

3. Prompt and effective treatment

Prompt and effective treatment of malaria is a critical element of malaria control (1). In Africa south of the Sahara, where most malaria is due to *Plasmodium falciparum* and potentially fatal, early and effective treatment could save many lives. It is vital that sufferers, especially children aged under 5 years, start treatment within 24 hours of the onset of symptoms, to prevent progression – often rapid – to severe malaria and death (2).

A strong health system would provide for reliable diagnosis as the basis for optimal treatment. However, in most malaria-endemic areas, access to curative and diagnostic services is limited and drugs are purchased through the private, informal sector (3, 4). Moreover, diagnosis is complicated by the lack of a specific clinical presentation, frequent occurrence of several diseases simultaneously, and – in areas of intense transmission – asymptomatic malaria infections. In high-transmission malaria-endemic areas, WHO therefore recommends that, as part of the strategy of Integrated Management of Childhood Illnesses (IMCI), all under-5s with fever be presumptively treated with antimalarials (5). Community-level interventions to strengthen home management of children with fever are gaining importance as part of efforts to improve access to prompt treatment, particularly in isolated rural areas.

3.1 Evidence

The global consensus that access to prompt, effective treatment should be a key element of the RBM strategy is based on the widespread recognition that untreated falciparum malaria contributes both directly and indirectly to the death of non-immune individuals, sometimes within hours of the onset of symptoms (2). Prompt, effective treatment of malaria and appropriate management of clinical complications will be life-saving.

Uncontrolled studies in Madagascar (7) and the United Republic of Tanzania (8) revealed significant reductions in mortality when

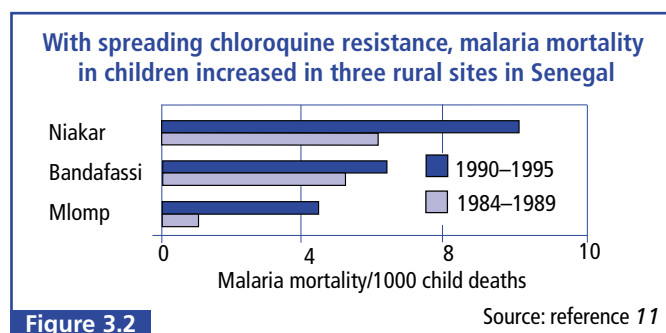
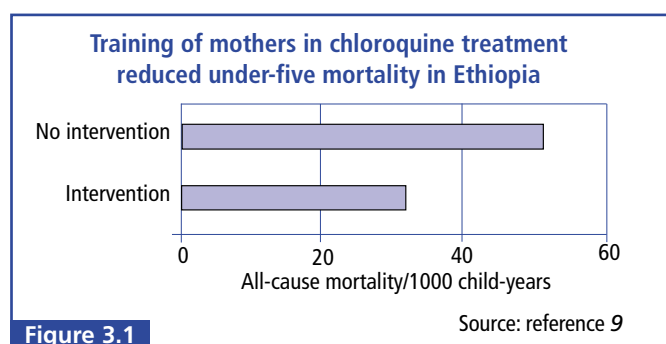
research teams provided prompt access to antimalarial treatment. However, these studies took place in circumstances where the obstacles to access that characterize most health systems in endemic countries had been eliminated.

Randomized, controlled trials of treatment of febrile illness with reduction of mortality as the end-point are fraught with methodological and ethical problems and have produced conflicting results. In a widely quoted community-randomized trial in an area of low, seasonal malaria transmission in Ethiopia, under-5 mortality was reduced by 40% as a result of teaching mothers to provide prompt chloroquine treatment for fevers at home (9) (Figure 3.1). However, a general improvement in child care may have contributed to this high level of impact.

Other indirect evidence attributed the low malaria-specific mortality in Brazzaville to the widespread use of chloroquine as self-treatment (10). Conversely, an increase in child mortality following the spread of chloroquine resistance was observed at a demographic surveillance site in rural Senegal (11) (Figure 3.2). Demographic and Health Surveys documented a 15% reduction in infant and

Abuja target

In April 2000, African heads of state participating in the Abuja Summit agreed that by the year 2005 at least 60% of those suffering from malaria should have prompt access to and be able to use correct, affordable, and appropriate treatment within 24 hours of the onset of symptoms (6).



