally appropriate messages, while maximising the limited resources available and advocating for additional resources.

Initial work on the strategy will be developed and owned by the MCU with support from the ETN. Implementation will then be based on the strategy, by the engagement of potential partners, as identified in the strategy document. ETN will work closely with the MCU and the Division of Health Education.

The strategy will involve a review of existing strategies and information already available and coordinating research for gaps in present knowledge. A working group has been established to assist ETN. The Division of Health Education is planning to revive an IEC Working Group for all IEC within the Ministry.

3.9.1 Information for Malaria Control (Health Management Information Systems (HMIS))

Health information is required for effective planning by the MoH and districts for policy formulation, management, planning, budgeting, implementation, monitoring and evaluation as well as strengthening co-ordination. The central requires information on disease outbreaks, international community requires monitoring and evaluation of success of interventions to reduce mortality (RBM) and districts require information to assist with planning and implementation.

The MoH has moved towards strengthening the HMIS. In line with the National Health Sector Strategic Plan 1999-2004, a paper³¹ has been produced by the MoH to define the strategies and activities to be implemented. It outlines the need for decentralising the role of collecting, processing and using locally relevant information, before forwarding summarised data to national level. This above has resulted in a greater awareness of the policy change and encouraged the wider availability of SP.

3.10 Health seeking behaviour

In order to develop effective national strategies it is important to understand the treatment seeking behaviour of the population, including how they pay for their treatment. This will enable better communication strategies, targeted interventions and the creation of financing mechanisms to increase access to antimalarials.

A survey carried out in 1998 showed that 27% of mothers would take their children within 48 hours after fever begins. Only 18% treated malaria with recommended drugs. Often left-over drugs from the last illness episode are used. Mothers are not

³¹ Ministry of Health (2000). The Strengthening Of Health Information Systems towards Health Management Information Systems

counseled on the correct use of medications during consultations at health facilities.

About 90% of cases are first treated at home and approximately 50% are treated only at home. A study performed in Western Kenya in four schools showed that the few children who reported visiting a health centre as the first resort, prompt treatment is rarely available^{32 33}. Traditional healers and remedies are not commonly used except in some areas. Pharmaceuticals are used extensively and are usually given 2-3 drugs at home when fever and other symptoms appear. Caretakers either 'know' which drugs to give or they consult a pharmacy employee. Pharmacies are usually more conveniently located than health facilities and there is no wait time or consultation fee and thus present an attractive resort to care. Some diagnose and treat patients and some administer injections (illegally). Very few require prescriptions for any drugs even for restricted drugs such as antibiotics and quinine. There is often no trained person on the premises especially in the rural areas. About half of children suffering from fever are taken to some sort of health facility, usually 1-3 days after the onset of fever and after home treatment fails. There is fairly good access to a government or religious based facility. There are a large number of small private commercial clinics of varying quality. Private clinics play a large role in treatment. They are more conveniently located than larger government health clinics and have shorter wait times. They may also have more liberal payment plans.

Knowledge about malaria at the household level is generally low. Information is from health workers which depends on how much the health workers themselves knew. Given that many treatments may have been tried at home, a good understanding of the treatment history is necessary. However, this is usually not performed. Dosages are not adequately explained and most mothers cannot cite the correct administration of the drugs they have been given. When symptoms persist, patients and caretakers seek treatment at different providers every few days until signs of recovery appear. It is expected that therapies should work quickly. Multiple drugs are thus given with little cohesive case management. Treatment decisions are made primarily on the basis of short term cost calculations, but accessibility and confidence in treatment are also taken into account.

Shops sell a variety of commonly needed items, including pharmaceuticals. They provide a convenient source of basis drugs especially for rural residents who do not have ready access to pharmacies. Their prices tend to be higher than pharmacies since they do not buy in bulk. They tend to carry a limited number of antimalarials and a wider range of antipyretics. Their storage areas are often inadequate and vendors have no training on the use of the drugs.

³² Ruebush TK *et al* (1995). Self-treatment of malaria in a rural area of western Kenya. *Bull. WHO* **73**; 229-236.

³³ Nyamongo IK (1999). Home case management of malaria: an ethnographic study of lay people's classification of drugs in Suneka Division, Kenya. *Trop. Med. Int. Health* **4**; 736-743.

A study carried out in Bungoma in 1998 showed that 2 out of 3 of mothers who had children with fever in a health facility perceived their child to have malaria. 25% said that they did not know what their child had. Almost 40% has already been to this or another facility for the same illness episode³⁴.

While SP is increasingly becoming known and accepted among health workers and caretakers, when it is given, patients are not told that only the one dose of three tablets need to be taken and that symptoms will not be alleviated are quickly as chloroquine and that it does not have an antipyretic effect. Most medications are not labeled with a name or instructions.

In private clinics combinations are sometimes given e.g. CQ plus amodiaquine or CQ plus SP, CQ plus antibiotic. Quinine is also often given.

Less than 50% of shop owners give drugs in accordance with the National Malaria Guidelines. Less than 25% know the first and second line treatments for malaria. Most shop keepers sell drugs on request of patients and truncated treatments are sold depending on what the patients can afford. Single tablets of antimalarial drugs are sold as opposed of treatment courses. Drug shops rarely display wall charts or IEC materials for malaria.

The peripheral level and the community is where the burden of malaria is and these levels are the most important for interventions. All the components of the National Malaria Strategy have a community component within them, which at that level must be integrated in the basic health package. In many areas CHWs used to have basic drugs, but they no longer have these and their role is one of education. Training of CHW on case management at community level is not followed with a proper supply of the recommended drugs thus adversely affecting the practice of those trained.

3.11 Combination therapy

It is generally accepted that combination therapy has the potential to prevent the progression of resistance, however, which combination of drugs to in Kenya is not clear. Options being considered are amodiaquine/artesunate, SP/artesunate and lapdap, which is currently undergoing *in vivo* testing with EANMAT. More data on CT is required. Its usefulness in terms of lives saved must be demonstrated to policy makers.

Currently efforts to sensitise policy makers on the increased cost associated with replacement therapies including combination therapies and to seek methods of making these drugs more affordable to the population at large. Affordability is a major issue as it is unlikely that CT will be available at a cost of less than US\$1. As much of the expenditure for antimalarial drugs constitutes “out of pocket” expenditures, it is difficult to justify to households to pay at least ten times the cost of SP for a future benefit.

³⁴ BASICS (1998). *Care seeking for fever and convulsions in Bungoma District, Kenya: Implications for malaria programmes*. July 1998.

Whether CT will be adopted in Kenya will be decided as a result of two rounds of consensus building exercises. A sub-regional meeting organised by AFRO in April 2001 will appraise the options to consider which drugs may be potentially used as CT components. Amodiaquine is considered a possibility, however the MoH is reluctant to adopt it into the national policy until the toxicity profile has been re-assessed and the drug deemed safe to use for treatment.

The introduction of Combination Therapy requires a strengthening of health systems to promote rational use and the availability of a co-formulated product to avoid compliance problems. Microscopic facilities are not available at the health centre, dispensary, pharmacies and shops. While rapid diagnostic tests are useful, they are expensive costing the region of US\$1. Patients will be unwilling to pay the same amount for diagnosis as for treatment. These are some factors which need to be considered.

3.12 Resource requirements

It is difficult to define the total resources required to increase access to antimalarials. However, adequate supplies of antimalarials is a fundamental requirement to this objective. The National Malaria Control Strategy³⁵ has enumerated the resource requirements to supply antimalarials to the public sector in Kenya.

Cost of first and second-line antimalarials (FY2001/2)	US\$ 850,000
Cost of inpatient antimalarial drugs	US\$ 500,000
Upgraded microscopy capacity	US\$ 350,000
SP for Intermittent Presumptive treatment	US\$ 300,000

A crude analysis of the financial implication of combination therapy for uncomplicated malaria

Cost of using combination therapy for first and second line (e.g. Coartem (US\$2.40 per adult treatment cost)	US\$ 20,400,000
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The **total** recurrent budget allocation for essential drugs was US\$10.6 million during 1997-8. SP is considered to be a cheap, affordable drug. However, the government is not able to meet the demand for this cheap antimalarial in its public health facilities due to lack of resources. Replacement options will require an increase of 20-30 times in the resource allocation for antimalarial drugs. The deficit in resource requirement for purchasing a drug which costs in the region of US\$2.4 would be over US\$19.5 million; not within the current means of the government through recurrent budgetary allocation.

³⁵ MoH (2001). *National Malaria Strategy: 2001-2010*. National Malaria Control programme, Ministry of Health.

Mechanisms to make these replacements more affordable or to introduce subsidies or finance mechanisms must be sought to ensure that the populations at risk have adequate access to antimalarials to achieve the RBM goal of reducing mortality due to malaria.

3.13 Roll Back Malaria in Kenya

A ministerial launch of RBM and a public campaign took place in February 2000. However, in Kenya there is lack of clarity of the concept of Roll Back Malaria. The general view of stakeholders is that there is little evidence of direct support to the NMCP and that the RBM plan of action was not made with sufficient inclusiveness of the MCU in working within a common country level strategy³⁶. Insufficient technical advice has been provided on which drugs to use as replacement therapy and combination therapy³⁷.

The MOH expects major resources coming to Kenya from global initiatives. An example of a successful initiative quoted is the GAVI programme³⁸, which provided US\$ 650,000 last month for all districts to increase EPI coverage and introduce new vaccines (HepB and HiB). A similar response from RBM has not been noted.

However, some positive effects of the global and regional partnership are apparent. At the African Summit on RBM in Abuja, the Heads of State and Government of African countries pledged to allocate resources required for sustained implementation of planned RBM actions. In addition, the Heads of State pledged to reduce and waive taxes and tariffs for mosquito nets and materials. This latter pledge has been used in Kenya to provide leverage for action. Mechanisms to increase access to essential antimalarials need to be explored in the same way.

A number of RBM actions have taken place. They include:

- Guidelines on epidemic preparedness and response have been developed and are being implemented;
- Training of health personnel has been conducted in epidemic prone districts;
- Kenya has reviewed drug policy and has adopted SP as the first line drug;
- The Plan of Action for 2000 has been finalised and approved by partners;
- Ongoing strategy development of ITN and other interventions;
- Activities to implement a new antimalaria drug policy are in process;
- An ITN consensus meeting held in Nairobi in July 1999 managed by AMREF;
- Public advocacy has been identified as a key RBM strategy; and
- Communications strategy is under development with support from DFID.
- Targeted partner advocacy has included negotiations with DFID and USAID. It has been agreed that DFID will support communication strategy while USAID will support social marketing.
- The National Strategy for 2001-2010 will be launched in April 2001. Key partners involved in strategy development include DFID, UNICEF, USAID

³⁶ Interview with Dr Bob Snow, Advisor to NMCP

³⁷ Interview with MCU

³⁸ Interview with Dr Marinus Gotink, UNICEF

and the WB. The strategy outlines the key actions for the following ten years with the resource envelope required to carry out these actions.

3.14 Summary of barriers to access to treatment in Kenya in the public and private sector

Kenya's ability to increase access to antimalarials is constrained by several factors:

Financial equity and access

Patients have to pay high consultation fees to private providers in the peripheral areas which can be as much as Ksh.1000 (US\$14.25), in the absence of any other type of facility (governmental or informal shops). Often mothers will choose to treat their children at home with medicines left over from previous episodes or with anti-pyretics.

- Low salaries in the public health facilities force physicians and health workers to spend more time in their private practices and gives them few incentives to improve quality.
- User fees are a deterrent in referral centres and exemption mechanisms are poor.
- Although there is one social insurance scheme there is little competition. Other private schemes are available, however, are expensive.

Geographical access

- In rural areas health facilities and hospitals are often distant, roads are poor, transport is expensive and patients frequently travel by foot due to inadequate transport facilities. The Bamako pharmacies provided the mechanism for increased access however, many have closed down due to managerial problems and inadequate accounting systems for resources.

Quality of services in the public health sector

- Limited level of resources available to the MOH means that the quality of its services are poor.
- Inadequate incentives are offered to providers to offer quality service.

Inadequate of knowledge and irrational use

- Low knowledge of malaria diagnosis and treatment in the general population
- Inadequate provider knowledge of malaria treatment, both private and public
- Underdosing with drugs bought from shops leading to inadequate treatment and increase in drug resistance

Sub-standard drugs and practices

- Circulation of sub-standard drugs. Insufficient post-marketing surveillance

Allocation of resources

- Insufficient allocation of governmental resources to health essential drugs.
- An evaluation of expenditures between 1988 to 1993 demonstrates that while expenditures seem to have increased from 1988 to 1993 using current prices,

when translated into international dollars, the real value of expenditures actually fell from Ksh. 3,000 million in 1988-89 to Ksh. 1,800 million in 1993-4³⁹.



Drug management

- The allocation of personnel and drugs is centralised. Therefore, facility managers have little control over the allocation of the resources. However, with the introduction of KEMSA, it is expected that districts and facilities will manage and plan drug supplies.
- Inefficient drug procurement and management leads to shortages in the public sector
- Seasonal increases are not estimated thus leading to shortages

Regulation and legislation

- The status of SP as a Part II (Schedule IV) poison which limits its accessibility.
- Inadequate regulatory capacity

Organisation, management and supervision of health facilities

- Lack of supervision leading to poor practice and quality
- Inefficient collection of user fees

Diagnosis and prescription practices

- Inadequate diagnosis leading to overprescription of drugs, particularly in the private sector. This has led to an increase in drug pressure and treatment failures
- There is inadequate diagnosis in the remote areas due to unavailability of microscopes and trained staff

Partnerships and collaboration

- Insufficient collaboration of the MCU with the PPB

3.15 Strategies to promote access to antimalarials in Kenya

In Kenya, there is great potential for RBM to provide financial and technical input to support ongoing activity and to feed into the global strategy based on real problems of implementing malaria control in relation to increasing access to antimalarials in Kenya. In general, strategies must be devised to improve

- Drug distribution, effective systems of drug requirements, quality control, resistance monitoring and policy.
- Integration of good-clinical practice into existing CBHC and facility based health services to promote rational drug use
- Community awareness of malaria recognition and good home-management through appropriate IEC messages

³⁹ MSH/WHO/DAP. Financial Planning and Management in *Managing Drug Supply*, 2nd edition. Hartford, CT: Kumarian Press; 1997. Management Sciences for Health in collaboration with World Health Organization, Action Programme on Essential Drugs. Edited by Quick JD, Rankin J, Laing RO, O'Connor R, Hogerzeil HV, Dukes MNG and Garnet A.

- Appropriate operational research toward optimal delivery of prompt and effective case management.
- Affordability of antimalarials by fostering partnerships for reducing cost of therapies and for alternative finance mechanisms
- Geographical access to antimalarials through partnerships with NGOs and community based organisations by contracting out of services in areas not covered by public health facilities

The strategies can be divided into technical, health systems support, financial/resource mobilisation, advocacy, IEC, management/administration, drug management, building partnerships and capacity building. These fall under the broad divisions selection, procurement, distribution, use and management support of the drug management cycle.

Technical

- Direct support to the NMCP through timely technical advice and guidance on drug selection, cost-effectiveness
- Establishment of technical support networks to provide support when demanded
- Support in developing an overall malaria control strategy that is consistent with the National Strategic Health Plan
- Support in revising the guidelines in view of recent knowledge.
- Develop a forum for the dissemination of relevant research to guide practice. (e.g. the Bungoma District Initiative funded by USAID illustrated importance of shops and vendors in supplying antimalarial drugs as well as their role in providing health information to mothers and a study carried out in Kilifi has shown that shopkeepers training can influence the compliance of consumers⁴⁰).
- Provide support for quality assurance of antimalarials through the NQCL to ensure that counterfeit and poor quality drugs do not compromise case management and lead to a more rapid development of resistance. Post-marketing surveillance to all drugs in the informal sector. Increased collaboration between the NQCL, MEDS, MCU and PPB should be encouraged. NQCL and MEDS should provide timely action to the MCU, NMCC and PPB for action against sub-standard or counterfeit drugs.
- A lack of effective surveillance data related to actual needs for disease management and control will result in shortages, inappropriate use of drugs and a lack of confidence in the formal sector of health service delivery. There is a need to strengthen surveillance systems and ensure ongoing support to EANMAT if needed
- Determine the size of the clinical burden at selected community pharmacies
- Support the MCU to create methods and models to calculate and forecast the public sector requirement for first-line drug to provide realistic estimates of drug requirements
- Support for operational research for Combination Therapy.
- Support local production of antimalarials

⁴⁰ Marsh, V (2000). Changing the management of malaria by training shopkeepers in Kenya.

- Provide technical support to pharmaceutical companies when needed and provide guidance on Good Manufacturing Practice to ensure that local production complies with international standards
- A working group on antimalarial drug policy should be formed under the auspices of the NMCC with collaboration with relevant stakeholders to review the findings from EANMAT and make recommendations as well as address drug access.
- The MCU should be represented at PPB meetings to ensure adequate technical advice in relation to appropriate formulations, packaging and dosing are in concert with national policy.

Advocacy

- There should be greater interaction between the MCU and PPB should ensure adequate legislation of drug use to allow access to first-line therapy through the informal drug sector. Of urgency is the need to change the status of SP as a Part II (schedule IV) poison so that manufacturers may supply shops where over 50% of treatment seeking for malaria occurs
- Advocacy with the pharmaceutical industry to develop new affordable antimalarials for developing countries and to create differential pricing schemes for African countries

Drug Management

- Support to the newly formed KEMSA to begin an efficient procurement and distribution system.
- Increase geographical access to a source of antimalarial drugs. This may be by achieved by forming partnerships with NGOs, Community Organisations, and other peripheral organisations.
- Create “pharmacy franchises” by contracting out of services to the private sector in remote areas not covered by the public or NGO sector.

Financial and Resources

- There is a need to define the resource envelope required for the MCU for the procurement of drugs in the public sector
- Additional resources need to be brokered nationally by increasing the national expenditure for essential antimalarial drugs and internationally to create subsidies for antimalarials to Africa
- Funds should be available to enable effective support of the MCU and MoH to create efficient drug management mechanisms
- While funding is key, it has to be made available in innovative ways. Without extra funding or more funding through the old ways of disbursing, the past has shown that the average patient will not benefit in a major way.

