



The Africa Malaria Report 2006



**World Health
Organization**

Regional Offices for Africa and Eastern Mediterranean

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Acronyms and abbreviations

| | |
|----------|---|
| ACT | Artemisinin-based Combination Therapy |
| ANC | Antenatal Clinic |
| AQ | Amodiaquine |
| ATM | Artemether |
| ATM-LUM | Artemether-Lumefantrine |
| AS | Artemisinin |
| ASU | Artesunate |
| CF | Clinical Failure |
| CFR | Case-Fatality Rate |
| CQ | Chloroquine |
| DHS | Demographic and Health Surveys |
| Doxy | Doxycycline |
| DSS | Demographic Surveillance Systems |
| EPI | Expanded Programme on Immunization |
| ETF | Early Treatment Failure |
| GFATM | Global Fund to Fight AIDS, Tuberculosis and Malaria |
| HH | Household |
| HIPC | Highly Indebted resource-Poor Countries |
| HIS | Health Information System |
| HIV/AIDS | Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome |
| IDSR | Integrated Disease Surveillance and Response |
| IMCI | Integrated Management of Childhood Illness |
| INDEPTH | International Network of field sites with continuous Demographic Evaluation of Populations and their Health in developing countries |
| IPT | Intermittent Preventive Treatment (with an antimalarial drug) |
| IRS | Indoor Residual Spraying |
| ITN | Insecticide-Treated Net |
| LBW | Low Birth Weight |
| LCF | Late Clinical Failure |
| LLIN | Long-Lasting Insecticidal Net |
| LPF | Late Parasitological Failure |
| MARA | Mapping Malaria Risk in Africa |
| MDGs | Millennium Development Goals |
| MEWS | Malaria Early Warning Systems |
| MICS | Multiple Indicator Cluster Surveys |
| MMSS | Malaria Medicines and Supply Service |
| MMV | Medicines for Malaria Venture |
| MoH | Ministry of Health |
| MQ | Mefloquine |
| n.a. | not applicable |
| NGO | Non-Governmental Organization |
| NMCP | National Malaria Control Programme |
| PQ | Primaquine |
| PW | Pregnant Women |
| Q | Quinine |
| RBM | Roll Back Malaria |
| RDTs | Rapid Diagnostic Tests |
| SAMC | Southern Africa Malaria Control Programme |
| SP | Sulfadoxine-Pyrimethamine |
| SWAPs | Sector-Wide Approaches |
| TB | Tuberculosis |
| TF | Total Treatment Failure |
| U-5 | Under 5 years of age |

Executive Summary

Malaria is a major public health problem in Africa. While the disease affects the lives of most people across the continent, children under the age of five and pregnant women are the most vulnerable due to their lower levels of malaria immunity.

To reduce the intolerable burden of malaria, the following core strategies for malaria control are being implemented in Africa:

- Prompt access to effective treatment
- Vector control: Use of insecticide treated nets (ITNs), indoor residual spraying (IRS) and other locally appropriate means of vector control
- Early detection and response to malaria epidemics; and
- Prevention and treatment of malaria in pregnant women in highly endemic areas.

This report is divided into 9 sections outlining the malaria burden and the progress made in controlling malaria in the region. It builds on previous reports such as the Malaria Country Profile 2003, Africa Malaria Report 2003, The Abuja Progress Report 2004 and the World Malaria report 2005.

The data used in this report was received from forty-two (42) out of the 46 malaria endemic countries and submitted to WHO-AFRO. Additional information was derived from others reports such as Health Management Information System (HMIS), Integrated Disease Surveillance and Response (IDSR), Demographic and Health Surveys (DHS), Multiple Indicator Cluster Surveys (MICS), other household surveys and published/unpublished reports. Also, some good practices leading to rapid scaling up of interventions are highlighted.

Although it is difficult to quantify the exact burden of malaria in Africa, it is still responsible for up to 50 % OPD cases and 20 % admissions. It is estimated that malaria could be responsible for an average annual reduction of 1.3% in economic growth in Africa with many families spending a significant portion of their income on malaria treatment. For example it has been estimated that the direct cost of a single episode of malaria to a household was US\$ 6.87 in Ghana, US\$ 4.8 in Uganda and US \$ 4.5 in Mali.

All countries have established National Malaria Control Programmes (NMCPs) within the Ministries of Health that are responsible for policy, planning, coordinating, monitoring and evaluation of malaria control interventions. Between 1998 and 2000, all the 42 malaria endemic countries developed 5-year Malaria Strategic Plans. By the beginning of 2006, about 17 countries whose malaria strategic plans had expired had commenced rigorous review and updating of the plans

Since the launch of RBM in 1998, several partners at district, national, regional and global levels have been contributing to the control of malaria in Africa. RBM partnerships networks have been established in the sub-regional epidemiological blocs such as the Eastern Africa RBM Network (EARN) and the Western Africa RBM Network (WARN). Within countries, more partners are involved in malaria control at all levels.

In most African countries children and pregnant women mostly access ITNs through, routine immunization, ANC visits and immunization campaigns. To date, ITN use by children aged less than five years is still low although it is increasing in most countries. Eritrea with coverage of 63 % is one of the countries that has exceeded the Abuja target of 60% ITN use by 2005. Integrated campaigns in Togo and Niger increased ITN possession at household level from 8% to 63% and 6% to 61% respectively.

Indoor residual spraying (IRS) for malaria vector control is deployed mostly in epidemic-prone or unstable malaria transmission areas in Eastern and Southern Africa. Various insecticides including pyrethroids and DDT were used during the 2004-2005 spraying cycle. Operational coverage in 2005 ranged from 70% to 95 % in the 8 countries of east and southern Africa that routinely conduct IRS.

Intermittent preventive treatment in pregnancy (IPTp) with SP is delivered mostly through ANC clinics. The IPTp strategy has now been adopted in all the 35 endemic countries where it is suitable. Of these countries 25 are already implementing while 18 countries are scaling it up to all health facilities offering ANC services.

Prompt and accurate diagnosis of malaria is the key to effective disease management. Of the 42 countries that reported, 64% are planning or using RDTs. RDTs are being used in clinical and community settings respectively in about half (57%) and one-tenth (10%) among these countries. However, it is not clear what proportion of the health facilities or communities that are deploying the RDTs.

Since 2001, several countries have adopted the use of artemisinin-based combination therapy (ACT) in the treatment of uncomplicated malaria. Home management of malaria strategy is also being promoted in some countries to improve timely access to treatment of malaria for the most at risk groups. In the 4 early implementing countries, more than 63 % reported no stock outs of ACTs lasting more than 1 week in the last three months prior to a survey conducted in 2005.

Antimalarial drug resistance is a major challenge in malaria control. Thirty seven malaria endemic countries have established sentinel sites for drug efficacy monitoring. Between 1996 and 2004, over 433 drug efficacy test were conducted in Africa. Also, countries rolling out ACTs are also establishing pharmacovigilance systems.

Of the 42 countries reporting, 33 have established M & E units within the NMCPs. Of the countries reporting on M & E, 83% have developed M & E plans that specify indicators to be collected, method of collection and responsible persons. In addition, 48% produce quarterly reports while 85% produce annual reports.

Surveillance for malaria is mostly done through HMIS and IDSR in the African Region. However, 44% of countries (mostly epidemic-prone) are also deploying either vertical or semi-vertical malaria surveillance systems. All countries have a relatively functional HMIS that provides data on malaria burden although completeness of reporting on malaria morbidity and mortality is still a challenge in Africa.

In the Maputo Declaration of July 2003, African Heads of State committed themselves to allocating 15 % of their national budgets to health. Only 2 countries have reportedly achieved this target. Since 2000, several bilateral and multilateral partners, have significantly increased funding for malaria control in Africa.

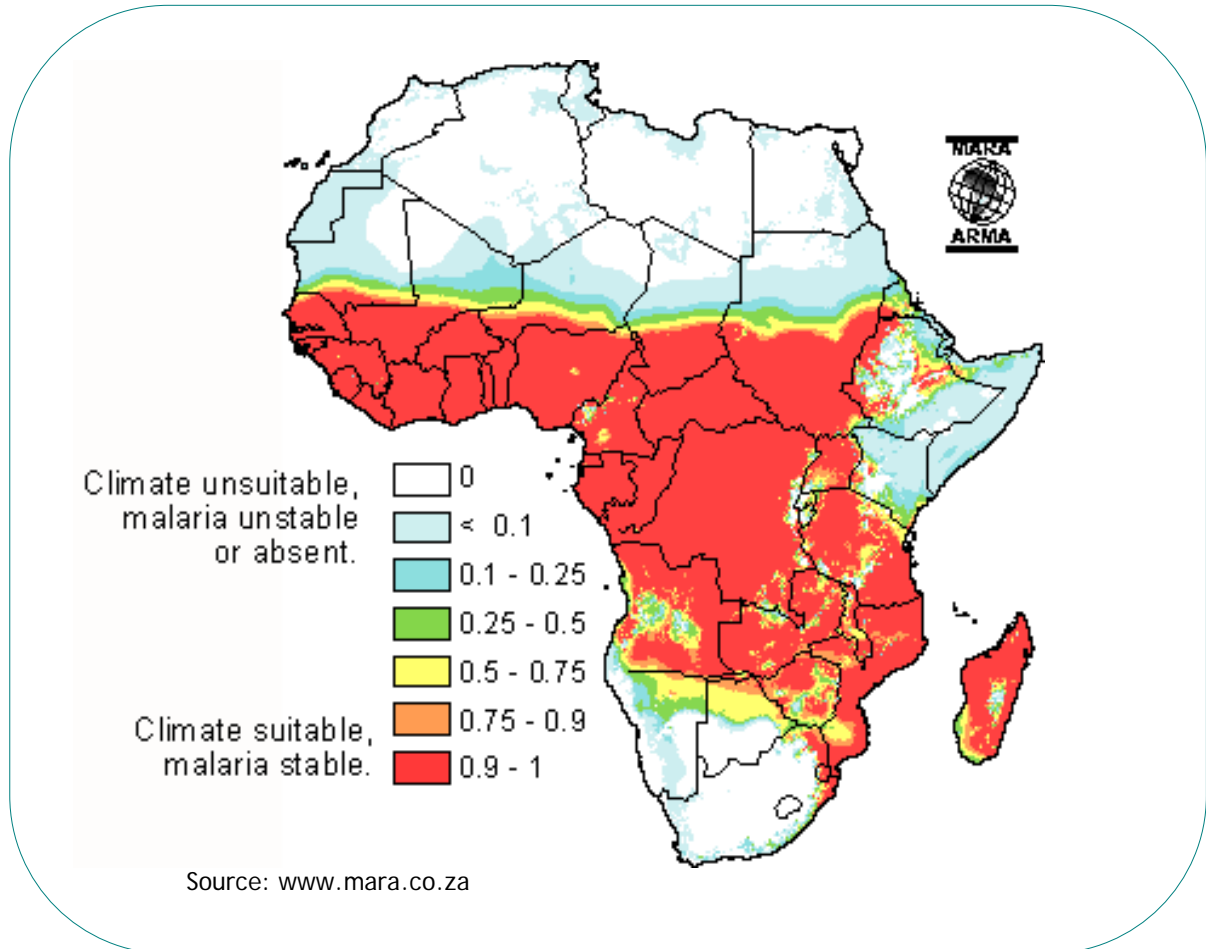
Although there has been progress in malaria control in Africa, there is need for more concerted efforts to scale up towards universal coverage of all at risk of malaria in Africa.

1. INTRODUCTION

Malaria is still a complex public health problem in the African Region, where most cases and deaths due to the disease occur. An estimated 74% of the population in the African Region lives in areas that are highly endemic for malaria and 19% in epidemic prone areas. Only 7% of the region's population lives in low risk or malaria-free areas as shown in the map in figure 1.1.

While the disease affects the lives of nearly everyone across the continent, children under the age of five and pregnant women are the most vulnerable groups due to their lower levels of malaria immunity.

Figure 1.1: A Climate-based MARA model map of malaria transmission



To reduce the intolerable burden of malaria, the following core strategies for malaria control are being implemented in Africa:

- Prompt access to effective treatment
- Vector control: use of insecticide treated nets (ITNs), indoor residual spraying (IRS) and other locally appropriate means of vector control
- Early detection and response to malaria epidemics; and
- Prevention and treatment of malaria in pregnant women in highly endemic areas.

In 1998, Roll Back Malaria (RBM) was launched by World Health Organization (WHO) and other partners aiming at scaling up malaria control interventions globally. On April 25 2000, African Heads of State from 44 malaria-endemic countries met in Abuja, Nigeria and committed their governments to scale up malaria control within their countries. In recognition of the impact of malaria on development, control of malaria was included in the Millennium Development Goals (MDGs), the

World Health Assembly (WHA) resolution 2005 and the Abuja Call for accelerated action towards universal access in May 2006 as shown in Box 1.2.

Box 1.2: Key malaria control goals and targets.

RBM Partnership

- To halve malaria-associated mortality by 2010 and again by 2015

Millennium Development Goals

- Target 8: to have halted by 2015 and begun to reverse the incidence of malaria and other major disease.
 - Indicator 21. Prevalence and death rates associated with Malaria (WHO)
 - Indicator 22. Proportion of population in malaria-risk areas using effective malaria prevention and treatment measures.

Abuja Targets, from the Africa Summit on Roll back Malaria April 2000, by 2005

- At least 60% of those suffering from malaria should be able to access and use correct, affordable and appropriate treatment within 24 hours of onset of symptoms.
- At least 60% of those at risk of malaria, particularly pregnant women and children under 5 years of age should benefit from suitable personal and community protective measures such as ITNs.
- At least 60 % of all pregnant women who are at risk of malaria, especially those in their 1st pregnancies, should receive IPT.

World Health Assembly 58 Resolutions May 2005 Targets

To establish national policies and operational plans to ensure that at least 80% of those at risk of malaria benefit from major preventive and curative interventions by 2010 in accordance with WHO technical recommendation so as to ensure a reduction in the burden of malaria of at least 50% by 2010 and 75 % by 2015.

Abuja call for accelerated action towards universal access to HIV and AIDS, Tuberculosis and Malaria Services by 2010

- Rededication by African Heads of State and Government
- Leadership at National, Regional and continental Levels
- Resource Mobilization
- Protection of Human Rights
- Poverty Reduction, Health and Development
- Strengthening Health Systems
- Prevention, Treatment, Care and Support
- Access to Affordable Medicines and Technologies
- Research and Development
- Implementation
- Partnerships
- Monitoring, Evaluation and Reporting

The purpose of this report is to describe the progress made in controlling malaria in Africa. Specifically, it aims at demonstrating that improved malaria control programme performance leads to better outcomes. It builds on previous work that culminated in the Malaria Country Profile 2003, Africa Malaria Report 2003, The Abuja Progress Report 2004 and the World Malaria report 2005. Therefore, information that has already been presented in those reports will be used sparingly.

Data used in this report come primarily from a standard questionnaire that was developed and submitted to Member States. Forty-two (42) out of the 43 malaria endemic/epidemic-prone countries submitted filled questionnaires to WHO-AFRO. Additional data was also compiled from others sources such as Health Management Information System (HMIS), Integrated Disease Surveillance and Response (IDSR) reports, Demographic and Health Surveys (DHS), Multiple Indicator Cluster Surveys (MICS), household survey reports that included key malaria indicators and published/unpublished papers. Also, good practices on the various interventions are highlighted as examples of achievement and proof that set targets can be achieved.

This report will focus on the following programme areas:

- a) Availability of human and financial resources,
- b) Existence of policies and strategies for malaria control
- c) Supply of malaria prevention and control commodities
- d) capacity building for malaria control
- e) Coverage/outcomes of the key interventions using more recent data
- f) Malaria Cases and deaths

The report is divided into 9 sections that address the progress made in malaria control in light of the set or established goals and targets. It outlines the burden of malaria in Africa, status of malaria control, including control policies, service delivery and coverage of key interventions.

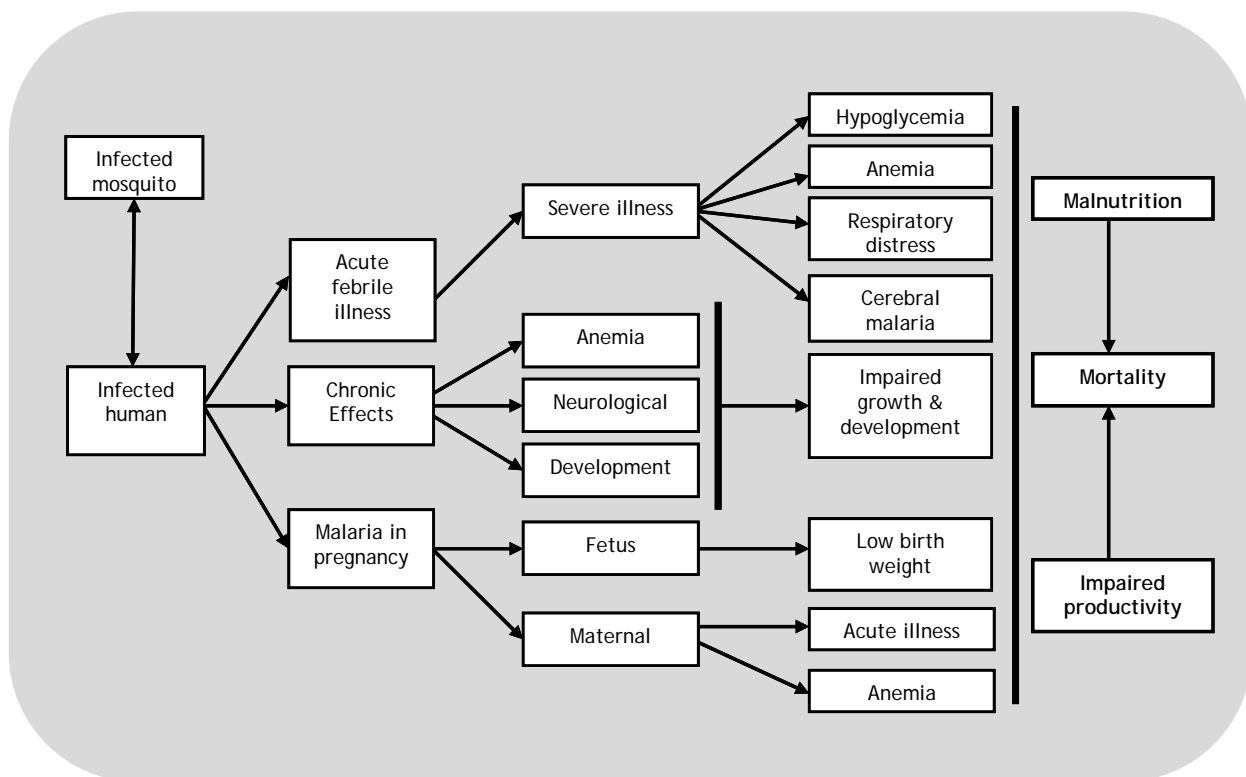
2. THE BURDEN OF MALARIA IN AFRICA

2.1 The Burden of Malaria in Africa

Quantifying malaria burden is a challenge because the disease may be asymptomatic, appear in an acute cerebral or deadly forms or some forms in between. Inadequate diagnosis and incomplete reporting make the estimates more imprecise in addition to the fact that most febrile patients do not reach the formal health system. Furthermore, many diseases in malaria endemic areas have symptoms that are similar to malaria or coexist with malaria.

The malaria burden is determined by a variety of factors related to the host, the parasite, the mosquito, the environment, the societal, behavioral and political context, the economy, and the interventions to fight the disease. However, there is an overall agreement that malaria is a leading cause of morbidity and mortality in Africa, south of the Sahara.

Figure 2.1: Clinical outcomes of malaria infection



Source: Breman et al.

Malaria contributes to health problems and deaths in many ways, especially in younger children (Figure 2.1): (1) frequent acute infections, (2) anemia as a result of repeated or chronic malaria infection, (3) malaria in pregnancy resulting in low birth weight in the newborn, and (4) increased susceptibility to other diseases such as respiratory infections, diarrhea, etc [1]. The burden of the disease is exacerbated by the fact that barely half (53%) of cases received appropriate anti-malarial drug from formal health facilities [2].

It is estimated that globally, around 350-500 million clinical malaria disease episodes occur annually. Estimates show that nearly 60% of the cases of clinical malaria and over 90% of the deaths, around 1 million (ranging from 700 000 to 1.3 millions) attributable to malaria occur in Africa south of the Sahara. The majority (75%) of the deaths are among children aged 5 years or below. In the year 2000, malaria was the principal cause of about 18%, or 803,000 deaths of African children under 5 years of age.

Most estimates tend to leave out indirect effects of malaria such as anemia, hypoglycemia, respiratory distress, low birth weight, and other complications. Recent estimates put the figure of indirect effects of malaria at 75,000 - 200,000 infant deaths per year in Africa with anemia and low birth weight alone contributing up to 50% of the malaria morbidity and mortality among children under the age of 5 in Africa. More than 15% of the survivors are left with severe sequelae and brain or neurological damage that may impair their development and learning capacity.

2.2 Burden of Malaria on the Health System

Deaths due to malaria are approximately 1 million globally and 90% of these occur in Africa. This gives a proxy to the burden of malaria on the health system. However, these estimates fall short of the real burden because the disease covers a wide range of continuum from asymptomatic infection to the severe acute illness or death. In most countries, especially in Africa south of Sahara, most illnesses, including malaria, are treated at home or in the community before or without seeking care at a formal health facility [3]. Recent studies in Ethiopia [4], Ghana [5] and Niger [6] found that up to two third of population with illness seek care outside the health system. In Niger only 14% of population reporting morbidity uses the formal health system.

Although malaria recorded in the health system represents only “the tip of the iceberg,” Health Management Information Systems (HMIS) in malaria endemic countries shows malaria has a significant burden on the health systems and across Africa, with an average of 25% to 45% of all outpatient clinic (Figure 2.2). Malaria is also a major contributor to hospital deaths among hospital in-patients with high case-fatality rates arising from late presentation, inadequate management, and unavailability of effective drugs.