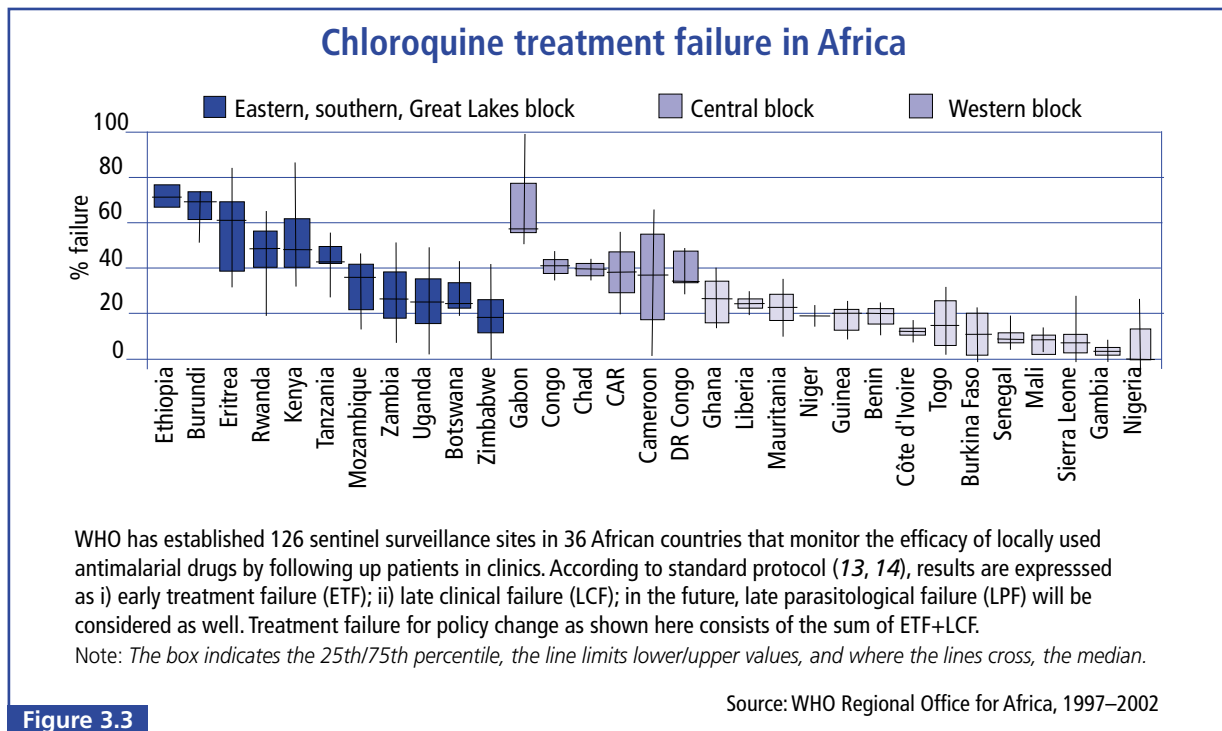


Figure 3.3

child mortality in Malawi during the 1990s at a time of increasing or stable rates of infant and child mortality in Kenya, Rwanda, Uganda, the United Republic of Tanzania, Zambia and Zimbabwe. The exceptional mortality reduction in Malawi is likely to be due partly to the 1993 change in drug policy from chloroquine to sulfadoxine-pyrimethamine (SP).

3.2

Drug resistance

Antimalarial drug resistance has become one of the greatest challenges in malaria treatment. Chloroquine, the cheapest and most widely available antimalarial drug, has lost its clinical effectiveness in most parts of Africa (Figure 3.3). Resistance of *Plasmodium falciparum* to the most affordable alternative drugs, notably SP, is also an emerging problem in eastern and southern Africa (Figure 3.4).

Several newly developed drugs could replace those that are no longer effective. In particular, artemisinin-based combination therapies (ACTs) have enormous potential in malaria therapy. The combination of multiple drugs enhances clinical efficacy and may delay the development of resistance of parasites (12). However, these drugs are not yet widely available and not always affordable.

3.3

Progress: drug policies

Drug resistance has led many countries in eastern, southern and central Africa to revise their treatment guidelines (Figure 3.5).