Affordability

- The NHIF is a major potential source of revenue, however, it is not being tapped because of cumbersome claiming procedures and because NHIF refuses many claims due to minor submission errors. Support needs to be given to shift a larger share of financing of health services to NHIF so that governmental resources can be re-directed to the funding of drugs.

- Creation of other insurance schemes to compete with NHIF and the more expensive “exclusive” public insurance schemes.
- Mechanisms for community financing of drugs through community organisations

Information Education and Communication

Increased demand means increased supply. At the periphery there are inadequate information structures. Knowledge on drugs is poor. There is a need for strengthening the public information campaigns within the framework of the national health communications strategy. Often, information is provided as a response to political pressure (epidemics), or driven by private industry, through advertising. The MCU needs to provide appropriate and timely information to guide the media, with responsible information transfer and focus on the recognised strategies for malaria control.

- The communication and information technology requirements need to be defined
- Guidelines are still not adequately distributed to all health facilities. Health workers at all levels need to be supplied with guidelines to promote rational prescribing in concert with the treatment guidelines
- There is a need to promote collaborations between the MCU and the pharmaceutical industry to address joint IEC messages
- Information on drug resistance to be made available to the public through various communication channels.
- Increasing awareness to the community
- Information needs to be provided to health providers and shop-keepers to improving dispensing practices
- Partnerships should be forged at the district and community level for education and skills building
- Local IEC schemes (religious and youth groups) should be initiated and supported.
- Partnerships between the MCU, the MoE and the Kenya Institute of Education should be strengthened to support District Education Officers and other groups. The NMCP programme to feed into the school curriculum development.
- Promotion of coordination and sharing of IEC expertise and tools with NGOs.

Partnerships

Partnerships should be formed to broker for additional resources and to share skills for delivery of effective malaria case management and to increase access to drugs.

- Possible areas sub regional collaboration should be examined (e.g. EANMAT)
- IMCI is an important partner for the MCU and links should be strengthened. IMCI has a considerable role in better case management, strengthening health systems and in reducing the barriers between the poor and service providers. There is a need to harmonise malaria case management with the IMCI guidelines and to ensure that new developments in these areas have a strong malaria component and resources are effectively used

- Increased collaboration with Reproductive Health Programme for the management of malaria in pregnancy.
- The dialogue between partners including departments within the MoH and the many donor partners is often fragmented and uncoordinated. There is an isolation of the research community from MoH and donor-funded NGO activities operate within a policy vacuum. While the NMCC is trying to bridge these gaps, the links need to be strengthened.
- There is a need to integrate the malaria control strategy in the district work plan. Planning and implementation should involve local communities groups and authorities, peripheral health workers, drug vendors and community based organisations.
- Lessons can be learned from “Delivery”, a USAID funded project (in earlier days known as the family planning logistical unit). The programme has managed to set up an efficient logistical system, but clearly it has been donor driven and managed.
- The private sector is not keen to form partnerships with the MoH. However, there are opportunities for collaboration. Lessons can be learnt from the area of ITN production and demand creation. Nairobi has major pharmaceutical (SP) producers, fully able to provide quality products in sufficient quantities. As the window of opportunity of SP is getting smaller, other products can be manufactured as well. Increased collaboration with the pharmaceutical industry ensures that there will be adequate supplies of antimalarials and that the drugs manufactured are in concert with the national policy. In addition methods to explore ways to provide antimalarials to the rural areas through “risk sharing” can be explored. Early consultation with the pharmaceutical industry during the change from CQ to SP would have ensured early consultations with the PPB to deregulate SP, so that it may be made available in the peripheral health sector. Collaboration of the MCU and PPB with the local pharmaceutical industry has the potential to create an enabling environment and to facilitate implementation of the national malaria control policy objectives.
- Peripheral health workers, CHWs, TBAs, drug shop owners, community groups and community-based organisations all have key roles and will need support and access to information.
- There is a need for increased collaboration of the MCU with EDP and MSCU/KEMSA. The partnership will advise on the procurement, packaging and distribution.
- Partnerships with private sector manufacturers and distributors need to be forged for wide-scale national advertising. Also, public/private partnerships with multinational companies may be formed for IEC sponsorships at sports events, radio, television spots etc.
- Partnerships with other charitable organisations e.g. Rotary International to promote awareness and malaria control activities and IEC.

Management and administration

Support for implementation of the antimalarial drug policy is needed. However, this support should be directed to sustainable development rather than short-term responses to late demands. In the long-term, the drug management system should

be strengthened to avoid leakages of drugs from the public facilities into the private sector (indirectly increasing access).

- Support in planning should be provided to define the priority areas and advocating for support to fill in resource gaps (developing indicators, methods of supporting district level activities and other specific technical areas)
- The central MCU needs a clearer definition of its roles and responsibilities.
- Support is required to ensuring that malaria case management forms an integral part of a comprehensive district-health work plan.
- Administrative and financial support is needed to ensure that funds can be identified and flow smoothly to Provinces and Districts with open levels of accountability. This will be especially important to manage increased resources to districts.

Drug management

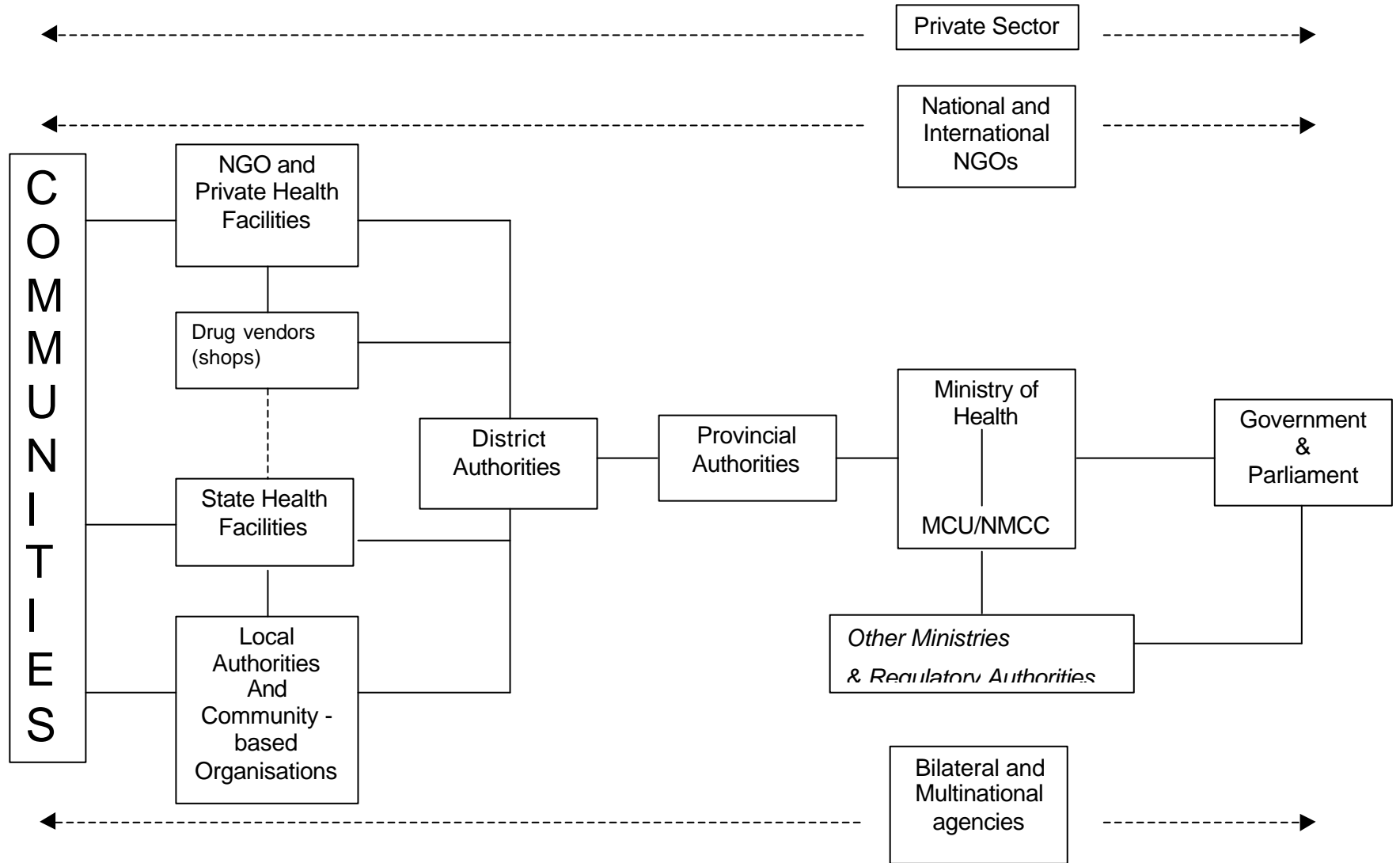
- For a more sustainable use of funds, support should be provided to develop the system of drug management rather than directly fund drugs. The demand for SP is still limited, thus reducing the benefits to the local manufacturers in supplying the drug to the periphery.
- Appropriate antimalarials should be distributed to health facilities.
- The size of the burden needs to be determined to calculate and forecast actual needs for disease management to avoid shortages and inappropriate use of drugs
- Management support is required to promote efficient distribution and to avoid “leakage” of drugs from the public sector.

Capacity Building

- There is a need to work with districts, community groups and NGOs to build capacity at lower levels including communities.
- Capacity building for decentralisation of activities to the district level and to integrate it with other activities is required.
- There is a need to define the training needs at the central and district levels and implement a training plan.
- The MCU should work with partners within the MoH and the mission and NGOs sectors to ensure that adequate support and resources is provided for in-service training of CHWs nurses, clinical officers and clinicians in the national guidelines for the management of malaria.
- The MCU should ensure that pre and in-service training curricula for medical and para-medical personnel to ensure consistency with national malaria policy.
- There is a need to support the MCU and Provincial Medical Officers to develop trainers to build capacity for clinical management, supervision and continuing education at lower levels.
- Community initiatives and participation in case management should be supported.
- The MCU does not have the capacity to introduce and implement large scale training programmes or curative services and the provision of services directed towards the reduction of malaria in pregnancy. The provision of these services

lie with other more appropriate departments of the MoH and through NGO partnerships.

Figure 2. Overall framework for malaria control in Kenya



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4 Cambodia

4.1 Background

Malaria is a significant cause of mortality and morbidity in Cambodia. In 1998, 147,077 new cases of malaria were diagnosed and treated at public health facilities. The actual numbers of malaria cases are much higher as most individuals seek treatment in the private sector. It is estimated that 500,000 cases occur annually. In 1995, malaria and fever accounted for a quarter of outpatient attendances (42% in highly malarious areas), 6% of hospital admission (over 30% in malarious areas) and 15% of reported deaths (over 50% in endemic areas). About two million of the country's 11.4 million population are at risk. The worst affected are the ethnic minorities, temporary migrants, settlers in forested areas, plantation workers and others who live in the country's hilly forested environments and forest fringes.

60% of the land-mass in Cambodia is thinly populated, remote forested and hilly areas with malaria transmission with little or no access to the formal public health system. 95% of the population live in rural or urban non-malarious areas but 17% are dependent on the forests for additional income. Much of the population at risk are those associated with forest and forest fringe. These include individuals seeking firewood, ethnic minorities, rubber plantation workers, gem and gold miners and soldiers and security forces.

The annual number of recorded cases increased by 90 percent from between 1996 and 1998. The increase in reported cases is attributed, not only to improved case detection, but also to other problems. Health services are still weak and there are large-scale population movements as the country undergoes social stabilisation following decades of warfare. Outbreaks occur in the refugee camps or resettlement areas. In the west and south-east of the country severe multi-drug resistant *P. falciparum* is present. Other constraints include poor staff motivation due to poor salaries, inadequate skills and training, inadequate access to the most endemic areas (Preah Vihear, Koh Kong) due to lack of transport and communication and the reluctance of medical personnel to work in these areas.

The economic burden due to the disease is considerable nationally due to drug costs and at the household level as the majority of treatment occurs in the private sector, which is often expensive. Widespread poverty within the malaria risk groups has led to initial under dosing followed by dramatically increased cost of treatment due to progression of the disease often leading to death. Importation of antimalarial drugs is uncontrolled and there is a high incidence of "fake" drugs on the market.

Cambodia began implementing a National Malaria Control Programme since 1992 in accordance with the global malaria control strategy. Several partners, including EC, WHO, World Food Programme, UNHCR, EC-Humanitarian Office,

UNICEF, UNESCO, a number of NGOs and government agencies outside the Ministry of Health support malaria control.

Cambodia is involved in the Mekong RBM Initiative established in March 1999. The initiative's goal is to reduce malaria deaths by at least 50 percent of the 1998 level and to substantially reduce malaria morbidity by the year 2010. A key strategy to achieving this goal is to improve case management and increase access to antimalarials in the country.

Due to the only recent achievement of fragile political stability following over 20 years of war, Cambodia has been the subject of widespread external influence. Some of the consequences of political unrest included destruction of health facilities, lack of access to many parts of the country leading to an inequitable distribution of health services and widespread poverty.

In 1989 and 1990, external assistance to Cambodia ended abruptly leading to critical shortages particularly in essential drugs. The 1990's were marked by a period of rapid increase in the number of external agencies. The number of NGOs increased to about 100 in health alone. Between 1993 and 1996 the health budget increased from US\$3 million to more than US\$27 million and external aid to the health sector went from US\$35 million to US\$46 million.

Overall health expenditure in Cambodia per capita is about US\$26. Of this US\$20 is household spending⁴¹, US\$5.5 is spending by donors/NGOs and US1 from the government. Government expenditure represented 0.35% of the GDP in 1998. Households are thus the greatest contributors to health costs in Cambodia. It has been estimated that US\$12 is required to deliver an essential health package of health services in a functioning health system. US\$20 is considerably more than most households can afford to pay for health. Approximately 45% of the population have to borrow money to pay medical bills for an inpatient case.

There is a gap between official budget allocation and actual expenditure particularly in the rural districts. Approximately one-third of the provincial budget is available for running costs. Sector Wide Approaches (SWAs) are being introduced to manage donor funds by previously agreed health policies and strategies, although implementation of these activities have not yet commenced.

⁴¹ *National Health Statistic 1998*. Ministry of Health, Kingdom of Cambodia

Table 10: Basic Statistics and Economic Indicators

Total Population (million) (1998)	11,426,223
GDP (US\$millions)	2937.5 (310 per capita in 1999)
GDP growth (%)	7.0
Income per capita (1998 est.) (US\$)	252
Under 5 mortality rate	181
% of population with access to health services (rural/urban)	25/80
Total public expenditure on health as a percentage of GDP	7.2%
Public expenditure as percentage of total expenditure	9.4
Annual national budget devoted to health (US\$ per capita)	
Planned Expenditure	1.53 1.08 ⁴²
Annual household expenditure for health (US\$ per capita) (1997)	20 ²
Annual donors/lending agencies contribution to the health sector (US\$)	5.5

Source: World Bank (1999). *World Development Indicators*, World Bank, Washington, DC (except where otherwise specified).

Overall health sector funding in Cambodia absorbed 12-13% of GDP in 1996-7.

4.2 Health Care Infrastructure and health sector reform

Due to the high dependence on external sources for support of the health budget, external influence on health policy is high. The Ministry of Health Planning Unit has developed an effective mechanism for guiding health sector development by coordinating inputs through the Coordination Committee for Health (CoCom).

Among the health priorities for the period 1998-2000 was to extend rural health care services, reduce the burden of malaria, improve public health services, ensure an adequate supply of essential drugs to the health system and encourage the full participation of private and public sectors in the delivery of health services, establish appropriate regulatory frameworks⁴³ and expand key

⁴² *National Health Statistic 1998*. Ministry of Health, Kingdom of Cambodia.

⁴³ *Health Sector Reform Phase III project 1998-2000*. Ministry of Health, Kingdom of Cambodia.

national health programmes such as malaria through better disease management.

There is a huge growth in the private sector, largely unregulated for price and quality, leading to higher household expenditures and undermining the government efforts to build up the public sector. Access to essential public services in the rural areas is poor as only 30% of the planned services have been established. There is a sense of uncertainty in using public facilities due to uncertainties in the fee structures and whether they will receive essential services.

The location of health facilities is based on the Health Coverage Plan 1996. The plan outlines the establishment of a primary level infrastructure to provide a Minimum Package of Activities (MPA), a Health Centre (HC). HCs are managed by newly created Operational Districts that cover a population of between 100,000 and 200,000 and are also responsible for providing a Comprehensive Package of Activities (CPA) in Referral Hospitals. A provision has been made for community involvement through management committees.

The Health Coverage Plan of the Health Sector Reform Plan involves strengthening the district health system to develop the physical infrastructure and staffing by allocating resources based on equitable geographical access to basic health and referral services rather than administrative boundaries. In addition, the Ministry of Health is working closely with the Ministries of Finance and Planning to address extra-sectoral constraints including salaries for staff.

The reform development activities also include increasing the capacity of provincial health directorates and improving planning, management and budgeting of district health services, developing and testing implementation methods involving the private sector and managed markets and developing human resources in the health sector.

As a result of the health care reforms, financing reforms have provided a legal basis for the introduction of user fees in public health facilities (see Health Care Financing below). Budget reforms have resulted in increased responsibility to decentralised Budget Centres and access to the budget are being improved using the Accelerated Development Districts (ADD) initiative, the Priority Action Plan (PAP) and increasing the level of resources available for service delivery. Organisational and management reforms include commissioning and contracting arrangements. The ADD initiative allows for a direct release of funds for selected accelerated districts for development. Management training of mid-level managers has been completed and guidelines have been developed for the implementation of organisational and financing reform. Health centres and hospital have received training for MPA and CPA application.

Many of these initiatives have been supported and implemented with the help of foreign and local non-governmental partners in the health sector. There are over 90 NGOs operating in Cambodia, providing a wide range of clinical, managerial and financial, services.

The health sector reform group has developed indicators to assess the impact of reform on access, equity and health costs. A district based primary health care system has been implemented involving UNICEF and other donor agencies and the urban health project has been implemented for poor urban communities using the approved provider scheme where campaigns to use the services of select private providers are out in place.

Preparations to implement the Sector Wide Approach (SwAp) are also underway, where the MoH has direct responsibility for implementation of the activities and management of funds.