Figure 2.2: Burden of malaria at outpatients & inpatients clinics in selected countries/areas in 2004 and 2005

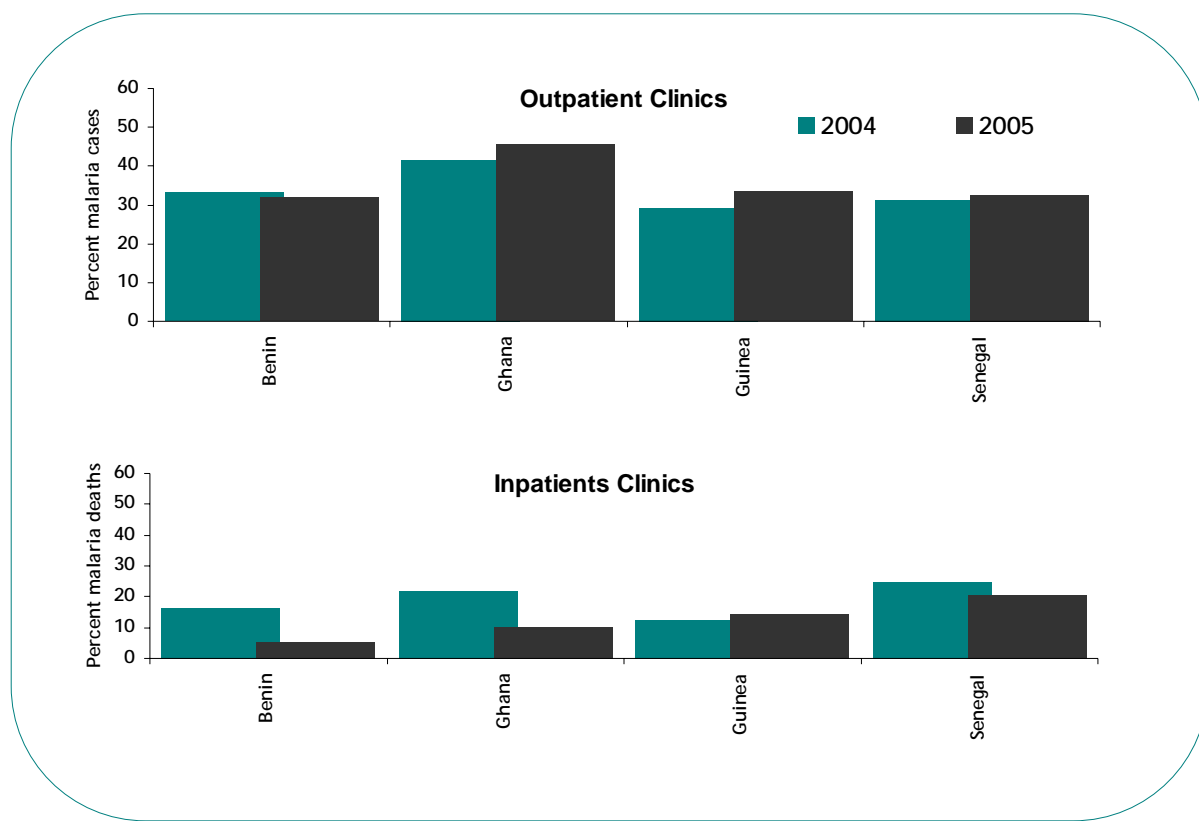


Table 2.1: Outpatients malaria morbidity as reported (routinely or through AMR) by Member States in 2004 and 2005

| Country/Area | 2004 | | | | | 2005 | | | | |
|--------------------------------------|--------------------------------|--|---------------------|--------------------------|------|--------------------------------|--|---------------------|--------------------------|-------|
| | Under five years malaria cases | 5 years and above malaria cases ¹ | Total malaria cases | Total cases (all causes) | % | Under five years malaria cases | 5 years and above malaria cases ¹ | Total malaria cases | Total cases (all causes) | % |
| Cameroon | 28,777 | 47,415 | 76,192 | - | - | 89,041 | 187,650 | 277,413 | 697,665 | 39.76 |
| Central African Rep | 93,991 | 58,373 | 152,364 | - | - | - | - | - | - | - |
| DR Congo | 1,472,688 | 2,556,262 | 4,028,950 | - | - | 3,120,345 | 3,577,433 | 6,697,778 | - | - |
| Rwanda | 372,041 | 899,633 | 1,271,674 | 3,527,737 | 36.1 | - | - | 991,612 | 2,361,523 | 42.0 |
| Sao Tome and Principe | 15,747 | 21,123 | 36,870 | 53,917 | 68.1 | 7,868 | 13,765 | 21,633 | 22,370 | 96.7 |
| Central Africa | 1,983,244 | 3,582,806 | 8,750,814 | 3,581,654 | | 3,217,254 | 3,778,848 | 10,839,855 | 3,081,558 | |
| Comoros | 14,285 | 23,558 | 37,843 | 107,682 | 35.1 | 11,925 | 17,223 | 29,148 | 96,147 | 30.3 |
| Eritrea | 7,164 | 20,619 | 27,783 | - | - | 4,956 | 19,236 | 24,192 | - | - |
| Ethiopia | - | - | 11,499,244 | 12,264,096 | 93.8 | - | - | 10,787,505 | 14,353,595 | 75.2 |
| Madagascar | 534,201 | 924,207 | 1,358,408 | 8,091,025 | 16.8 | - | - | - | - | - |
| Malawi | 1,276,050 | 1,500,687 | 2,776,737 | 15,753,331 | 17.6 | 863,362 | 875,952 | 1,739,314 | - | - |
| Mozambique | - | - | 5,610,884 | 17,898,657 | 31.4 | - | - | 5,896,411 | - | - |
| Namibia | 145,097 | 465,701 | 610,799 | - | - | 87,291 | 251,913 | 339,204 | - | - |
| Swaziland | - | - | 6,952 | - | - | 848 | 7,123 | 7,971 | - | - |
| Tanzania (Mainland) | 5,372,569 | - | 8,973,999 | 28,771,122 | 31.2 | - | - | 3,610,733 | - | - |
| Tanzania (Zanzibar) | 64,271 | 250,187 | 314,458 | 431,767 | 72.8 | 43,899 | 202,986 | 246,885 | 350,813 | 70.4 |
| Uganda | 4,151,270 | 6,561,331 | 10,712,601 | - | - | 1,738,522 | 2,748,547 | 4,487,069 | - | - |
| Zambia | 2,472,243 | 1,857,425 | 4,329,668 | - | - | 2,484,715 | 1,854,313 | 4,339,028 | - | - |
| Zimbabwe | 400,578 | 1,429,603 | 1,830,181 | - | - | 90,765 | 288,368 | 644,591 | - | - |
| Eastern & Southern Africa | 14,437,728 | 13,033,318 | 50,111,043 | 83,317,680 | | 5,326,283 | 6,265,661 | 32,166,465 | 14,800,555 | |
| Benin | 341,816 | 511,218 | 853,034 | 2,566,010 | 33.2 | 330,827 | 472,635 | 803,462 | 2,501,741 | 32.1 |
| Burkina Faso | 849,959 | 964,725 | 1,814,684 | 4,462,249 | 40.7 | 924,838 | 893,980 | 1,818,818 | - | - |
| Côte d'Ivoire | 396,848 | 1,185,227 | 1,582,075 | 4,497,103 | 35.2 | 453,229 | 1,359,372 | 1,812,600 | 5,766,100 | 31.4 |
| Gambia | 323,535 | 328,126 | 651,661 | - | - | 104,239 | 124,003 | 228,242 | - | - |
| Ghana | 623,453 | 2,166,896 | 2,790,349 | 6,724,281 | 41.5 | 946,946 | 2,974,254 | 3,921,200 | 8,643,806 | 45.4 |
| Guinea | 276,433 | 600,404 | 876,837 | 3,014,395 | 29.1 | 264,944 | 585,365 | 850,309 | 2,528,964 | 33.6 |
| Guinea-Bissau | 73,927 | 77,288 | 151,215 | - | - | 67,736 | 80,790 | 148,526 | - | - |
| Liberia | 77,441 | 130,647 | 208,088 | - | - | 28,316 | 34,099 | 62,415 | 110,847 | 56.3 |
| Mali | 289,762 | 560,961 | 850,723 | - | - | 239,082 | - | - | - | - |
| Mauritania | 51,333 | 202,896 | 254,229 | 899,201 | 28.3 | 48,559 | 179,599 | 228,158 | 778,520 | 29.3 |
| Niger | 414,284 | 408,410 | 822,694 | 4,054,187 | 20.3 | 385,674 | 346,385 | 732,059 | 1,663,367 | 44.0 |
| Nigeria | 1,050,075 | 2,059,091 | 3,109,166 | - | - | 902,570 | 1,708,160 | 2,610,730 | - | - |
| Senegal | 314,566 | 839,784 | 1,154,350 | 3,683,781 | 31.3 | 283,898 | 712,009 | 995,907 | 3,064,721 | 32.5 |
| Togo | 189,534 | 327,408 | 516,942 | 1,261,498 | 41.0 | - | - | - | - | - |
| West Africa | 5,272,966 | 10,363,081 | 15,636,255 | 31,162,705 | | 4,980,859 | 9,470,943 | 14,212,719 | 25,058,066 | |
| Djibouti | - | - | - | - | - | 677 | 2,590 | 3,267 | - | - |
| EMRO Region | | | | | | 677 | 2,590 | 3,267 | | |
| AFRICAN REGION | 21,693,938 | 26,979,205 | 74,498,112 | 118,062,039 | | 13,525,073 | 19,518,042 | 57,222,306 | 42,940,179 | |

¹ including pregnant women

Note: Numbers for blocs and regions are totals; (-) Not available/Not applicable (Blank) No response

AMR: Africa Malaria Report

Table 2.1 and 2.2 show the number of reported malaria cases and deaths. Not all cases reported as malaria are true malaria cases since most health facilities lack appropriate diagnostic services. The misdiagnosis may have led to under or over reporting malaria cases and missing diagnoses of other treatable diseases. The misdiagnosis tends to divert resources away from other health issues, increases health expenditure, including a heavier workload on the health system.

Table 2.2: Malaria mortality as reported (routinely or through AMR) by Member States in 2004 and 2005

| Country/Area | 2004 | | | | | 2005 | | | | |
|--------------------------------------|---------------------------------|---|----------------------|---------------------------|------|---------------------------------|---|----------------------|---------------------------|------|
| | Under five years malaria deaths | 5 years and above malaria deaths ¹ | Total malaria deaths | Total deaths (all causes) | % | Under five years malaria deaths | 5 years and above malaria deaths ¹ | Total malaria deaths | Total deaths (all causes) | % |
| Cameroon | 100 | 277 | 377 | - | - | 603 | 274 | 877 | 2,682 | 32.7 |
| Central African Rep | 103 | 156 | 859 | 5,245 | 16.4 | - | - | - | - | - |
| DR Congo | 8,909 | 6,379 | 15,288 | - | - | 13,697 | 3,406 | 17,103 | - | - |
| Rwanda | 449 | 627 | 1,076 | 2,481 | 43.4 | - | - | - | - | - |
| Sao Tome and Principe | 105 | 19 | 124 | 339 | 36.6 | 45 | 25 | 70 | 371 | 18.9 |
| Central Africa | 9,666 | 7,458 | 37,595 | 8,065 | | 14,345 | 3,705 | 30,950 | 3,053 | |
| Eritrea | 6 | 10 | 16 | 1,731 | 1.0 | 2 | 30 | 32 | 1,629 | 2.0 |
| Ethiopia | 1,390 | 1,041 | 4,662 | 14,450 | 32.3 | 1,553 | 1,927 | 3,550 | 14,262 | 24.9 |
| Madagascar | 362 | 504 | 866 | 8,631 | 10.0 | - | - | - | - | - |
| Malawi | 2,044 | 995 | 3,039 | - | - | - | - | 405 | - | - |
| Tanzania (Mainland) | 11,125 | - | 19,067 | 57,964 | 32.9 | - | - | 5,123 | - | - |
| Tanzania (Zanzibar) | 283 | 200 | 483 | 2,271 | 21.3 | - | - | - | - | - |
| Uganda | 1,734 | 839 | 2,573 | - | - | 653 | 401 | 1,054 | - | - |
| Zambia | 4,008 | 4,281 | 8,289 | - | - | 3,441 | 4,256 | 7,697 | - | - |
| Zimbabwe | 93 | 633 | 1,587 | - | - | 51 | 317 | 569 | - | - |
| Eastern & Southern Africa | 21,045 | 8,503 | 46,018 | 85,047 | | 5,707 | 6,975 | 24,077 | 15,891 | |
| Algeria | 0 | 0 | 0 | - | - | 0 | 0 | 0 | - | - |
| Benin | 737 | 207 | 944 | 5,797 | 16.3 | 142 | 181 | 323 | 5,986 | 5.4 |
| Burkina Faso | 3,021 | 1,184 | 4,205 | 14,726 | 28.6 | 4,455 | 1,190 | 5,645 | - | - |
| Cap Verde | 0 | 2 | 2 | 2,522 | 0.1 | 0 | 1 | 1 | 2,005 | 0.1 |
| Côte d'Ivoire | 516 | 774 | 1,289 | 6,512 | 19.8 | 707 | 1,050 | 1,757 | 7,947 | 22.1 |
| Gambia | 212 | 110 | 380 | - | - | 93 | 63 | 162 | - | - |
| Ghana | 1,260 | 1,428 | 2,688 | 12,178 | 22.1 | 1,759 | 959 | 2,718 | 26,996 | 10.1 |
| Guinea | 330 | 198 | 528 | 4,259 | 12.4 | 297 | 193 | 490 | 3,410 | 14.4 |
| Guinea-Bissau | 248 | 123 | 371 | - | - | 274 | 117 | 391 | - | - |
| Liberia | - | - | - | - | - | 27 | 13 | 40 | - | - |
| Mali | 825 | 395 | 1,220 | - | - | 659 | 242 | 901 | - | - |
| Mauritania | - | - | - | - | - | 33 | 77 | 110 | - | - |
| Niger | 2,274 | 907 | 3,181 | 4,862 | 65.4 | 1,919 | 1,164 | 3,083 | 12,042 | 25.6 |
| Nigeria | 2,952 | 2,167 | 5,119 | 14,474 | 35.4 | 2,203 | 1,216 | 3,417 | 12,480 | 27.9 |
| Senegal | 598 | 926 | 1,524 | 6,144 | 24.8 | 516 | 770 | 1,286 | 6,228 | 20.7 |
| Togo | 828 | 355 | 1,183 | 5,627 | 21.0 | - | - | - | - | - |
| West Africa | 13,801 | 8,776 | 22,634 | 77,101 | | 13,084 | 7,236 | 20,324 | 77,094 | |
| AFRICAN REGION | 44,512 | 24,737 | 106,247 | 170,213 | | 33,136 | 17,916 | 75,351 | 96,038 | |

¹ including pregnant women

Note: Numbers for blocs and regions are totals; (-) Not available/Not applicable (Blank) No response

AMR: Africa Malaria Report

Due to the chronic under-reporting and misdiagnoses and the fact that most malaria deaths occur in the community, the number of malaria cases reported through the HMIS is much lower than the estimated 800,000 malaria cases that occur annually in Africa. Therefore, an improved HMIS and surveillance system is needed to help health planners quantify the burden of malaria, adequately estimate and allocate resources to health services, including malaria preventive and curative interventions.

2.3 The Economic and Social Burden of Malaria

The high burden of malaria is a significant drawback to economic and social development in endemic countries. There is a bi-directional link between malaria and economic development; high prevalence of malaria impairs health and restrains economic development. On the other hand, by improving health status, living conditions and access to effective prevention and treatment, economic development reduces illness from malaria.

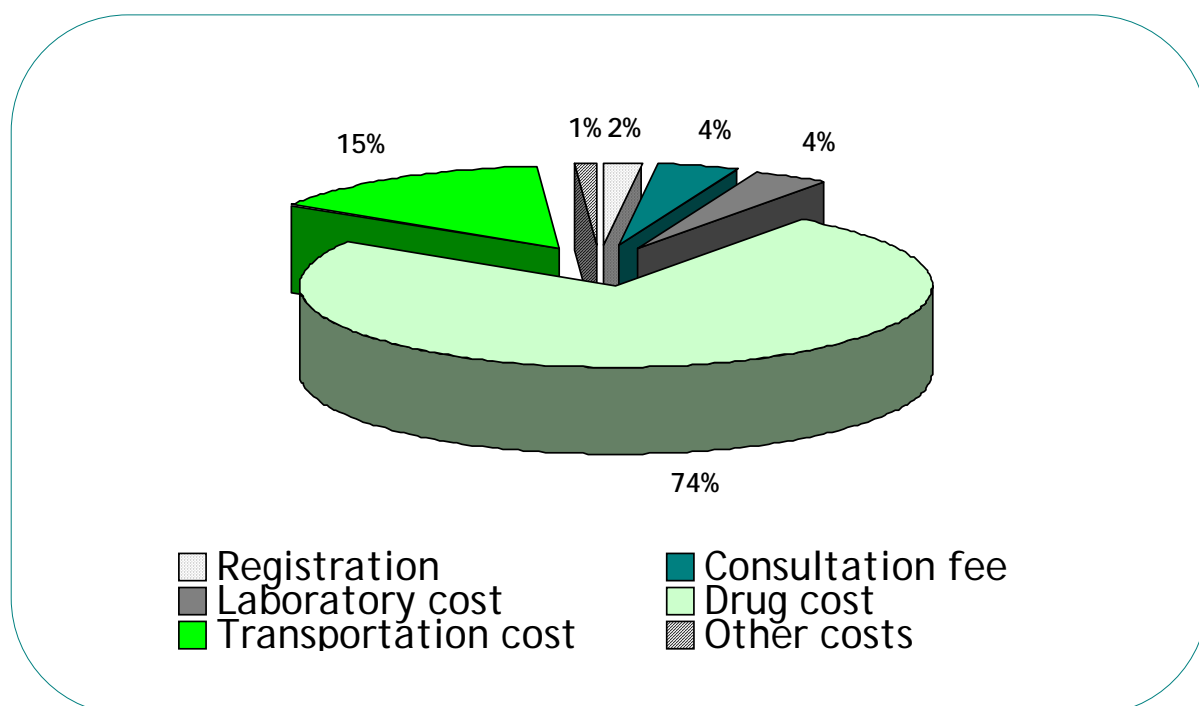
Malaria is confined almost exclusively in developing countries in Africa south of the Sahara and southern Asia with 58% of malaria deaths occurring in the poorest 20% of the world population [7]. Reaching the poor with effective health interventions, including malaria, is a challenge. Financial barriers limit access of the poor to health services, they usually live in remote areas, and are socially and culturally marginalized. The poorest of the poor are most affected (figure 2.3) [8] since they live in dwellings prone to mosquito proliferation and are less likely to afford health services and malaria interventions.

For the most endemic countries in the Region, the high burden of malaria is responsible for an estimated average annual reduction of 1.3% in economic growth, US\$12 billions loss, and serious social disruptions.

Recent studies to estimate the economic burden of malaria in endemic countries showed that the direct cost of a single episode of malaria to a household was US\$ 6.87 in Ghana, US\$ 4.8 in Uganda and US \$ 4.5 in Mali. In Nigeria, it costs about US\$ 1 to treat a malaria episode by self-medication, and about US\$ 10 to treat it by the use of orthodox health care provider when admission is not involved.

Estimates of the burden of malaria on the overall economies of Ghana, Mali, Nigeria and Uganda reveal that malaria impedes economic growth in the countries ranging from 0.067% in Uganda to as much as 3.8% in Nigeria. The Gross Domestic Product loss due to malaria in Uganda in 2003 was equivalent to US\$11 million, which is a very substantive loss to the economy for a country like Uganda. This estimated GDP loss due to malaria translates into US \$ 0.43 per capita, which is about 5% of health per capita expenditure.

Figure 2.3: Direct cost of malaria treatment, Uganda, 2004



The same studies in Ghana, Nigeria, Mali, Uganda and Guinea found that indirect costs make up more than 70% of total household malaria costs. These studies found that sick adults lost 1 to 7 days per malaria episode, depending on severity. The value of days lost due to malaria is estimated at US\$ 8.92 and US\$ 8.84 Uganda. Monthly household expenditures on malaria prevention ranged from US\$ 0.32 to US\$ 10 in the five countries.

2.4 Burden of Malaria on the poor

At the household level, a study in Ghana found that costs of malaria consume 34% of the income of poor households while the richer ones spend only 1% of their wealth.

Although malaria does not distinguish among wealth categories, poor families very often lack the resources to acquire proper preventive measures or seek the most effective treatment of the disease even in complicated and life-threatening cases, thus, leading to more severe cases and then higher mortality rates, further reducing the capacities of the poor to develop. The costs of preventing and treating malaria impose a significant burden, particularly on the poorest households in the region. In Malawi for example, a survey showed that 4% of the income of very poor households spent on malaria prevention, compared with 16% of the middle and upper income households.

Inequity in access to health services and malaria interventions is a further disadvantage to the poor. For example, equity ratio between the rich and the poor in Niger regarding access to ITNs was only 0.36. Following an integrated measles-malaria campaign in Niger where free ITNs were distributed in December 2005, the equity ratio rose to 0.86. Mass campaigns were thus shown to be an appropriate strategy for rapidly increasing access of the poor to malaria ITNs.

3. ORGANIZATION AND MANAGEMENT OF MALARIA PREVENTION AND CONTROL

Better organized and managed health systems are a pre-requisite for scaling up malaria control in Africa. The health system must not only recognize malaria as a serious public health problem but must move towards prioritizing action against the disease and its consequences. The questionnaire includes questions on the countries readiness to control malaria by reviewing country policies, strategies and partnerships for malaria control.

All the 42 countries reporting have developed national health policies and health sector strategic plans that prioritise malaria prevention and control. Between 1998 and 2000, all the 42 malaria endemic countries developed 5-Year Malaria Strategic Plans (MSPs). By the beginning of 2006, about 17 MSPs from Malawi, Namibia, Zambia, Eritrea, Ethiopia, Uganda, Nigeria, Benin, Senegal, Guinea, Mauritania, Guinea Bissau, Niger, Togo, Burkina Faso, Central African Republic and Congo had expired and are being updated. The Malaria Strategic Plans have been instrumental in guiding country processes to plan, implement and mobilize resources for malaria control from the Global Fund, World Bank Booster Programme and other bilateral funding agencies. All the countries produce annual work plans derived from the malaria strategic plans.

All the 42 countries have an established National Malaria Control Programme (NMCP) which are based at the Ministry of Health Headquarters, usually under the Division/Department of Epidemiology or Disease Control. The programmes are responsible for policy and strategy development, overseeing implementation of malaria control interventions, management of human resources, partnership development, monitoring and evaluation.

The NMCPs are organized into sub-units with focal points for each of the key malaria control interventions, as shown in table 3.1. Of the 40 countries reporting, 94% have programme manager, 94 % have case management focal person, 94% vector control focal points, 75 % malaria in pregnancy focal points and 100% for surveillance, monitoring and evaluation focal points. This is an improvement on previous years when the NMCPs were grossly understaffed.

In some of the countries (not shown) there are staff at the provincial and in some cases at the district level that are 100% committed to malaria country. However, in most countries, staff at the sub-national level that work on malaria control also have several other priority programmes hence reducing the amount of time devoted to malaria control.

3.1 Partnership Development

The global malaria strategy operates on the principle of building partnerships with the public and private sector at the global, regional, sub-regional, country and district levels. Since the launch of RBM in 1998, several partners at district, national, regional and global levels have been contributing to the control of malaria in Africa.

The RBM partnership Secretariat coordinates global partners. RBM partnerships networks have been established in the sub-regional epidemiological blocs such as the Eastern Africa RBM Network (EARN) and Western Africa RBM Network (WARN). At the country level, partnerships have been established between development partners, government departments, international NGOs, local NGOs and communities.

As figure 3.1 shows, countries have multiple partners involved in malaria control. The partners are either working across the whole country or in selected districts/regions. Partners are involved in programme management, case management, malaria in pregnancy, vector control, epidemic response and monitoring and evaluation.

At country level, all the countries reporting have established mechanisms for the coordination of the partnership, with representation from government departments and other key stakeholders in malaria control.

