



# INVOLVING COMMUNITIES IN THE FIGHT AGAINST MALARIA:

AMREF's Malaria Prevention and Control Programme in Afar (Ethiopia)

## Introduction

Malaria is a major problem in Africa: it kills an African child every 30 seconds.<sup>1</sup> Many children who survive an episode of severe malaria may suffer from learning impairments or brain damage. Pregnant women and their unborn children are also particularly vulnerable to malaria, which is a major cause of perinatal mortality, low birth weight and maternal anaemia. Malaria is one of the major health threats in Ethiopia, particularly in the Afar region in the north-east of the country.

Afar's geography and climate influence (seasonal) outbreaks of malaria epidemics. Peculiarities of this region (lowlands and seasonal heavy rainfall) lead to a high prevalence of mosquito breeding sites. Almost all parts in Afar are malaria prone, causing frequent outbreaks which in turn highly impacts on the immunity levels of the population. Over the years, commonly available drugs have become less effective as people have grown resistant to them.

More than 90 percent of the Afar population (1.4 million)<sup>2</sup> lives in rural areas and are semi-pastoralist or pastoralist, keeping

cattle, camels and small ruminant animals. The literacy rate in Afar is the lowest in the country (7%). The majority of the population lives in poor housing conditions and in remote areas, often at great distances from health facilities and lacking access to safe water facilities. Physical access to health services is difficult; there are only two hospitals in Afar available to the entire population. In addition, many are unaware of how to protect themselves against the disease, or lack the financial means for preventative measures.

In 2005, AMREF in Ethiopia embarked on a programme controlling and preventing malaria in Afar, in line with the Roll Back Malaria (RBM) strategy<sup>3</sup> and other malaria prevention and control initiatives.<sup>4</sup> New to this programme was the focus on a number of interventions to be delivered at the community level, such as the door-to-door distribution of mosquito nets, the introduction of mother coordinators (MCs), and the delivery of Artemisinin-based Combination Therapies (ACT)<sup>5</sup> by Health Extension Workers. The programme invested in the training of mother coordinators, because of their potential in the prevention of malaria, and their possible involvement in the rapid treatment of malaria with ACTs.<sup>6</sup>

1. [www.rollbackmalaria.org](http://www.rollbackmalaria.org)

2. 2007 Ethiopian census data

3. RBM strategy: ITN promotion and provision, proper management of cases at health facility level through early diagnosis and prompt treatment with effective antimalarial drugs, and effective home management of cases particularly children under five

4. Including the large-scale free distribution of ITNs in collaboration with UNICEF and the GFATM, and the introduction of ACTs as the first line treatment for falciparum malaria in 2004

5. The WHO recommends that all countries experiencing resistance to conventional monotherapies should use Artemisinin-based Combination Treatment (ACT) as the first line treatment for falciparum malaria, preferably those containing artemisinin derivatives (artemether-lumefantrine, such as Coartem)



Results from an evaluation of this approach underline the importance of community involvement and behavioural change in support of malaria prevention and control, especially among hard-to-reach pastoralist communities and vulnerable groups such as infants and pregnant women.<sup>7</sup>

## Community focus in malaria control

Traditionally, malaria prevention and control is a priority area for the African Medical and Research Foundation (AMREF). The main technical elements of the malaria prevention and control programme comprise early diagnosis and treatment, vector control and epidemic prevention and control. It is widely understood that malaria control is too complex to be addressed by a single approach. Therefore, the AMREF Malaria Prevention and Control Programme in Afar is built on a multi-pronged strategy, including mortality control, transmission control and eradication: improving case management at health facility level, increasing Insecticide Treated Nets (ITNs) coverage and utilisation at family level, and enhancing behavioural and social change in support of malaria prevention and control. Operational components of the programme included:

- **Strengthening the capacity of health workers**  
Recognising the need for training of health workers on malaria diagnosis and treatment, particularly in the Afar region, AMREF carried out a series of training workshops (period 2005-2008), on the

correct use of ACT for some 200 health workers from six different professional categories (physicians and health workers; pharmacy technicians; senior nurses; junior nurses; laboratory technicians; frontline health workers).