Much of the public sector has been marked by poor conditions, limited drug supplies and unavailability of staff as inadequate salaries forced them to spend time on additional jobs. Government salaries are about US\$15 per month. The average monthly expenditure in Phnom Penh is as high as US\$262 and US\$80 in the rural areas⁴⁴. Consequently, most government health workers have additional private practices and to charge informal payments in public health facilities. There is a disincentive to improve these facilities so as to promote their private work. The poor quality of services in the public health facilities has led to underutilisation and an ineffective use of government resources. Drugs and supplies in these facilities are unreliable thus increasing the use of the formal and informal (unlicensed) private sector pharmacies. Many public sector staff have small private units of one or two beds in their homes or retail outlets. Treatment conditions are inadequate and there are problems with polypharmacy due to a perceived need to compete with the private health sector⁴⁵, excessive drug consumption and irrational drug use. Although the private sector is growing rapidly, there is a need to regulate its quality. There is legislation for inspectorate functions for regulation, although this is not fully operational. In 1998, 2000 illegal pharmacies were found to be in operation.

One of the objectives of the national reform programme is to increase budgetary allocations to health and to improve disbursements to the provinces and local levels. Discussions have focused on the high price of essential drugs, the need to improve salaries while upgrading skills and increasing motivation, the adoption

⁴⁴ Ministry of Planning (1997). Cambodia Socio-economic survey 1996-1997, Ministry of Planning, National Institute of Statistics, Kingdom of Cambodia.

⁴⁵ Wilkinson D, Holloway J, Fallavier P. 2000. Findings from the Evaluation of User Fees, Categorized by Evaluation Objectives. *Draft Study to Evaluate the Impact of User Fees on Access, Equity and Health Providers' Practices*. Phnom Penh, November 2000.

of performance indicators for the health sector, improved monitoring, and the implementation of regulatory procedures.

While awaiting national fiscal reforms, the Ministry of Health has launched a number of initiatives design to increase government's financial support for health and to close the gap between budget and actual allocations. Under a new budget approach, the Priority Action Programme (PAP), a district is supposed to receive advanced payments with the obligation to account later.⁴⁶ Encouragingly, there is evidence that these efforts to narrow the gap are beginning to have an effect. ADD allocations for 1999, for example, were 100% accessed.

4.3 Health Care Financing

The Health financing Charter (HFC), developed by the MoH in cooperation with the Strengthening Health Systems (SHS) project, provides the legal framework for testing different health financing mechanisms, like user fees, prepayment, contracting and public-private mix. The HFC provides guidelines on the development of fee systems such as planning and community needs. Every scheme is required to include an exemption mechanism to protect the poor. 99% of the revenue is kept on location to improve the quality of health care and staff motivation. Over 50 projects are being piloted under the guidance of the MoH Health Economics Task Force (HETF). An initial assessment indicated that cost recovery in public facilities is effectively capturing a large proportion of previous "informal fees" for improvement of service quality.

Two major budget reforms have been piloted to address "leakage" of funds at the provincial level and to transparency in the level and timing of funds. The Accelerated District Development (ADD) program, was established in 1996 while the Priority Action Program (PAP) began on a pilot basis in September 2000.

There are three main sources of financing of the health sector in Cambodia: government (through budgetary allocation), donors and household out-of pocket expenditures.

4.3.1 Government

This accounts for only 5% of total sector financing. In 1999 the total MoH expenditure amounted to 1.1% of the GDP⁴⁷ (US\$19.9 million) or US\$2.85 per capita⁴⁸ (an average of 1.9% of GDP is spent for health by governments of least developed countries⁴⁹)

⁴⁶ Ministry of Health, "Health Situation Analysis 1998 and Future Direction for Health Development 1999-2003", October 1999.

⁴⁷ World Bank (1999). *World Development Indicators*. World Bank, Washington, DC.

⁴⁸ Ministry of Health. 2000b. "Cambodia's Health Sector Performance Report 2000." Phnom Penh: Ministry of Health (November)

⁴⁹ World Bank, "World Development Report 1993: Investing in Health", 1993.

4.3.2 Donor

Donor funding contributes to 8-12% of total sector financing. This includes official aid (ODA) and direct NGO financing. Donor funding is channeled to the health sector through the state budget or in the form of direct budgetary support to the Ministry of Economy and Finance (MoEF). Total donor funding amounted to 1.8% of the GDP in 1996⁵⁰. A major problem is that allocation of resources is biased to the capital where relatively few of the poor live. Funding is channeled through NGOs and there is a general lack of coordination of funds.

4.3.3 Household or Out-of-Pocket Expenditures

Out-of-pocket expenditures constitute 82-84% of total sector financing. The percentage of household expenditure directed to health care in 1997 was 10.9%⁵¹. Clearly households, indeed poor households carry the majority of the burden in financing health care in Cambodia as health needs of the poor are greater than those of the rich for two reasons as they are more susceptible to infectious disease due to living conditions, poor nutrition and lack of education.

4.3.4 Other Private Sources of Funding

Employers

Large employers are required to provide health facilities for their employees on-site. While some provide minimal health services most do not meet this requirement. Some employers reimburse health care costs directly to their employees.

Insurance

There is no social or public insurance in Cambodia. Some private health insurance is available but this covers very small numbers. There are many barriers to the expansion of private health insurance in Cambodia. It is difficult for health insurers to form groups in which risks can be effectively pooled and from whom premiums can be easily collected. Private health insurance requires effective governmental regulatory capacity in many areas. Furthermore, it is expensive and relatively few Cambodians can afford it.

Community-based risk-pooling schemes have attracted some attention in Cambodia. A French NGO based in Phnom Penh (GRET) has been operating a prepaid health care plan in Kandal province since 1999. The programme pays fixed cash benefits for a specified set of conditions (death, critical surgery in the torso, caesarian delivery, delivery with forceps and suction etc.). The collected premiums currently cover a fraction of the project cost. Donor funding provides the balance.

⁵⁰ The World Bank. 1999a. "Cambodia: Public Expenditure Review." Volume Two: Main Report. Poverty Reduction and Economic Management Sector Unit, East Asia and Pacific Region. Washington, DC: The World Bank (January 8).

⁵¹ Ministry of Planning. 1998b. "Report on the Cambodia Socio-Economic Survey 1997." Phnom Penh: National Institute of Statistics.

4.3.5 Pre-paid Health Plans

There are some pre-paid plans available from private clinics to cover outpatient treatment of a limited number of problems.

Table 11. Treatment sought by households reported ill during the past 30 days by type and socio-economic status, 1998⁵²

	Socio economic status (defined by assets)				Total
	Poor	Below average	Above average	Better off	
Public providers	14.6	17.5	21.7	28.4	20.0
Private providers	29.3	35.8	43.7	46.8	38.7
Self-treatment	27.0	26.3	21.5	15.0	23.2
No treatment	21.8	16.2	9.4	8.0	14.0
Total	100.0	100.0	100.0	100.0	100.0

Table 12. Average expenditure on an outpatient treatment, by type of provider 1997⁵³

Provider	Cost of a single visit (Riel) ⁵⁴			
	Consultation	Drugs & supplies	Transport	TOTAL
Local (khum) clinic	37,960	33,390	2,508	73,858 (\$21)
District health center	22,663	2,052	2,634	48,349 (\$14)
Provincial hospital	28,553	56,603	6,013	91,279 (\$26)
National hospital	84,639	59,096	5,891	149,626 (\$43)

4.3.6 User Fees

In 1996, prior to the introduction of official health financing schemes, households spent 51% of their health expenditure in the public sector and 49% in the private sector (HCDS 1996) confirming that although a formal fee structure did not exist, unpredictable informal fees were being charged in the public sector, leading to decreased utilisation of these facilities.

Formal user fees were first introduced into public health facilities in 1997, following approval of the National Health Financing Charter (NHFC)⁵⁵ in 1996

⁵² Ministry of Health. 1999. *National Health Survey 1998*. National Institute of Public Health. Phnom Penh: Ministry of Health (July).

⁵³ The World Bank. 1999. *Cambodia: Public Expenditure Review*. Volume II: Main Report. Poverty Reduction and Economic Management Sector Unit, East Asia and Pacific Region. Washington, DC: The World Bank, January 1999.

⁵⁴ US\$1=3500 Riel in 1997

⁵⁵ MoH (1996). *National Charter on Health Financing in the Kingdom of Cambodia*. Recommended by the

with the objectives of revenue generation, improvement of service delivery including better drug management and supply through provider incentives and the suppression of informal fees. Facilities that want to introduce formal fees must conform to certain conditions, including having exemption mechanisms for the poor. Many facilities have begun to implement cost sharing through pilot schemes. The total user fees collected through approved programmes amounted to US\$1,057,978 in 1999⁵⁶.

Health facilities are permitted to retain 99% of the revenue collected from user fees. 1% is remitted to the Ministry of Economy and Finance, 49% is used to increase salaries of health workers and for 50% is used for other institutional needs. Facilities are authorized to set their own fees according to local market conditions. Some facilities collect payments in advance and operate on a voucher system, while others permit payment by installment. Sliding fee scales are used by some facilities, while others operate total exemptions to promote equity. Management committees are comprised of representatives of the community, local leaders and Ministry of Health staff. The committee manages and makes decisions on the operation of services and the use of funds raised. Except for acute emergencies, the fee in primary care levels is less than in the referral centres.

An evaluation of the impact of user fees on demonstrated that utilisation of health centers by the poor has improved following the introduction of user fees⁵⁷ with some improvement in quality of service provision. This appears to be due to improved staff attendance and the greater availability of medicines as incentives are effectively tied to hours and performance. Consumers are clear about what how much they will be expected to pay. Most health centers use a significant portion of their user fee revenue to purchase additional medicines, thus increasing access. User fee schemes have also helped to form partnerships between health facilities and the community through management committees.

User fees however, have become a barrier to access by the poor to referral hospital services. Exemption mechanisms function well at the health center level but not at referral hospitals. Most hospitals do not advertise the existence of exemptions, hence the public are not aware of the availability of the exemption. Furthermore, staff in the referral hospitals discourage the use of exemptions for

participants, Conference on Financing Health Services 5-9 Feb, 1996. Ministry of Health, Kingdom of Cambodia.

⁵⁶ MoH (2000). *Introducing User Fees at Public Sector Health Facilities in Cambodia: An Overview*. Health Economics Task Force, Cambodia MOH/WHO Health Sector Reform Project Phase III. Phnom Penh: Ministry of Health, September 2000.

⁵⁷ Wilkinson D, Holloway J, Fallavier P. 2000. Findings from the Evaluation of User Fees, Categorized by Evaluation Objectives. *Draft Study to Evaluate the Impact of User Fees on Access, Equity and Health Providers' Practices*. Phnom Penh, November 2000.

the poor. Often, the poor have resorted to selling assets or borrowing at high interest rates for inpatient treatment fees.

4.3.7 Contracting

The management of health care in five operational districts is being either “contracted in” (i.e., an NGO is contracted by MOH to *manage* the existing public health system) or “contracted out” (i.e., an NGO is contracted to provide health care using its own staff and management system) under the Asian Development Bank’s Basic Health Services Project.

Contracting Health Services Pilot Project

The Contracting Health Services Pilot Project (CHSPP) was developed under the Ministry’s Basic Health Services Project, with funding support from the Asian Development Bank and involves contracting arrangements with four NGOs. Two contracts are “contracted out”, where the NGO is completely responsible for implementation and management of health services in a selected Operational District (defined by the MoH to include one referral hospital and health centers). Three contracts are “contracted in”, where the NGO will manage the MOH staff within an Operational District. All contractors are committed to achieving a defined level of health services and health services coverage within their Operational District by the end of the four-year contract.

While early results for contracting-out are encouraging⁵⁸ contracting-in is having little success.

Medicins Sans Frontieres in Sotnikum

The MoH has contracted Medecins Sans Frontieres (MSF) to manage a pilot project in Sotnikum, a poor rural area. An increase in wages is exchanged for better service including respecting official working hours. To manage the system the hospital has obtained semi-autonomous status and the staff has elected a hospital management committee. The effort is being funded from increased patient fees (20%), an increased and more reliable state budget and funding by MSF (20%).⁵⁹

Other Initiatives

- Swiss Red Cross: strengthening the provincial hospital in Takeo
- WHO/UNICEF: strengthening district health services targeting the populations of Battambang, Kandal, Siem Reap, and Svay Rieng provinces.
- the Boosting proposal⁶⁰ designed to upgrade the performance of other operational districts by supporting improved financing, wage incentives with stronger supervision.

⁵⁸ Fronczak, N. *Description and Assessment of Contracting Health Services Pilot Project Basic Health Services Project*, MOH, Kingdom of Cambodia, November 1999..

⁵⁹ MSF (1999). *Toward a ‘New Deal’ for Health Staff in Cambodia*. Medecins Sans Frontieres November 1999.

⁶⁰ MoH (1999). *Boosting the operational district and coverage plan. A Ministry of Health strategy for*

4.3.8 Equity funds

Equity funds are designed to finance the cost of care provided to poor persons receiving exemptions and are being planned by NGOs and other donors in several locations (e.g. Phnom Penh, Siem Reap, Takeo).

4.4 The Essential Drugs Programme (EDP)

An essential drugs list (EDL) was launched in 1986 modified from the WHO EDL consisting of about 200 drugs. A Central Medical Store (CMS) was constructed in 1991 with financing from UNICEF. Although the Essential Drug Program (EDP) already existed within the MoH, no real activity was done in this area.

After the liberation from Pol Pot regime, from, all hospitals in Cambodia were supplied with essential drug kits by UNICEF and other donors. In 1993 KfW, (German reconstruction bank), Asian development Bank and the World Bank stepped in to finance the drug need in Cambodia. The EDL was revised as the budgets available did not cover the need. (total annual requirement=US\$7 million; national budget for 1993=US\$1 million; KfW =US\$2.5 million, ADB+WB=1.3 million). Currently the annual requirement for essential drugs and medical consumables amount to approximately US\$ 17 million while the government contribution for drugs has increased to US\$12 million (partly due to increased tax revenue from VAT⁶¹). Thus the deficit covered by donor funding is US\$5 million.

Table 13. Contributions for Essential Drugs in Cambodia

	US\$ (millions)
Total requirement for essential drugs	17
Governmental contribution	12
KfW	3
WB and ADB	1.5
JICA (vaccinations and ED)	0.4
UNICEF	0.2

The Essential Drugs Unit of the Department of Drugs and Food is in charge procurement and to collaborate with the WB and KfW as well as other donors for the tender process using their budget. In 1993, the Strategy of Drug Supply according to a quota system was established and published to all hospital pharmacists countrywide. Training on Drugs supply strategy was also started in some provinces. In 1996 this Strategy was revised to adapt to the new Health Sector Reform.

accelerating financing and reform of health service delivery at provincial and district level, Health Sector Reform Project Phase III, Ministry of Health, Cambodia, September 1999.

⁶¹ Value Added Tax

UNICEF's contribution to the EDP was through the construction of the CMS, financing, supervision and monitoring of drugs from the central unit to the provinces, providing incentives to the ED bureau and the CMS staff, financing of emergency ED and vaccines, training on supervision, management and rational drug use, education through the mass media (TV, radio, posters etc.).

The forecasting of the basic drug need for the whole country is done by the EDP according to the need estimated by the lower levels. The national programmes send their annual requirements to the EDP. The list is split into different lists according to the available budget. Priority is given to TB, Malaria and STD/AIDS. A maximum of 8 average monthly consumptions (AMC) are permitted for the quarterly supply and 12 AMC for six-monthly supply.

Drug needs for malaria are determined by the CNM based on epidemiological data. The pharmacy department of the CNM instructs the CMS how much of each drug to distribute to each province and issues instructions on how the drugs should be divided up within the province and sent out to the districts. Drugs are supplied on a quarterly basis based on slide positive cases in the corresponding months of the previous year. It is assumed that 10% of all slide positive cases in the district hospitals have severe malaria.

There is only one authorized source for the supply of drugs (in addition to the donors) through a monopoly petroleum company, Sokhimex. This contract has replaced government supply. Due to financial problems, few suppliers in Cambodia are willing to provide credit to the government. Hence through a decision by the Prime Minister, Sokhimex was awarded the government contract. KfW run a tender through their consultant in Germany and WB-ADB has a joint procurement unit within the MoH. Where there are shortfalls in the supply of drugs, emergency supplies are financed by WHO, EU and other donors. with consequent inflation of prices (but with improved availability, as compared to the past). However, this problem is currently being addressed, and competitive procurement of drugs is gradually being introduced.

The Drugs Regulation Bureau is responsible for regulation in accordance with the national drug policy. All outlets selling drugs are required to have a license from the MoH, however, there are about 2-3000 illegal drug stores in operation.

All drugs are required to be registered in Cambodia. The fee for registration is US\$400. However, due to cumbersome procedures, nobody bother to register them. Weak regulatory structures do not allow for enforcement of this requirement. Practically any drug can be bought from pharmacies and drug shops.

There is one local manufacturing company, Cambodian Pharmaceutical Enterprise (CPE). CPE is a new and joint venture with the Government

Manufacturing Plant in Cambodia. They manufacture over 26 essential drugs including chloroquine. There have been small supplies to the MoH by CPE.

At present, reform of the pharmaceutical sector is under progress to improve the efficiency in the provision essential drugs and consummables and planning capacity has been strengthened including better coordination of support from external agencies and NGOs. Cambodia is now in phase III of the Sector related Programme for Health (SPH) Phase I and II (DM 8.2 million and DM 5 million) were for the financing of drugs. In Phase III, DM 1 million is available for supervision, monitoring and rational drug use, recently contracted out to a German company. KfW and WB-ADB discontinue their support to the programme next year.

A quality control laboratory has been established and equipped through funds from WHO (WPRO) and RBM. Some testing of drugs has begun.

4.4.1 Counterfeit drugs

A major problem in Cambodia is the availability of counterfeit or “fake” drugs. The River Mekong allows for extensive trafficking from Vietnam and Thailand. A survey in 1999 showed that there was a high presence of fake drugs on the Cambodian market. ‘Chinese’ artesunate costs four times as much as ‘Vietnamese’ artesunate. The cheaper product often contains no artesunate. Similarly fakes of mefloquine have been found on the market. These drugs undoubtedly pose a major risk to malaria patients. The MoH plans to inform the public using the electronic and print media. Tracing producers across international borders will require international cooperation.