Figure 3.1: Number of partners involved in malaria-related activities at central level, 2005

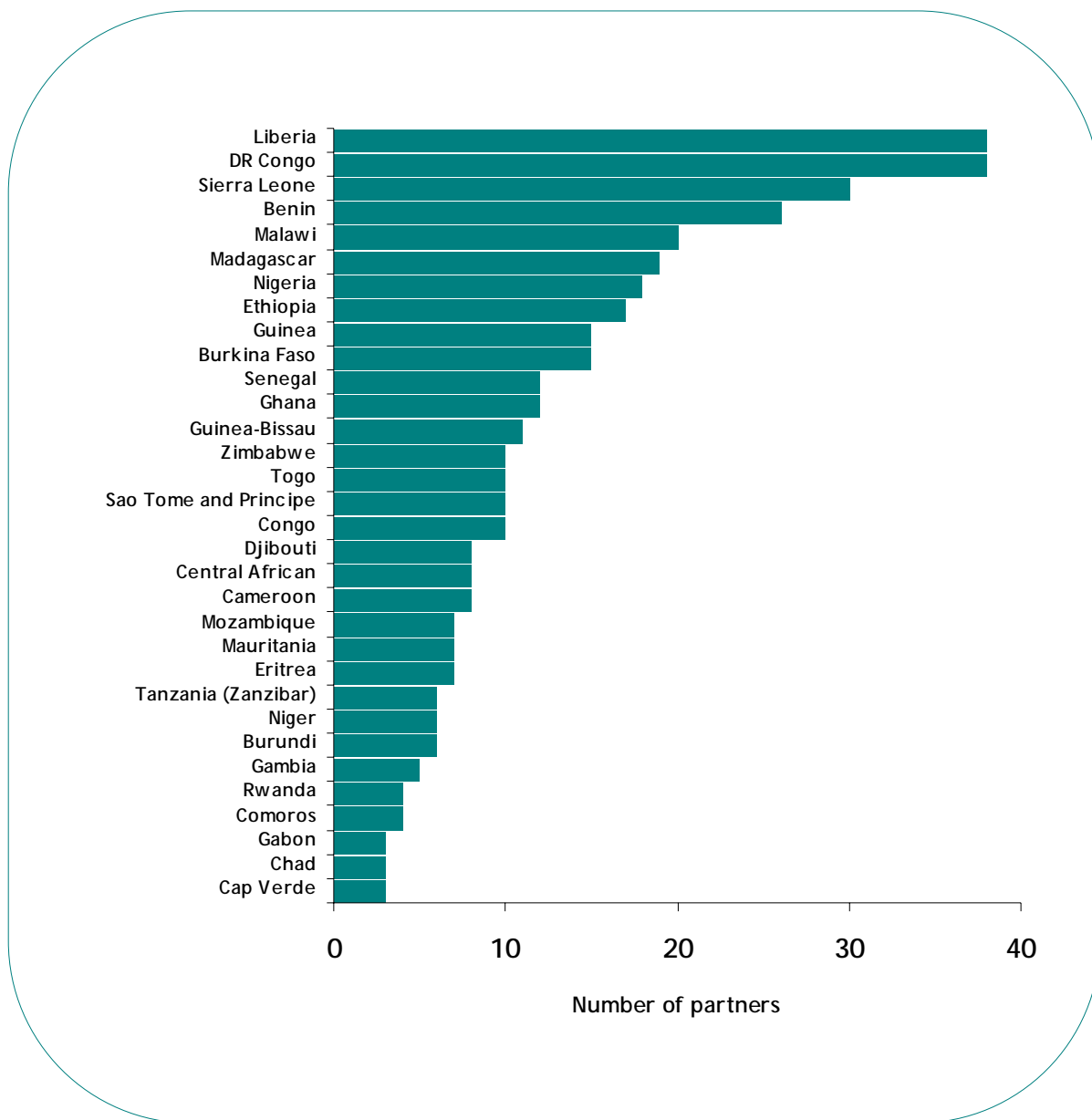


Table 3.1: National Malaria Control Programme (NMCP) Areas of Work (units, cells) and Focal Points

| Country/Area | Existence of Focal Person for Area of Work | | | | | | | Number of professional staff working at central level currently involved in: | | | | | | |
|--------------------------------------|--|------------|------------|-------------|------------|-------------|-------------|--|-----------|-----------|------------|-----------|-----------|-----------|
| | PM | PECM | MIP | VC | EPR | SME | CAD | PM | PECM | MIP | VC | EPR | SME | CAD |
| Angola | | | | | | | | | | | | | | |
| Burundi | ✓ | ✓ | | ✓ | ✓ | | ✓ | 4 | 8 | - | 4 | 3 | 3 | 2 |
| Cameroon | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2 | 1 | 1 | 1 | 0 | 1 | 1 |
| Central African Republic | | | | | | | | 1 | 1 | 0 | 1 | 0 | 1 | 0 |
| Chad | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | 1 | 3 | 3 | 3 | 9 | 2 | 1 |
| Congo | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | - | - | - | - |
| DR Congo | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 3 | 7 | 1 | 5 | 2 | 4 | 4 |
| Equatorial Guinea | | | | | | | | | | | | | | |
| Gabon | ✓ | ✓ | ✓ | ✓ | | ✓ | | 1 | 2 | 2 | 2 | 0 | 0 | 0 |
| Rwanda | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | 1 | 1 | 0 | 2 | 1 | 1 | 1 |
| Sao Tome and Principe | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 8 | - | - | 3 | - | 6 | 2 |
| Central Africa | 89% | 89% | 67% | 89% | 56% | 67% | 78% | 21 | 23 | 7 | 21 | 15 | 18 | 11 |
| Botswana | ✓ | ✓ | | ✓ | ✓ | | ✓ | 1 | 1 | - | 9 | - | 1 | 1 |
| Comoros | ✓ | ✓ | | ✓ | ✓ | | | 2 | 1 | - | 2 | - | 2 | 1 |
| Eritrea | ✓ | | | ✓ | | ✓ | | 1 | - | - | 3 | 2 | 3 | 1 |
| Ethiopia | ✓ | ✓ | | ✓ | ✓ | ✓ | | 1 | 2 | 0 | 2 | 2 | 0 | 0 |
| Kenya | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 1 | 4 | 3 | 2 | 4 | 3 | 1 |
| Lesotho | | | | | | | | | | | | | | |
| Madagascar | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 3 | 3 | 2 | 2 | 4 | 2 | 3 |
| Malawi | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2 | 1 | 1 | 2 | 1 | 1 | 1 |
| Mauritius | | | | | | | | | | | | | | |
| Mozambique | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 1 | 1 | 1 | 5 | 0 | 1 | 1 |
| Namibia | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | - | - | - | - | - | - | - |
| Seychelles | | | | | | | | | | | | | | |
| South Africa | | | | | | | | - | - | - | - | - | - | - |
| Swaziland | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | - | - | - | - | - | - | - |
| Tanzania (Mainland) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | - | - | - | - |
| Tanzania (Zanzibar) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | - | - | - | - |
| Uganda | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | - | - | - | - |
| Zambia | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 3 | 3 | 2 | 3 | 1 | 3 | 1 |
| Zimbabwe | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 1 | 1 | 0 | 3 | 0 | 1 | 1 |
| Eastern & Southern Africa | 94% | 88% | 63% | 94% | 75% | 81% | 69% | 16 | 17 | 9 | 33 | 14 | 17 | 11 |
| Algeria | | | | | | | | | | | | | | |
| Benin | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | 2 | 2 | 2 | 1 | - | 2 | 3 |
| Burkina Faso | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | 1 | 4 | 4 | 3 | - | 3 | 1 |
| Cap Verde | ✓ | | | ✓ | | ✓ | ✓ | 1 | 0 | - | 2 | 3 | 2 | 1 |
| Côte d'Ivoire | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | - | - | - | - |
| Gambia | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 1 | 1 | 1 | 1 | 0 | 1 | 1 |
| Ghana | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | 2 | 2 | 2 | 2 | 2 | 2 | 1 |
| Guinea | ✓ | ✓ | | ✓ | | ✓ | ✓ | 3 | 5 | 0 | 5 | 0 | 1 | 1 |
| Guinea-Bissau | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | 2 | 2 | 2 | 2 | - | 2 | 1 |
| Liberia | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 4 | 2 | 2 | 2 | 1 | 2 | 1 |
| Mali | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | 1 | 5 | 1 | 1 | 1 | 2 | 1 |
| Mauritania | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 1 | 1 | 1 | - | 1 | 1 | - |
| Niger | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 3 | 1 | 0 | 5 | 2 | 2 | 6 |
| Nigeria | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | 5 | 20 | 2 | 20 | 0 | 5 | 3 |
| Senegal | ✓ | ✓ | | | ✓ | ✓ | ✓ | 3 | 2 | 2 | 0 | 3 | 3 | 3 |
| Sierra Leone | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | 1 | 1 | 1 | 1 | - | 3 | 1 |
| Togo | | ✓ | ✓ | ✓ | | ✓ | | - | 1 | 1 | 3 | - | 1 | - |
| West Africa | 94% | 94% | 75% | 94% | 25% | 100% | 94% | 30 | 49 | 21 | 48 | 13 | 32 | 24 |
| Djibouti | ✓ | | | ✓ | | | ✓ | - | - | - | - | - | - | - |
| Somalia | | | | | | | | | | | | | | |
| Sudan | | | | | | | | | | | | | | |
| EMRO Region | 100% | 0% | 0% | 100% | 0% | 0% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| AFRICAN REGION | 93% | 88% | 67% | 93% | 50% | 83% | 81% | 67 | 89 | 37 | 102 | 42 | 67 | 46 |

(-) Not available/Not applicable (Blank) No response (✓) Yes

Note: Numbers for blocs and regions are totals: Percentages are based only on number of countries that have reported in each sub-region/region

PM: Programme Management; VC: Vector Control; MIP: Malaria in Pregnancy; EPR: Epidemic Preparedness and Response

SME: Surveillance, Monitoring and Evaluation; CAD: Communication and Advocacy; PECM: Prompt and Effective Case Management

4. MALARIA PREVENTION

Malaria prevention strategies that are recommended in the African region include insecticide treated nets (ITNs), indoor residual spraying (IRS) and intermittent preventive treatment with at least two doses of SP during pregnancy (IPTp). This section describes the progress made in prevention of malaria through the deployment of ITNs, IRS and IPTp. This section is a review of country policies, strategies and outputs in malaria prevention.

4.1 ITN Distribution and Re-treatment

With the support of partners and increased funding more countries are scaling up ITN distribution. To increase access to ITNs, several governments have waived or reduced taxes and tariffs on nets, netting materials and insecticides. Furthermore, most ITNs distributed especially during campaigns are Long Lasting Insecticide-treated Nets (LLINs) which will eventually increase ITN coverage that was persistently low due to low re-treatment rates of conventional mosquito nets.

The major channels through which ITNs are delivered to pregnant women and children under five include free distribution at ANC/EPI visits, integrated child survival campaigns, social marketing and/or distribution of highly subsidized ITNs at ANC/EPI visits clinics, and free or highly subsidized net re-treatment campaigns as shown in table 4.1. The inter-bloc differences are due to varying delivery channels across countries and sub regions. For example the 2002 UNICEF project "Accelerated Child Survival and Development Initiative" implemented in 11 West and Central African countries provided ITNs to pregnant women and young children at ANC and EPI visits.

Table 4.1: Mosquito nets promotion and provision to vulnerable groups

| Country/Area | Type of mosquito nets promoted in the country policy | | Channels through which mosquito nets are provided to children under the age of 5 years | | | | Channels through which mosquito nets are provided to pregnant women | | | |
|--------------------------------------|--|--------------------------------|--|----------------------|------------------------|------------|---|----------------------|------------------------|------------|
| | Nets for conventional dipping | Long Lasting Insecticidal Nets | ANC Visit | Routine Immunization | Immunization Campaigns | Child Days | ANC Visit | Routine Immunization | Immunization Campaigns | Child Days |
| Angola | | | | | | | | | | |
| Burundi | ✓ | ✓ | ✓ | ✓ | | | ✓ | | | |
| Cameroon | ✓ | ✓ | | | ✓ | | | | | |
| Central African Republic | ✓ | | | | | | | | | |
| Chad | ✓ | ✓ | | ✓ | | | ✓ | ✓ | | |
| Congo | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | | |
| DR Congo | ✓ | ✓ | | ✓ | ✓ | | ✓ | | | |
| Equatorial Guinea | | | | | | | | | | |
| Gabon | ✓ | ✓ | | | ✓ | | ✓ | | | |
| Rwanda | | ✓ | ✓ | ✓ | ✓ | | ✓ | | | |
| Sao Tome and Principe | ✓ | ✓ | ✓ | ✓ | | | ✓ | | | |
| Central Africa | 89% | 89% | 44% | 67% | 44% | 0% | 78% | 22% | 0% | 0% |
| Botswana | ✓ | | | | | | | | | |
| Comoros | ✓ | ✓ | ✓ | | | ✓ | ✓ | | | |
| Eritrea | ✓ | ✓ | | | | | ✓ | | | |
| Ethiopia | | ✓ | | | | | ✓ | | | |
| Kenya | ✓ | ✓ | | ✓ | ✓ | | ✓ | | | |
| Lesotho | | | | | | | | | | |
| Madagascar | ✓ | ✓ | | ✓ | ✓ | | ✓ | | | |
| Malawi | ✓ | | ✓ | ✓ | | | ✓ | ✓ | | |
| Mauritius | | | | | | | | | | |
| Mozambique | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | | ✓ | |
| Namibia | ✓ | ✓ | | | | | ✓ | | | |
| Seychelles | | | | | | | | | | |
| South Africa | | | | | | | | | | |
| Swaziland | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | | ✓ |
| Tanzania (Mainland) | ✓ | | | | | | | | | |
| Tanzania (Zanzibar) | ✓ | ✓ | ✓ | | | | ✓ | | | |
| Uganda | ✓ | ✓ | ✓ | | | ✓ | ✓ | | | |
| Zambia | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | | | ✓ |
| Zimbabwe | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Eastern & Southern Africa | 88% | 75% | 50% | 31% | 31% | 38% | 81% | 19% | 13% | 19% |
| Algeria | | | | | | | | | | |
| Benin | ✓ | ✓ | | ✓ | | | ✓ | | | |
| Burkina Faso | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | | |
| Cap Verde | | | | | | | | | | |
| Côte d'Ivoire | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Gambia | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | |
| Ghana | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Guinea | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | | |
| Guinea-Bissau | ✓ | ✓ | | | | | ✓ | | | |
| Liberia | | ✓ | ✓ | | | | ✓ | | | |
| Mali | ✓ | ✓ | | ✓ | ✓ | | ✓ | | ✓ | |
| Mauritania | ✓ | ✓ | ✓ | | | | ✓ | | | |
| Niger | ✓ | ✓ | ✓ | | ✓ | | ✓ | | | |
| Nigeria | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Senegal | ✓ | ✓ | ✓ | ✓ | | | ✓ | | | |
| Sierra Leone | | ✓ | | ✓ | ✓ | | ✓ | | | |
| Togo | ✓ | ✓ | | ✓ | ✓ | | ✓ | | | |
| West Africa | 81% | 94% | 56% | 69% | 56% | 25% | 88% | 31% | 25% | 19% |
| Djibouti | | ✓ | | | | | | | | |
| Somalia | | | | | | | | | | |
| Sudan | | | | | | | | | | |
| EMRO Region | 0% | 100% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| AFRICAN REGION | 83% | 86% | 50% | 52% | 43% | 24% | 81% | 24% | 14% | 14% |

(-) Not available/Not applicable (Blank) No/Missing/Not Applicable//Don't Know (✓) Yes
 Percentages are based only on number of countries that have reported in each sub-region/region

Information on levels of ITN distribution and ITN re-treatment in 2004-2005 is presented in Table 4.2. Please note that many countries were unable to report this data. Overall, the number of ITNs distributed increased by 20%.from 15,090,042 units in 2004 to 18,166,488 units in 2005.

The inter-bloc differences in the numbers of ITNs distributed in both 2004 and 2005 are large. Overall, more ITNs were delivered in Eastern & Southern Africa where 11,641,783 units were distributed in 2005 compare with 6,297,708 units in 2004. The scale of ITN distribution activities is still low in Central Africa where only 1,675,015 units were distributed in 2005 compared with 1,394,475 units that were distributed in 2004.

ITN re-treatment ensures the continued effectiveness of ITNs. The number of ITNs retreated or re-treatment kits distributed between 2004 and 2005 is also presented in Table 4.2. Overall, the data presented in this table suggest an increase in the number of ITNs re-treated or re-treatment kits distributed in all the sub-regions with the largest increase in Eastern and Southern Africa.

Table 4.2: ITN distributions and re-treatment

| Country/Area | Number of ITNs sold or distributed in the country by year | | Number of ITNs retreated or re-treatment kits distributed in the country by year | |
|--------------------------------------|---|-------------------|--|------------------|
| | 2004 | 2005 | 2004 | 2005 |
| Angola | | | | |
| Burundi | | 534,794 | | 10,649 |
| Cameroun | 242,555 | 506,373 | 3,000 | 41,041 |
| Central African Republic | 5,000 | 2,500 | 5,000 | 2,500 |
| Chad | | 118,293 | | |
| Congo | 23,000 | 650 | | |
| DR Congo | 877,161 | 791,135 | 32,968 | |
| Equatorial Guinea | | | | |
| Gabon | 7,314 | 122,212 | | 244,161 |
| Rwanda | 223,926 | 233,500 | 162,305 | 269,211 |
| Sao Tome and Principe | 15,519 | 18,645 | 6,000 | 6,459 |
| Central Africa | 1,394,475 | 2,328,102 | 209,273 | 574,021 |
| Botswana | 75,892 | 45,190 | | |
| Comoros | | 10,000 | | 8,000 |
| Eritrea | 214,752 | 108,062 | 544,464 | 797,355 |
| Ethiopia | 496,458 | 3,725,000 | | 1,000,000 |
| Kenya | 3,500,000 | 5,990,780 | 700,222 | 1,415,341 |
| Lesotho | | | | |
| Madagascar | 253,921 | 175,780 | | 220,000 |
| Malawi | 1,253,663 | 583,590 | 1,323,557 | 1,849,105 |
| Mauritius | | | | |
| Mozambique | 358,022 | 558,381 | 196,358 | 65,565 |
| Namibia | 26,000 | 80,000 | | |
| Seychelles | | | | |
| South Africa | | | | |
| Swaziland | 10,000 | 15,000 | 16,000 | 19,000 |
| Tanzania (Mainland) | | | | |
| Tanzania (Zanzibar) | 10,000 | 20,000 | 300,000 | 180,000 |
| Uganda | | | | |
| Zambia | 400,000 | | 770,000 | |
| Zimbabwe | 99,000 | 340,000 | | |
| Eastern & Southern Africa | 6,697,708 | 11,651,783 | 3,850,601 | 5,554,366 |
| Algeria | | | | |
| Benin | 659,254 | 321,641 | 204,914 | 438,250 |
| Burkina Faso | 125,000 | 562,600 | 2,000 | |
| Cap Verde | | | | |
| Côte d'Ivoire | 1,711,321 | | 861,212 | |
| Gambia | 22,000 | 150,000 | 192,500 | 223,712 |
| Ghana | 2,500,000 | | 220,000 | |
| Guinea | 59,000 | 100,500 | 53,000 | 105,500 |
| Guinea-Bissau | 14,000 | 23,000 | 161,109 | 243,293 |
| Liberia | 30,000 | 37,636 | | |
| Mali | 198,701 | 557,164 | | |
| Mauritania | 13,176 | | 165,000 | 35,000 |
| Niger | 413,712 | 2,265,000 | 16,000 | |
| Nigeria | 163,471 | 60,200 | | 367,500 |
| Senegal | | | 100,000 | 122,500 |
| Sierra Leone | 45,000 | 85,000 | | |
| Togo | 1,053,224 | 38,862 | 0 | 103,297 |
| West Africa | 7,007,859 | 4,201,603 | 1,975,735 | 1,639,052 |
| Djibouti | | 42,300 | | |
| Somalia | | | | |
| Sudan | | | | |
| EMRO Region | | 42,300 | | |
| AFRICAN REGION | 15,100,042 | 18,223,788 | 6,035,609 | 7,767,439 |

(Blank) Not available/Not applicable/No response/Don't Know
Note: Numbers for bloc, region and Africa are totals

Box 4.1. Case study: ITN retreatment Campaign in Uganda in 2004 and 2005

With support from DFID, USAID, GFATM, UPHOLD, WHO and the Malaria Consortium, the NMCP Uganda conducted a large scale net retreatment campaign in 2004/2005.

In May/June 2004, the first round of mass net retreatment was carried out in 20 districts which were known to have a net-use culture.

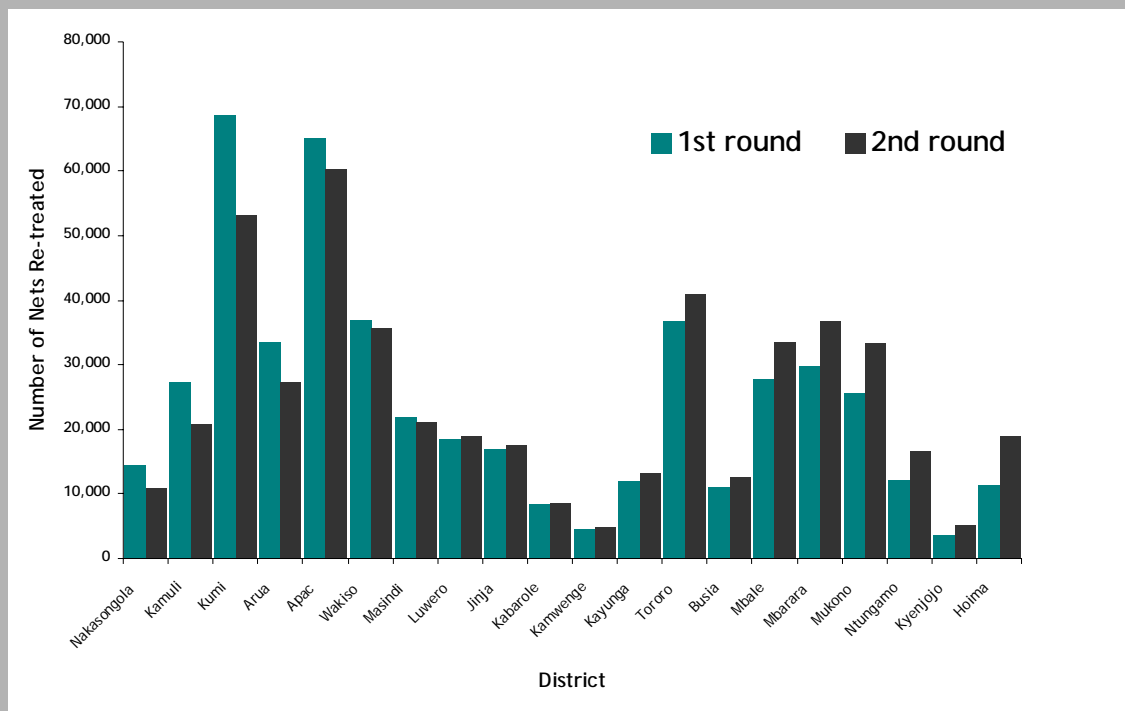
The 20 districts were involved in detailed planning and training of 2,607 dippers and 498 supervisors to serve 20,000 communities and 2,300,000 households. To ensure success, local administrative structures up to the village level were used to sensitize the communities about the exercise through inter-personal communication rather than mass media. The campaign was launched by the Vice President of Uganda on Africa Malaria day, 25 April 2004. To ensure maximum uptake of the services, a simple, convenient and private net retreatment service to the net owner was designed. The nets were treated in a plastic bag by a trained dipper at a village dipping point and then taken home while still in the plastic bag by the net owner. The net owner would then spread the net to dry at home. This method was easy to carry out, allowed high volumes of nets to be treated, ensured privacy for the net owner and guaranteed the insecticide got onto the net. A total of 486,263 nets were treated out of 650,000 targeted nets achieving a net retreatment rate of 74%. Before, during and after the net retreatment exercises, demand for nets increased. The cost per net treated was 75 cents (US \$) that included cost of insecticide, materials, equipment, design inputs and implementation.