The varying levels of drug resistance within countries make the changing of national policies difficult. In addition to clinical

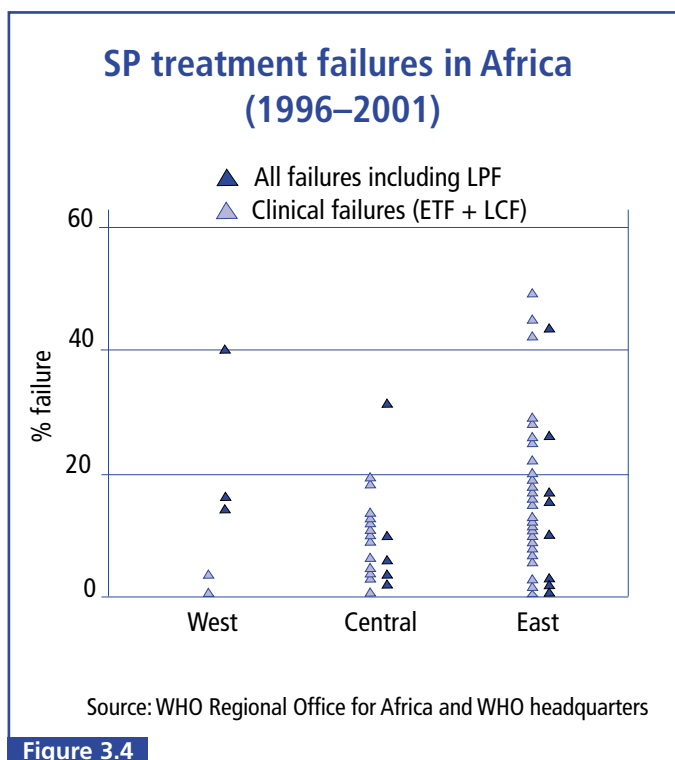


Figure 3.4

Drugs nationally recommended for first-line treatment of uncomplicated malaria, January 2003

Non-ACT: CQ+SP or AQ+SP combination.
 ACT: artemisinin (AS)+AQ, AS+SP, or Coartem.
 In Cameroon, amodiaquine is recommended.

Countries that changed first-line policy from CQ to SP: Malawi (1993), Kenya (1996), Botswana (1997), DRC and Tanzania (2001).

Selected provinces in South Africa where change to ACTs has been fully implemented: Coartem in KawZulu-Natal, and artesunate+SP in Mpumalanga (2001).

Countries that have adopted ACTs but have yet to implement this policy fully: Tanzania (Zanzibar) (2001), Zambia (2001), Burundi (2002).

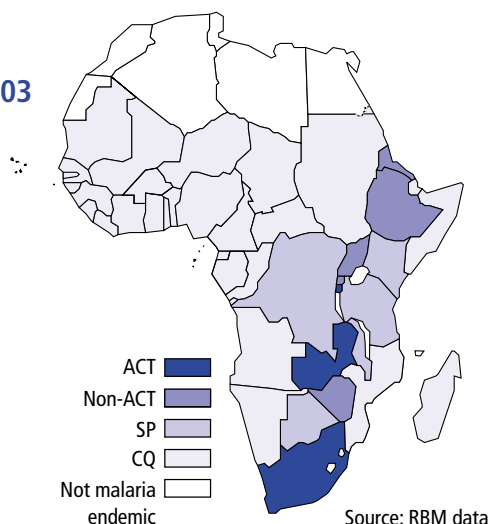


Figure 3.5

efficacy and safety, factors such as adherence to treatment regimens, cost, and drug management issues must be taken into account in deciding on a policy revision. Implementing a policy change is an expensive venture that requires significant injection of funds both to finance the change process and for procurement of the required medications.

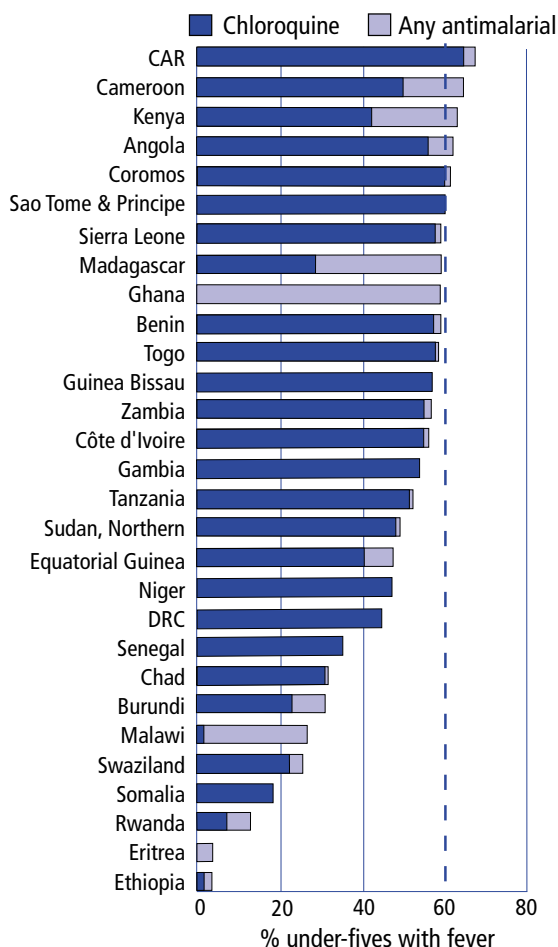
On average, a period of 18 months has been needed from consensus to complete implementation of policy in most African countries. Factors accounting for this delay included obtaining political and financial support, training of health care providers, and sensitization of the general population, which is crucial for successful implementation of the policy decision.