4.5 The National Malaria Centre (CNM)

The National Malaria Centre (CNM) of the Ministry of Health has been implementing the National Malaria Control Programme (NMCP) in Cambodia since its re-establishment in 1984 as a specialised institute of the Ministry of Health at central level. Until the 1990s the programme struggled to provide services in the war-torn west of the country. Since then increased logistical and external support has enabled the programme to develop activities throughout the country. The programme has trained provincial and district level malaria workers in the diagnosis and treatment of uncomplicated and severe malaria and produced various health education materials. Currently, it is trying to extend diagnosis and treatment to the commune level.

While the National Malaria Programme is a vertical programme it is decentralised administratively with responsibility for activities assigned to provincial and district health committees⁶². There is a malaria supervisor in all relevant provinces, but only in some districts.

⁶² Malaria Control Policy and Plan of Action 1993-1995, Draft, CNM.

The CNM has four departments: prevention and health education, diagnostics, treatment and epidemiology and operational research. Major supporters of malaria control are the European Community Project (European Union), DFID, WHO, World Bank, KfW and AusAid as well as other NGO general health projects. The WB malaria project has a low implementation rate due to cumbersome procedures.

The CNM also covers other vector borne diseases such as dengue and schistosomiasis. The CNM develops and executes the nation-wide malaria control strategy. Malaria control at the district level and below is fully integrated into the general health services since 1993. While this has obvious advantages, staff are overloaded with other responsibilities.

Implementation of reforms in the health sector have modified the role of the CNM from one centrally directed training, supervision and logistics and finance to being the centre of technical expertise and consultation, with increasing financial and management operations being the responsibility of the provincial and district teams. A provincial malaria supervisor is responsible for coordination of events in the provinces and the solving of problems with the support of the CNM.

Integration with other disease control and health promotion programmes is encouraged by the CNM provided it falls within the framework of the ongoing health system reform. Intensified collaboration with the Essential Drugs Programme, MCH, IMCI, school health and PHC programmes is being stressed by the CNM.

4.5.1 Partnerships⁶³

The Cambodian National Malaria Programme and the WHO malaria control projects are currently collaborating with the following partners:

⁶³ Adapted from WHO/CNM (1998). *Malaria Control Project Annual Report July 1997-December 1998* to the Department for International Development HMG United Kingdom by the World Health Organisation in collaboration with the National Malaria Control Programme, Ministry of Health, Kingdom of Cambodia.

Table 14. Within the Ministry of Health

Partner	Activity
Intestinal Helminth Programme	Malaria ACD and distribution of ITNs with Mebendazole
Dengue Control programme	Joint management of resources (staff and vehicles)
Schistosomiasis control programme	Joint missions
EPI programme	Measles vaccination, distribution of vitamin A, mosquito net distribution programme to minority groups
Leprosy programme	Screening for skin lesions, mosquito net distribution programme to minority groups
Health Systems Reform	Joint development of GIS system and improving diagnostics and treatment practices
Integrated Management of Childhood Illness	Integration of malaria and dengue fever in IMCI protocol, collaboration in improving diagnostics and treatment practices

Table 15. With other Government ministries

Partner	Activity
Ministry of Defense Royal Cambodian Air Force	Malaria epidemic control in Khmer rouge defector villages, medical evacuation of severe malaria patients
Ministry of defense Army (RCAF)	Training for treatment of severe malaria in military hospitals
Ministry of Education (MoE)	Health curriculum for school children
Ministry of Finance (MoF)	Joint accounting procedures for WHO/World Bank malaria project, interaction for imports of supplies
Ministry of Defense Royal (Camb.) Navy	Malaria control on Cambodia's islands

Table 16. With International Agencies

Partner	Activity
WHO	Support to CNM Strengthening district health services (Battambang, Kandal, siem Rep, Svey Rieng)
World Bank	Social Marketing of hammock nets Support to Essential Drugs Programme Support to CNM
European Commission	Technical collaboration and partner coordination (WHO project) Research
ECHO (EC Humanitarian Office)	Malaria epidemic emergency relief
UNHCR	Malaria prevention in returnees
WFP	Logistics in malaria epidemic emergency relief (malaria outbreaks with famine)
UNICEF	Malaria epidemic emergency relief (bednets) Strengthening district health services (Battambang, Kandal, siem Rep, Svey Rieng)
DFID	Support to CNM
UNESCO	Health curriculum for school children

Table 17. With Non Governmental Organisations

Partner	Activity
International Federation of the Red Cross	Malaria epidemic emergency relief (nets and insecticide donations)
CESVI (Italian NGO funded by ECHO)	Malaria epidemic emergency relief (donation of bednets)
Partner for Development (PFD)	Integrated malaria/helminth control outreach activities
Youth with a Mission (YWAM)	Integrated malaria/helminth control outreach activities
Lutheran World Services (LWS)	Malaria epidemic prevention (epidemic control and net distribution)
Medecins du Monde (MDM)	Integrated malaria/helminth control outreach activities
Action Contre de la Faim	Integrated malaria/helminth control outreach activities
Medecins sans Frontiers (MSF)	Clinical studies on severe malaria (artemether vs. quinine) Contacting services
World Concern	Integrated malaria/helminth control outreach activities

United Community of Cambodia (UCC)	Malaria epidemic prevention and control (MDA and nets)
CIDSE Cambodian NGO	Integrated malaria/helminth control outreach activities
Health Unlimited	Construction of health posts and bednet distribution
Catholic Relief Services (CRS)	Malaria epidemic prevention
Care International	Integrated malaria/helminth control outreach activities
Caritas	Construction of health posts and integrated outreach activities
Swiss Red Cross	Severe malaria treatment Strengthening provincial hospital in Takeo
Centre of Hope Hospital	Severe malaria treatment
Non Forest Timber Products (NTFP)	Construction of health posts and integrated outreach activities

Table 18. Collaborations with foreign universities or other institutions for professional training

Partner	Activity
London School of Hygiene and Tropical Medicine	Post graduate training Consultants in collaboration with EC project
ACT malaria	Training courses
Mahidol University	Post graduate training
University of Munich	Collaboration in the social marketing of hammock nets
TDR	Planned research capacity strengthening grant
Antwerp Institute of Tropical Medicine	Entomological research funded by EC

Table 19. With neighbouring countries

Partner	Activity
Thailand	Malaria prevention among refugees
Vietnam	Testing of mosquito net impregnations, planned collaboration on GIS
Laos	Joint meetings with above three countries within EC project

Table 20. With the media

Partner	Activity
The Cambodia Daily (Newspaper)	Fund-raising through weekly mosquito net drive

4.6 Antimalarial drug policy

Treatment guidelines are based on the results of *in vivo* efficacy testing based on the simplified WHO protocol taking into consideration drug cost and stocks, side-effects and patient compliance. Training from monitoring of resistance monitoring was carried out with other Mekong countries. The Pasteur Institute has recently set up an *in vitro* resistance monitoring unit.

There are eight sentinel sites for *in vivo* testing of antimalarials. These are supported by the EU Malaria Control project (technical support), CNM (logistical support), and WHO (financial support). Four sites are studied every year, alternating annually. Chloroquine is monitored in the northeast where resistance is low, mefloquine, mefloquine/artesunate, quinine/tetracycline and artemisinin have all been studied periodically elsewhere. In addition there are three fixed *in vitro* sentinel sites.

In order to determine the current efficacy of the drugs used for treatment the National Malaria Center began actively monitoring efficacy each year from 1991 to 1999. High levels of resistance to chloroquine and SP in parts of the country led to major concerns in the choice of treatment of clinically diagnosed cases at the peripheral levels.

Although seven days of quinine and tetracycline was efficacious, there were potential side-effects and compliance was low. There was a reluctance to introduce mefloquine in areas with no microscopy due to the potential rapid development of resistance with uncontrolled use. Furthermore both these treatment cost twenty times more than chloroquine.

Mefloquine was gradually introduced at the district level where diagnostic facilities were adequate, in an effort to increase the use of district health facilities. Strategies to improve diagnostic capabilities were discussed and guidelines for treatment were widely distributed. Microscopes at the district level were provided in the early 1990s by CNM with support from the WHO/DFID project and the NGO Action Internationale Contre de la Faim together with staff training. Malaria microscopy was integrated with TB microscopy. A few health centres with high volumes of clinical malaria were also equipped. Significant levels of mefloquine failures were observed within two years of introduction. This rapid development of resistance was attributed its unofficial availability at the Thai/Cambodian border due to introduction in Thailand in 1984, as well as the dose used which was 15mg/kg instead of 25mg/kg.

In 1996, following *in vivo* tests, chloroquine was still found to be effective in the northeast. As it had considerable advantages in that it is safe, cheap with few side effects, it was retained as the first line treatment in the northeast at all levels with the second line treatment at the hospital and health centre level being mefloquine.

In the northwest, tests were carried out in 1996 to assess the efficacy of artesunate 100mg daily for 5 days combined with mefloquine 20mg/kg as a single dose so that it may replace Q7T7 as first line which will subsequently become second-line (in vivo tests carried out in 1995 using 2 days of artesunate and a single day of mefloquine were found to be disappointing). Due to potential problems with compliance to Q7T7, in the remaining provinces (Central, North and South) the recommended first line treatment became mefloquine 20mg/kg as a single dose with Q7T7 as second-line pending the results of in-vivo tests of artesunate and mefloquine.

In eastern Cambodia, *in vivo* tests showed that sensitivity to chloroquine decreased from S+S/RI= 77%; RI=20%; RII=3% in 1992 to S+RI =66%, S/RI=24%, RII 6%, and RIII=3% in 1999. SP showed a similar pattern. The sensitivity of quinine/tetracycline (Q7T7), mefloquine and mefloquine/artesunate remained 100% from 1991 to 1999.

Based on these results, and studies from Thailand^{64 65} as well as lobbying by key partners (WHO, EU, MSF) at drug resistance meetings, the National Malaria Programme decided to introduce combination therapy nationally in order to facilitate the simple standard treatment in the whole country. In March 1999, the first Roll Back Malaria Mekong Project meeting was held in Ho Chi Minh City. The meeting recommended that all antimalarial treatment should be based on proper diagnosis of malaria by high standard microscopy wherever available. Wherever this is not available, the rapid dipstick test must be used. The second-line treatment was Q7T7 and chloroquine is used to treat *Plasmodium vivax* and *Plasmodium malariae*. The decision to change to the combination was well accepted and no other options were evaluated. Part of the reason for this was lessons learnt from Thailand, but also because existing stocks of both drugs were available.

In the event that blood slides are not possible, presumptive treatment would be given on the basis of clinical diagnosis with follow up laboratory confirmation. Health Centres that did not have laboratory facilities would be trained to use the Parasight dipstick test prior to malaria treatment.

The National Malaria Control Strategy was launched in March 1999, however new drug distribution did not begin until July 2000.

Potential problems associated with non co-formulated combinations were anticipated and it was decided that the combination of mefloquine and artesunate (or artemether equivalent) should be introduced in a pre-packaged blister. However, many technical difficulties arose initially due to problems with finding a

⁶⁴ White N.J. and P.L. Olliaro, *Strategies for the prevention of antimalarial drug resistance: rationale for combination therapy for malaria*. Parasitology Today, 1996. **12**(10): p. 399-401

⁶⁵ White N.J., *Preventing antimalarial drug resistance through combinations*. Drug resistance updates, 1998. **1**: p. 3-9

company to package the product. There was no pharmaceutical company in Cambodia willing or able to package the drugs adequately. Due to customs regulations as the drugs were already present in Cambodia and language barriers it was difficult to package the drug in another country and re-imported into Cambodia. With support from WHO a blister packing machine was bought. Miscommunications with the MoH led to delays in customs clearance of the machine however it was finally housed in the CMS.

The combination was packaged according to international standards of Good Manufacturing Practice (GMP) and registered. The combination was the first drug to be registered in Cambodia. The initial distribution of the pack was supported by CNM after which they were delivered through the existing integrated delivery system. Public health staff were trained in the new treatment guidelines and diagnostic procedures. The new pre-packaged therapy is also being used in the public health system through community health care providers. It was found that utilization of facilities increased with the use of the dipsticks.

A pilot programme to socially market the product in the private sector as Malarine[®] with the dipstick test for use in the private sector has just been completed. The acceptance of the pre-packaged product and diagnosis using the dipstick test has been found to be high. Mechanisms to scale-up these activities are being discussed.

The Parasight dipstick tests cost about US\$1 per test, considerable more than microscopy. However, at health centre level, patient load is insufficient to maintain good microscopy. Given that a treatment course of both mefloquine and quinine cost in the region of US\$1.5-2, most of the costs of dipstick tests are offset by savings on drugs. Furthermore quality of care is improved and drug pressure is reduced. The cost of the pre-packaged combination is US\$2 and limited quantities have been found in the private sector selling at prices of US\$2.50.

Due to high donor funding, the cost of mefloquine for use in the combination was not considered an issue, however, there are plans to investigate the production of artecom (a Chinese quadruple combination) following satisfactory results from *in vivo* assessments planned by the EU in Cambodia.

A lot of interest has been generated from the pre-packaged combination. Several multinational companies are keen to form partnerships for the production of the paediatric formulation of this combination. A possible public/private partnership may be formed among WHO/TDR, Mepha, CNM and CPE. Other possible partnerships are with Novartis either to locally pack their combination of artemether/lumefantrine or to supply the Cambodian market at reduced prices.

At present, all the public health facilities have supplies of the pre-packaged combination, but not in sufficient quantities. A request to WB for antimalarials resulted in the supply of artemether instead of artesunate. Additional supplies were obtained from WHO and IFRC.

The annual requirement for antimalarial drugs is currently about US\$0.5 million with US\$0.5 million for the dipstick.

4.7 Social Marketing of Pre-packaged Combination Therapy⁶⁶

A project to distribute pre-packaged courses of mefloquine and 3 days of artesunate to improve the availability and affordability of adequate diagnosis and first line treatment was designed. An officially promoted brand name (Malarine[®]) has the potential to reduce confusion arising from the availability of different named drugs. Furthermore, the project had the potential to improve knowledge among populations at risk, improve knowledge among drug vendors and health providers, create consumer demand for correct treatment, improve compliance improve standards among providers and establish a monitoring system from drug consumption. Drug vendors and clinic operators are selected according to certain criteria. Initially those located in strategic locations (in villages, close to the forest) and with some educational background were selected. A franchise agreement was offered. The vendor is provided with identification material such as promotional posters, package dispensers and a start-up supply of free packages and tests. A retail price of R9,000 is charged for the course, which includes a margin of R1,000 as the franchiser's margin. The prepackaged drugs were sold on the basis of a positive dipstick test available for US\$0.55. A negative result may mean the presence of *P. vivax* and presumptive treatment with chloroquine is given. A daily monitoring form is required to be filled in by the franchise holders.

4.8 Access

Access refers to availability (adequate health care), acceptability (tied in to health seeking behaviour), accessibility (geographical access) and affordability (financial access). Availability and acceptability are discussed in the context of health seeking behaviour.

4.8.1 Accessibility (geographical access)

Currently only 55 per cent of the total population has geographical access to primary level facilities and only 73 per cent of these primary level facilities are able to provide MPA (The Health Coverage Plan defines geographical access as being within 10 km or a two-hour walk of a health centre⁶⁷). Thus

Only one-third of Cambodians currently have physical access to effective services.

Those that are the most disadvantaged are the rural poor who tend to live in areas with low coverage.

⁶⁶ Rozendaal, J (2000). *Pre-packaged antimalaria drugs project: rationale, design and evaluation*. ECCMP, Phnom Penh, Cambodia.

⁶⁷ MOH (2000) *Cambodia's Health Sector Performance Report: based on National Level Indicators for Monitoring and Evaluating Health Sector Performance*, Ministry of Health, Kingdom of Cambodia.

Some studies to extend selected outreach services from the health centre to communities are being piloted by the MoH together with some NGOs. In addition, piloting of health posts in low-density areas has begun. These activities have to a small extent increased physical access to government health facilities.

The cost of travel to facilities and language difficulties of the ethnic minorities are other factors limiting access.

4.8.2 Affordability (financial access)

Households carry the greatest financial burden for supporting Cambodia's health care system, with out-of-pocket payments accounting for over 80% of annual per capita expenditures for health. Households spend an average of US\$22 per capita per year, representing about 10% of annual household expenditure.⁶⁸ A single outpatient visit including drugs to a health centre can take up one-third of all non-food expenditure for a year for those in the poorest quintile. Health expenditure surveys show that households spend an average of US\$22 per capita per year, representing 82 per cent of the total health budget, and up to 28% of annual household expenditure. In a recent study, 50% of respondents reported that they had to borrow money to pay for treatment of their last illness episode⁶⁹. Families often need to sacrifice other necessities, sell off assets to raise the needed funds or borrow money at prohibitive interest rates.

The MoH together with GTZ is currently embarking on operational research to study affordability and access in three health centres in one district (Kompong Thom Province).

4.8.3 Health seeking behaviour and acceptability

Before 1996, although, malaria treatment and diagnosis in the public sector was free, the vast majority of the population preferred private vendors and practitioners, traditional healers or self-treat at home with drugs bought from shops.

They frequently choose unqualified private providers, and display a preference for medications in the form of injections and infusions as compared to cheaper oral tablets. They are strongly influenced by private providers in their choice of treatments, and there is evidence that many private providers take advantage of their ignorance to prescribe unnecessary and costly treatments. Cambodians preference for private over public health providers increases with both income and education (Ministry of Planning 1999). Several reasons are attributed to this: private providers are typically more flexible about payment arrangements, often permitting clients to pay in kind or by installment. This can be an important

⁶⁸ MoH (1998) *The Demand for Healthcare in Cambodia*. National Institute for Public Health and Research, Ministry of Health, Kingdom of Cambodia, 1998.

⁶⁹ National Public Health and Research Institute (1998) *Demand for Health Care in Cambodia: Concepts for Future Research*. Phnom Penh: MOH/WHO/GTZ

consideration when credit markets do not function well, as in Cambodia. Private providers are often more conveniently located, and their hours of service are typically more convenient. Additionally, private providers are almost universally reported to treat their clients more courteously.