The second round of net retreatment conducted in 2005 treated 490,855 nets. The graph shows the number of nets treated in each of the 20 districts across the two rounds.

Joint planning, involvement of key partners and beneficiary communities including an innovative approach of treating the net in a plastic bag contributed to the success. A planned DHS in 2006 would inform on the outcome in terms increased coverage of ITNs in Uganda.

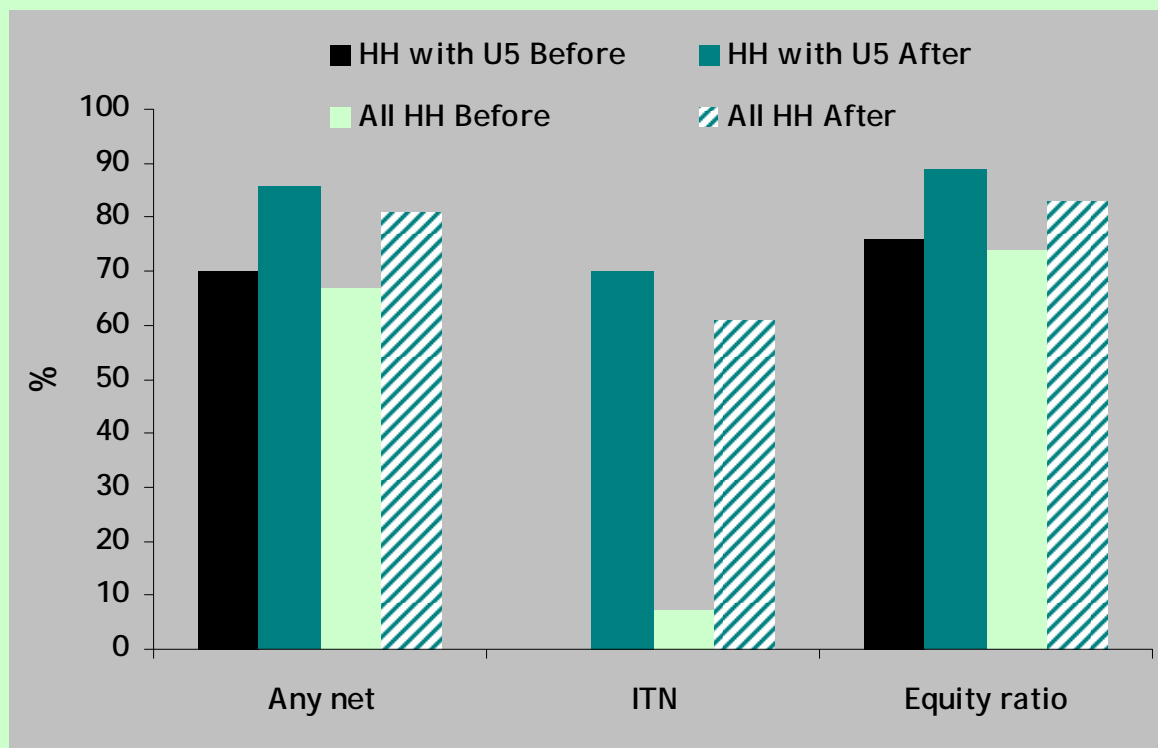
Source: NMCP/MOH Uganda

Figure 4.1: Comparison of 1st & 2nd Round Net Re-treatment (2004 & 2005)



Box 4.2: Case study: Integrated Polio/ITN, Niger

Figure 4.2: Household (HH) possession of net and equity ratio of nets ownership in Niger



In Niger, malaria is one of the leading causes of child morbidity and mortality with 97% of the population at risk. The government of Niger and its partners, with full funding from the GFATM distributed more than 2 million ITNs integrated into a polio campaign to all children under the age of 5 years.

The campaign was conducted by the IFRC in partnership with WHO, UNICEF, EPI, CERMES, CRN, CDC, Canadian Red Cross and many NGOs. The campaign was for 5 days in December 2005. During the campaign, 1800 volunteers were mobilized and trained in community mobilization and proper use of ITNs. Mobile teams provided polio vaccines to children at home and caretakers were provided with vouchers and their fingernails marked with indelible ink. The caretakers then received one ITN each on presentation of the vouchers at fixed ITN distribution.

A survey conducted one month after the campaign showed that household ownership of ITNs rose to 61.1% while 68.7% of households with children under the age of 5 years owned an ITN. The equity ratio between the rich and the poor rose from 0.74 to 0.81 (Figure 4.2). The Niger experience confirms other experiences in Togo and elsewhere, that free mass distribution of ITNs avails them to the poor. It also demonstrates the effectiveness of strong partnerships and integrated interventions in the fight against malaria.

The most important ingredients for success of the campaign were the strong partnership built through integrated committees, regular partner meetings, full integration of all activities from planning and training, procurement and distribution, implementation through monitoring and evaluation of the campaign.

Source: WHO/CDC

4.2 Use of ITNs by Women and Children

It is difficult to describe on an Africa-wide scale the current level of ITN coverage or the progress in scaling up that coverage. However, ITN coverage is still low owing to factors such as the cost of the ITNs and the weaknesses of the national ITN delivery models. With about 63% of under five children sleeping under an ITN, Eritrea is the only country that reached the Abuja target of 60% ITN usage in 2003 [9].

Data from recent (2003-2005) national and sub-national household surveys such as the DHS, Netmark and RBM Surveys show that only Eritrea and Togo may have attained the 60% Abuja target (Figure 4.3 & Figure 4.4).

Figure 4.3: Percentage of under-fives sleeping under any mosquito net or ITN in selected countries (using nationally representative surveys carried out during the period 2003-2004)

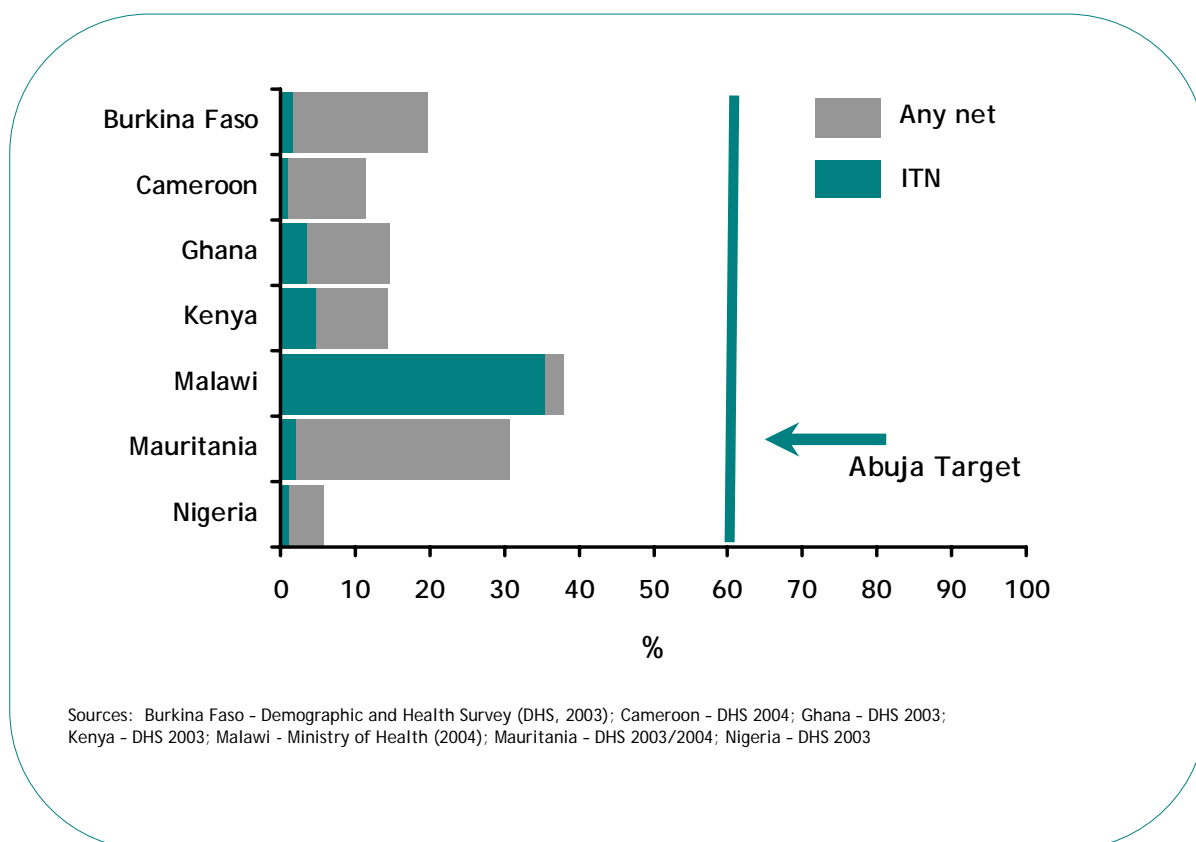
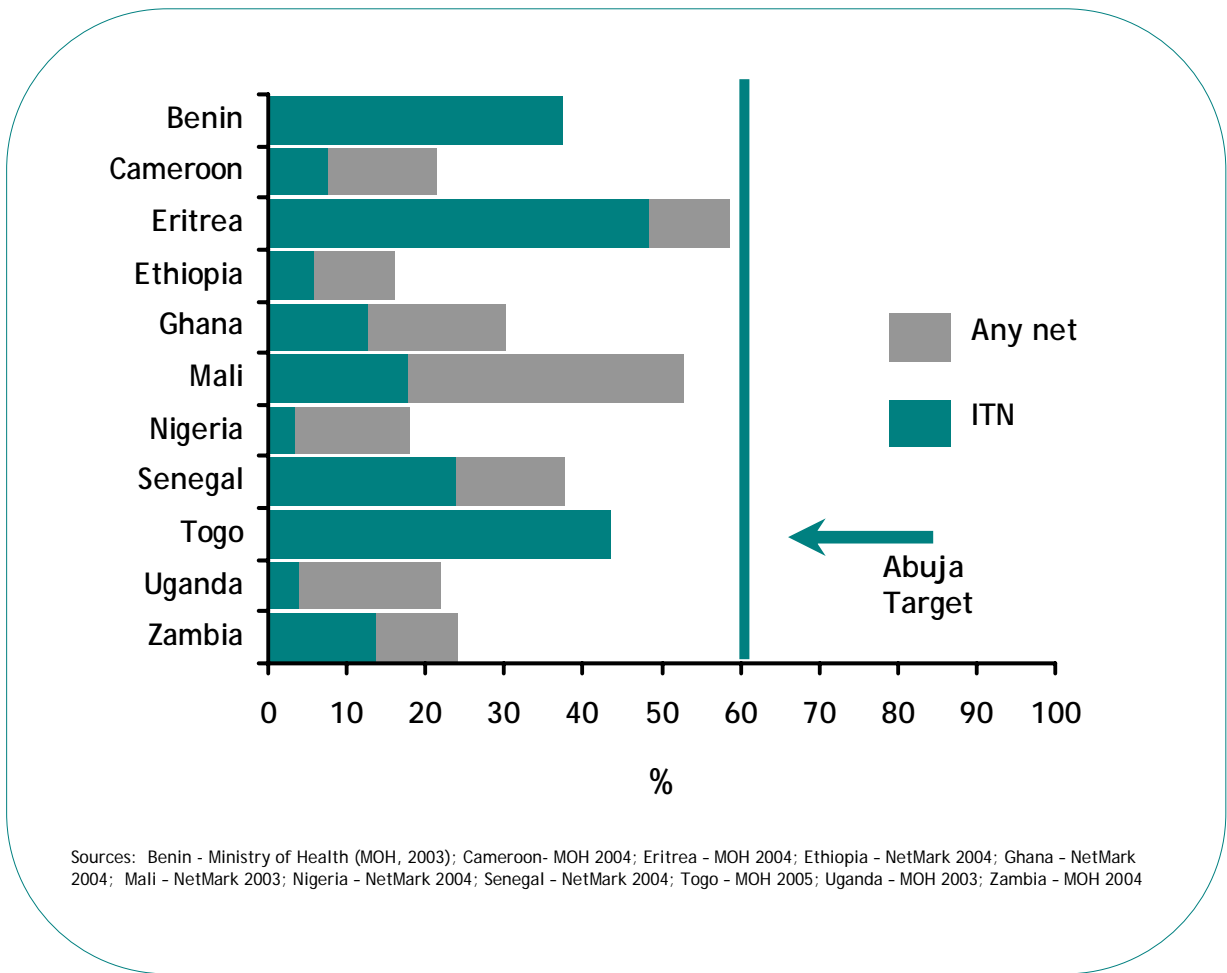
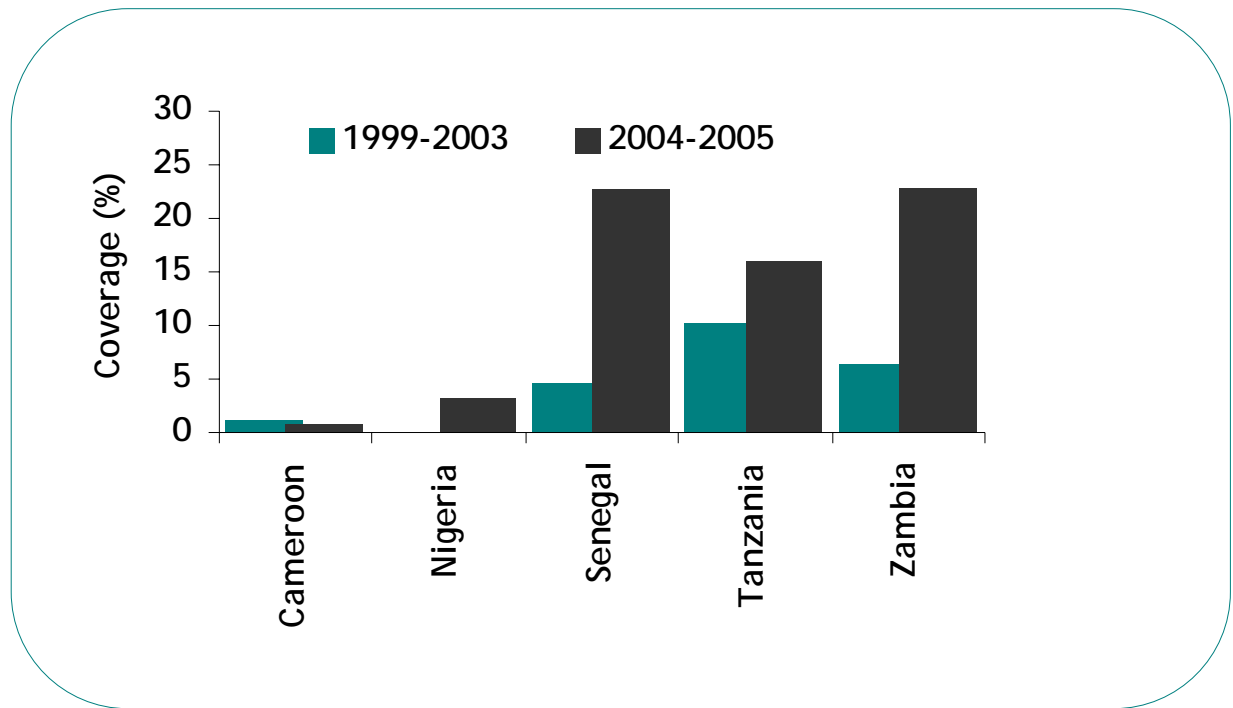


Figure 4.4: Percentage of under-fives sleeping under any mosquito net or ITN in selected countries (sub-national surveys carried out during the period 2003-2005)



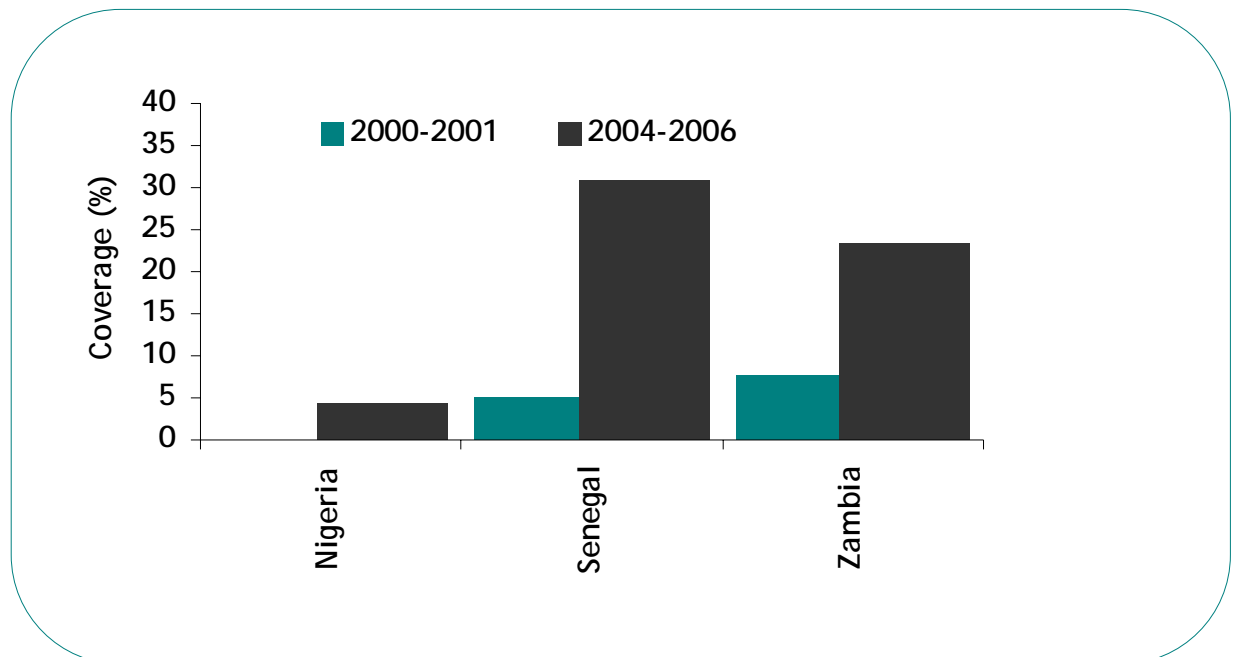
Recent data on ITN coverage is not yet available for most countries in the African Region. Data from countries with at least two surveys in the periods 1999-2003 and 2004-2005 are shown in figure 4.4. ITN coverage among under five children has increased in Senegal (4.6% to 23.9%), Tanzania (10.2% to 16.0%), and Zambia (6.5 to 22.8%). A lot of new ITN data will be available at the beginning of 2007.

Figure 4.5: Percentage of under five years old children who slept under an ITN the night before the survey in selected countries, 1999-2005



Recent NetMark surveys (see figure 4.5 and 4.6) suggest an improvement in ITN coverage among young children and pregnant women between 1999 and 2004 in the countries surveyed

Figure 4.6: Percentage of pregnant women aged 15-49 years who slept under an ITN the night before the survey in selected countries, 2000-2006



4.3 Indoor Residual Spraying

Indoor residual spraying (IRS) is the spraying of the inside walls and ceiling of a house with residual insecticide to reduce mosquito life span and density resulting in reduction of malaria transmission. To achieve the maximum impact on malaria transmission, coverage should exceed 80%. Also, the spraying should be done in a short period of time, just before the onset of the transmission season. IRS is mostly deployed in the epidemic-prone areas by countries of East and Southern Africa.

This section of the report will focus on the countries that deployed IRS in the 2004-2005 spraying cycle. About 12 countries namely Botswana, Burundi, Eritrea, Ethiopia, Guinea, Liberia, Madagascar, Mozambique, Namibia, South Africa, Swaziland, Zambia, Zimbabwe reported using IRS for malaria control.

Table 4.3 shows the countries that deployed IRS and the insecticides used, while Figure 4.7 shows trends in operational coverage in selected countries in 2004 and 2005. Operational coverage is defined as the proportion of households/houses/housing units sprayed compared to the number planned for IRS during a spraying cycle.