- **Enhancing health facilities' capacity in diagnosis and treatment**

The existence of different types of anti malaria drugs, all with different regimes, and the relatively high costs of ACTs<sup>8</sup> heightened the need to improve the quality of laboratory diagnosis for malaria. AMREF therefore provided binocular microscopes and adjuvant reagents to the Afar Health Bureau for distribution to health centres and hospitals in the region. In areas where laboratory-based diagnostic services were not available, rapid diagnostic tests (RDTs) were introduced to complement clinical diagnosis.

- **Home-based management of malaria (HMM)<sup>9</sup>**

Managing malaria at the community and household level is especially important in areas such as Afar, with limited access to health care facilities for a vast majority of its rural population. Since the 1990s Ethiopia introduced Community-based Malaria Control making use of community health workers (CHWs). In 2005 AMREF implemented HMM through

6. Mother coordinators are volunteers members of the community who participate in malaria prevention and control at their respective locality

7. AMREF in Ethiopia (2008). Midterm Evaluation of Malaria Project in Zone 3 of Afar Region, Northeast Ethiopia

8. The cost of Coartem to developing countries is US\$ 2.40 per adult treatment, which is much lower than in industrialized countries (\$40), but still high for low-income countries, especially considering the scale on which the drug needs to be deployed. In: WHO (2003). Access to antimalarial medicines improving the affordability and financing of artemisinin-based combination therapies

9. Home-based management of malaria covers diagnosis and treatment occurring outside the clinical setting, within or near the home. The term community health workers often refers to groups working at the community level, e.g. organized community health workers, village health workers and trained mother coordinators. WHO (2005). The Roll Back Malaria strategy for improving access to treatment through home management for malaria)

mother coordinators and CHW who train caregivers and refer cases early to the health facilities.

- **Recruitment and training of mother coordinators**

During the period 2005-2008, some 300 mother coordinators were trained on signs and symptoms of malaria, its mode of transmission, preventive measures with particular focus on bednet utilisation, and the importance of early diagnosis and prompt treatment with effective anti-malarial drugs. The estimated outreach of their activities averages a total of 9,000 households (about 45,000 persons) on annual basis.

- **Participatory communication tools and picture-based messages**

To ensure participatory communication in malaria control, AMREF – in collaboration with the Afar Regional State Health Bureau, Woreda health offices and UNICEF – developed a Participatory Malaria Prevention and Treatment (PMPT) toolkit. The toolkit proved successful in educating on signs and symptoms of malaria, early diagnosis and prompt treatment, among others, by using simple pictures, easily understood by people with little or no formal education. The toolkit was developed and tested in 2006 following a thorough analysis of the cultural and traditional beliefs on the disease and also based on the findings of the baseline survey and focus group discussions.

- **Training local leaders**

Recognising the influence of traditional structures in pastoralist communities, AMREF trained local leaders on malaria transmission and prevention strategies. The leaders were especially instrumental in recruiting mother coordinators and in the distribution of (Long Lasting) Insecticide Treated Nets (LLITNs/ITNs). AMREF co-ordinated the distribution of 145,000 LLITNs, and some 8,000 ITNs in Afar. The education on the utilisation of ITNs has focused on pregnant mothers and children under five years, since they are the most vulnerable segments of the population.



in 2007. The knowledge on the signs and symptoms of malaria increased slightly with 4.1%, due to an initial high baseline rate knowledge (84.3%). Knowledge on prevention methods remained stable, at around 67.5%, however comprehensive knowledge about prevention and control of malaria is still low in the target communities.