Social surveys carried out in 1999 in select villages confirmed that less than 10% of patients visit public health facilities to obtain the first line of treatment for malaria. Inadequate doses of antimalarials are prescribed and sold. The dose of the medication is determined by the ability to pay. Quinine is often used, again in inadequate doses. The private practitioners are medical practitioners, nurses, midwives and traditional medicine specialists however often have no training at all. In general, they have a low understanding of malaria treatment and use inadequate doses of drugs but use frequent infusions including hydrocortisone. Too many medications are prescribed frequently on the basis of the colour and there is the belief that an injection is better than an oral medication. Vendors have various sources of information but a generally poor understanding of the use of antimalarials. They sell inadequate doses of quinine and tetracycline and often make up the cost by selling vitamins and steroids.

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In some areas it is estimated that only 10-20% use the public sector as their first line of treatment. A study carried out in 1993 showed that 42% of patients sought treatment at the market, 34% from traditional healers, 16% from the public sector and 4% from clinics. As a result much of the investment in training and improvement of facilities will not have a direct and immediate impact. The Ministry of Health is considering ways to make the public sector more competitive. At the same time, the popularity of the private sector and the fact that it does not need to be supported by the government health budget are strong arguments for encouraging improved quality and activity in this sector.

4.9 Information Education and Communication (IEC)

The National Centre for Health Promotion (NCHP) is the principal health promotion unit within the MOH. However its actions are limited by financial and human resources. campaigns. While some technical support is being provided by a number of external agencies (UNFPA, WHO, ADRA, UNICEF etc), it has been focused on vertical health promotion campaigns. Furthermore, many programmes develop their own IEC material in isolation from the NCHP. A working group has been set up, however, attendance is low. IEC and health education advancement during have been generally slow and only partially effective.

Eighteen partner agencies have been identified and are proving to be a strong support to the health education programme. This collaboration should continue to grow. IEC training programmes in malaria and DHF were carried out at CNM with support from WHO, NCHP and AusAid.

The Health Education Department was formed in 1995 and has had an important role in supporting the CNM to respond to private and public needs for health education in malaria through social marketing, materials development and health education training.

CNM, in co-operation with the NGOs and with the support of major partners, has the ability to co-ordinate an effective IEC campaign and health education system. Partnerships with NGOs have been beneficial in this area as NGOs have the ability to field test materials and advise on non-formal health education requirements most appropriate for their communities.

However, some materials are produced in isolation from provincial public health staff and field staff, which leads to IEC materials which are predominantly based on literacy and use illustrations which are inappropriate for use with the minority and migrant groups for which they are intended.

4.10 The public/private mix

In Cambodia, as in most other countries, there is growing awareness that the public and private health sectors are inextricably linked. While there is a significant imbalance in health financing, with private sources far outweighing public sources, the roles of the two sectors overlap in objectives, planning, human resources development and service delivery. There is a growing recognition that government is not able, on its own, to meet all the health needs of the Cambodian people and the role of the Ministry of Health is beginning to change.

The overlap in the roles of the public and private sector is shown in the table below:

Table 21. Public/Private Mix in Health Financing and Provision in Cambodia⁷⁰

	Financing	
Provision	Public	Private
Public	Free government clinics and hospitals. Prevention of communicable diseases	Government services with co-payments or user fees. Government services supported by donors & NGOs
Private	NGO or private services paid by government contract, subsidy, or social health insurance scheme.	Private hospitals, clinics, and pharmacies paid out-of-pocket or by private health insurance. Direct services provided & financed by NGOs.

Most of Cambodia's experience in health provision and financing lies in public financing/public provision and private financing/private provision. There is limited experience of public financing/private provision and several pilot projects are currently underway for private financing/public provision where the MoH has contracted-in NGOs to operate or manage the delivery of MPA and CPA in selected operational districts. However, these are currently at the pilot stage and are funded largely by donors and NGOs.

Two projects to engage the private sector are underway: the Contracting Health Services Pilot Project sponsored by the Asian Development Bank and the project in Sotnikum supported by Medicins Sans Frontieres (section 3.3.7 on Contracting).

4.11 Roll Back Malaria in Cambodia

The programme manager of the National Malaria Control Programme and the WHO medical officer are spearheading the RBM movement. A national RBM meeting with key partners was held in Sihanoukville in August 1999. Under the leadership of the Cambodian Government, joint planning of support to RBM is already taking place among all external partners.

Roll Back Malaria is building on, expanding and improving the existing malaria control programme resulting in a significant reduction of malaria mortality over the past few years. The operational strategies and the Plan of Action are the result of discussion between the partners:

⁷⁰ MoH/WHO (1999). *Private participation in Health. Strategies for developing a public/private mix in health services delivery in Cambodia*. Report prepared by Taylor Associates International for the MoH/WHO Health Reform Phase III project, December 1999.

- WHO has provided consistent support to the CNM and has been instrumental in ensuring funding levels are maintained and in developing partnerships with NGOs.
- WHO has focused on the strengthening of CNM for national malaria control.
- CNM and WHO, in support of the Roll Back Malaria initiative, are currently collaborating with 18 NGOs throughout Cambodia who are making concerted efforts in the areas of emergency relief, integrated malaria control outreach activities, clinical studies, construction of health posts, health education and severe malaria treatment. Collaboration between CNM and NGOs is being established in order to cover the risk areas more effectively without unnecessary duplication of activities and resources.
- WHO and GTZ are providing support to the National Institute of Public Health.

4.12 Summary of barriers to access to treatment in Cambodia in the public and private sector

Cambodia's ability to increase people's, (especially the poor) access and utilization of good quality essential health care services is constrained by geographic and financial limitations. Furthermore, the poor tend to use governmental health services much less the middle and upper-income groups.

Financial equity and access

- In both urban and rural areas, user fees at public facilities are being introduced. Unfortunately, user fees have not always eliminated informal fees resulting in double charging in some cases. Where double charging occurs, or where exemptions are granted sparingly, the poor may not be able to afford treatment. For the urban working-poor, long waiting times at public facilities can mean lost earnings.
- Exemption mechanisms are inadequate especially in referral centres. Hospitals do not advertise the existence of exemption mechanisms. Providers have no mechanism to be reimbursed for any fees and discourage exemptions. The inability of government to respond has led to an escalation of fees in the referral centres even further.
- Low salaries thus health workers find other means to earn the income ("informal fees" and deferring patients to their private practices) they need to survive.
- There is no social insurance scheme or other affordable health insurance schemes. Many of the social financing needs have been based in urban areas in and around Phnom Penh.

Geographical access

- Cambodia's predominately rural agricultural population is widely dispersed with a few large urban centers. In rural areas health centers and hospitals are often distant, roads are poor, and patients frequently travel by foot due to inadequate transport facilities.

- There is a high incidence of malaria and mortality among non-immune forest workers. The malaria transmission areas are remote resulting in difficult access by the risk populations to the public health system.

Quality of services in the public health sector

- Limited level of resources available to the MOH means that the quality of its services are poor.
- Inadequate incentives are offered to providers to offer quality service

Inadequate of knowledge and irrational use

- Low knowledge of malaria diagnosis and treatment in the general population
- Inadequate provider knowledge of malaria treatment, both private and public
- Underdosing with drugs leading to inadequate treatment an increase in drug resistance

Sub-standard drugs and practices

- The private sector is marked by irrational prescription practice
- There is a high circulation of counterfeit drugs.

Inadequate allocation of resources

- Resources are allocated on infrastructure rather than health need or ability to pay

Inefficient drug management

- The allocation of personnel and drugs is centralised. Therefore, facility managers have little control over the allocation of the resources.
- Inefficient drug procurement and management leads to shortages in the public sector
- Purchase of expensive drugs leading to inadequate quantities due to a lack of open competition in drug procurement and supply (monopoly suppliers to the government)

Regulation

- Registration processes for drugs are tedious therefore, most people do not bother and there are inadequate regulation procedures
- Unlicensed pharmacies with inadequately trained staff lead to irrational practices

Organisation, management and supervision of health facilities

- *Lack of supervision leading to poor practice and quality*

Diagnosis and prescription practices

- Inadequate diagnosis leading to overprescription of drugs, particularly in the private sector. This has led to an increase in drug pressure and treatment failures
- There is inadequate diagnosis in the remote areas due to unavailability of microscopes and trained staff (due to low salaries).

4.13 Strategies to improve access to antimalarials and the role of RBM

There are major opportunities for partner coordination and to develop interaction of public and private sectors to increase access to antimalarials.

Counterfeit drugs

- Technical assistance is required for inter-country collaboration, action and regulation of illegal importation of sub-standard drugs
- While RBM has assisted in the establishment of the national quality control laboratory, support to the facility should be continued

Drug management

- Drug procurement and supply should be carried out by open tender. To increase transparency and to benefit from economies of scale, procurement can be contracted out to a procurement agency (e.g. Crown agents or IDA) or to an international agency (e.g. UNICEF)
- Create efficient systems of forecasting of drug requirements through (technical advice from WHO-Essential Drugs and Medicines and Management Sciences for Health).

Geographical Access

- Private vendors are capable of providing a valuable service to the community in places where formal health provision is poor or lacking. With training, support and supervision, the capacity of drug vendors to give health education could be improved and provide a source of information to customers regarding new medicines. The strategy to include the private sector should be based on a two-way information exchange rather than an authoritarian emphasis on regulation and control
- Local midwives and TBAs hold positions of trust in the minority communities and, in areas far from formal health provision, are the channel most often chosen by pregnant women for birthing. They understand the beliefs and speak the language of the people, and therefore represent an important health provision resource for delivering presumptive intermittent treatment.
- IMCI could be a very cost-effective means of supporting both malaria control and health sector development, if the approach develops the system strengthening component of IMCI by ensuring an enabling working environment at peripheral health facilities and effective supportive supervision beyond training. IMCI could be introduced more rapidly if there is adequate sectoral support.
- Franchising of commercial outlets for malaria treatment
- Strengthen malaria treatment to the community level through partnerships with NGOs. CNM should provide technical advice and support to the NGOs who have good logistics and community mobilisation activities.
- Enhanced and co-ordinated efforts at service outreach and community-based health activities might be needed to counter widespread distrust of and limited access to static public sector services and to mobilise demand.

- Develop social movements with NGOs for marginalised risk groups (address language barriers)
- Expand contracting in and out of facilities to other operational districts through partnerships with NGOs. Lessons to build on scaling up of efforts

Financial access and affordability

- Establishment of social insurance
- Encourage private insurers. Proving an enabling environment for expansion of private sector insurance (thereby creating competition and potentially reducing cost)
- Community-based health insurance in Cambodia
- Employer based health insurance (urban centres)
- Establish clear mechanisms for exemptions in health centres and referral hospitals
- improve access by the poor to information about exemptions
- Involvement of NGOs with community-based health expertise to create community finance schemes to increase access to essential antimalarials.
- Community pre-payment schemes
- Involvement of communities in cost-recovery schemes
- User fee payment scheduling or deferral to (seasonal financial barriers due to agricultural economy)
- Equity funds to overcome some of the difficulties regarding exemptions

Information and education

- A concerted malaria information and awareness campaign is needed to address misinformation and to improve health-seeking behaviour. This will require extensive partnerships with the media and should be guided by operational research.
- Partnerships with the private sector to “piggy-back” malaria treatment messages onto commercial advertising.
- Promote increased intersectoral action (e.g. Ministry of Education, Ministry of Planning, transport and MoH for rural development and education, and health education messages to households on recognition of signs and symptoms of malaria, curriculum development in schools). In Africa the World Bank has taken a particular interest in intersectoral action. Key partners need to be identified in the Cambodian context. Key sectors outside health would be education and rural development.
- Support social marketing of the new antimalarial combination
- Strengthening IEC to messages to encourage use of health centres for diagnosis and treatment
- Include of selected practitioners in laboratory and clinical training by CNM
- Provide drug sellers with appropriate protocols of the use of the antimalarials that they are selling
- Establish mechanisms for information exchange between health services and the private sector

- Develop health education messages which encourage consumer demand for and compliance with effective treatment from all providers
- Training of health educators to work in schools and teacher training colleges, and in women's health and rural development.
- Continued training of health centre staff

Operational research

- Operational research into barriers to access is a priority particularly in the areas of treatment seeking behaviour, provider behaviour and economic analysis. A wide range of stakeholders should be involved (EC, WHO etc.).
- There is a need to assess current financing schemes, their impact on access, exemption mechanisms used service improvement, transparency in resource management, community involvement and staff motivation.
- Investigate drug vendors decision and motivation regarding antimalarial drugs
- Operational research is required to guide IEC messages to the public
- closely monitor the impact of user fees on service utilisation (to inform debate on the trade-off between revenue raised and the health benefits lost, particularly for the poor)

Quality of services

- Create provider incentives (increasing the pay for public providers is an essential strategy for implementing a policy to separate public and private practice. However, an increase in wages should be accompanied by clearly stated job assignments, performance expectations, targets and discipline to change ingrained work habits.
- The roles and responsibilities at each level of health care need to be defined (particularly in the context of health sector reform)
- Supervision of health centre staff by district level health workers

Regulation

- Strengthen the pharmacy inspectorate to regulate drug quality, providers and licensing of premises (strengthen intersectoral collaboration between CNM and Essential Drugs Department)
- Development of an appropriate framework of laws and regulations
- Strengthen customs administration to prevent illegal drugs into the country (partnership of MoH with Customs)
- Strengthen regulation to shut down illegal pharmacies (this requires collaboration of several ministries) and to enforce registration of drugs

Management and administration

- Management training to mid and high level managers in fund management
- Create open systems of accountability
- Simplification of procedures for accessing district level financing

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Annex 1:

Market antimalarial drug prices in Cambodia

Antimalarial	Approx. Price (US\$)
Chloroquine	0.08
SP	not used
Artesunate	1.00
Artemether tablets	2.00
Artemether amp	1.00
Mefloquine/Artesunate	2.00

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5 Malawi

5.1 Background

Malawi is a small landlocked country in southern central Africa, bordered by Mozambique, Tanzania, and Zambia. More than 80% of its population lives in rural areas.

Malaria is the leading cause of illness and death in children less than 5 years of age in Malawi. Malaria accounts for 32% of all outpatient visits (35% of visits among children under the age of 5 years) and 20% of all hospital deaths. It is estimated that children less than 5 years have 9.7 malaria episodes each year and that adults have 6.1 episodes^{71 72}(Schultz et al., 1994; Steketee, Wirima, Campbell, et al., 1996).

Table 22: Basic Statistics and Economic Indicators

Total Population (million) (1999)	10.8 million
GDP (US\$millions) (1999)	1.8 billion
GDP growth (%) (1999)	4.5%
GNP per capita (1999) (US\$)	190
Under 5 mortality rate (per 1000 live births) ⁷³	211
Total public expenditure on health as a percentage of GDP ⁷⁴	5.8
Public expenditure as percentage of total expenditure on health	59.2
Total expenditure on health (US\$ per capita) (1997)	15
Annual household expenditure for health (US\$ per capita) (1997)	5
% population below poverty line	
ODA inflow in US\$ millions (1998)	20

Source: World Bank (1999). *World Development Indicators*, World Bank, Washington, DC (except where otherwise specified).

⁷¹ Schultz LJ, Steketee RW, Chitsulo L, Macheso A, Nyasulu Y, Ettlign M (1994). Malaria and childbearing women in Malawi: knowledge, attitudes, and practice. *Trop Med Parasitol* **45**:65-9.

⁷² Steketee RW, Wirima JJ, Campbell CC.(1996). Developing effective strategies for malaria prevention programs for pregnant African women. *Am J Trop Med Hyg* **55**(Suppl. 1):95-100.

⁷³ UNICEF (2001). *State of the World's Children*. UNICEF, New York.

⁷⁴ WHO (2000). *The World Health Report 2000. Health Systems: Improving Performance*, World Health Organization, Geneva.

In addition to its health impact, malaria exacts a high economic cost, both direct and indirect due to potential loss of income from days of work lost. It is estimated that the total cost of malaria to the average Malawian household is US\$35, or 7.2% of the average annual household income⁷⁵. For very low-income households (40% of all Malawian households), the annual cost of malaria is nearly US\$20, or 32% of annual household income.

Malaria is described as “the most serious health problem facing Malawi today”⁷⁶.

5.2 The Health System Infrastructure

60% of the health services in Malawi are delivered through institutions run by government, 37% through the Christian Hospital Association of Malawi (CHAM), 1% through the Ministry of Local government (MLG). Other providers, largely private hospitals, commercial companies, the army and police account for 2%. The CHAM institutions are largely church-related and a few are owned by other private voluntary agencies.

The public health-care system has four levels: central hospitals, district hospitals, health centers or rural hospitals, and the community level activities.

- Central hospitals provide specialist referral care for their respective regions, act as training hospitals for the attached training institutions and offer supervisory services to their respective district hospitals.
- District hospitals are referral units for health centers/rural hospitals and serve the local population; they offer outpatient and inpatient services; and provide medical (laboratory/other diagnostic) and logistical support services.
- Health centres/rural hospitals are the first level of community’s contact with the formal medical care network; rural hospitals offer in-patient services.
- Community health activities are provided through a combination of providers including traditional healers, traditional birth attendants (TBAs), growth monitoring volunteers, community based distributors (CBDs) and drug revolving fund (DRF) operators. Health Surveillance Assistants (HSAs) are primary health workers and act as an interface between formal health facilities and communities.

Since independence in 1964, Malawi has undertaken three national health plans and have made a number of achievements. Eighty per cent of its population now live within 8 kilometres of a primary health care facility, government or CHAM.

⁷⁵ Ettling M, McFarland DA, Schultz LJ, Chitsulo L. (1994). Economic impact of malaria in Malawian households. *Trop Med Parasitol* 74-79.

⁷⁶ MOHP (1999). *Fourth National Health Plan (1999-2004)*. Ministry of Health and Population, Lilongwe, Malawi.

5.3 Essential Drugs Programme

5.3.1 Drug Procurement and Distribution

The Central Medical Stores (CMS) is part of the Ministry of Health and Population (MOHP) and has the responsibility of ordering drugs and supplies for public and CHAM health facilities. In addition, CMS controls inventory, keeps track of drug demand, and monitors accounts. Since 1984, CMS has been operated as a self-accounting and self-financing body. It operates a revolving fund, initiated through a temporary advance from the treasury. The CMS procures its drugs through competitive tender (bidding), either nationally or internationally. Most supplies are purchased abroad through international tendering. Drugs are sometimes supplied in the form of gifts and donations from donor agencies, bilateral aid, religious and non-sectarian voluntary groups (which sponsor specific country programmes and activities), and drug manufacturers.