Table 4.3: Countries using IRS for malaria vector control

| Country | Use of IRS for malaria control | Insecticide/s used for IRS |
|-----------------------|--------------------------------|--------------------------------|
| Angola | Yes | Lambdacyhalothrin |
| Botswana | Yes | Lambdacyhalothrin |
| Burundi | Yes | Lambdacyhalothrin (Icon) |
| Cape Verde | Yes | Deltamethrin (K-Othrin) |
| Côte d'Ivoire | Yes | Deltamethrin (K-Othrin), |
| Eritrea | Yes | DDT |
| Ethiopia | Yes | DDT, MALATHION |
| Guinea | Yes | Propoxur, Cyfluthrin (Solfac) |
| Kenya | Yes | DELTA METHRIN (K-OTHRIN), |
| Madagascar | Yes | DDT and Fendona |
| Mali | Yes | Permethrin (Imperator/Peripel) |
| Mauritius | Yes | DDT |
| Mozambique | Yes | DDT and Lambdacyhalothrin |
| Namibia | Yes | DDT and Deltamethrin |
| Rwanda | Yes | Deltamethrin (K-Othrin) |
| Sao Tome and Principe | Yes | Alphacypermethrin (Fendona) |
| South Africa | Yes | DDT and Deltamethrin |
| Swaziland | Yes | DDT and Deltamethrin |
| Uganda | Yes | Deltamethrin (K-Othrin), |
| Zambia | Yes | DDT and Deltamethrin |
| Zimbabwe | Yes | DDT and Lambdacyhalothrin |

Figure 4.7: Number of households/structures sprayed during the last spraying cycle

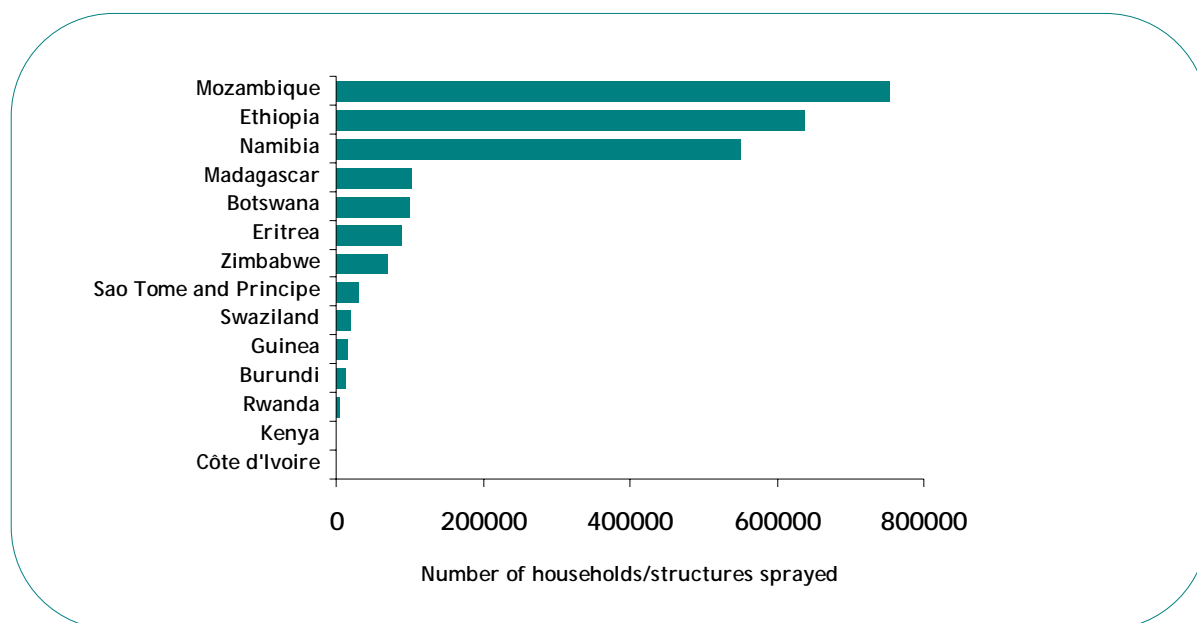
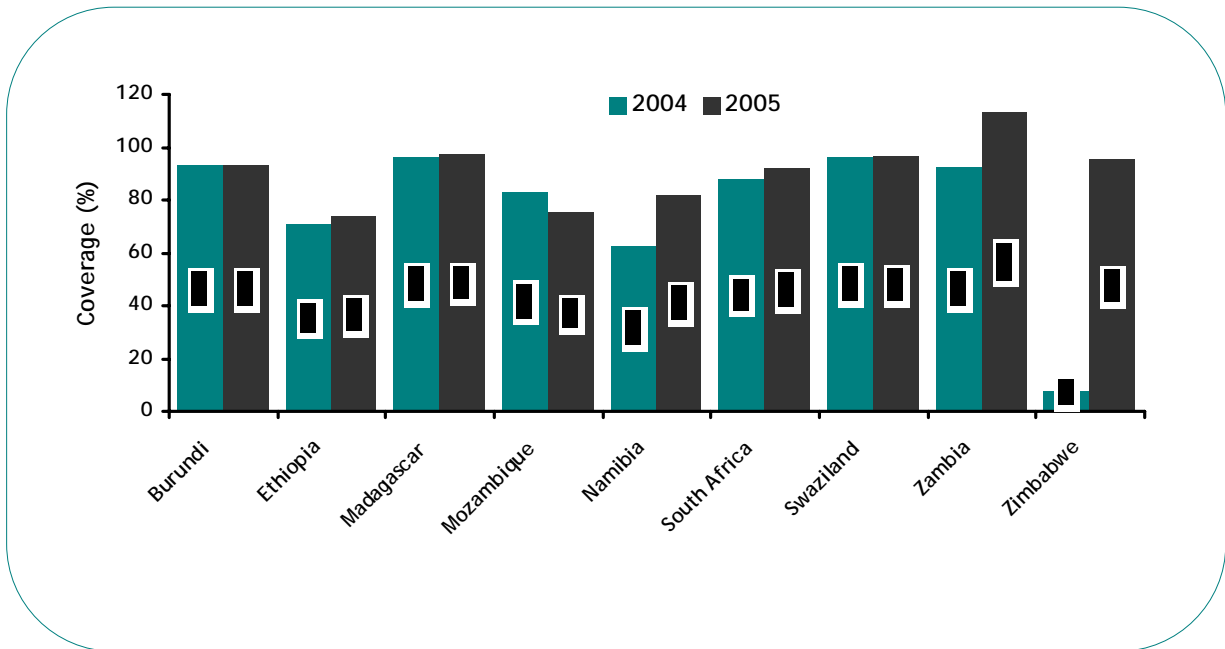
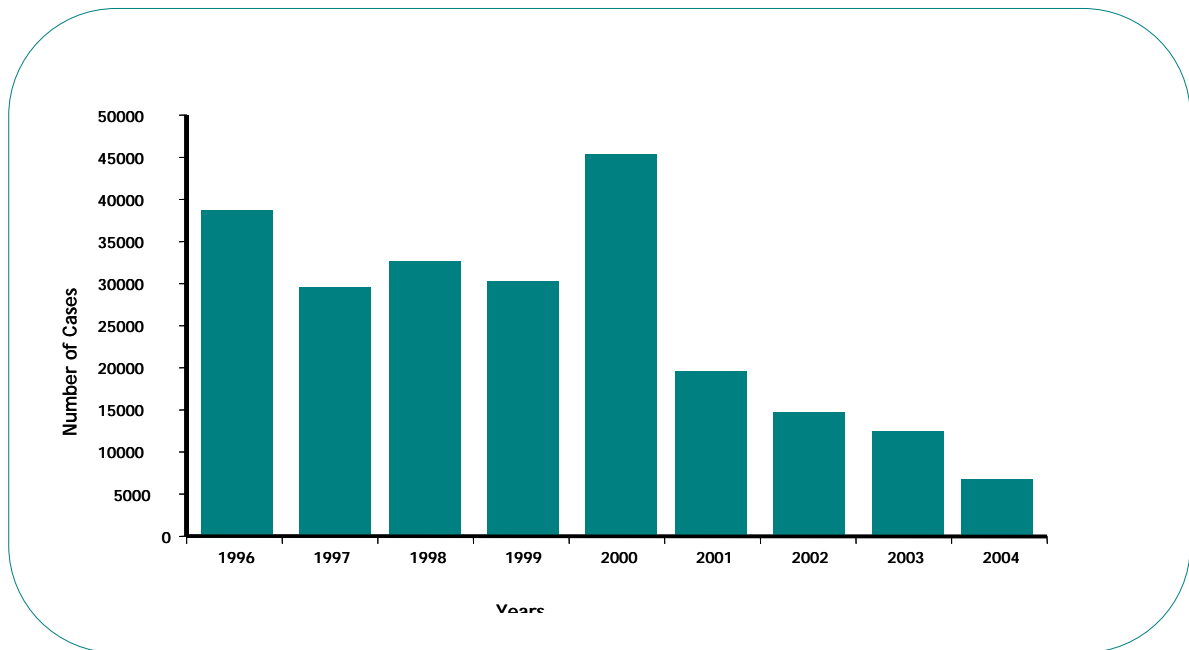


Figure 4.8: IRS Operational coverage in selected countries using IRS for Malaria during the year 2004 and 2005



IRS is used mainly either as epidemic control or routine vector control. Eight countries, mostly in Eastern and Southern region (Eritrea, Ethiopia, Mozambique, Namibia, South Africa, Swaziland, Zambia, Zimbabwe), used DDT during the last spraying (2005-2006).

Figure 4.9: Trends in total clinical malaria cases, 1996-2004 in Swaziland



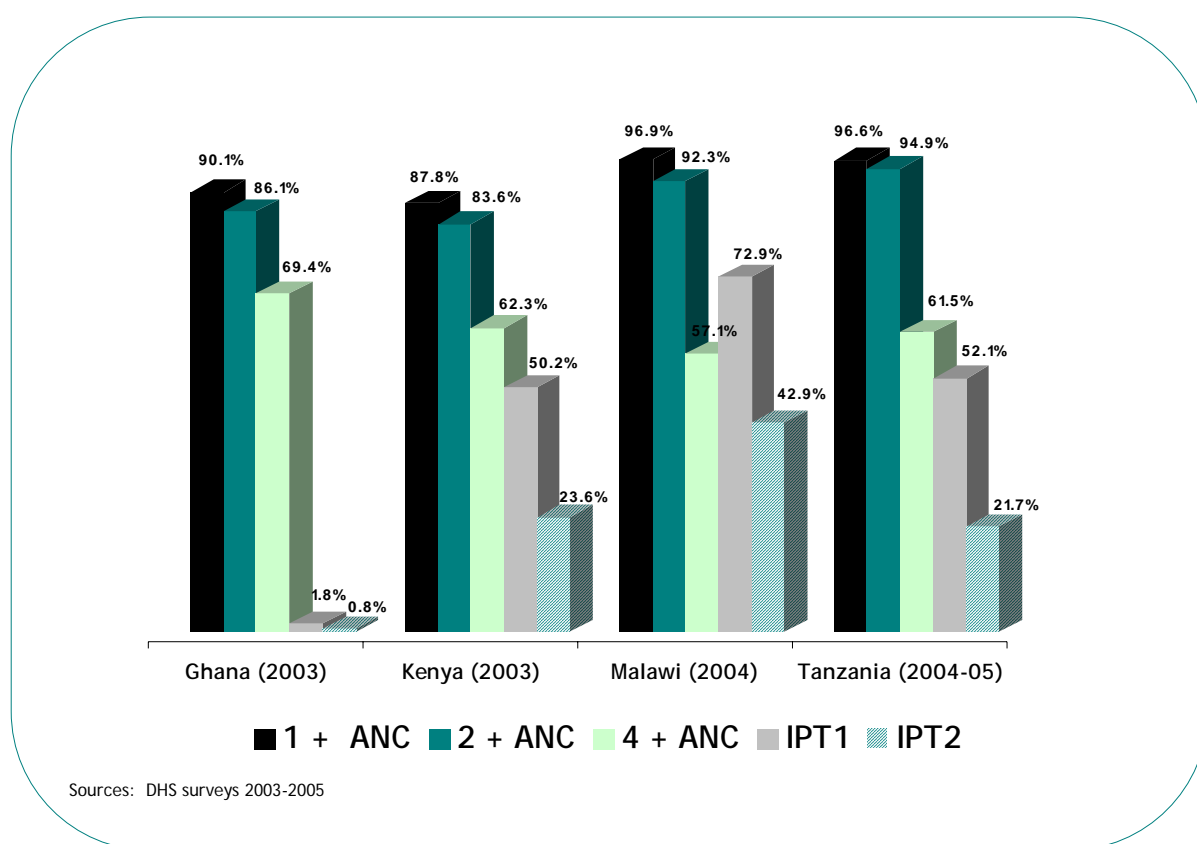
Data presented in figure 4.9 indicate a reduction in malaria cases since 1996 in Swaziland after the re-introduction of IRS in 1998.

4.4 Intermittent preventive treatment of malaria during pregnancy (IPTp)

IPTp with SP is a preventive measure to ensure that expectant mothers remain malaria-free during pregnancy and deliver healthy babies. This strategy has been shown to reduce low birth weight, anaemia and severe malaria in numerous endemic settings. At present, the standard IPTp regimen is a therapeutic dose of SP given at least twice after quickening. To ensure that women receive at least two doses, delivery of IPTp doses is linked to antenatal clinic visits. WHO presently recommends an optimal schedule of four antenatal clinic visits, with three visits after quickening [10].

The IPTp strategy has now been adopted in all the 35 endemic countries where it is recommended. Of these countries 25 are already implementing the strategy and 18 are scaling up to all health facilities offering ANC services. In 23 of the 25 countries that are already implementing the strategy has been implemented in at least 50% of malaria-endemic districts.

Figure 4.10: ANC and prevalence of access to IPTp medications during an ANC visit, DHS surveys, 2003-2005



IPTp is mostly delivered through ANC clinics. Among the 35 countries that reported on ANC attendance, twenty-two (63%) indicated that at least 80% of pregnant women attend ANC at least once, while twenty countries (57%) indicated that 50% of pregnant women attended ANC at least twice. Moreover, DHS data from Ghana, Kenya, Malawi and Tanzania show that ANC attendance at least two visits is greater than 80%. Coverage levels for IPTp I & II range respectively from 1.8% and 0.8% in Ghana (2003) to 72.9% and 42.9% in Malawi (2004) as shown in Figure 4.9, suggesting that there are several missed opportunities for providing at least two doses of IPTp to pregnant women attending ANC.

Table 4.4: intermittent Preventive Treatment during Pregnancy in countries where IPT is recommended

| Country/Area | IPTp implementation has started | Percentage of districts implementing IPTp |
|--------------------------------------|---------------------------------|---|
| Angola | | |
| Burundi | | |
| Cameroon | ✓ | 99 |
| Central African Republic | ✓ | 67 |
| Chad | ✓ | |
| Congo | ✓ | 100 |
| DR Congo | ✓ | 39 |
| Equatorial Guinea | | |
| Gabon | ✓ | 100 |
| Rwanda | ✓ | |
| Sao Tome and Principe | ✓ | 100 |
| Central Africa | 89% | 59% |
| Comoros | ✓ | 100 |
| Kenya | ✓ | 51 |
| Madagascar | ✓ | 82 |
| Malawi | ✓ | 100 |
| Mozambique | ✓ | 100 |
| Namibia | ✓ | 32 |
| Tanzania (Mainland) | ✓ | 100 |
| Tanzania (Zanzibar) | ✓ | 100 |
| Uganda | ✓ | 26 |
| Zambia | ✓ | 100 |
| Zimbabwe | ✓ | 28 |
| Eastern & Southern Africa | 69% | 39% |
| Benin | ✓ | 100 |
| Burkina Faso | ✓ | 55 |
| Côte d'Ivoire | ✓ | 33 |
| Gambia | ✓ | 50 |
| Ghana | ✓ | 100 |
| Guinea | ✓ | 100 |
| Guinea-Bissau | ✓ | 64 |
| Liberia | ✓ | 100 |
| Mali | ✓ | 98 |
| Mauritania | | |
| Niger | ✓ | 0 |
| Nigeria | ✓ | 100 |
| Senegal | ✓ | 100 |
| Sierra Leone | ✓ | 46 |
| Togo | ✓ | |
| West Africa | 88% | 90% |
| AFRICAN REGION | 79% | 62% |

(Blank) Not available/Not applicable/No response (✓) Yes

Percentages are based only on number of countries that have reported in each sub-region/region

5. DISEASE MANAGEMENT

5.1 Malaria Case Management

This section describes the status of implementation of malaria case management including the use of RDTs for malaria diagnosis, training of health workers, and the adoption of the Artemisinin-based combination therapy (ACT) treatment policy. Access to anti-malarial treatment by children under the age of five years from recent household surveys is also included.

5.1.1 Malaria diagnosis

Prompt and accurate diagnosis of malaria is the key to effective disease management. The diagnosis of malaria relies on clinical examination and the presence of parasites in the blood through microscopy or the use of rapid diagnostic tests (RDTs). All countries deploy malaria microscopy in hospitals and selected lower level health facilities. Progress is being made in the usage of RDTs in the case management of uncomplicated malaria in the African Region. As Table 5.1 shows, of the 42 countries that reported, 64% are planning or using RDTs. RDTs are being used in clinical and community settings respectively in about half (57%) and one-tenth (10%) among these countries.

5.1.2 Training on malaria case management

Well-trained and well-equipped health care workers are a key ingredient for successful delivery of health care services and products. Regular supervision of trained health personnel motivates staff and ensures quality of care. In order to increase the proportion of caregivers for malaria, traditional human resource persons such as traditional health practitioners and traditional birth attendants are being trained in a number of countries (Benin, Niger, Mozambique) to provide treatment to at risk groups with malaria using the standard first line antimalarial and to refer severe cases to the nearest health facility.

The data in Table 5.1 shows number of health workers trained in malaria case management. Cascade training on malaria has been conducted at least once in 89%, 88%, and 69% of the reporting countries in, respectively, Central, West, and Eastern and Southern African blocs. More staff received in-service training in malaria case management in 2004 compared to 2005 in East and Southern Africa; Central (873 to 2,778 staff) and West (4,513 to 11,463 staff) African epidemiological blocs.

Table 5.1: Malaria Case Management

| Country/Area | Usage of Rapid Diagnostic Tests (RDTs) | | | Case management cascade training being conducted in country | Number of professional staff trained in malaria case management in | |
|--------------------------------------|--|------------------------------|------------------------|---|--|---------------|
| | Planned or using RDTs | RDTs used at Health Facility | RDTs used at Community | | 2004 | 2005 |
| Angola | | | | | | |
| Burundi | ✓ | | ✓ | ✓ | 300 | 200 |
| Cameroon | | | | ✓ | - | 2,124 |
| Central African Republic | | | | ✓ | 47 | 0 |
| Chad | ✓ | ✓ | ✓ | ✓ | - | - |
| Congo | | | | ✓ | - | 240 |
| DR Congo | | | | ✓ | - | - |
| Equatorial Guinea | | | | | | |
| Gabon | | | | ✓ | - | 156 |
| Rwanda | ✓ | ✓ | | - | - | - |
| Sao Tome and Principe | ✓ | | | ✓ | 526 | 58 |
| Central Africa | 44% | 22% | 22% | 89% | 873 | 2,778 |
| Botswana | ✓ | ✓ | | ✓ | 40 | - |
| Comoros | | | | ✓ | - | 104 |
| Eritrea | ✓ | ✓ | | ✓ | 142 | 1,235 |
| Ethiopia | ✓ | ✓ | | ✓ | 5,655 | 3,365 |
| Kenya | ✓ | ✓ | | | - | - |
| Lesotho | | | | | | |
| Madagascar | ✓ | ✓ | ✓ | ✓ | - | 284 |
| Malawi | | | | ✓ | 647 | - |
| Mauritius | | | | | | |
| Mozambique | ✓ | ✓ | | - | - | - |
| Namibia | ✓ | ✓ | | ✓ | - | 350 |
| Seychelles | | | | | | |
| South Africa | ✓ | ✓ | | - | - | - |
| Swaziland | ✓ | ✓ | | | 60 | 65 |
| Tanzania (Mainland) | | | | ✓ | - | - |
| Tanzania (Zanzibar) | ✓ | ✓ | | ✓ | - | - |
| Uganda | ✓ | | | ✓ | - | - |
| Zambia | ✓ | ✓ | | - | 500 | - |
| Zimbabwe | ✓ | ✓ | | ✓ | - | 564 |
| Eastern & Southern Africa | 81% | 75% | 6% | 69% | 7,044 | 5,967 |
| Algeria | - | | | - | | |
| Benin | | | | ✓ | 244 | 8 |
| Burkina Faso | | | | ✓ | 860 | 1,673 |
| Cap Verde | ✓ | ✓ | | | - | - |
| Côte d'Ivoire | ✓ | ✓ | | | - | - |
| Gambia | | | | ✓ | 74 | 134 |
| Ghana | ✓ | ✓ | ✓ | ✓ | 2,817 | 6,636 |
| Guinea | ✓ | ✓ | | ✓ | - | 487 |
| Guinea-Bissau | | | | ✓ | 20 | 97 |
| Liberia | ✓ | ✓ | | ✓ | - | 1,269 |
| Mali | ✓ | ✓ | | ✓ | - | - |
| Mauritania | ✓ | ✓ | | ✓ | 15 | 320 |
| Niger | ✓ | ✓ | | ✓ | 172 | 668 |
| Nigeria | ✓ | ✓ | | ✓ | - | - |
| Senegal | | | | ✓ | - | - |
| Sierra Leone | ✓ | ✓ | | ✓ | 90 | 30 |
| Togo | | | | ✓ | 221 | 141 |
| West Africa | 63% | 63% | 6% | 88% | 4,513 | 11,463 |
| Djibouti | | | | | | |
| Somalia | | | | | | |
| Sudan | | | | | | |
| EMRO Region | 0% | 0% | 0% | 0% | | |
| AFRICAN REGION | 64% | 57% | 10% | 79% | 12,430 | 20,208 |

(Blank) Not available/Not applicable/No response (-) Don't Know (✓) Yes

Percentages are based only on number of countries that have reported in each sub-region/region where applicable

Note: Numbers for bloc, region and Africa are totals

5.2 Anti malaria drug policy

Since 2001, the World Health Organization (WHO) recommends the use of artemisinin-based combination therapy (ACT) in the treatment of uncomplicated malaria in settings where malaria is resistant to conventional treatments such as chloroquine or SP. ACTs are currently the most effective medicines available to treat uncomplicated falciparum malaria. The five recommended ACTs are: artemether-lumefantrine (Coartem®), artesunate-amodiaquine, artesunate-mefloquine, artesunate-sulfadoxine/pyrimethamine,

To date, 36 countries in the African Region have adopted ACT policies (Figure 5.1). However, the 1st line treatment of uncomplicated malaria is still CQ in Algeria, Cape Verde, Swaziland; SP in Botswana and Malawi; and CQ+SP in Eritrea.

Figure 5.1 shows that there is always a time-lag between adoption and implementation of a new policy.

As shown in Table 5.2, the countries are at various stages of implementation ranging from adoption of guidelines, training of health workers to actual dispensing of ACTs to beneficiaries.