3.4

Progress: treatment coverage

Recent national household surveys in 28 African countries have shown that an average of 42% of children under 5 years with fever were treated with an antimalarial (Figure 3.6). However, more than 80% of these reported treatments were with chloroquine, so the coverage with effective treatment is likely to have been much lower. In addition, many treatments may not have been within 24 hours of onset of symptoms, and dosages may have been inadequate (15–17). These coverage estimates therefore represent an upper limit of the coverage with prompt, effective treatment, and the true value is probably much lower.

Almost half of febrile under-fives are treated with antimalarials. Most treatments involve chloroquine against which resistance is increasing.



These data do not indicate source of treatment, i.e. formal or informal private sector.

Note: Dotted line indicates Abuja target. No chloroquine data available for Ghana (DHS, 1998) and Eritrea (preliminary data DHS, 2002).

Source: MICS and DHS, 1998–2002

Figure 3.6

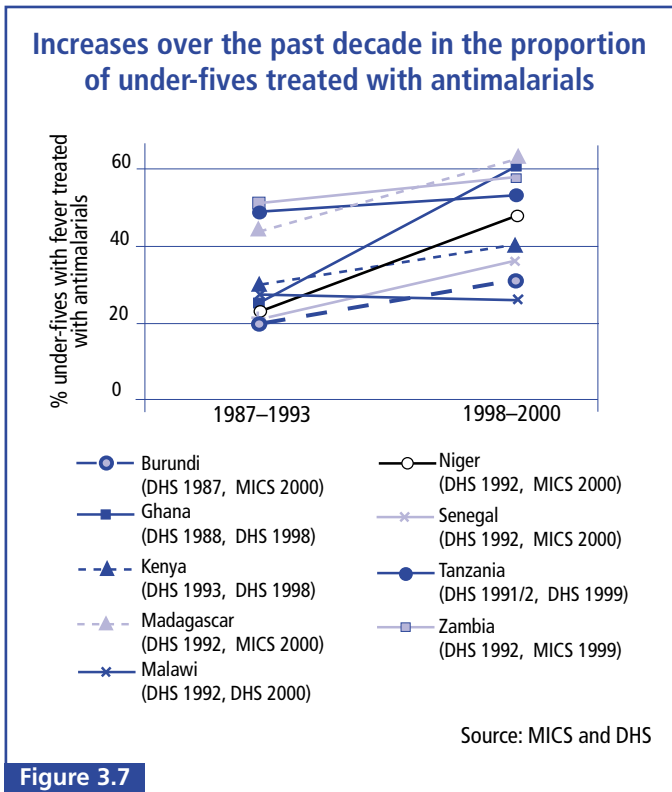


Figure 3.7

In nine countries where a number of national surveys have been conducted over the past 15 years, there has been an increasing trend towards use of antimalarials for treatment of febrile under-5s (Figure 3.7). These national surveys provide further proof that use of antimalarials is widespread and common. The apparent increasing responsiveness of caretakers of young children in accessing antimalarial treatment highlights