CMS supplies all requirements of government hospitals. CMS can also restrict or stop completely issues to any district hospital that exceeds its financial allocation of drugs. CMS dispatches a drug delivery every 2 weeks to each district when drugs are available. Districts make requisition orders to CMS for drugs and other medical supplies for the district hospital and peripheral health facilities. Consignments are dispatched and district accounts at MOHP headquarters are debited accordingly, to replenish revolving funds. Supplies for CHAM follow similar procedures except that payments are made directly by institutions. Most CHAM units also receive drug donations through their overseas supporters.

Drug shortages are common in district hospitals, at health centres, and within communities due to lack of transport, erratic and unpredictable supply of drugs and medical supplies from the CMS, and inadequate funding for drugs from the MOHP.

5.4 Health financing and public sector expenditure on health

Most medical drugs and supplies including antimalarials are imported and bought with hard currency, thus inflationary trends coupled with devaluations to the local currency make the desired health budget difficult to attain. Currently the MOHP estimates that over two-thirds of the ministry's financial resources are consumed by secondary and tertiary care services, which are themselves critical for the support and guidance of the lower structures in terms of supervision, training and patient referral.

Over the years, the government of Malawi has been able to sustain a health budget of between 6% and 7% of the national budget, from government revenue. Loans and grants from external assistance have helped raise expenditure on health to around 15%. The resources allocated to health are insufficient and often inequitable. Even though the government has decided to raise expenditures on health to between 12% and 13%, experience has shown that this is difficult to achieve without external support⁷⁷.

⁷⁷ Malawi, Budget document no. 3 (undated publication).

Currently, public health services provided at government health institutions are free of cost to majority of users. The government however, is in the process of exploring mechanisms for cost sharing, with possibilities of cross subsidy to cover the most needy. This is gradually being introduced in a phased manner, starting with the larger central hospitals. Central and district hospitals are encouraged to set aside fee-charging facilities and units are retaining the fees for local expenditure as an incentive for fee collection. Implementation is being phased and government is mindful of not compromising the needy. At community level drug revolving fund (DRF) structures are being supported by districts as a means of ensuring access to drugs, especially antimalarials and some of the other interventions included in the essential health package. This is an area MOHP is supporting with external assistance.

User fees for health services are charged at CHAM institutions, private clinics and the Ministry of Local Government health facilities. The government assists CHAM institutions by providing an annual grant covering local staff salaries. Besides this, the government provides drugs and vaccines to enable CHAM to undertake community based preventive services such as immunization and growth monitoring. Drugs for the management of specific communicable disease programmes such as TB, STDs and leprosy are also provided to CHAM for free distribution.

Community financing initiatives and drug revolving funds

Community participation in health and drug financing is being explored through partnerships with NGOs and communities. An example of such an initiative is the Bakili Muluzi Health Initiative which uses drug revolving funds (DRF) and community participation and management of the funds to increase access to essential drugs.

5.5 Decentralization of the health sector-future organization and administration

Through implementation of the new national decentralization policy, District Assemblies (DAs) will assume responsibility of government functions at district level. All functions of line ministries will be transferred to DAs, except for responsibility over policy formulation, policy enforcement, inspectorate, and establishment of standards, training, curriculum development and international representation.

Fiscal decentralisation will allow DAs to collect and manage their own resources and a percentage of national revenues will be allocated to the assemblies. Donor funding will be channeled directly to the districts through the District Development Fund. For the MOHP, this will mean that all managerial authority over health service delivery at district level will be transferred to the local assemblies, including personnel issues. Financial control procedures have been developed to

protect the flow of funds from the central level to the district so that the funds cannot be diverted for other purposes or other districts. Thus the role of the MOHP will change from that of service delivery to that of policy formulation and enforcement, standard setting and regulation as well as international representation.

Decentralization of the health system has called attention to inadequate management skills and senior posts at district level, which could lead to poor management of resources. A recent government functional review was set up to address this problem⁷⁸.

5.6 Health seeking behaviour

Studies have shown that over 50% of treatment seeking for malaria occurs in the private sector from non-health centre sources⁷⁹. Although public health facilities are free of charge patients prefer the use of private pharmacies and drug vendors largely due to better geographical access to private health facilities, longer opening hours and no waiting time.

5.7 The National Malaria Control Programme (NMCP)

Between 1980 and 1984, increasing clinical chloroquine treatment failures were being reported throughout the country, especially amongst children under five. In 1984 the NMCP was set up with assistance from the Africa Child Survival Initiative-Control of Communicable Childhood Diseases, a project funded by the United States Agency for International Development (USAID), to manage national malaria control activities. The NMCP was established under the section of Preventive Health Services within the MOHP. Currently the programme is one of the nine disease control programmes, including IMCI, under the Community Health Sciences Unit. Disease management was the main focus of the control programme and single dose chloroquine, (10mg/kg), which was the recommended treatment for uncomplicated malaria was later replaced by the three-dose regime, (25mg/kg). Monthly dosages were used for chemoprophylaxis for pregnant mothers.

5.7.1 Antimalarial drug policy change

By 1983, clinicians across the country began experiencing slide-confirmed chloroquine resistance⁸⁰. Between 1984-1990 clinical failures to chloroquine increased from 20- 83% (RII + RIII, with RIII alone from 8-26%). Six sentinel sites established throughout the country to reflect differences in endemicity were using the 7-day *in vivo* efficacy methodology developed by WHO to monitor chloroquine efficacy. 28-day *in vivo* follow up of haematological recovery as well

⁷⁸ MOPH (2001). *Roll Back Malaria: Situational Analysis*. Unpublished Report, Ministry of Health and Population, Malawi.

⁷⁹ Ettlign M, McFarland DA, Schultz LJ, Chitsulo L (1994). Economic impact of malaria in Malawian households. *Trop. Med. Parasitol.* **45**:74-79.

⁸⁰ Khoromana CO, Campbell CC, Wirima JJ, Heyman DL (1986). *In vivo* efficacy of chloroquine treatment for Plasmodium falciparum in Malawian children under five years of age. *American Journal of Tropical Medicine and Parasitology* **90**: 589-595.

as clinical and parasitological recovery were studied. Alternative drugs studied included amodiaquine, sulphadoxine-pyrimethamine (SP), mefloquine and halofantrine. Amodiaquine and SP were recommended as second line drugs while quinine was reserved for severe malaria. Amodiaquine was later dropped due to unwanted side effects.

Based on availability, affordability and safety, a decision to switch to SP as a first line drug for uncomplicated malaria was made in 1991. By that time, factors influencing the change included a) 177% increase in malaria hospital admissions amongst children under five and a doubling of malaria hospital deaths in this population b) significant parasitological failures even after completion of the three dose regime, and c) complete loss of confidence in the drug by the community taking care of the children⁸¹.

The actual change over to SP was not effected until two years later. This was due to several factors. There was a need to enlist the support of policy makers to implement the change and to prepare new treatment guidelines for health workers and train them in their use. In addition, there were delays in producing and disseminating IEC materials for the public, ensure that adequate stocks of the newly recommended drug(s) were available at the CMS. The NCMP negotiated import duty exemptions with the Ministry of Finance in order to promote affordable stocks. Official launching by the Minister himself gave the process of change the political backing and publicity that it needed for public acceptance. After the launch, regular advertisements were made on the national radio explaining the policy change. To avoid conflicting messages, the branded Fansidar[®] was advertised as Fansidar[®]-SP.

Thereafter, monitoring of the community health seeking behaviour was necessary as Malawi dealt with a largely illiterate population. Malawi became the first country in the region to effect this change in the first-line drug management for malaria.

Lessons learnt during drug policy change

The implementation of drug policy change in Malawi was a politically smooth activity due to the following factors:

- Convincing locally generated clinical and field data on resistance patterns.
- Timely production of the new treatment guidelines, training materials for health workers, IEC materials for the general public, including discussion of known side effects.
- Addressing all aspects of malaria management to include uncomplicated and severe malaria, malaria in pregnancy and malaria prevention.

Delays in implementation were caused by the lack of consensus on what levels of treatment failures demanded a change in policy. Furthermore, all stakeholders

⁸¹ Kazembe PN *et al* (2001). The process of changing first line malaria treatment from CQ to SP. *In Press*.

were not involved early in the policy process. It is necessary to share early data with policy makers in the MOHP, physicians, nursing and pharmacy personnel, district health officers and the pharmaceutical industry to build consensus and to prepare for change.

Since 1993, data from some sentinel sites and field research indicates SP failure rates of up to 20% (ETF + LTF) using the 14-day in vivo tests⁸². There is interest in evaluating combination therapy however, outside of research activities (Lapdap and artemisinin derivatives), experience with CT is limited. The NMCP has been exploring the feasibility of CT in Malawi.

5.7.2 NMCP achievements

An intersectoral team, the National Malaria Control Committee has been formed and includes government sectors, NGOs and malaria research institutions. The committee meets regularly to reviews scientific data and to provide input to the National Malaria Control Programme for policy decisions.

The NMCP has set up sentinel sites for monitoring programmatic indicators in various districts in order to provide information on a range of issues such as monitoring community health-seeking behaviour and drug efficacy. Input from sentinel sites and clinical findings from health facilities have been regularly revised to reflect evidence-based practices.

As part of the decentralisation process, District Health Management Teams (DHMT) are now fully involved in planning implementation of malaria control activities in their districts. The national malaria treatment policy guidelines provide direction in the use of anti-malarial drugs and training of staff and community structures, such as TBAs, shop owners and DRFs. Dissemination of IEC messages for extension workers and communities supports case management efforts through extension of partnerships at district and community levels.

5.7.3 Partnerships

Partnerships with NGOs and donor support for malaria control and prevention activities at district level has facilitated programme implementation.

Partnerships within the MOPH

- IMCI
- Reproductive Health Programme
- Health Education and IEC
- Preventive Health Services Unit
- Pharmacy, Medicines, and Poisons Board
- Central Medical Stores
- Health Sector Reform

⁸² Molyneux M (2000). Personal communication.

The phased introduction of IMCI nationally is facilitating improved malaria diagnosis and case management at peripheral health facility and community levels. Health workers in some centres are developing innovative ways of implementing IMCI by promoting division of work with support staff to shorten consultation time with clinician, especially in poorly staffed units.

Partnerships with donors

- WHO
- JICA
- UNICEF
- USAID
- DFID
- World Bank

Partnerships with NGOs

- CHAM
- World Vision International
- Population Services International (PSI)
- Africare
- MSF (PSI), Plan International
- Action Aid

The NMCP is using existing MOHP, donor and NGO partnerships to expand access to antimalarials through drug revolving funds (DRF).

Partnerships with research institutions

- College of Medicine
- Malaria Project
- Malawi-Liverpool Wellcome Trust Research Programme
- Centers for Disease Control (CDC)
- Centre for Policy Analysis and Research

Partnerships with the communities

Community partnership for malaria control activities was initiated through the establishment of annual 'malaria awareness week' to sustain awareness among the population and influence their health seeking behaviour. Communities are developing innovative ways of managing DRFs best suited to their local organisational structure.

5.7.4 NMCP Weaknesses

- The MOPH has now developed a mechanism for policy formulation, but the institutional framework for policy formulation remains unclear. Malawi does not as yet have a malaria policy to guide collaborative action nationally, despite having many authoritative documents and plans.

- The NMCP lacks basic management capacity to fulfill its mission. There are serious staff shortages thus not all the functions of the NMCP can be carried out.
- The Programme lacks an effective data management, including feedback mechanism to the central ministry, districts, communities, university and other private institutions. There is a lack of capacity for complete regular data collection/analysis centrally. Serious budgetary constraints result in poor communication at all levels of programme structure. There is a lack of established mechanisms and guidelines regarding how feedback should occur. Even though other forums for research dissemination exist within the country, these have not been fully exploited by the programme.
- Lack of coordination between partners has at times led to duplication of efforts.
- Malaria-related activities contribute significantly at all times to the heavy caseload at all points of health-care delivery throughout the country. Measurable impact however has been difficult to assess due to lack of comprehensive baseline information and measurable indicators in place.

5.8 Malaria in Pregnancy

Operational research conducted locally under the Mangochi Malaria Research Project led to the adoption of a national policy using intermittent 2 dose SP treatment for pregnant mothers in 1993⁸³. Data from Blantyre 60% of pregnant women in the area are being treated with two doses of SP. The awareness for the need for SP during pregnancy is high. The practice of intermittent chemoprophylaxis with SP, however, is not sustained as SP supply interruptions during peak malaria season make health workers prioritise case management over prophylaxis.

5.9 Roll Back Malaria

Malawi has embraced the process of the Roll Back Malaria (RBM) Initiative. A recent situational analysis of malaria control activities was carried out to assess and evaluate the NMCP to identify potential intervention to strengthen RBM in Malawi⁸⁴.

The country has followed the RBM process, and it has formulated a 5-year action plan, to which important stakeholders at district, national, and international levels have committed themselves. The plan contains both an assessment of the current situation and 5-year plans outlining activities, targets, and indicators to assist Malawi in reaching the goal and targets.

⁸³ Steketee, R.W., J.J. Wirima, and L. Slutsker (1994). *Malaria prevention in pregnancy: the effects of treatment and chemoprophylaxis on placental infection, low birth weight, and fetal, infant and child survival*. CDC/ARTS (99-4048), United States Department of health and Human Services.

⁸⁴ MOPH (2001). *Roll Back Malaria: Situational Analysis*. Unpublished Report, Ministry of Health and Population, Malawi

During 2000, Malawi has moved in the inception of Roll Back Malaria (RBM) through the following:

- Joint World Health Organisation (WHO)/United Nations Children Fund (UNICEF)/ World Bank (WB) Malaria Rapid Assessment
- RBM Task Force formed at the central level, and has been very active in moving the process forward
- Stakeholders have been mobilized and oriented
- Malaria Review and Situation Analysis
- A 2-day Strategy formulation meeting was conducted in November 2000, with the production of a draft five-year plan (involving bilateral/ multilateral organizations, non-governmental organizations (NGOs), district health officers and medical officers from both the government and Christian Health Association (CHAM) health facilities)
- Finalization of the 5-year plan of action for RBM is under way
- Advocacy for RBM is continuous in all malaria control activities taking place
- Inter-country planning meetings

RBM has increased awareness for malaria control and gained political importance within the ministry of health. It has brought together a variety of important partners involved in health. This has also enabled the malaria control programme to have a regular forum for discussions, leading to a strengthening partnerships. There is a renewed effort at capacity building and institutional strengthening in readiness for RBM.

Malawi is also in the process of developing a malaria policy, in collaboration with partners, is in the pipeline.

Launching of the RBM at the highest level is being planned for September 2001. The Minister for Health and Population has shown a keen interest in RBM and it is hoped that a wider level of political commitment will be achieved. A major outcome to the existing partnerships is the pledge for funding as well as technical assistance towards RBM that some of the partners have already made. Districts are also establishing their district-based partnerships at the community level, which they can work together with for the implementation of RBM.

In moving RBM forward, the NMCP is assisted highly by the RBM Task Force. Through this, there is interest among partners to support in strengthening the institution e.g. the recruitment of national malaria programme/project officers at WHO and UNICEF.

The ministry has assigned additional staff to the malaria control unit at national level. Both long and short-term training is being provided by the ministry in collaboration with partners such as WHO. In addition, the ministry has assigned focal persons dealing with issues of malaria control in each of the districts in the country.

Realising the challenge of better coordination of partners with RBM implementation, the ministry has recognized the need for a clearly stipulated malaria policy, which will guide the implementation of malaria control activities in Malawi. The national malaria policy development has been scheduled for June 2001 and plans to develop a communication strategy are also under way.

5.10 Summary of barriers to access to treatment in Malawi in the public and private sector

Financial equity and access

- Lack of social insurance schemes.
- Few alternative financing schemes such as community financing

Geographical access

- In rural areas health facilities and hospitals are often distant, roads are poor, transport is expensive and patients frequently travel by foot due to inadequate transport facilities. While these areas are better covered by the informal sector, geographical access to a drug outlet in some areas is poor.
- Inadequate referral of severe malaria cases at peripheral health units (commonly constrained by poor communication and lack of transportation facilities).

Quality of services in the public health sector

- Limited level of resources available to the MOH means that the quality of its services are poor.
- Inadequate incentives are offered to providers to offer quality service.

Inadequate of knowledge and irrational use

- Low knowledge of malaria diagnosis and treatment in the general population
- Low knowledge of consequences of use of incorrect/incomplete drug dosages. As a cost-saving measure, SP is bought according to household financial capabilities, leading to poor case management and possible promotion of malaria parasite resistant strains.
- Inadequate provider knowledge of malaria treatment, both private and public
- Underdosing with drugs bought from shops leading to inadequate treatment an increase in drug resistance
- There is no national IEC strategy
- Use of alternative, usually traditional remedies by care givers leads to delays in seeking medical attention until late in the course of the illness.
- Insufficient coverage of malaria in school curricula deprives communities of a ready source of health information on malaria case management

Sub-standard drugs and practices

- Circulation of sub-standard drugs.

Allocation of resources

- Insufficient and inefficient allocation of governmental resources to health and essential drugs.
- Inadequate funding to the NMCP
- Budget cuts prevent delivery of priority intervention packages as recommended

Drug management

- Facility managers have little control over the allocation of the resources thus are continually faced with resource constraints
- Inefficient drug procurement and management and unpredictable supply by the CMS leads to shortages in the public sector e.g. Shortages of parenteral quinine for treatment of severe cases especially during peak malaria season compromises case management

Regulation

- Inadequate regulatory capacity to monitor drug policy and enforce inspectorate functions

Organisation, management and supervision of health facilities

- Lack of supervision leading to poor practice and quality
- Staff shortages
- Inadequate management capacity at the district level leads to poor resource management

Diagnosis and prescription practices

- Inadequate diagnosis leading to overprescription of drugs, particularly in the private sector.
- Lack of functioning laboratory facilities (staff and equipment) at referral centres leads to delays in making proper diagnoses, especially for severe disease.