**Increased coverage**

Coverage of ITNs in the community increased significantly to 70.2% in 2007, as compared to only 7.5% coverage of at least one ITN in the target communities in 2005. Of those households who had nets, 44.6% had two or more mosquito nets. The large increase in bednet coverage demonstrated the effectiveness of distribution of (LL) ITNs in combination with utilisation-focused health education. Of the total households that had (LL) ITNs, close to half (45.5%) reported that they had nets with tears or holes that could allow mosquito entrance, indicating the need for replacement.

## Results of the intervention

In 2007 a midterm evaluation was conducted. Compared to the baseline situation, some notable results were found.

**Increased knowledge**

As a result of the Programme's activities, there has been a 34.1% increase in knowledge about the transmission of malaria among the community: from 27.4% in 2005 to 61.5%



### ***Increased utilisation of bednets***

Among the respondents with ITNs in their households, 75.8% of the household members had slept under a treated bednet on the night before the survey. Specifically, the utilisation of ITNs by pregnant women and children under five years increased significantly from 27% to 86.5% and from 17% to 84% respectively at the end of 2007. The increase in the ownership and the utilisation of ITNs can be attributed to the change in knowledge about the transmission methods of malaria among the target communities.

### ***Changes in treatment seeking behaviour***

Overall, the treatment seeking behaviour among the community had increased to 48%. Of those who sought treatment for fever, 16.4% did so within 24 hours of the onset of fever and treatment was sought for only 14.3% of children under five. It appears that despite improvements there were other limiting factors such as long distances to access treatment services.

## **Lessons learned**

The intervention successfully demonstrated the effect of actions to build the capacity of health workers, especially at the community level and health facilities. However, much is still needed in terms of strengthening the capacity of health facilities, allowing the health workers to exercise their improved capacity.

An important aspect of the Programme has been the opportunity to link local capacity – in the form of mother coordinators – to the formal health facilities. Despite the prosperous outlook in terms of ability to prevent and control of malaria at the household and community level, it will be crucial to find ways to sustain their capacity and effectively link them with health workers, and with AMREF health staff. Because of the voluntary character of their work, keeping them motivated is a serious challenge. Also, as the assessment illustrated, it is important to regularly upgrade their knowledge through training and supervision, and sensitise the community on their role in malaria prevention and control.

Due to a shortage of health facilities in rural areas and lack of microscopic laboratories, Rapid Diagnostic Tests might be a solution to bring effective malaria management closer to the community. However, more research is needed to assess the feasibility of using RDTs at community level for early malaria diagnosis and prompt treatment.

An important lesson learned was the reconfirmation of the crucial role of involving local leadership in the intervention, as well as local health systems in programme activities. Local leadership systems are deep-rooted and well respected by the majority of the members in pastoralist communities. In the context of the Programme it appeared vital to ensure their

involvement throughout the intervention. In addition, working together with local authorities and policy makers (district, zonal and regional health structures) is essential, especially when it comes to influencing (local) policies and practices.

Door-to-door distribution of insecticide treated mosquito nets has successfully demonstrated its effect, in terms of access to means of prevention. It resulted in a huge increase in net ownership and usage among the most vulnerable populations (children under five and pregnant women). The opportunity presented by these house-to-house visits was further used to promote proper utilisation and care of mosquito nets.

However, some issues need to be considered when distributing mosquito nets. The pastoral way of life and the climate have a huge impact on the lifespan and sustainability of the mosquito nets. Although the life span of a mosquito net is around three to four years, housing conditions and environmental factors may have an impact on lifespan of the nets. Also, the midterm evaluation in 2007 indicated that the usage of the nets was not primarily because of malaria prevention, rather to protect against mosquito bites or nuisance. This may be illustrative of the fact that there is a need for sustained information and communication messages on the role of mosquito nets in malaria prevention.

Lastly, the intervention successfully demonstrated the importance of using locally acceptable, applicable and culturally sensitive education materials. AMREF, in collaboration with other partners, designed tools which proved their user- and consumer-friendly participatory and picture-based messages.