Figure 5.1: Trends in ACT policy adoption and implementation

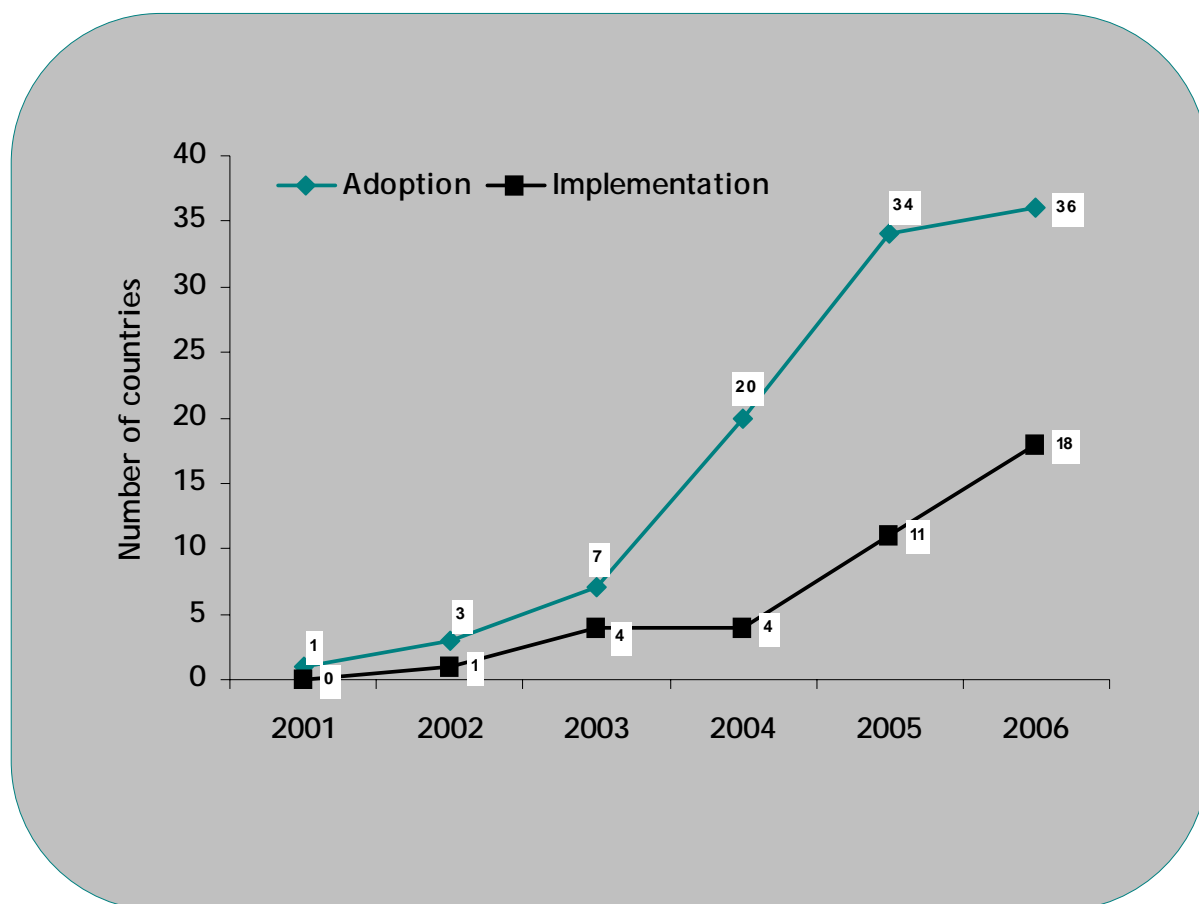


Table 5.2: Status of implementation of the new antimalarial drug policy

| Country/Area | Year of adoption | Implementation starting Year | Funding secured | Treatment guidelines developed/ updated | Procurement and distribution plan developed | Training of health workers done | Treatment with new policy at health facility started | Percentage of facilities implementing the new antimalarial policy |
|--------------------------------------|------------------|------------------------------|-----------------|---|---|---------------------------------|--|---|
| Angola | 2004 | 2004 | | | | | | |
| Burundi | 2003 | 2003 | | ✓ | ✓ | ✓ | ✓ | 89 |
| Cameroon | 2004 | 2005 | | ✓ | ✓ | ✓ | ✓ | 50 |
| Central African Republic | 2005 | | | | | | | |
| Chad | 2005 | 2005 | | ✓ | | ✓ | ✓ | 15 |
| Congo | 2006 | 2006 | | | | ✓ | ✓ | 8 |
| DR Congo | 2005 | 2005 | | ✓ | ✓ | ✓ | | |
| Equatorial Guinea | | | | | | | | |
| Gabon | 2003 | 2005 | | ✓ | ✓ | ✓ | ✓ | 50 |
| Rwanda | 2005 | 2005 | | ✓ | ✓ | | | |
| Sao Tome and Principe | 2005 | 2005 | | ✓ | ✓ | ✓ | ✓ | |
| Central Africa | | | | 78% | 67% | 78% | 67% | |
| Botswana | 1997 | 1997 | | ✓ | ✓ | ✓ | ✓ | 100 |
| Comoros | 2003 | 2004 | | ✓ | | ✓ | ✓ | 95 |
| Eritrea | 2002 | 2002 | | ✓ | ✓ | | ✓ | 100 |
| Ethiopia | 2004 | 2004 | | ✓ | ✓ | ✓ | ✓ | 100 |
| Kenya | 2004 | 2006 | | ✓ | ✓ | ✓ | | |
| Lesotho | | | | | | | | |
| Madagascar | 2005 | 2005 | | ✓ | ✓ | ✓ | ✓ | 15 |
| Malawi | 1993 | 1993 | | ✓ | ✓ | ✓ | ✓ | 100 |
| Mauritius | | | | | | | | |
| Mozambique | 2005 | 2006 | | ✓ | ✓ | | | |
| Namibia | 2005 | 2005 | | ✓ | ✓ | ✓ | ✓ | 90 |
| Seychelles | | | | | | | | |
| South Africa | 2002 | 2002 | | ✓ | | | | |
| Swaziland | | | | | | | | |
| Tanzania (Mainland) | 2005 | | | ✓ | | ✓ | | |
| Tanzania (Zanzibar) | 2002 | 2003 | | ✓ | ✓ | ✓ | ✓ | 100 |
| Uganda | 2006 | 2006 | | ✓ | ✓ | ✓ | | |
| Zambia | 2003 | 2003 | | | | | ✓ | 100 |
| Zimbabwe | 2004 | | | ✓ | | | | |
| Eastern & Southern Africa | | | | 88% | 63% | 63% | 56% | |
| Algeria | | | | | | | | |
| Benin | 2005 | 2005 | | ✓ | ✓ | ✓ | ✓ | 10 |
| Burkina Faso | 2005 | 2005 | | ✓ | ✓ | ✓ | | |
| Cap Verde | | | | | | | | |
| Côte d'Ivoire | 2005 | 2005 | | ✓ | ✓ | ✓ | ✓ | 33 |
| Gambia | 2005 | 2006 | | ✓ | | ✓ | | |
| Ghana | 2004 | 2005 | | ✓ | ✓ | ✓ | ✓ | |
| Guinea | 2005 | 2005 | | ✓ | ✓ | | | |
| Guinea-Bissau | 2005 | | | | | | | |
| Liberia | 2004 | 2004 | | ✓ | ✓ | ✓ | ✓ | 60 |
| Mali | 2005 | 2005 | | | ✓ | | | |
| Mauritania | 2006 | | | | | | | |
| Niger | 2005 | 2005 | | ✓ | ✓ | ✓ | ✓ | 38 |
| Nigeria | 2005 | 2005 | | ✓ | ✓ | ✓ | ✓ | 50 |
| Senegal | 2003 | 2003 | | ✓ | ✓ | ✓ | ✓ | 100 |
| Sierra Leone | 2004 | 2005 | | ✓ | | ✓ | ✓ | 70 |
| Togo | 2004 | 2006 | | ✓ | | ✓ | | |
| West Africa | | | | 75% | 63% | 69% | 50% | |
| Djibouti | 2006 | | | ✓ | | | | |
| Somalia | | | | | | | | |
| Sudan | | | | | | | | |
| EMRO Region | | | | 100% | 0% | 0% | 0% | |
| AFRICAN REGION | | | | 81% | 62% | 67% | 55% | |

(Blank) Not available/Not applicable/No response (✓) Yes

Percentages are based only on number of countries that have reported in each sub-region/region

5.3 Access to anti malarial treatment

Prompt access to accurate diagnosis and effective treatment is a critical element for malaria control. In Africa south of Sahara where most malaria is due to *Plasmodium falciparum*, early and effective treatment within 24 hours could save many lives.

Trend data on access to effective treatment by children under five years of age in selected countries from 1999-2000 to 2004-2005 is shown in Table 5.2 and Figure 5.2. Most of the antimalarial treatment that was provided is based on chloroquine or SP, drugs with increasing resistance. Increasing adoption and implementation of ACT policies is expected to translate into better treatment outcomes.

Figure 5.2: Percentage of children under five years of age with fever in the two weeks preceding the survey who received an antimalarial drug in a health facility in selected countries, DHS surveys, 1999-2005

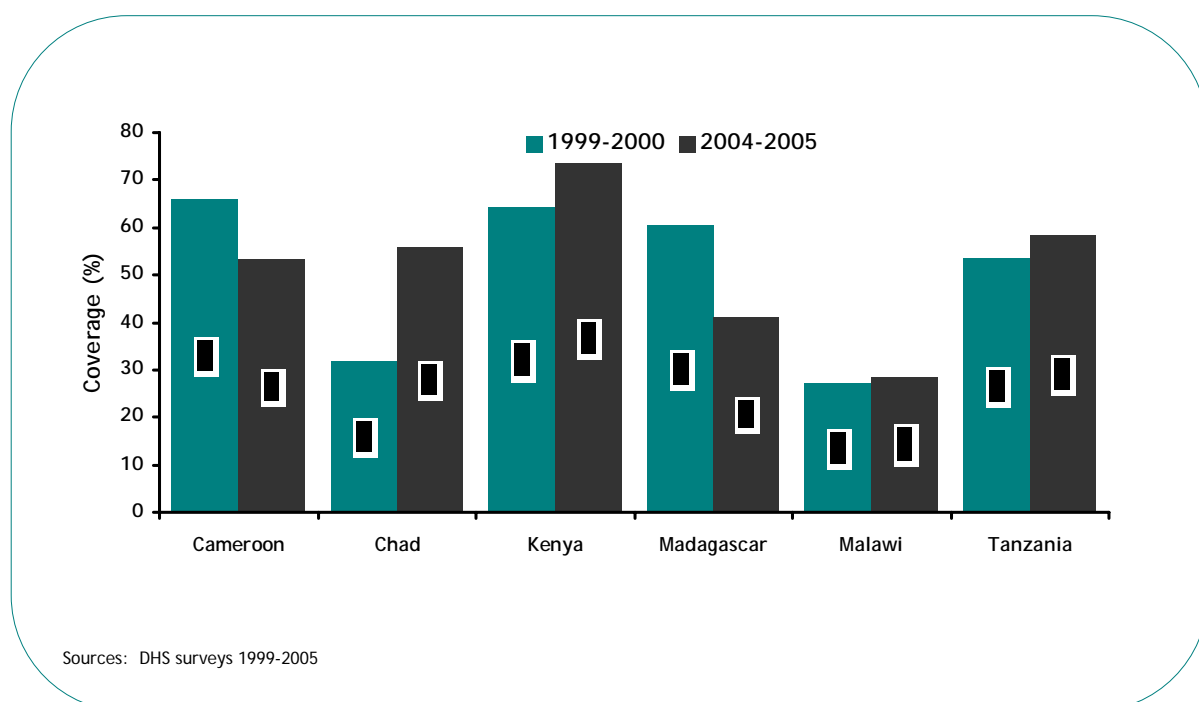


Figure 5.3: Availability of first-line drugs in the health facility at the time of surveys and in-service training of health workers, Health facility Surveys, 2004-2005

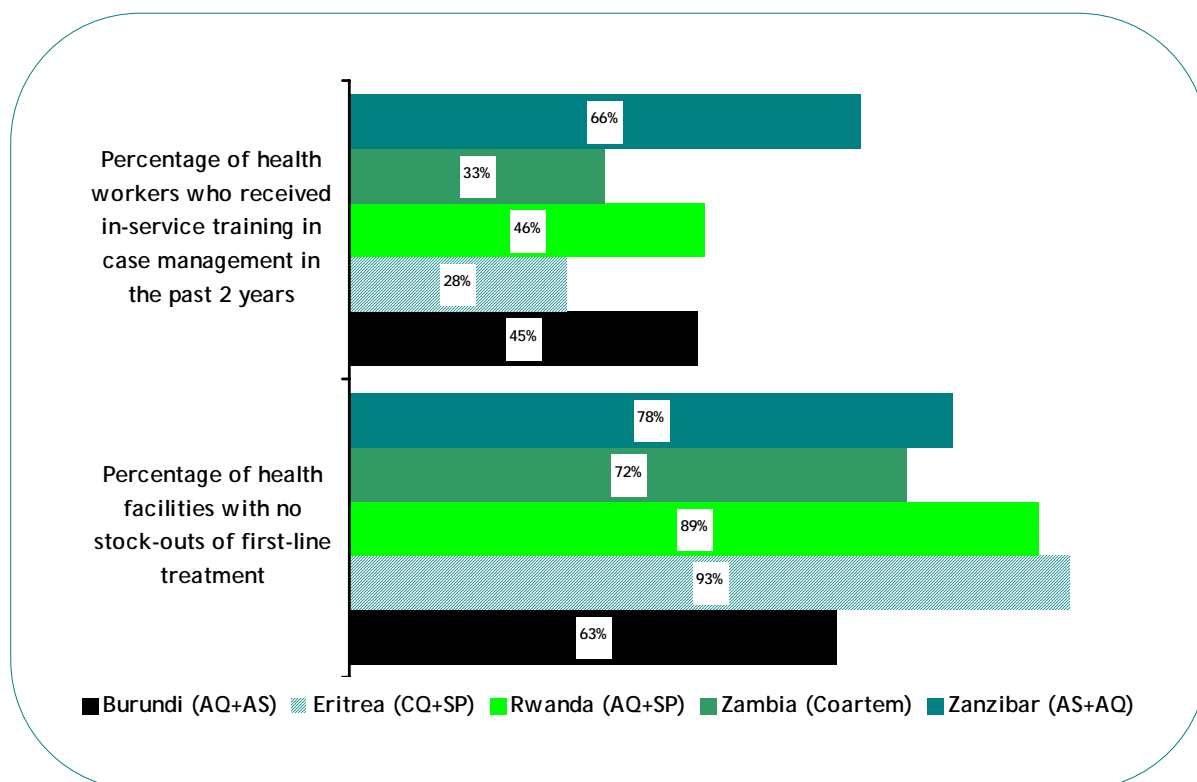
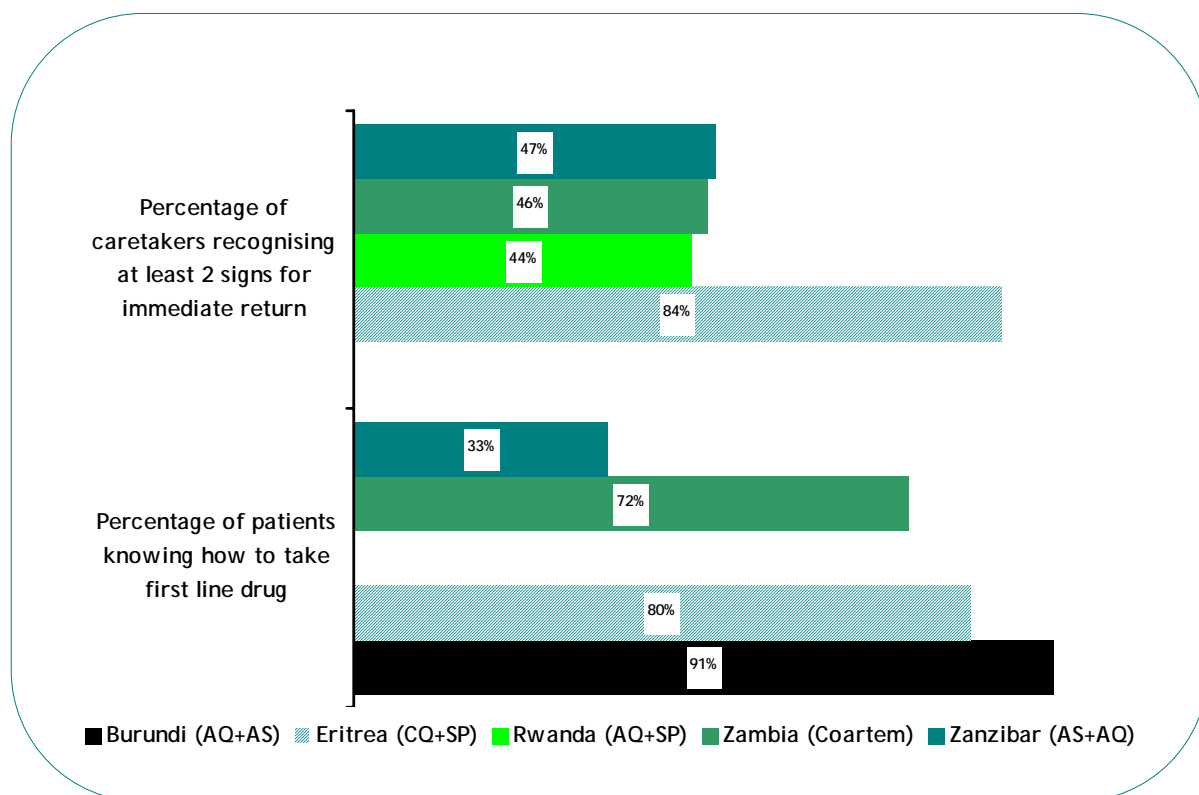


Figure 5.4: Patient's knowledge of dosage of first-line drug and ability to recognize danger signs, Health Facility Surveys, 2004-2005



The availability of essential anti malarial medicines at primary care facilities is an indication of the functionality of a health system. To assess implementation of new policies in selected countries, health facility surveys on ACT implementation were conducted in 2005 in Burundi, Rwanda, Tanzania and Zambia (Figure 5.3 & Figure 5.4). Health facilities with no stock-outs of first-line drugs ranged from 63% in Burundi to 93% in Eritrea, while health workers who received in-service training in malaria case management varied from 28% in Eritrea to 66% in Zanzibar. According to Figure 5.4, while Burundi has the highest proportion of patients who know how to take the first line drug, Eritrea has the highest proportion of patients who are able to recognize at least 2 signs warranting an immediate return to a health facility.

6. EPIDEMIC PREPAREDNESS AND RESPONSE

6.1 Introduction

A malaria epidemic is a sharp increase in malaria incidence among populations in whom the disease is infrequent or an increase in clinical malaria in areas of moderate transmission. Malaria epidemics occur principally in areas of low transmission, where no single population group is immune. It is usually triggered by the introduction of malaria combined with increase in rainfall and/or temperature. In high transmission areas, malaria epidemics can stem from failure of malaria control programs or displacement of non-immune people to endemic areas.

It is estimated that about 125 million Africans are at risk of malaria epidemics (Table 6.1) necessitating the development of Epidemic Preparedness and Response (EPR) plans in each country regardless of the level of malaria endemicity. The plan should define and put in place a forecasting, early detection and warning, and response system, including malaria activities in complex emergency situations.

The Abuja Declaration recommends the establishment of an effective epidemic preparedness and response system to detect and contain any outbreak within 2 weeks of onset.

6.2 Malaria epidemic risks in the Africa region

Risk of malaria epidemic is inversely linked to the duration of the malaria transmission; the shorter the transmission period, the greater the risk. In Africa, the shorter transmission areas are located across the Sahelian belt, to the horn of the continent, into east Africa and throughout the southern Africa [11]. Recent estimates (Table 6.1) using 2001 UN population data is around 125 millions people exposed to malaria epidemics in Africa (Kawano W, meeting of the RBM Technical Support Network on Epidemics, December 2003)

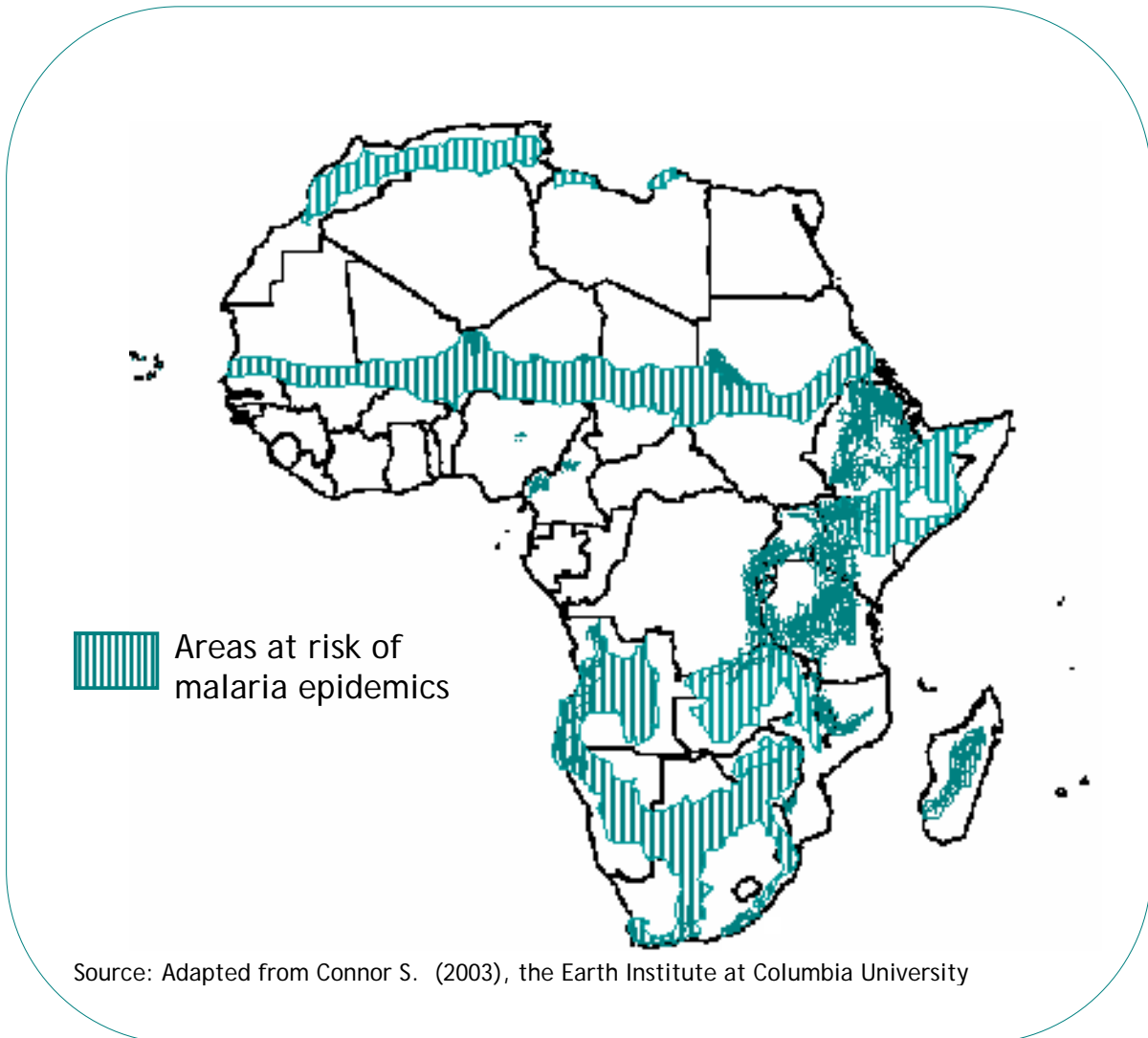
In 2004 and 2005, most countries in the Africa region reported being at risk of malaria with a little more than 88% of districts in the endemic or epidemic prone countries.

Table 6.1: Estimated population at risk of malaria epidemics

| Country | Total population | Estimated percentage of population at risk for epidemics | Estimated number of people at risk for malaria epidemics |
|--------------|--------------------|--|--|
| Angola | 13,527,000 | 35 | 4,734,450 |
| Botswana | 1,553,000 | 40 | 621,200 |
| Burundi | 6,501,000 | 50 | 3,250,500 |
| Cap Verde | 436,000 | 50 | 218,000 |
| Chad | 8,134,000 | 15 | 1,220,100 |
| DR Congo | 52,521,000 | 10 | 5,252,100 |
| Eritrea | 3,815,000 | 60 | 2,289,000 |
| Ethiopia | 64,458,000 | 50 | 32,229,000 |
| Kenya | 31,292,000 | 25 | 7,823,000 |
| Madagascar | 16,436,000 | 50 | 8,218,000 |
| Mali | 11,676,000 | 20 | 2,335,200 |
| Mauritania | 2,746,000 | 40 | 1,098,400 |
| Mauritius | 1,170,000 | 40 | 468,000 |
| Mozambique | 18,644,000 | 20 | 3,728,800 |
| Namibia | 1,787,000 | 40 | 714,800 |
| Niger | 11,226,000 | 20 | 2,245,200 |
| Rwanda | 7,948,000 | 50 | 3,974,000 |
| Senegal | 9,661,000 | 10 | 966,100 |
| Somalia | 9,156,000 | 50 | 4,578,000 |
| South Africa | 43,791,000 | 5 | 2,189,550 |
| Sudan | 31,809,000 | 50 | 15,904,500 |
| Swaziland | 937,000 | 40 | 374,800 |
| Tanzania | 35,964,000 | 25 | 8,991,000 |
| Uganda | 24,022,000 | 10 | 2,402,200 |
| Zambia | 10,648,000 | 50 | 5,324,000 |
| Zimbabwe | 12,851,000 | 28 | 3,598,280 |
| TOTAL | 432,709,000 | | 124,748,180 |

With an estimated 0.5 malaria episodes per epidemic, one epidemic every five year, it is estimated that 12.4 millions malaria cases attributable to epidemics occurred in Africa. Since malaria epidemics occurred in population with little immunity, 5% of cases may progress to severe malaria with 10% case fatality leading to 620 000 cases and 155000-310000 deaths in malaria epidemics prone areas in Africa [11].