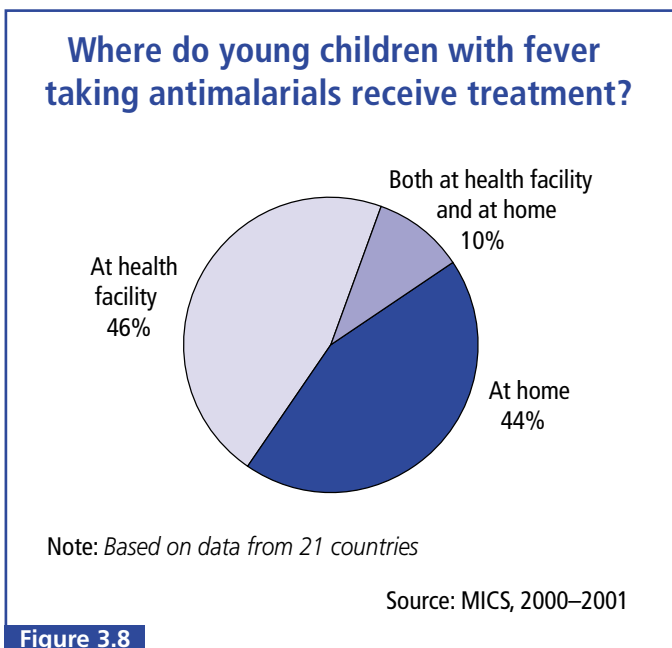


Figure 3.8

the opportunity for achieving further improvements in their access to more effective antimalarials and their compliance with treatment regimens.

3.5

Challenges: increasing coverage

At least half of the population in the poorest parts of Africa lacks access to essential drugs, including antimalarials (18), for reasons that include inadequate financing, poor health care delivery systems, and weak drug regulation (19).

Use of health facilities and suboptimal treatment at home

Data from MICS in 21 countries indicate that about 46% of febrile children who received antimalarial treatment were treated at a health facility, 44% at home, and 10% both at home and at a health facility (Figure 3.8). There is considerable variation between countries. In Burundi, Gambia, and Guinea Bissau, children treated with antimalarials were at least four times as likely to be treated in a health facility as at home, whereas children in Cameroon,

Antimalarial drug stock-outs are a common reason for not using health facilities

% of health facilities with no stock-out of nationally recommended antimalarial drugs continuously for 1 week during the past 3 months.

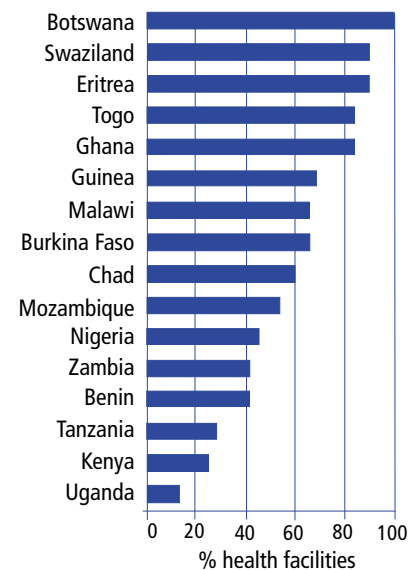


Figure 3.9

Chad, and Niger were at least three times as likely to be treated at home.

Distance to the health facility, inadequate drug stocks, and lack of money to pay for services are the most common reasons for not using public health facilities (Figure 3.9). The cost of antimalarial treatment imposes a significant burden on households in many affected areas. In the United Republic of Tanzania, for example, the cost of treatment has been shown to be by far the largest component of household expenditures on malaria (20), exceeding that on preventive measures such as ITNs. Only in five countries (Botswana, Djibouti, Namibia, South Africa, and Swaziland) is treatment free of charge.

A study of treatment of childhood malaria in Zambia found that, in most cases, drugs were bought at pharmacies or local shops. The "informal private sector" is thus a main source of antimalarial drugs (21). However, these treatments are often inconsistent with national treatment guidelines: they may include counterfeit drugs, drugs of poor quality, and incorrect dosing and irrational prescription practices (22, 23).

3.6

Challenges: disparities in use

National MICS have shown that children from poorer households are less likely than others to receive antimalarial treatment. In addition, although coverage is equally high for boys and girls, it is somewhat lower in rural areas, where the malaria burden is higher, than in urban areas (Figures 3.10, 3.11, and 3.12).

Household wealth also affects the quality of antimalarial drugs administered. A community study in Ghana, for example, suggests that leftover drugs were used more often by the poor (82%) than by the less poor (53%) to treat fever episodes. Drug purchases without prescriptions were also more common, and visits to health clinics less frequent, among the poor (24).

The seriousness of high fever will prompt the majority of caretakers to seek treatment for life-threatening illness in young children. For most surveyed populations, however, the distribution of prompt effective treatment among communities remains unknown and requires further investigation.