Partnerships and collaboration

- Insufficient collaboration of the NMCP with the PMPB
- Lack of collaboration with Health Education
- Insufficient collaboration with the pharmaceutical industry
- Lack of collaboration with other IEC activities of the MOPH

5.11 Strategies to promote access to antimalarials in Malawi

Qualitycontrol

- Technical assistance is required for quality control of antimalarials

Drug management

- Create efficient systems of forecasting of drug requirements

- Training on effective drug management (technical advice from WHO-Essential Drugs and Medicines and Management Sciences for Health)
- For a more sustainable use of funds, support should be provided to develop the system of drug management rather than directly fund drugs. The demand for SP is still limited, thus reducing the benefits to the local manufacturers in supplying the drug to the periphery.
- Appropriate antimalarials should be distributed to health facilities.
- The size of the burden needs to be determined to calculate and forecast actual needs for disease management to avoid shortages and inappropriate use of drugs
- Management support is required to promote efficient distribution and to avoid “leakage” of drugs from the public sector to the private sector

Geographical Access

- Private vendors are capable of providing a valuable service to the community in places where formal health provision is poor or lacking. With training, support and supervision, the capacity of drug vendors and traditional healers to give health education could be improved and provide a source of information to customers regarding new medicines.
- Local midwives and TBAs represent an important health provision resource for delivering presumptive intermittent treatment.
- There is a need to expand IMCI to include malaria case management
- Franchising of commercial outlets for malaria treatment
- Strengthen malaria treatment to the community level through partnerships with NGOs who have good logistics and community mobilisation activities.
- Enhanced and coordinated efforts at service outreach and community-based health activities
- Explore contracting in and out through partnerships with NGOs
- Increased collaboration with Reproductive Health Programme for the management of malaria in pregnancy.
- Dialogue with the pharmaceutical industry to increase distribution networks
- Support to CHAM

Financial access and affordability

- Establishment of social insurance
- Encourage private insurers. Proving an enabling environment for expansion of private sector insurance (thereby creating competition and potentially reducing cost)
- Community-based health insurance in Cambodia
- Employer based health insurance
- Establish clear mechanisms for exemptions in health centres and referral hospitals when the user fee is introduced
- Involvement of NGOs with community-based health expertise to create community finance schemes to increase access to essential antimalarials.
- Community pre-payment schemes
- Involvement of communities in cost-recovery schemes

- User fee payment scheduling or deferral to (seasonal financial barriers due to agricultural economy)
- Equity funds to overcome some of the difficulties regarding exemptions
- Expand the DRFs to other districts through NGO partnership
- Partnerships with the pharmaceutical industry to negotiate cheaper drug prices

Information and education

- A malaria information and awareness campaign is needed together with a national strategy for IEC to improve health-seeking behaviour. This will require extensive partnerships with the media and should be guided by operational research.
- Partnerships with the private sector to “piggy-back” malaria treatment messages onto commercial advertising.
- Promote increased intersectoral action (e.g. Ministry of Education for malaria curriculum development in schools)
- Strengthening IEC in collaboration with CHAM
- Provide drug sellers with appropriate protocols of the use of the antimalarials that they are selling
- Establish mechanisms for information exchange between health services and the private sector
- Develop health education messages which encourage consumer demand for and compliance with effective treatment from all providers
- Continued training of health centre staff
- There is a need to define the training needs at the central and district levels and implement a training plan.
- The NMCP should work with partners within the MoH and the mission and NGOs sectors to ensure that adequate support and resources is provided for in-service training of CHWs nurses, clinical officers and clinicians in the national guidelines for the management of malaria

Operational research

- Operational research into barriers to access is a priority particularly in the areas of treatment seeking behaviour, provider behaviour and economic analysis. A wide range of stakeholders should be involved
- There is a need to evaluate alternative drug financing schemes, their impact on access, exemption mechanisms used service improvement, transparency in resource management, community involvement and staff motivation.
- Investigate drug vendors decision and motivation regarding antimalarial drugs
- Operational research is required to guide IEC messages to the public

Quality of services

- Create provider incentives (increasing the pay for public providers is an essential strategy for implementing a policy to separate public and private practice. However, an increase in wages should be accompanied by clearly

stated job assignments, performance expectations, targets and discipline to change ingrained work habits.

- The roles and responsibilities at each level of health care need to be defined (particularly in the context of health sector reform)
- Supervision of health centre staff by district level health workers

Regulation

- Strengthen the pharmacy inspectorate to regulate drug quality, providers and licensing of premises (strengthen intersectoral collaboration between NMCP and PMPB)

Management

- Management training at district level for resource management
- Create open systems of accountability
- Integrate the malaria control strategy in the district work plan. Planning and implementation should involve local communities groups and authorities, peripheral health workers, drug vendors and community based organisations.
- Capacity building for decentralisation of activities to the district level and to integrate it with other activities is required.

Partnerships

- The dialogue between partners including departments within the MoH and the many donor partners is often fragmented and uncoordinated. There is an isolation of the research community from MoH and donor-funded NGO activities operate within a policy vacuum. While the NMCC is trying to bridge these gaps, the links need to be strengthened.

6 Senegal

6.1 Background

In Senegal malaria accounts for 35% of all outpatient attendances and is the most common cause of morbidity and mortality. Approximately 7-10,000 deaths occur each year due to malaria

After the conference in Brazzaville in 1991 and in Amsterdam in 1992, Senegal wrote its first five-year strategic plan of national malaria control. Based on the results from the implementation of this strategic plan Senegal was selected to implement the accelerated phase of malaria control (1997-1998). In Senegal among the steps taken to embrace the Roll Back Malaria Initiative was a situation analysis study on malaria control. Results from this study were used to develop a five-year malaria control strategic plan 2001-2005 for the National Malaria Control Program (NMC P).

The economy of Senegal is mainly based on agriculture. Despite low inflation, financial access to health care and services is poor.

Table 23. Basic statistics and economic indicators

Total Population (2000)	9,600,000
GDP (1999) (US\$ billion)	4.8
GDP growth (%)	5.1%
GNP per capita (US\$)	510
Income per capita (1998 est.) (US\$)	US \$ 500
Under 5 mortality rate	154 per 1,000
Total public expenditure on health as a percentage of GDP ⁸⁵	4.5
Public expenditure as percentage of total expenditure on health	55.7
Annual national budget devoted to health (US\$ per capita) (1999)	CFA 28,700 M (\$44.15 M) equivalent to 7.8% of the total governmental budget
Annual household expenditure for health (US\$ per capita)	Total: US\$10 CFA 4,000 (US\$6.15) per household for drugs ⁸⁶
Total recurrent budget for essential drugs	CFA 2,371,778,000 ⁸⁷

⁸⁵ WHO (2000). *World Health Report 2000. Health Systems: Improving Performance*. World Health Organization, Geneva.

⁸⁶ Ministère de la Santé (2000). *“Programme de Développement Intégré de la Santé”*. Rapport Financier PDIS au 30/06/2000. Analyste Financier. MS/DAGE/PDIS.

(1999)	(US\$3.65 million)
Reported number of malaria cases (1995)	630,000

Source: World Bank (1999). *World Development Indicators*, World Bank, Washington, DC (except where otherwise specified).

6.2 Health care infrastructure

The MOH is assisted by five directorates (Directorate of Health, General Administration, Management and Equipment, Pharmacy and Drugs, Health Institutions, Evaluation, Research and Training). The central level headed by the secretary of the Ministry of health (MOH). The National Malaria Control Program (NMCP), the National Pharmacy of Essential (NPS) Drug Supply and the National Directorate of Pharmacy are at this central level.

The health system has a pyramidal form with three levels; health districts or operational zones (50), medical regions (10) and the central health level.

The health district is the peripheral and operational level and has a health center covering a network of health posts. Each health district covers a population of 150,000 to 250,000 inhabitants. The health posts are located in the communes or main rural communities or populated villages. The health posts cover number of health huts. Health activities are coordinated at the regional level.

Strategic processes were decentralized to regions and health districts in line with the National Plan for Health Development and the Integrated Program of Health Sector (PDIS)^{83 88}.

Approximately 85% of urban population live within less than 5 km away from a health center or a health post or a dispensary or a pharmacy, 50% of rural population live within less than 5 km from a health post or a small pharmacy and 4.3% of the rural population live within less than 5 km away from a health centre.

Some indicators

1 doctor for 10,185 inhabitants

1 paramedical staff for 3,341 inhabitants

1 health hut for 7694 inhabitants

1 health center serving a population of 82,845

Proportion of under 5-year old children with febrile illness who received appropriate antimalarial treatment: 36.2%

⁸⁷ Rate of exchange: CFA 650=US\$1

⁸⁸ Ministry of Health (1997). *National Plan for Health Development*, Ministry of Health, Senegal, June 97.

6.3 Essential Drugs Programme and National Drug Policy

A national drug policy was defined with a limited list of essential drugs in 1991 governing the public and private sectors. The list varies by level of the health pyramid (regional hospital, health center, health post and health hut). The Directorate of Pharmacy (DP) defines the national drug policy in collaboration with the appropriate services of the MOH and the private pharmacies.

The National Pharmacy of Drug Supply (NPDS) distributes drugs to the public sector and has been recently reformed to be independent financially. It has decentralized structures at regional level (regional pharmacies), which supplies regional public hospitals, district health centers; and at district levels. The district pharmacy supplies health centers, health posts and health huts.

The NPDS used to supply drug kits but this has recently been replaced by a “pull system”. Each health structure places its drug purchase order base on its needs and budget.

Private pharmacies get their drug supply from wholesalers and distributors.

The NPDS invites pharmaceutical companies to tender for essential drug supplies by international tender. National (Senegalese) local industries have 15% acceptability advantage on their suggested prices compared to other foreign bidders. Regional (African) industries have a 10% comparative advantage over non-African industries. Drugs are tested for quality at the national laboratory of drugs (the laboratory is not yet fully functional). The NPDS contributes financially to the functioning costs of the national laboratory of quality control by buying supplies and products for lab tests.

So far the local pharmaceutical industries supplying essential antimalarial drugs to NPDS are Aventis for chloroquine and quinine, Parke Davis for amodiaquine. There is no local Senegalese manufacturer of pharmaceuticals. Large quantities are imported from other African countries (e.g. Ghana)

Since the devaluation of the FCFA in 1994, government has limited the profit on essential drugs in pharmacies to 50%. The NPDS are widely promoting the use of generic drugs and their financial affordability through IEC strategies.

Drugs can only be purchased from the public sector with prescription. Prices in the public sector are lower than in private as drug costs are subsidised.

The Essential Drugs Programme is supported by International Drug association (IDA), Canadian cooperation (CIDA), German cooperation (GTZ) and LHL (Norway Association for tuberculosis control).

As part of the reform of the NPDS in preparation to its autonomy, partners such as World Bank, UNICEF, European Union, French cooperation, assisted the government in subsidizing the initial stock of drug by NPDS. The partners,

together with the government invested 3 billion FCFA to help NDPS growth towards its financial autonomy to ensure permanent availability of essential drugs country wide. In addition to this the Senegalese government from its annual budget allocates to each health district per year 530 million FCFA to purchase essential drugs for health services.

6.4 Health care financing

The “Integrated Development of Health Program” (Programme de Développement Intégré de la Santé- PDIS) was developed in collaboration with many sectors and partners to re-evaluate health sector financing. Districts receive funds from the government through the regions and local collectivities. Funds are in joint basket for all sectors and a percentage is devoted to health according to operational plan developed by the district and validated by the MoH.

There are four sources of financing for health in Senegal. The government accounts for 51.5% of all health financing, health committees 11.9%, local collectivities 3.0% and other partners 33.6%.

Table 24. Budget for drugs in year 2000 by source of funds⁸⁹

Sources of funds	Budget in F CFA	Budget in US \$	Proportion
Government	1,036,200,000	1,594,150	42.2 %
External Partners	110,000,000	169,230	4.5%
Local Collectivities	90,000,000	138,460	3.7%
Community financing system	1,219,300,000	1,875,850	49.6%
Total	2,455,500,000	3,777,690	100.0 %

The NPDS estimates its expenditure in malaria in the year 2000 to be 1,063,129,000 FCFA.

6.4.1 User fees

Patients pay for services such as consultations, hospitalization, drugs and care during their visit to the health structure (hospital or health center, health post). Fees vary from \$0.77 to \$23.08 from one health facility to another for the same type of care. User's fees are not standardized in the existing health facilities. Prices are fixed for each health facility depending on costs and expenses to be covered through the user fees system. Although the prices of drugs are somewhat controlled, in practice profits of more than 50% are added in many health facilities. The MoH is looking to fix an interval of fluctuation for prices. In health facilities decision makers, advisory committee (for hospitals) and the regional committee (for regions) decide and fix the user prices for drugs and services. The health committee at district level manage funds generated by the user fees system.

⁸⁹ Ministry of Health (1997) Budget planning 1998-2002 total budget for 5 years.

Funds generated are used by the management committee to purchase replacement stocks of drugs. Each hospital receive from government 350 millions FCFA (US \$ 0.54 millions) for drug supply. This is supplemented by funds generated from drug sell by the pharmacy of the hospital.

These decentralised activities have reduced substantially the delay between order and delivery of essential drugs

Although the drug supply system from the NPDS has reduced substantially the cost of the drugs to health centers, the profit made by each health management committee on these drugs, makes them less accessible to the poor community. Recently (in 2000), the Ministry of Health decided that no profit should be made on malaria essentials drugs especially in the rainy season when malaria cases increases. Unfortunately this decision is not completely followed by the field health staff and management committee because this constitutes most of their profit. The decision is followed only during the rainy season.

6.4.2 Community financing and insurance schemes

In addition to user fees the local collectivities and health committees give the health facility part of their decentralized budget funds. Users may individually or in-group pay in advance a lump some to receive basic care in the health centers when they become ill; this practice is a form of insurance (“mutuel de santé”). Contribution to expenses from local collectivities and health committee are from individual taxes or contribution to the development budget of the collectivity. But this contribution from the collectivities is insufficient.

Health mutual are groups of women, workers, or common interest group who contribute individually to a common funds to be used to ensure for them access to basic health care services at health post or health center or maternity or dispensary. MoH created a unit to promote the development and scaling up of these health insurance system or health mutual.

There are efforts to encourage health insurance practices in Senegal. Most existing schemes are group targeted (e.g employers schemes). Government workers are covered by government for free care in public health sectors. A proportion of their salary and benefit is saved monthly into a social fund in addition to government contribution to cover the basic health needs for them and their immediate relatives. Private industry employees contribute 65% and the employer 35% to a saving system and its funds are used to register at an insurance company named “Institut de prevoyance maladie”.

Social Security funds exist for retirees from the government and private industry. Social Security covers up to 80% reimbursements for certain treatments and drug purchase. There is a list of health structures and hospitals affiliated to the Social Security funds. This list is available to all its members.

6.5 SWAps

This approach helped make important progress in the efforts to control malaria. The integrated development program of health originated from such collaboration between government, foreign partners, populations, local collectivities. The decentralization of the health sector helped local collectivities to manage their health problems. Community participation has helped the health committees to self-finance their committee up to 10% of its costs.

6.6 The National Malaria Control Program (NMCP)

The NMCP falls under the National Service of Endemic Diseases (NSED). Its decentralized structures are integrated to the district and regional health systems. At the central level the NMCP has an implementation committee, a scientific committee and many working groups.

Committees

- An advisory and follow-up committee (an intersectoral committee) was created in 1997 to advise the MOH in defining priority actions to control malaria and participate in the implementation, monitoring and evaluation of the national malaria control program.
- The scientific committee is composed of specialists of malaria control most of whom are on the advisory and follow-up committee. The scientific committee works in collaboration with the directorate of evaluation, research and training. Its roles are mainly technical.
- Many technical commissions were created within the scientific committee for training, malaria management and research activities, community-based interventions and IEC, entomology and parasitology of the malaria diseases and monitoring and evaluation.

There is some link between the NMCP and the NDPS. The NDPS is a member of the National Malaria Control Strategy Management Committee, although its participation to the committee is limited. The committee has requested and obtained from NPS changes in packing and presentation forms of some anti-malaria drugs. The National Directorate of Pharmacy where all national drug policies are initiated is not on the committee.

The NMCP determine the drug policy and protocol for malaria therapy. The NMCP only recommend malaria drugs that are at lower prices and affordable to most people.

The antimalarial drugs in sell in private pharmacies are: Nivaquine[®] (chloroquine) (tablets, syrup, injectable), Camoquine[®] (amodiaquine) (tablets, syrup) Fansidar[®] (sulfadoxine/pyrimethamine) (tablets, injectables), Maloxine[®] (sulfadoxine/pyrimethamine) (tablets), Fansimef[®] (sulfadoxine-pyrimethamine+mefloquine) (tablets), Paluject[®] (quinine injectable), Quinimax[®] (tablets, injectables), Quinofom (quinine injectable), arsiquinofom[®] (quinine

tablets), Surquina, Arsumax[®] (artesunate) , Paluther[®] (artemether injectable) , Coartem[®] (artemether/lumefantrine), Plasmatrin[®] (artesunate).

Resources for malaria

The current mechanisms to fund malaria control activities are from many funding sources:

- The Government this year 2001 allocated 500 millions FCFA to the NMCP while waiting for the adoption of the new strategy of the program.
- World Health Organization provides funds for the RBM strategy
- Other major partners helped the program for the RBM strategy and made commitment to help implement the new strategic plan. The Round Table in March 2001 discussed the financial contribution of each partner.
- The Japan International Cooperation Agency (JICA) made available to the NMCP important resources such as impregnated bed nets (8,000) and KITS for impregnation, insect killers liquid (8,000 l) to destroy malaria vectors.
- Local contribution through meetings, workshops, seminars by NGOs, private sectors
- Contributions from the communities and local collectivities through the community financing system

6.6.1 Antimalarial drug policy

Researchers involved in drug sensitivity testing for malaria work in three research institutes (Pasteur Institute, Institute of Research and Development and the Parasitology Unit of University Chekh Anta Diop of Dakar.

Senegal has eight sentinel sites for drug efficacy monitoring, which are spread over the country to be quite representative of all malaria epidemiological aspects and types.

The first line treatment in Senegal continues to be chloroquine. Failure rates of between 3% and 15% (studies conducted in 1999 and 2000) have been recorded at the sentinel sites. Several studies have indicated higher rates of resistance with increases in mortality of over five-fold. However, these studies were based on verbal autopsies and were found by the NMCP to have many possible confounding factors. Moreover, the results were obtained from three study sites, not indicative of the whole country. The NMCP is not considering a change in the treatment policy unless treatment failure rates change significantly.