## Challenges

Based on the experiences in the implementation of the Malaria Prevention and Control Programme in Afar, the following challenges were identified:

- Given the high turn-over of trained staff in Afar region, there is continuous need to provide in-service training for the new health workers. In addition, there should be a system in place to retain the trained staff.
- Since communities are the centre of a health system, the district health offices should utilise the community structures to narrow the gap between communities and the health system. It would also be helpful to create networks and organise these structures for successful implementation.
- To effectively reach the community with user-friendly services, the mother coordinators should have a greater role and be supported by the community in carrying out this role. Hence there is need to integrate their activities with the rest of the health system to ensure appropriate follow up.

## Areas for further research

Considering the results of the midterm evaluation and experiences with the programme to date, the following areas for further research were identified:

- Utilisation of mosquito nets among the populations of the catchment areas
- Treatment adherence to antimalarials
- Use of Rapid Diagnostic Tests (RDTs) by Community Health Workers, and feasibility of using them at community level
- Feasibility of HMM with ACT (Coartem) distribution by mother coordinators or other community members





### **Afar region**

Ethiopia is one of the poorest countries in the world, ranking 169 on the Human Development Index (UNDP, 2008), and the second most populous country in Africa. Forty five percent of the population lives in absolute poverty. The Afar Region is one of nine regional states and the Afar people represent one of the most geographically and economically disadvantaged communities. This is mainly due to the arid nature of the area, poor infrastructure development, poor coverage by health and educational services, and the traditional pastoralist way of life.

### **Demographic statistics**

According to official statistics region's population is about 1.4 million, of which 90% are pastoralists and 10% agro-pastoralists. The population of Afar is predominantly rural (87%), and of muslim religion (96%). Among some 70 ethnic groups, the major groups are the Afar (90%), Amhara (5.2%), Argobba (1.5%). Afar is predominantly spoken, and is the working language of the state. Other languages include Amharic, Tigrigna, Oromo, Argobba, and Wolaitigna.

### **Health statistics**

The overall health status of the Afar population is poor, with

women and children particularly vulnerable to poor health. Maternal mortality and under-five mortality exceed the national average of 673 per 100,000 live births (DHS, 2005) and 119 per 1,000 live births (UNICEF, 2007). Malaria transmission in the region is generally seasonal and highly unstable due to variations in topography and rainfall patterns. Access and utilisation rates of health services are generally low. Covering a wide area, there are 2 hospitals, 14 health centres, 44 health stations, 83 health posts, 10 private clinics, and 1 hospital operated by a non-governmental organisation. The health professional to population ratio is very low with one physician serving 138,900 people (WHO standard is 1:10,000) and one nurse serving 5,426 people (WHO standard is 1:5,000).

### **Reaching the community with home-based management of malaria**

In line with the Roll Back Malaria Strategy, Ethiopia has intensified its fight against malaria. Based on a number of studies on the impact of home-based management (HMM) on health outcomes in Africa, among them a randomised trial in Ethiopia which indicated a 40% reduction of under five mortality, the WHO advocated scaling-up of home-based management programmes in malaria endemic countries (Hopkins et al., 2007). HMM is assumed to be