Antimalarial treatment is lower for children living in poorer households

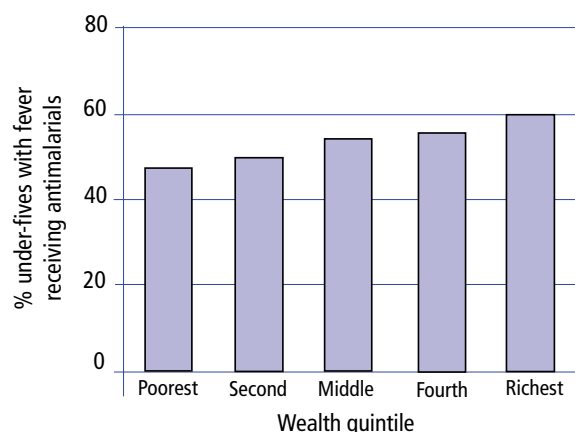


Figure 3.10

Source: MICS, 2000–2001

Boys and girls with fever are equally likely to receive antimalarial drugs

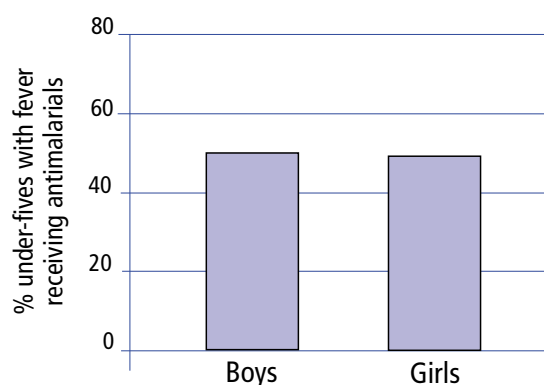


Figure 3.11

Source: MICS and DHS, 1998–2001

Despite a higher malarial burden, children in rural areas are less likely to receive antimalarial drugs when they have fever

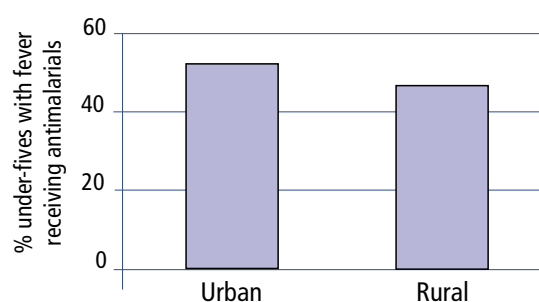


Figure 3.12

Source: MICS and DHS, 1998–2001

Cost-effectiveness versus affordability

Cost-effectiveness analyses indicate that antimalarial treatment is generally highly cost-effective, even in the most resource-poor countries (25). In practice, however, the costs of treating malaria patients with the most effective antimalarials may well not be affordable for communities or households in countries with widespread resistance to commonly available, inexpensive drugs.

Average cost of a full course of adult outpatient treatment:

Chloroquine	US\$ 0.13
SP	US\$ 0.14
Amodiaquine	US\$ 0.20
Artemisinin-based combinations	US\$ 1–3

3.7

Scaling up

The achievement of the Abuja target of 60% coverage with prompt and effective antimalarial treatment will require more effective methods to improve delivery and compliance with recommended regimens. Measures will include full integration of malaria treatment into national health

systems, improving access to effective drugs for treatment as close to the home as possible, and engaging the private sector (26). However, currently allocated financial resources for health care in most of the low-income malaria-endemic countries will not be sufficient to respond to malaria treatment needs (25).

Although financial support for antimalarial treatment is increasing, this has not kept pace with the costs incurred by the need to begin replacing with newer drugs (including ACTs) those that are no longer effective because of parasite resistance. African governments and the global community are asked to address urgently the need to allocate substantial resources for the delivery of more effective treatment regimens to those most at risk of malaria.

Additional strategies, such as cost containment by pooled procurement, negotiation of more favourable prices, removal of charges, tariffs and taxes, and the introduction of subsidies, are key to improving the affordability of newer and more expensive treatment regimens and to the widespread availability of these treatment to at-risk populations in Africa.

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Home-based management of fever

Home-based management of fever (HBMF) is a promising strategy for improving the coverage of prompt effective treatment. Community health workers and mothers of young children are trained in the recognition of symptoms and the benefits of prompt antimalarial treatment. Prepackaged kits of full-course treatments, with appropriate drawn and written instructions, allow mothers to treat children as soon as fever is detected. Programmes have been launched in Ghana, Nigeria, and Uganda in June 2002.

Uganda has gone to scale with the HBMF approach in more than 10 districts and is rapidly expanding coverage. The impact of HBMF is being evaluated in three districts; interim results suggest that, among children under 5 years, the number of outpatient malaria cases has declined since programme implementation.

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