Figure 6.1: Areas at risk of Malaria Epidemics [12]



Due to heavy rainfall, many countries in East and Southern Africa (Botswana ,Burundi, Ethiopia, Kenya, Madagascar, Mozambique, Namibia, South Africa, Swaziland, Tanzania Uganda, Zimbabwe), and some Sahelian countries experienced epidemics.

According to data from countries in the Africa region in the past 5 years, almost all epidemics occurred in Eastern and Southern region and specifically in Ethiopia.

Table 6.2: Malaria Epidemic Preparedness and Response (EPR) Plans

| Country/Area | Malaria Epidemics occur in country | Have a Malaria Epidemic Preparedness and Response Plan | % Districts with a malaria EPR Plan | Have emergency stocks | Have guidelines for thresholds for malaria epidemics | Districts in country have a threshold for malaria epidemics | Malaria epidemic occur in last 6 years |
|--------------------------------------|------------------------------------|--|-------------------------------------|-----------------------|--|---|--|
| Angola | | | | | | | |
| Burundi | ✓ | ✓ | 0 | ✓ | ✓ | ✓ | ✓ |
| Cameroon | | | | | | | |
| Central African Republic | ✓ | ✓ | 100 | | | | |
| Chad | ✓ | ✓ | 0 | ✓ | | ✓ | |
| Congo | | | | | | | |
| DR Congo | ✓ | ✓ | | | ✓ | | |
| Equatorial Guinea | | | | | | | |
| Gabon | | ✓ | 0 | | | | |
| Rwanda | ✓ | ✓ | 100 | ✓ | ✓ | ✓ | ✓ |
| Sao Tome and Principe | | | | | | | |
| Central Africa | 56% | 67% | 30% | 33% | 33% | 33% | 22% |
| Botswana | ✓ | ✓ | 50 | ✓ | ✓ | | |
| Comoros | | | | | | | |
| Eritrea | ✓ | ✓ | 100 | ✓ | ✓ | ✓ | |
| Ethiopia | ✓ | ✓ | 30 | ✓ | ✓ | ✓ | ✓ |
| Kenya | ✓ | ✓ | 22 | | ✓ | | ✓ |
| Lesotho | | | | | | | |
| Madagascar | ✓ | ✓ | 32 | ✓ | ✓ | ✓ | ✓ |
| Malawi | | ✓ | 100 | ✓ | | | |
| Mauritius | | | | | | | |
| Mozambique | | | | | | | |
| Namibia | ✓ | ✓ | 65 | | ✓ | ✓ | ✓ |
| Seychelles | | | | | | | |
| South Africa | ✓ | ✓ | | | ✓ | | ✓ |
| Swaziland | ✓ | ✓ | 100 | | | ✓ | ✓ |
| Tanzania (Mainland) | ✓ | | | | | ✓ | ✓ |
| Tanzania (Zanzibar) | | | | | | | |
| Uganda | ✓ | | | | ✓ | ✓ | ✓ |
| Zambia | ✓ | ✓ | 100 | | ✓ | | ✓ |
| Zimbabwe | ✓ | ✓ | 70 | ✓ | ✓ | ✓ | ✓ |
| Eastern & Southern Africa | 75% | 69% | 41% | 38% | 63% | 50% | 63% |
| Algeria | | | | | | | |
| Benin | | | | | | | |
| Burkina Faso | | ✓ | 2 | | | | |
| Cap Verde | ✓ | ✓ | 0 | ✓ | ✓ | | ✓ |
| Côte d'Ivoire | | | | | | | |
| Gambia | | | | | | | |
| Ghana | | | | | | | |
| Guinea | | | | | | | |
| Guinea-Bissau | | | | | | | |
| Liberia | | | | | | | |
| Mali | ✓ | ✓ | | ✓ | ✓ | | ✓ |
| Mauritania | ✓ | ✓ | 66 | ✓ | ✓ | | ✓ |
| Niger | ✓ | ✓ | 100 | ✓ | ✓ | ✓ | ✓ |
| Nigeria | | | | | | | |
| Senegal | ✓ | ✓ | 4 | ✓ | | | ✓ |
| Sierra Leone | | | | | | | |
| Togo | | | | | | | |
| West Africa | 31% | 38% | 36% | 31% | 25% | 6% | 31% |
| Djibouti | ✓ | ✓ | 83 | ✓ | | | ✓ |
| Somalia | | | | | | | |
| Sudan | | | | | | | |
| EMRO Region | 100% | 100% | 83% | 100% | 0% | 0% | 100% |
| AFRICAN REGION | 55% | 57% | 39% | 36% | 40% | 29% | 43% |

(Blank) No/Missing/Not Applicable/Not available/Don't Know

(✓) Yes

Note: Percentages are based only on number of countries that have reported in each sub-region/region

6.3 Preparedness and response to epidemics

Overall, 55% of countries in the region reported being at risk of malaria epidemics and 43% reported having experienced epidemics in the last 6 years. An epidemic preparedness and response plan defines the core functions of a malaria control program in combating epidemics. In 2005, table 6.2 shows that 50% (25% in West Africa and 75% in East and South Africa) report having a focal point for EPR

Table 6.2 above shows that among all countries in the Africa region, 57% developed an epidemic preparedness and response plan. Eastern and Southern Africa seem more prepared to manage malaria epidemics. Within West Africa, the Sahelian countries and Cap Verde are better prepared than coastal countries. In 2004 and 2005, countries in Africa region had in place a malaria surveillance system that included HMIS (94%), IDSR (94%) or a vertical system (50%) implying that most countries have a mixture of all three. The data are reported weekly (31%) and monthly (94%).

Figure 6.2: Malaria epidemics occurrence and detection

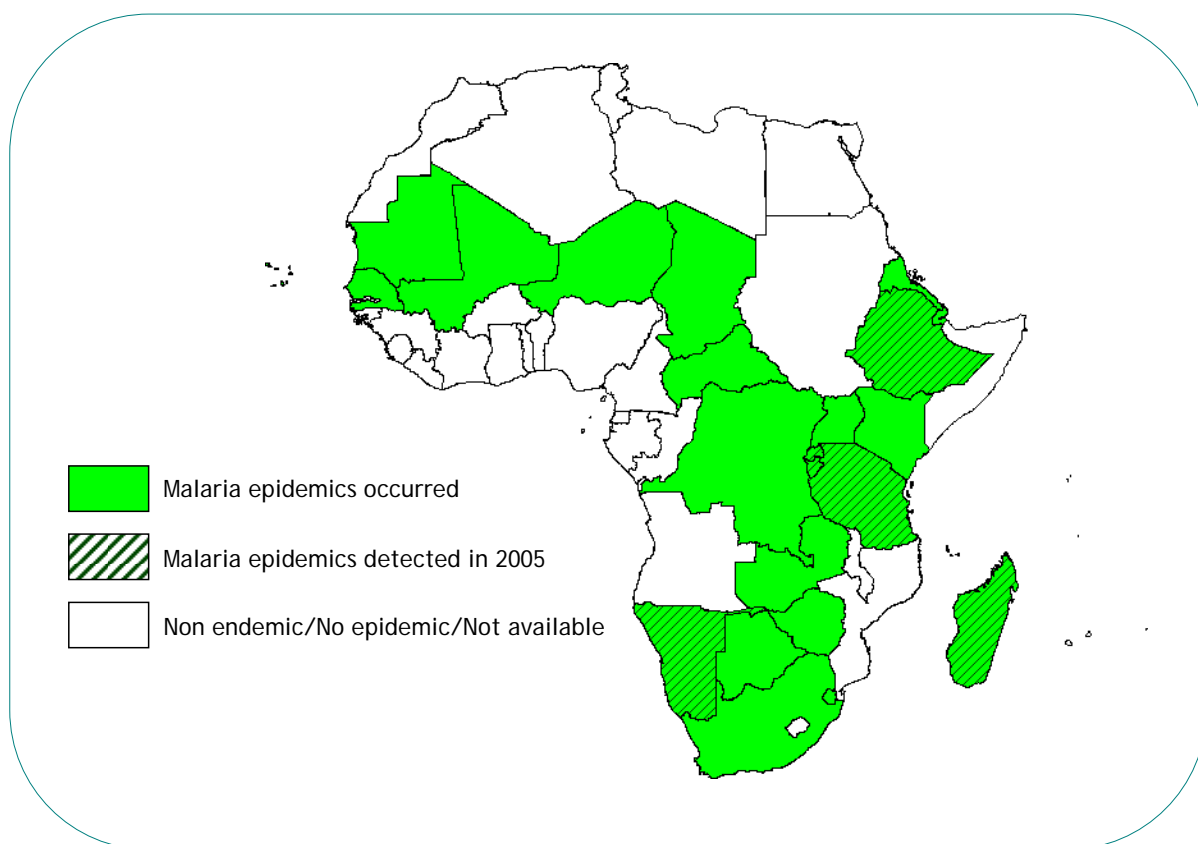
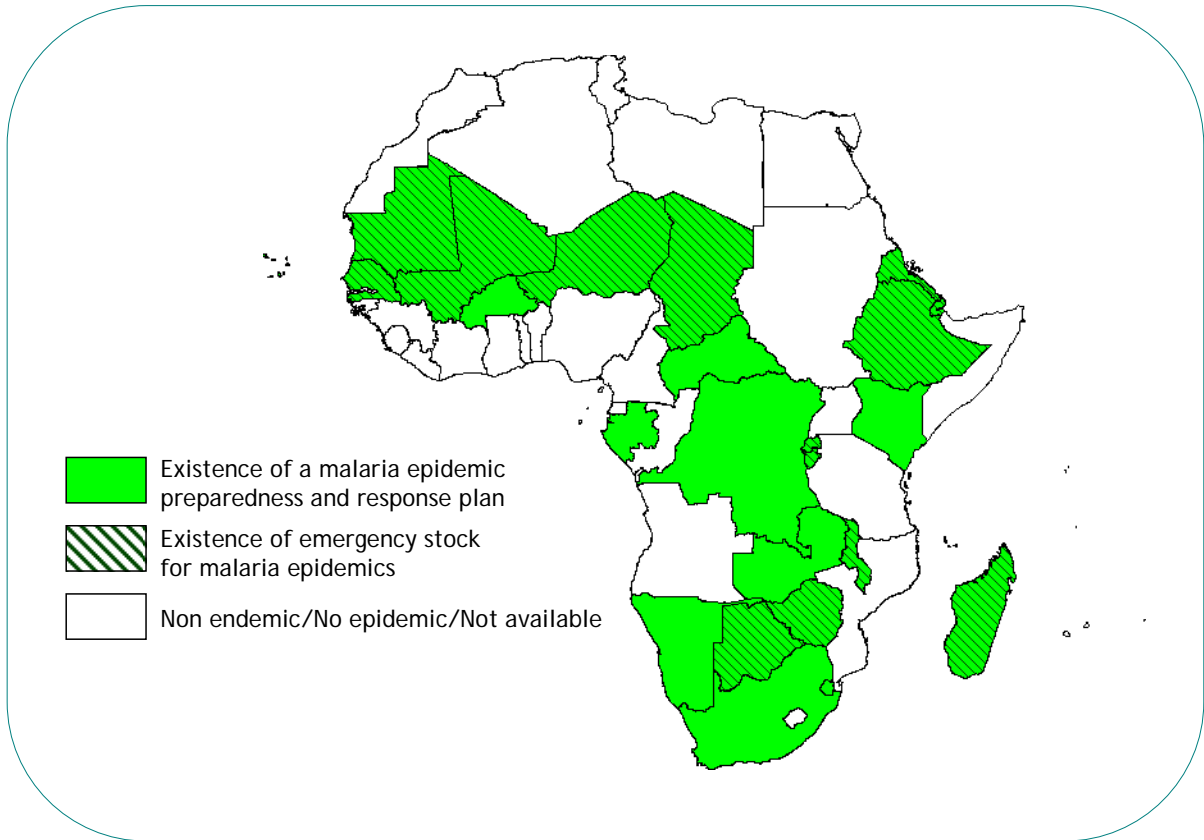


Figure 6.3: Preparedness for malaria epidemics



6.4 Challenges

A substantial proportion of malaria deaths occurs during epidemics or in complex emergency situations (conflicts, population displacement, natural or man-made disaster, etc). The cost of epidemics is not well documented in Africa, although epidemics may have the whole array of malaria effects on the population, the health system and the economy.

The major challenge in the prevention and control of malaria epidemics remains, late detection, untimely response and inadequate funding for an EPR plan. These challenges are exacerbated by the non-existence of an early warning system, weak or in-existent surveillance system, and the lack of an EPR plan and clearly defined thresholds for malaria epidemics in most districts.

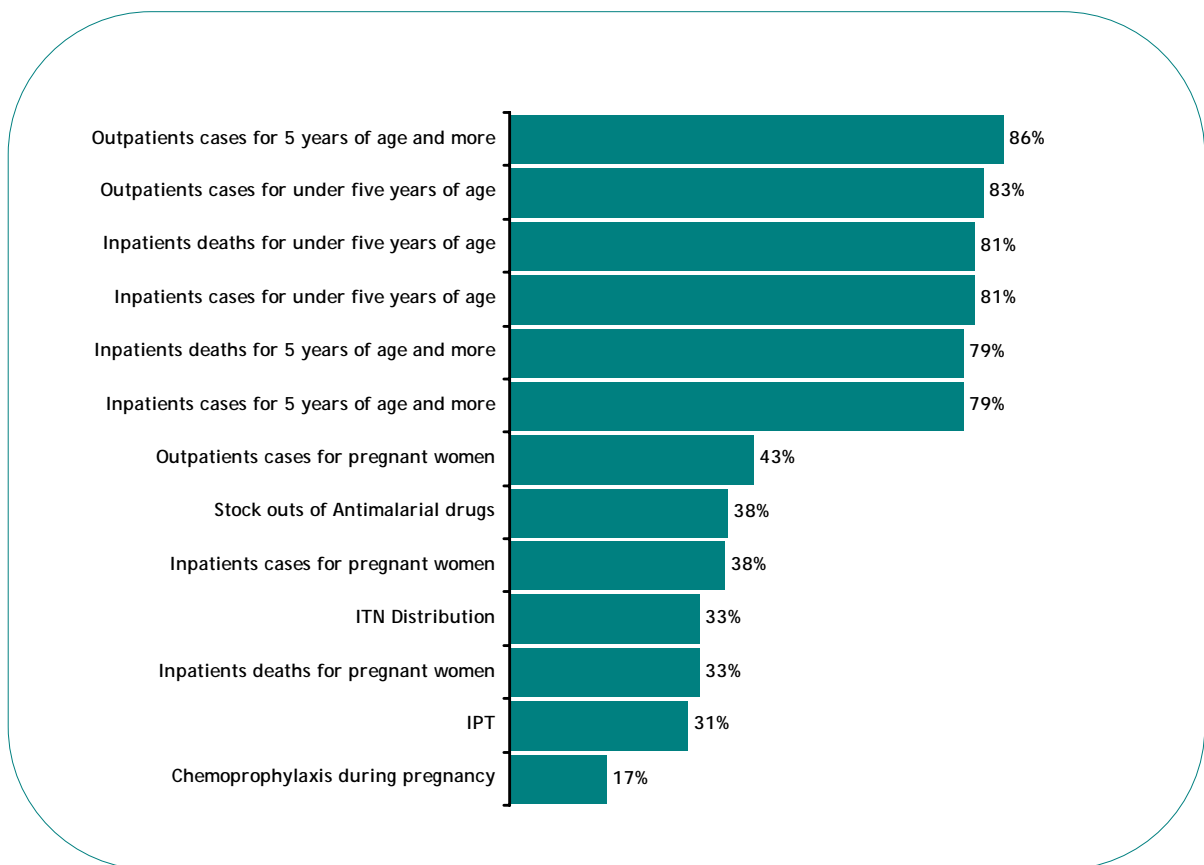
7. SURVEILLANCE, MONITORING AND EVALUATION

7.1 Monitoring and Evaluation

Monitoring is the *routine tracking* of the key elements of programme performance while evaluation is the *periodic assessment* of the change in targeted results that can be attributed to an intervention. Sources of malaria data include HMIS, IDSR, surveys, etc. Since 2000, there have been concerted efforts to strengthen the capacity for malaria monitoring and evaluation (M & E) at country level.

All countries have a relatively functional HMIS that provides data on malaria cases and deaths by age groups as shown in figure 7.1. However, only 18 (43%) provide data on malaria episodes in pregnancy; 31% provide data on IPT in pregnancy; and 38 % provide data on stock out of antimalarial drugs.

Figure 7.1: Proportion of countries indicating malaria data provided by HMIS



Completeness of reporting on malaria morbidity and mortality remains a challenge in Africa. Reports received from countries in 2005 show a variation of completeness from 40% to 99% with a median of 68%. This level of completeness has to be factored in when interpreting the results.

Of the 42 countries reporting, 33 have established M & E units within the NMCPs and have appointed M & E staff. Of those with staff 55% have public health experts, 33% have epidemiologists and 50 % have data managers. Countries from the West Africa epidemiological block are more likely to have the required staff, followed by East and Southern Africa and then Central Africa. For example, 69% of West Africa programmes have public health experts within the NMCPs, compared with 60% for East and Southern and only 22% for Central Africa.

Overall, 73 % of surveyed countries reported the existence of a malaria database, 83% have developed M & E plans that specify indicators to be collected, method of collection and responsible persons. In addition, 48% produce quarterly reports while 85% produce annual reports.

7.2 Surveillance

7.2.1 Malaria Surveillance and IDSR

Thirty-seven countries (81%) are implementing the Integrated Disease Surveillance and Response (IDSR) strategy as follows: 6% are at the adaptation stage, 44% are still training health staff while 44% are at the implementation stage. Surveillance for malaria is done through HMIS and IDSR in 94 % of countries. However, 44% countries also report using either vertical or semi-vertical malaria surveillance systems. These countries are mostly epidemic prone in East and Southern Africa (4), West Africa (3) and Central Africa (2).

7.2.2 Drug Efficacy Monitoring

Development of antimalarial drug resistance is a major challenge to effective treatment of malaria control. Countries regularly monitor drug resistance levels from multiple sentinel sites using a standardized WHO protocol. Thirty seven (37) malaria endemic countries have sentinel sites for drug efficacy monitoring as shown in Figure 7.2.

Figure 7.2: Distribution of Functional drug efficacy testing sites in Africa

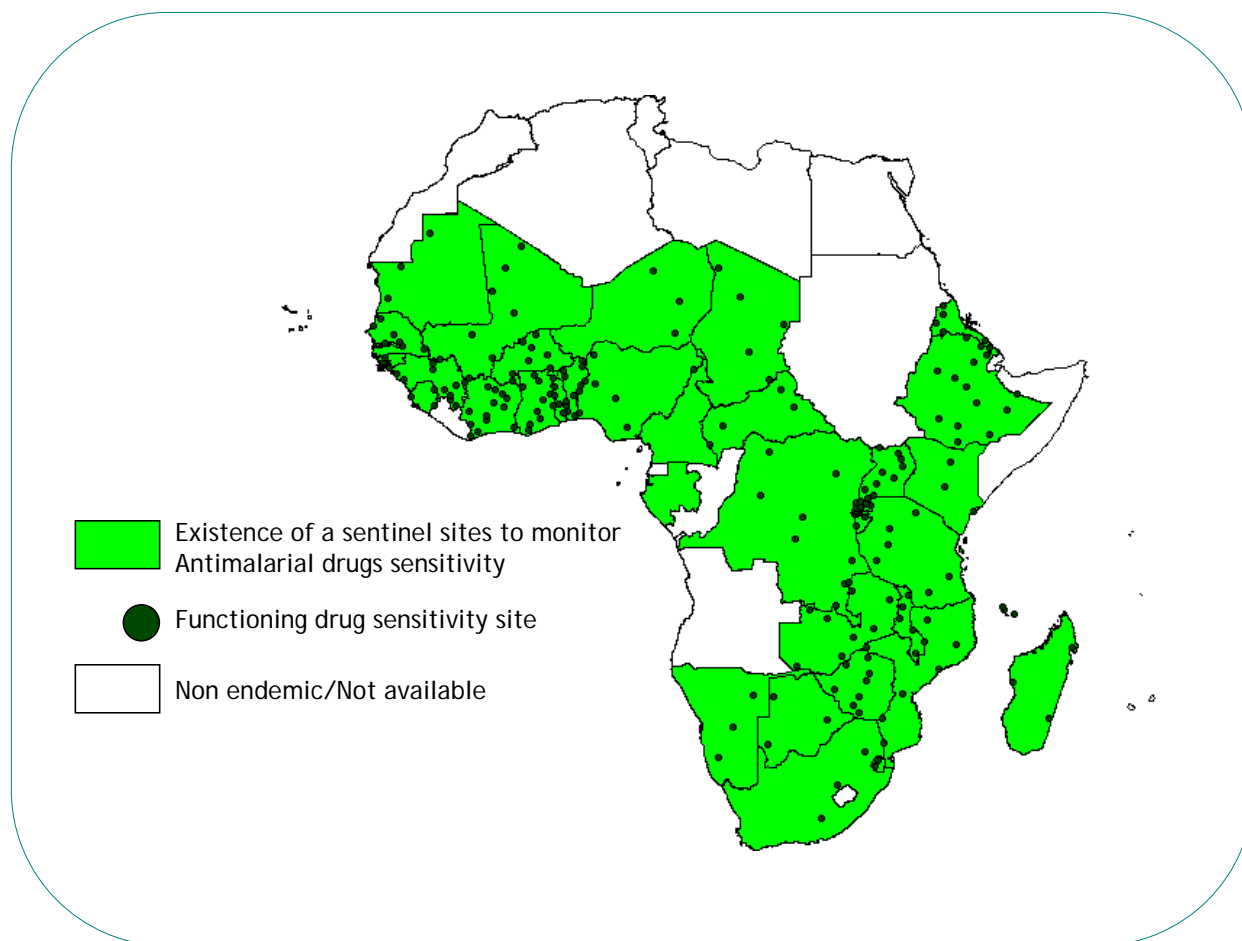


Table 7.1: Number of studies available of antimalarial drugs efficacy that meet WHO protocol, 1996-2004.

| Subregion | Monotherapy | | | | Combination therapy | | | | | | | All artemisinin-based combination therapies* |
|-----------------|-------------|------------|-----------|----------|---------------------|-----------|----------|-----------|-----------|----------|-----------|--|
| | CQ | SP | AQ | MQ | CQ+SP | AQ+SP | ASU+CQ | ASU+SP | ASU+AQ | ASU+MQ | ATM+LUM | |
| Central Africa | 33 | 28 | 16 | | | 9 | | 6 | 5 | | 2 | 13 |
| East Africa | 135 | 114 | 58 | 1 | 30 | 18 | | 9 | 20 | | 11 | 40 |
| Southern Africa | 109 | 64 | 4 | 1 | 25 | 1 | | 8 | 2 | | 4 | 14 |
| Western Africa | 156 | 41 | 12 | | | 5 | 1 | 1 | 3 | 2 | 2 | 9 |
| TOTAL | 433 | 247 | 99 | 2 | 55 | 33 | 1 | 24 | 30 | 2 | 19 | 191 |

* Includes ACTs other than those listed separately in left hand columns.

Between 1996-2004, about 433 drugs efficacy studies were conducted in Africa, of which 191 (44%) were ACTs.