First line treatment for uncomplicated malaria: chloroquine 10mg/Kg Day 1, 10 mg/kg Day 2 and 5mg/kg Day 3 (Amodiaquine is the substitute in case of allergy to chloroquine)

Second line treatment for uncomplicated malaria: Sulfadoxine/Pyrimethamine

Severe malaria: quinine (injection) 25 mg/kg per day for 5 to 7 days⁹⁰

⁹⁰ Health workers do not always follow this instruction. Some of them tend to use quinine in injection for

The criteria set up by a technical committee of the NMCP for drug selection are:

- Efficacy of the drug on various species of malaria
- Acceptability of the drugs with respect to its side effects
- Availability on market
- Licensed by the National Directorate of Pharmacy
- Cost-effectiveness

6.6.2 Combination therapy

CT is only available in private pharmacies and the only one licensed in Senegal is Coartem[®] (artemether/lumefantrine).

Many discussions and debates have taken place at the MoH and within the NMCP on the rationale and need to use CT. The malaria advisory committee accepted CT as a future alternative to malaria therapy. However, But chloroquine is still considered to be effective and thus the need to change to CT is not perceived to be immediate. However, emphasis is placed on monitoring of potential resistance to existing drugs.

Due to its high potential cost, in order for the public sector to use it, it should be available in a generic form or subsidized to reduce its cost.

6.7 Treatment seeking behavior for malaria

The private sector exists mainly in big cities such as Dakar, St Louis, Thiès, Ziguinchor and to some extent in the main town of each region. People of high or middle class use the private sector. The proportion using private sectors for malaria treatment is not well documented in Senegal. A situational analysis conducted by the NMCP in three districts (Richard Toll, Tamba and Bamba) found that most people in case of malaria primarily use self-treatment (74%). Only 22% use modern health services for malaria and traditional treatment used by 4% of the survey sample. Knowledge attitudes and practices household survey found that severe malaria symptoms such as jaundice, neuro-psychological signs would be treated by traditional medicine.

As in most African countries malaria drugs and other drugs are sold on markets, in street and boutiques illegally, with no control of quality. Knowledge of malaria among the population and drug vendors is poor. Patients will rarely receive correct advice in shops or on the market. Vendors are often ignorant about dosage, usage and required precautions.

The national strategy for malaria control which is being finalised intends to explore ways of introducing antimalarial drugs legally in the shops.

uncomplicated malaria.

Table 25. Affordability of the costs of malaria essential drugs in Senegal

Drugs	Poor class ⁹¹	Middle class ⁹²	Upper class ⁹³
Chloroquine tablets	✓	✓	✓
Chloroquine syrups		✓	✓
Sulfadoxine		✓	✓
Amodiaquine	✓	✓	✓
Quinine		✓	✓
Artesunate			✓
Coartem [®]			✓

Table 26. Malaria drug prices in use in public and private sectors

		Prices in FCFA	
Drug	Presentation	NPDS ⁹⁴	Private Pharmacy ⁹⁵
Chloroquine tablets	10 units	65 (\$0.10)	573 (\$0.88)
Chloroquine syrups	60 ml	300 (\$0.46)	1071 (\$1.65)
Sulfadoxine/pyrimethamine	3 units	540 (\$0.83)	1285 (\$1.98)
Sulfadoxine+pyrimethamine	3 phials	1740(\$2.68)	2538 (\$ 3.91)
Amodiaquine	10 units	100 (\$0.15)	1656 (\$2.55)
Quinine	1vial (100 mg)	54(\$0.08)	1440 (\$2.22)
Artesunate			4206(\$6.47)
Coartem			5467(\$8.41)

⁹¹ Income less than US \$ 46.15 per year

⁹² Income between US \$1,846 and \$4,615)

⁹³ Income more than 12,000,000 CFA (US \$ 18,462)

⁹⁴ Price from the NPDS

⁹⁵ Price from one private pharmacy in Dakar

6.8 Partnerships

The NMCP has formed partnerships with NGOs, bilateral and multilateral cooperative agencies (CA) in line with the RBM strategy. Discussion is on its way to diversify activities and intervention zones for each partner.

Partnerships within the Ministry of Health

➤ IMCI

- The IMCI national authority is a full member of the malaria advisory and follow-up committee together with two members of his team.
- Three members of the malaria advisory and follow-up committee were trained as trainers for IMCI.
- In October 2000 WHO gave a training module with specification of IMCI and malaria management to the country
- In February 2001 staffs from the NMCP and IMCI worked together to adjust to the Senegalese context the training manual on malaria and IMCI.
- In March 2001 the joint training session on malaria and IMCI started with doctors of all levels of the health pyramid, who in continuation will train their district staffs.

Table 27. Partnerships with other governmental ministries

Partner	Activity
Ministry of Finance	Prioritisation of malaria control for resource allocation
Ministry of Education	Collaboration with the NMCP on manuals and teaching documents for malaria prevention and treatment
Ministry of Water and Sanitation	Vector control projects in the Senegal river valley
Ministry of Communication	broadcasting essential Information IEC messages on malaria
Ministry of Youth and the Ministry of Women's Conditions	Social mobilization
Ministry of Agriculture	Active in their department to help control malaria
Ministry of Environment	Active in their department to help control malaria

Table 28. Partnerships with donors and NGOs

Partner	Technical	Financial	Activities
WHO	✓	✓	Introduction of RBM in Senegal
UNICEF		✓	Impregnated bed nets Materials & equipments Training sessions for women and community agents
UNDP		✓	Program to reduce poverty within community (Kedougou)
World bank		✓	National Program of Endemic Diseases
European Funds for Development		✓	Impregnated bed nets and materials in St Louis
Luxemboug CA		✓	Impregnated bed nets and materials
JICA		✓	Heavy support to malaria control since 1999
Belgium CA		✓	Many aspects of malaria control including case management
USAID		✓	Showed interest
Foundation for solidarity and sharing (Not an NGO)		✓	Community based distribution of chloroquine
PLAN International		✓	Wide promotion of materials protected with insecticides in labor groups
Lutherian Mission		✓	Supply of chloroquine for treatment
CANAH			Support to women groups with Impregnated bed nets
Zakat house		✓	Community based distribution of chloroquine
World Vision		✓	Support to Impregnated bed nets promotion & Distribution of chloroquine
NGOs (>255)	✓		Health and malaria control activities

There is committee responsible for coordinating NGOs activities, however, effective coordination of NGOs activities by the NMCP is still weak or lacking.

Table 29. Partnerships with other groups

Partner	Technical	Financial	Activities
Local Collectivities /communities /groups	✓		Promotion of malaria control activities locally Network community support to RBM

6.9 Roll Back Malaria in Senegal

Senegal organised the first consensus meeting to adopt the RBM strategy in July 1999. This meeting was an opportunity to widely inform partners on the initiative and its various aspects including the NMCP activities, evaluation results and study results. Current and potential partners were identified (USAID, African Development Bank, French Cooperative Agency) and a multi-disciplinary group was formed for implementation of RBM.

A team composed of consultants, some facilitators, member of the advisory and follow-up committee of the NMCP conducted a situation analysis of the health system to identify existing problems and set up relevant strategies. The purpose was to examine health policies and strategies, essential drug management strategies, research, monitoring and evaluation of health programs, funding policy of health sector, the role of various actors and management and planning capacity at health district staff.

A second partner meeting was organized in July 2000 to discuss the SA results and launch the social mobilization for malaria control. A caravan called " malaria crusade was organized" . The Minister of Health headed the delegation through the ten regions in Senegal and a national malaria day took place in collaboration with Mauritania.

A number of RBM actions have taken place:

- Participation of partner organization such as UNICEF, USAID, Japanese CA to the development of the strategic plan of RBM.
- Involvement of health regions and operational levels
- Consensus to form a close collaboration with IMCI
- Contribution of other partners outside WHO and government to finance RBM activities
- Participation at the Abuja summit (April 2000)
- The development of a strategic plan of RBM with consensus among partners
- A round table of all parties to discuss principles of RBM and funding of the implementation of the strategic plan (March 2001).

The 5-year strategic plan (2001-2005) outlines the resource envelope required to fund the NMCP. It proposes that 16.5% (4 300 000 CFA) of the total budget for malaria over 2001-2002 be spent on antimalarial treatment.

At the round table meeting on the 5-years strategic plan to RBM in Senegal, consensus was reached on the following:

- Need for new approaches for better coherence and performance in the RBM strategy
- Give priority to prevention policy, community-based strategies
- Improve IEC to improve community's perception and understanding of the illness,
- Reinforce collaboration between local authorities, main actors and community members
- Integrate programmes to increase efficiency in the RBM strategy
- Reinforce appropriate case management strategy, monitoring, supervision, information system and operation research (surveillance and surveys)
- Take supportive actions such as subsidizing drugs, reduce taxes, collaboration with private sectors and partners
- Identify all actors and areas of intervention together with intervention sites and levels
- Conduct an inventory of experiences for analysis and better community participation
- Train all actors at various levels
- Ensure financial access and affordability to drugs and impregnated materials
- Conduct advocacy, data collection and monitoring
- Develop operation research and new strategies for remote and less accessible areas.
- Promote private sector investment in impregnated bed nets
- Disseminate NMCP documents widely
- Look for new funding sources and partners for RBM

6.10 Summary of barriers to access to treatment in Senegal in the public and private sectors

Financial equity and access

- Although drugs purchased from government health facilities are subsidised, there is regulation on the cost of drugs in the private sector where much of treatment seeking for malaria occurs.
- Antimalarial drugs in public health facilities are required to be available at cost-price, particularly during the high transmission season. However, most facilities do not adhere to this policy.
- There are no effective exemption mechanisms for the poor in public and private health facilities.
- There is no social insurance scheme for employees working in other sectors apart from government or large industries.
- Insufficient resource allocation for antimalarial drugs in the governmental budget.

Geographical access

- In rural areas access to health centers and hospitals is poor

- There is a higher coverage of health facilities, both public and private in urban areas

Quality of services in the public health sector

- Limited level of resources available to the MOH means that the quality of its services are poor.
- Inadequate incentives are offered to providers to offer quality service

Inadequate of knowledge and irrational use

- Low knowledge of malaria diagnosis and treatment in the general population
- Inadequate provider knowledge of malaria treatment, especially in the private informal sector.
- Frequent underdosing with drugs leading to inadequate treatment an increase in drug resistance

Sub-standard drugs and practices

- The private sector is marked by irrational prescription practice

Inefficient drug management

- Inefficient drug procurement and management leads to shortages in the public sector. In the public sector the main difficulties of access to drugs are the accuracy of needs assessment of each health structures and the fact that these structures often fail to order essential drugs in due time. Private sector have more diversified source of supply while public sector is limited to the National Pharmacy of Supplies.

Organisation, management and supervision of health facilities

- Lack of supervision of public health facilities leading to poor practice and quality

Diagnosis and prescription practices

- Inadequate diagnosis leading to overprescription of drugs, particularly in the private sector. This has led to an increase in drug pressure and treatment failures
- There is inadequate diagnosis in the remote areas due to unavailability of microscopes.

6.11 Strategies to improve access to antimalarials and the role of RBM

There are major opportunities for partner coordination and to develop interaction of public and private sectors to increase access to antimalarials.

Quality Control

- Technical and financial assistance is required for strengthening of the national quality control laboratory

Drug management

- Create efficient systems of forecasting of drug requirements through (technical advice from WHO-Essential Drugs and Medicines and Management Sciences for Health).
- Reinforcement of drug delivery, storage and distribution system
- Promotion of community-based interventions especially for chloroquine distribution, with close implication of community-based organisations
- Strengthen distribution systems to prevent “leakage” of drugs from public health facilities to private health sector.

Geographical Access

- Private vendors are capable of providing a valuable service to the community in places where formal health provision is poor or lacking. With training, support and supervision, the capacity of drug vendors to give health education could be improved and provide a source of information to patients. The strategy to include the private sector should be based on a two-way information exchange rather than an authoritarian emphasis on regulation and control
- Expand collaboration with IMCI
- Franchising of commercial outlets for malaria treatment
- Strengthen malaria outreach activities to the community level through partnerships with NGOs.
- Develop social movements with NGOs for marginalised risk groups
- Develop contracting in and out through partnerships with NGOs

Financial access and affordability

- Mobilisation of substantial resources from the Government, local communities and partners for development for increased funding for antimalarial drug procurement
- Establishment of wider social insurance
- Expand community-based health insurance and employer based health insurance
- Establish effective mechanisms for exemptions in public health facilities
- Involvement of NGOs with community-based health expertise to create community finance schemes to increase access to treatment with essential antimalarials.
- Create community pre-payment schemes
- Involve of communities in cost-recovery schemes
- User fee payment scheduling for seasonal financial barriers
- Create equity funds to in overcome some of the difficulties regarding exemptions

Information and education

- Development an appropriate IEC policy targeting all actors of malaria control activities including drug vendors, especially at district and community levels.

- Partnerships with the private sector to “piggy-back” malaria treatment messages onto commercial advertising to promote awareness of malaria and its treatment
- Promote increased intersectoral action (e.g. Ministry of Education for curriculum development in schools).
- Provide drug sellers with appropriate protocols of the use of the antimalarials that they are selling
- Training of health educators to work in schools and teacher training colleges, and in women’s health and rural development.
- Continued training of health centre staff

Operational research

- Operational research into barriers to access is a priority particularly in the areas of treatment seeking behaviour, provider behaviour and economic analysis.
- There is a need to assess current financing schemes, their impact on access, exemption mechanisms used service improvement, transparency in resource management, community involvement and staff motivation.
- Operational research is required to guide IEC messages to the public

Quality of services

- Create provider incentives
- Supervision of health centre staff by district level health workers

Regulation

- Strengthen the pharmacy inspectorate to regulate drug quality, providers and licensing of premises (strengthen intersectoral collaboration between CNM and Essential Drugs Department)

Management and administration

- Management training for district level staff

Partnerships

- Increase collaboration within the directorates of the MoH
- Encourage participation of the National Directorate of Pharmacy in the National Malaria Control Strategy Management Committee
- Broaden partnerships to include World Bank, UNDP and others

Persons interviewed

1. Dr Papa Amadou Diack
Coordinnator at the National Malaria Contral Program (NMCP)
2. Dr Bakary Sambou
National Program Officer /Malaria/WHO
3. Professor Oumar Gaye
Member of the Advisory/Follow-up Committee of the NMCP
4. Dr Ibrahima Socé Fall
Member of the Advisory/Follow-up committee of the NMCP
5. Dr Masserigne Soumaré
Member of the Advisory/Follow-up committee of the NMCP
6. Dr Ndéye Fatou Ndiaye
Integrated Management of Child Illnesses
7. Dr Mamadou Ngom
Inspector
Directorate of Pharmacy and Drugs
8. Mr Ndaw
Administrative and Financial Director
National Pharmacy of Drug Supply

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ANNEX 1

TERMS OF REFERENCE

Fourth Global Partners' Meeting of Roll Back Malaria

Consultancy on: How the RBM partnership can promote universal access to effective antimalarial drugs

1. Background

The Fourth Global Partnership Meeting to Roll Back Malaria will be held in Washington, DC, USA on 18 and 19 April 2001 hosted by the World Bank.

The objective of the meeting is: "expanding the capacity of the RBM Partnership to get to scale". It will aim to address the following: How can malaria-affected countries and their partners mobilise action beyond malaria control programmes, beyond the public health sector and beyond the public sector?

In preparation for the meeting the WHO Cabinet Project has requested the Malaria Consortium to prepare three background papers including a paper describing country experiences on the relationship between RBM's focus on ambitious global and regional targets, and country determined development of Sector Wide Approaches (SWAPs).

In addition the WHO Cabinet project has requested the Malaria Consortium to help in synthesising the experiences of recent in-country round tables of RBM partners, and to prepare presentations for the GP4 meeting on this synthesis and on the subjects covered by other background papers. As part of preparation for the GP4 meeting there will be a meeting in Geneva on 3-4 April 2001, which will include the Malaria Consortium providing briefing on the background papers.

2. Purpose

The purpose of the consultancy is to (i) co-ordinate the preparation of the background paper on how the RBM partnership can promote access to antimalarial drugs (background paper C), (ii) to plan and supervise country case studies in support of this background paper in Malawi and Senegal and (iii) to undertake and write up country case studies in Cambodia and Kenya.

3. Outputs

A discussion paper with:

- description of processes involved in drug policy review, change and implementation processes
- a summary of drug financing mechanisms
- analysis of key issues, real and potential obstacles to developing effective policies and lessons learnt
- outstanding questions and actions for RBM and for wider policy development.
- summary of discussion points for the GP4 meeting

It will include a brief review across countries and more detailed analysis in case studies of the following countries: Cambodia, Kenya, Malawi and Senegal.

The country case studies should include discussion of:

- status in country of RBM and antimalarial drug policy
- current financing mechanisms
- future plans
- enabling and constraining financial, political and systems elements of drug policy development
- lessons and issues

The paper will be organised to link the drug policy issues to the sessions in the GP4 meeting, which are:

- Engaging All Actors
- Expanding Capacity through Partnerships with NGOs
- Engaging the Private Sector
- The Role of the Public Sector
- Malaria and Poverty Reduction (mobilising external resources, link to PRSPs)
- Working through All Avenues
- Addressing Malaria throughout the Health Sector
- Enlisting the Non-Health Sectors
- Translating Research into Policy and Programmes

4. Tasks

For co-ordinating preparation of the background paper, the main tasks will be to:

- identify key informants, stakeholders, and sources of information;
- gather and examine information that can be collected without country visits;
- prepare generic discussion tools and a guide for consultants on key informants for country case studies;
- ensure that consultants employed for country case studies have a common understanding of the task and the format of country reports;
- co-ordinate inputs from country case studies;
- analyse and synthesise the inputs into a draft background paper as described under outputs, for submission to Malaria Consortium by 30 March 2001;

- produce a final draft paper by 10 April 2001 following feedback.

For country case studies the main tasks will be to:

- identify key informants, stakeholders, and sources of information in-country;
- (other consultants in Senegal and Malawi) visit countries to collect information and views from key informants, and discuss emerging issues
- for Cambodia and Kenya, to collect information and views from key informants, and discuss emerging issues through telephone calls, correspondence and questionnaires;
- analyse and synthesise the information collected into a draft country case studies as described in section 3, to feed into the overall background paper.