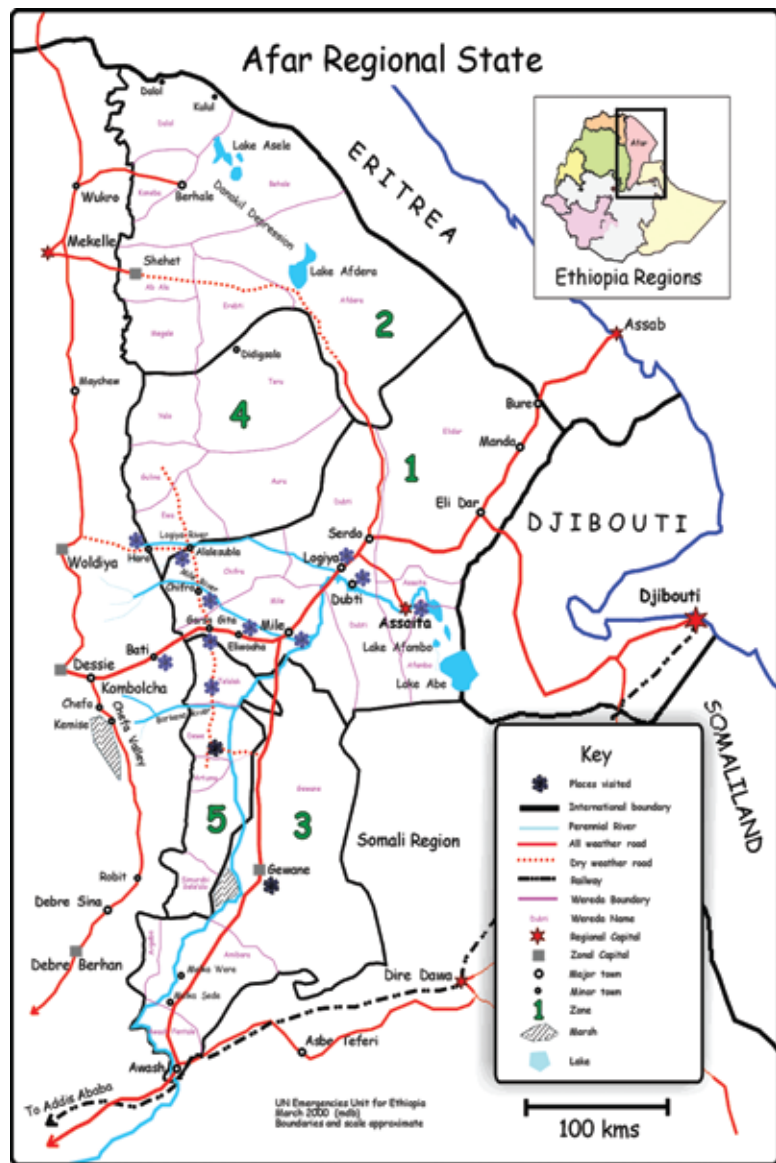
a simple and practical approach for improving the management of children with malaria at the household and community level by providing access to prompt, effective, appropriate treatment, preferably within 24 hours of the onset of symptoms. Normally a strong health system would provide for reliable diagnosis as the basis for optimal treatment. However, in most malaria-endemic areas, access to curative and diagnostic services is limited. The HMM strategy therefore aims to improve the common ineffective self-medication practices in many of the endemic areas. HMM strategic components are:

1. Availability of and access to effective, high-quality, pre-packed anti-malarial medicines at the community level.
2. Training of community-based service providers to ensure they have the necessary skills and knowledge to manage febrile illness or malaria.
3. An effective communication strategy to ensure correct

early care seeking behaviour, and appropriate and effective home care of a febrile illness or malaria.

4. A good mechanism for supervision and monitoring of the community activities.

AMREF promotes the implementation of HMM services using ACTs particularly for children under 5 in malaria endemic areas. Consequently, AMREF Ethiopia has included HMM as one of the packages of malaria control interventions with ACT. In addition mother coordinators were recruited and trained to participate in malaria prevention at the household and community level; and a strong communication strategy for behaviour change at individual and household level was introduced. Before embarking on a wider implementation of HMM in Afar, including the distribution of ACT by mother coordinators, AMREF should consider issues such as costs, training, incentives and supervision of mother coordinators; and the sustainability of such intervention.



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Text: AMREF, with support from Esther Jurgens

Photo: AMREF Communications

Design: Bruce Kynes /AMREF Communications

Special thanks to: PSO

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