7.2.3 Vector Resistance Monitoring

Resistance of a vector is the ability of a vector to survive doses of insecticides that normally kill all individuals within a given vector population. This may evolve into operational resistance which is when the intervention (e.g. IRS or ITNs) is no longer achieving the expected impact (e.g. significant reduction of transmission). It is important that all NMCP using IRS or ITNs monitor susceptibility of the target vector population to insecticides used through the use of representative sentinel sites. To this effect capacity building in terms of training, provision of test kits and technical support (when needed) continued. A number of countries conduct one survey every 2 years others carry out sporadic tests. The 2004-2006 assessment of vector susceptibility to insecticides used for IRS and ITNs in Southern and eastern African and in some countries in Central and west Africa confirmed complete susceptibility of local malaria vectors to all the insecticides in Southern Africa, whereas vectors in eastern, central and western Africa showed some level of resistance to insecticides that are being applied for IRS and/or ITNs in these sub regions.

7.2.4 Pharmacovigilance

Pharmacovigilance is 'the science and activities relating to the detection, assessment, understanding and prevention of adverse effects or any other medicine-related problem. The principal aims of pharmacovigilance (PV) are among others, i) to improve the patient care and safety in relation to the uses of medicines, and ii) to improve public health safety in relation to use of medicines.

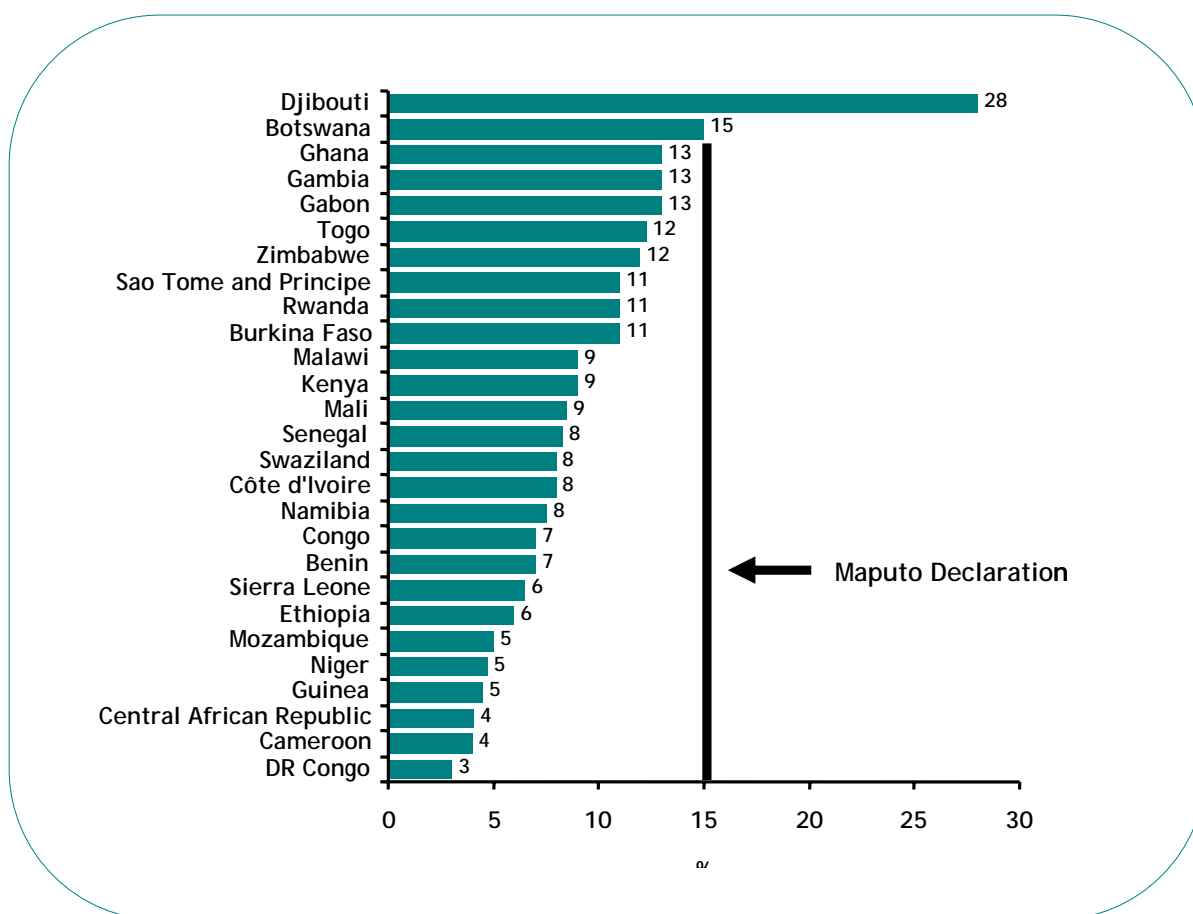
Since 2001, about 36 countries have adopted ACTs as 1st line treatment for malaria. Although ACTs are highly effective, their safety has not been monitored under conditions of large scale population use. All

Countries rolling out ACTs are encouraged to establish pharmacovigilance. Zambia, Zanzibar, Ghana, Mozambique and Burundi have functional pharmacovigilance systems. Benin, Gabon, Madagascar and Sao Tome and Principe are in the process of establishing pharmacovigilance systems. Regional networks for monitoring antimalarial treatment will play a major role in setting-up/strengthening pharmacovigilance systems.

8. FINANCING MALARIA CONTROL IN AFRICA.

In the Maputo Declaration of July 2003, African Heads of State committed themselves to allocating 15 % of their national budgets to health. Figure 8.1 below shows the proportion of the national budget that is devoted to health by countries in the Africa region in 2005.

Figure 8.1: Percentage of government expenditure devoted to health in 2005



In addition, other efforts made towards increasing funding for health services have intensified in all the countries reporting. Mechanisms that have been used to mobilize additional resources for health include the SWAPs, PRSP and MTEF.

The precise breakdown of domestic funding devoted to malaria control is however difficult to quantify because in most African countries, malaria control is integrated into the health services especially at the district level. In addition many families incur a lot of out of pocket expenses on malaria prevention and control.

However, since 2000, several partners that include bilateral, multilaterals, UN agencies, NGOs, etc are involved in malaria control through provision of funds, technical assistance, commodities etc. Because of the difficulties with quantifying some of these contributions and the paucity of data from the countries, financial contributions by the traditional development partners and the GFATM will be highlighted as proxy measures for increased funding.

In 2004 the World Bank launched the World Bank Booster Programme while in 2005, the Presidents Malaria Initiative (PMI) was launched by the United States President. Other initiatives that have increased funding for malaria control include MACEPA, Quick Win Initiative, etc. Other bilateral and multilateral funding agencies supporting malaria control in Africa include DFID, AUSAID, USAID, CIDA, and DANIDA.

8.1 Case Study of the Global Fund against AIDS, TB and Malaria (GFATM)

The Global Fund, which started disbursements in 2003, is now a major source of funding for malaria control in Africa, although this may represent only 20% of total malaria funding.

By April 2006, the Global Fund had approved 60 proposals submitted by 35 African countries and one regional entity across the 5 rounds (Figure 8.2). Up to US \$ 950 million for 2 years and US \$ 1.8 billion for 5 years had been approved. By the same date, 43% of 2 year totals and 23 % of 5 year totals amounting to US \$ 411,320,109 had been disbursed.

Figure 8.2: Global fund malaria grants received

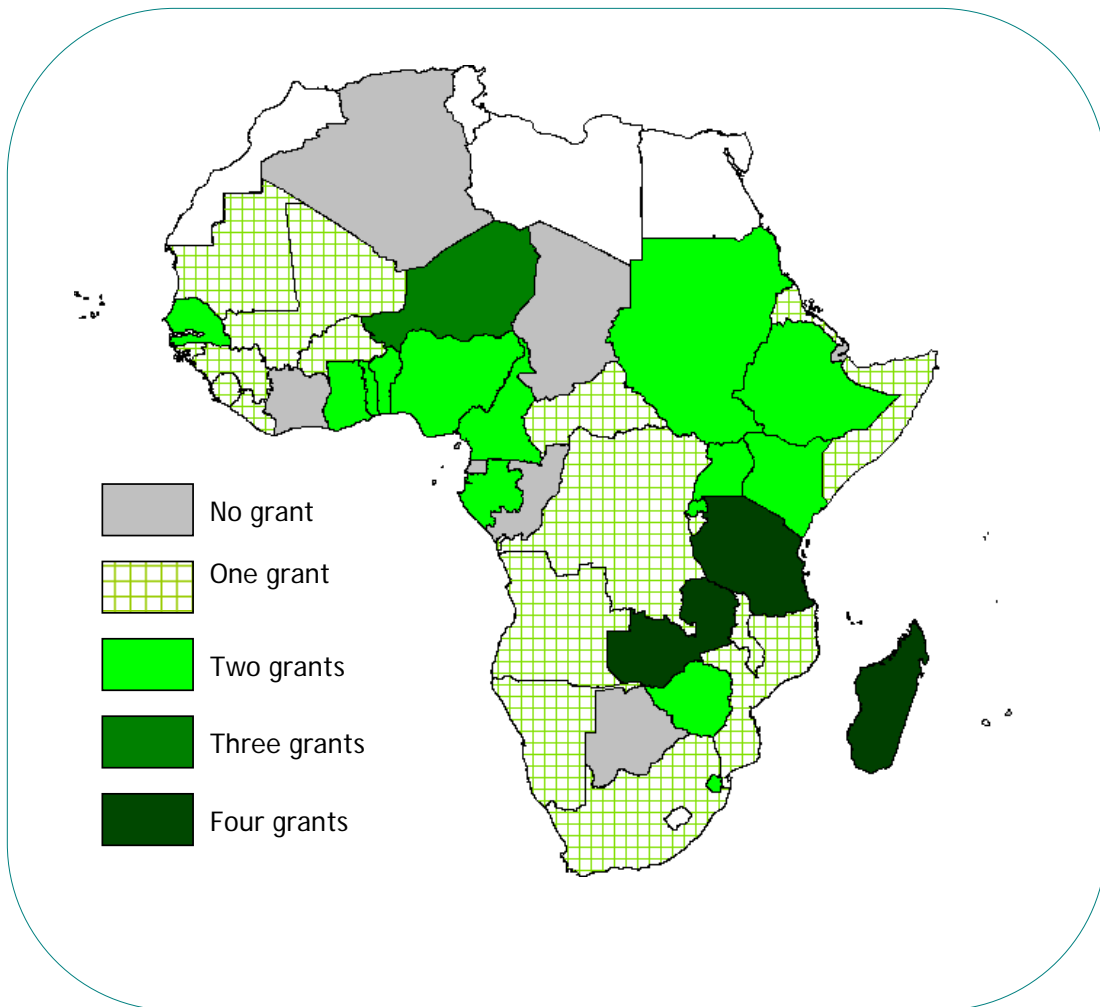


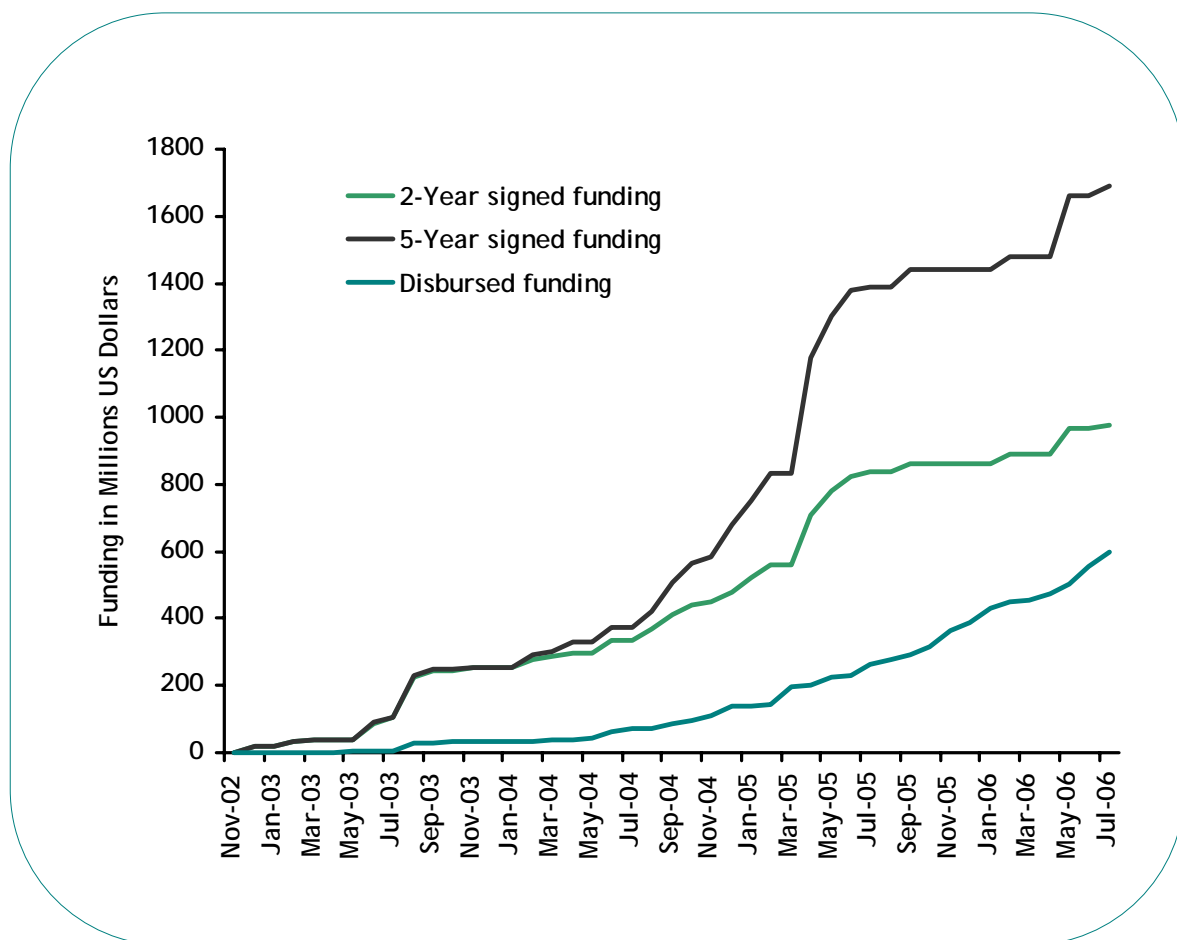
Table 8.1: Status of implementation of Malaria Global Fund proposals by Countries as of 25 July 2006

| Country | Round | 2-Year Funding | 5-Year Funding | Funds Disbursed | 2-year % disbursed | 5-year % disbursed |
|----------------------------|-------|--------------------|----------------------|--------------------|--------------------|--------------------|
| Angola | 3 | 28,473,354 | 38,383,000 | 20,359,996 | 72% | 53% |
| Benin | 1 | 2,973,150 | 2,973,150 | 2,955,032 | 99% | 99% |
| | 3 | 1,383,931 | 2,145,813 | 1,324,014 | 96% | 62% |
| Burkina Faso | 2 | 7,499,988 | 7,499,988 | 7,119,071 | 95% | 95% |
| Burundi | 2 | 17,766,125 | 17,766,125 | 16,568,331 | 93% | 93% |
| Cameroon | 3 | 16,938,794 | 32,770,143 | 9,526,239 | 56% | 29% |
| | 5 | 13,114,942 | 21,981,114 | - | - | - |
| Central African Republic | 4 | 10,592,816 | 17,857,057 | 5,027,554 | 47% | 28% |
| Comoros | 2 | 1,534,631 | 2,485,878 | 1,055,252 | 69% | 42% |
| DR Congo | 3 | 24,966,676 | 53,936,609 | 22,748,859 | 91% | 42% |
| Eritrea | 2 | 7,911,425 | 7,911,425 | 2,617,633 | 33% | 33% |
| Ethiopia | 2 | 73,875,211 | 73,875,211 | 70,599,857 | 96% | 96% |
| | 5 | 59,113,829 | 140,687,413 | 37,389,954 | 63% | 27% |
| Gabon | 4 | 7,419,624 | 9,892,184 | 6,164,214 | 83% | 62% |
| | 5 | 4,065,754 | 16,477,035 | 1,852,943 | 46% | 11% |
| Gambia | 3 | 13,861,866 | 13,861,866 | 5,481,895 | 40% | 40% |
| Ghana | 2 | 8,849,491 | 8,849,491 | 6,240,952 | 71% | 71% |
| | 4 | 18,561,367 | 38,887,781 | 15,986,702 | 86% | 41% |
| Guinea | 2 | 6,893,509 | 6,893,509 | 4,804,303 | 70% | 70% |
| Guinea-Bissau | 4 | 1,885,791 | 4,177,512 | 1,269,395 | 67% | 30% |
| | 2 | 27,700,377 | 27,700,377 | 4,640,447 | 17% | 17% |
| Kenya | 4 | 81,749,756 | 186,096,553 | 49,900,273 | 61% | 27% |
| Liberia | 3 | 12,140,921 | 12,140,921 | 11,312,087 | 93% | 93% |
| | 1 | 2,000,063 | 2,000,063 | 2,000,063 | 100% | 100% |
| Madagascar | 3 | 5,232,448 | 10,400,722 | 4,981,478 | 95% | 48% |
| | 4 | 19,304,060 | 41,527,527 | 17,470,859 | 91% | 42% |
| Malawi | 2 | 18,815,810 | 37,631,810 | 6,363,507 | 34% | 17% |
| Mali | 1 | 2,592,316 | 2,592,316 | 2,360,337 | 91% | 91% |
| Mauritania | 2 | 2,898,993 | 2,898,993 | 824,044 | 28% | 28% |
| Mozambique | 2 | 12,217,393 | 28,149,603 | 6,653,718 | 54% | 24% |
| Multi-country Africa(RMCC) | 2 | 21,432,343 | 21,432,343 | 13,634,703 | 64% | 64% |
| | 5 | 6,501,141 | 21,232,348 | 1,963,943 | 30% | 9% |
| Namibia | 2 | 3,719,354 | 6,304,577 | 3,309,447 | 89% | 52% |
| | 3 | 5,757,845 | 5,757,845 | 4,367,791 | 76% | 76% |
| Niger | 4 | 11,257,988 | 11,257,988 | 10,443,548 | 93% | 93% |
| | 5 | 4,627,434 | 9,631,344 | 1,776,725 | 38% | 18% |
| Nigeria | 2 | 20,994,149 | 44,314,691 | 12,953,866 | 62% | 29% |
| | 4 | 20,467,000 | 86,122,000 | 11,394,116 | 56% | 13% |
| Rwanda | 3 | 13,045,293 | 17,676,232 | 13,045,293 | 100% | 74% |
| | 5 | 28,140,771 | 39,649,362 | 14,935,348 | 53% | 38% |
| Sao Tome and Principe | 4 | 1,941,359 | 3,484,859 | 1,436,775 | 74% | 41% |
| Senegal | 1 | 4,285,714 | 4,285,714 | 1,526,770 | 36% | 36% |
| | 4 | 23,179,297 | 33,305,682 | 11,778,578 | 51% | 35% |
| Sierra Leone | 4 | 8,886,123 | 14,855,611 | 6,028,796 | 68% | 41% |
| Somalia | 2 | 12,886,413 | 12,886,413 | 8,890,497 | 69% | 69% |
| Sudan | 2 | 12,855,490 | 27,827,045 | 16,285,859 | 127% | 59% |
| Swaziland | 2 | 1,820,500 | 1,820,500 | 1,008,300 | 55% | 55% |
| | 1 | 19,827,716 | 19,827,716 | 13,217,306 | 67% | 67% |
| Tanzania (Mainland) | 4 | 54,201,787 | 90,468,963 | 18,575,572 | 34% | 21% |
| Tanzania (Zanzibar) | 1 | 1,153,080 | 1,153,080 | 1,153,080 | 100% | 100% |
| | 4 | 5,089,361 | 9,586,972 | 3,859,647 | 76% | 40% |
| Togo | 3 | 5,885,906 | 5,885,906 | 3,479,336 | 59% | 59% |
| | 4 | 6,066,034 | 10,694,981 | 3,656,862 | 60% | 34% |
| Uganda | 2 | 23,211,300 | 35,783,000 | 9,749,358 | 42% | 27% |
| | 4 | 66,432,148 | 158,047,079 | 31,149,704 | 47% | 20% |
| Zambia | 1 | 39,273,800 | 39,273,800 | 18,830,574 | 48% | 48% |
| | 4 | 20,279,950 | 43,495,950 | 8,122,574 | 40% | 19% |
| Zimbabwe | 1 | 6,716,250 | 8,877,500 | 5,276,938 | 79% | 59% |
| TOTAL | | 962,269,957 | 1,655,390,690 | 597,450,315 | 62% | 36% |

All the round 1-4 grants have been disbursed while only Niger received the first disbursement for grant 5 as at July 2006 (Table 8.1).

The lower rates of disbursement (Figure 8.3) are attributed to several reasons that vary by country. However, change in drug policy to ACTs necessitated reprogramming of several grants. In addition slow procurements, low absorption capacity and weak M & E systems have also contributed adversely to slow disbursement of funds.

Figure 8.3: Trends of Malaria Global fund signed and disbursed, November 2002-July 2006



8.3 President's Malaria Initiative (PMI)

The US President's Malaria Initiative (PMI) announced on 30 June 2005 is a five-year US \$ 1.2 billion initiative led by USAID, in conjunction with CDC, Department of State and the White House of the United States of America. PMI's long-term goal is to cut malaria deaths by 50 percent in selected African countries by providing lifesaving services, supplies, and medicines to 85 percent of those who are the most vulnerable to malaria -children under five years of age and pregnant women.

The PMI works closely with host government and within the framework of the national malaria control strategy and plan. It works in close coordination with international and in-country partners to ensure efforts are complementary and comprehensive, while promoting an integrated approach to malaria control. PMI is funding commodities such as medicines for malaria, insecticides and equipment for IRS. Technical support to strengthen NMCP capabilities, monitoring and evaluation are also funded.

Table 8.2: PMI Pledged funding.

| Year | Funding Level (US \$) | Coverage |
|--------------|------------------------|--|
| 2006 | 30 million | Uganda, Tanzania, Angola (3 countries) |
| 2007 | 135 million | + Rwanda, Malawi, Mozambique, Senegal (7 countries) |
| 2008 | 300 million | 12 countries |
| 2009 | 300 million | 12 countries |
| 2010 | 500 million | 15 countries |
| Total | 1,265 million | |

In fiscal year 2006, PMI set aside US \$ 7.5 million for Angola, US \$ 11.5 million for Tanzania and US \$ 9.5 million for Uganda to fund IRS, ITNs, Antimalarial medicines for severe malaria and IPTp.

By March 2006, the PMI had disbursed US \$ -- million in the initial countries. Preparatory mission to the new countries to make 7 by the end of 2007 are already underway.

8.4 World Bank Booster Programme

Launched in 2004 to scale up the Bank's support for Malaria control. It aims to compliment malaria funding in selected countries in addition to existing GFATM, WHO, UNICEF, Bill and Melinda Gates Foundation etc. It aims in the short and medium term to provide increased financing and technical support to accelerate program design and implementation, increased coverage, and rapidly improve outcomes. In the long term Malaria control would be mainstreamed into country Poverty Reduction Strategies and large sector-development programs that emphasis results.

To date, projects have been approved in Eritrea, DRC, Niger and Zambia. Projects under preparation are in Kenya, Malawi, Nigeria, Rwanda, Senegal and Sudan.

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