



World Health Organization

SCALING UP HOME-BASED MANAGEMENT OF MALARIA

FROM RESEARCH TO IMPLEMENTATION



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ROLL BACK MALARIA / UNDP / UNICEF / THE WORLD BANK
WHO Special Programme for Research and Training in Tropical Diseases

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FROM RESEARCH TO IMPLEMENTATION



World Health Organization, Geneva

Roll Back Malaria Department/UNICEF/UNDP/World Bank
WHO Special Programme for Research and Training in Tropical Diseases

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Definitions, abbreviations, and acronyms

CBD	community-based distribution
CDD	community drug distributors
CHW	community health worker (often refers to groups working at the community level, e.g. organized CHWs, village health workers (VHWs), trained mother coordinators)
DALY	disability-adjusted life year
distributors	government, commercial, or NGO systems distributing to retailers
EPI	Expanded Programme on Immunization
GMP	good manufacturing practice
HMM	home-based management of malaria
home-based management	diagnosis and treatment occurring outside the clinical setting, in or near the home
ITM	insecticide-treated material ICMI Integrated Management of Childhood Illness (malaria, measles, malnutrition, pneumonia, diarrhoea)
IEC	information, education, and communication
MCP	malaria control programme
MOH	ministry of health
NGO	nongovernmental organization
PMV	patent medicine vendor
pre-packaged	refers to tablets enclosed in sealed sachets or blister packs, as opposed to loose tablets
providers	PMVs, CHWs, health staff
RBM	Roll Back Malaria
scaling up	broadening programmes by expanding existing activities or adding new activities
SMART	specific, measurable, appropriate, relevant, time-bound
TDR	UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases
unit dose	tablets packaged in individual doses for the complete course of treatment
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VHW	village health worker

Summary

Prompt access to effective antimalarial treatment is one of the major strategies for reducing the burden of malaria. Prompt access means having treatment available as near to the home as possible so that it is given within 24 hours of onset of symptoms.

In Africa, where the mortality burden from malaria is greatest, the majority of children die before they reach health facilities. Factors such as distance from home, poverty, financial constraints, the demands of domestic life, perceived poor quality of service, drug stockouts, and health workers' behaviour has led to the by-passing of health care facilities being bypassed by communities in favour of health care from the private or informal sector with inappropriate or poor-quality drugs. The availability of appropriate and effective treatment near to or in the home is therefore very important and is a major strategy for the African region.

In April 2000 in Abuja, Nigeria, African heads of state made a commitment to ensure that at least 60% of those suffering from malaria have prompt access to affordable and appropriate treatment within 24 hours of onset of symptoms. This formidable challenge to implementers could be attained through scaling up home-based management of malaria (HMM).

The wealth of information on and experience of HMM that exists primarily in research settings and demonstration projects can be used as the basis for scaling up. In January 2002, a meeting jointly organized by Roll Back Malaria (RBM) and the UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases (TDR) in Geneva brought together key researchers, health planners, and malaria control programme (MCP) managers from African countries to help translate experience into practice and to scale up HMM.

Evidence, experience, and lessons learned in scaling up HMM in Burkina Faso, Ghana, Kenya, Nigeria, Uganda and Zambia were shared and the key issues and challenges were discussed. HMM was shown to be both feasible and effective in ensuring prompt access to appropriate treatment in the African region. It was generally agreed that it was time to scale up HMM in endemic countries to cover the majority of their populations and that this would result in prompt access to good-quality antimalarial drugs at appropriate dosages within 24 hours of onset of symptoms, especially in the most remote areas of Africa. However, training of and provision of information to all those involved in the process – from the manufacturer to the caregiver, from the trained health care worker to the volunteer – as well as supervision, monitoring, and evaluation would be required. The meeting also recognized that the following issues are key in the process of scaling up:

- Available and prompt treatment

Among the challenges in a large-scale programme is ensuring that the drug is available and its supply sustainable. Drugs need to be available to the consumer at all times, close to the household and in easy-to-use packages (since many caregivers are illiterate). Treatment coverage of malaria episodes is much higher when pre-packaged drugs are available in the household than when the drugs and the decision to treat rest with the health worker. Studies show that having pre-packaged tablets available increases the number of children receiving treatment within 24 hours from 46% to 54.4% in Uganda and from 67% to 89.6% in Nigeria.

- Pre-packaging and compliance

Local manufacturers in a number of endemic countries can produce pre-packaged antimalarial tablets at a reasonable price. Pre-packaged tablets are better for ensuring compliance than loose tablets and antimalarial syrups. Following the introduction of pre-packaged tablets through community volunteers in Nigeria, 26.7% of children received correct dosage as opposed to 14.3% at baseline; in Ghana, compliance increased by 20%.

- Cost-effectiveness ratio

A recent review paper has shown that interventions designed to improve HMM through training of providers and pre-packaging of chloroquine had the lowest cost: DALY¹-averted ratio (about US \$4) compared with other malaria control strategies such as chemoprophylaxis, indoor residual spraying, and use of insecticide-treated materials (ITMs) (Goodman, Coleman & Mills, 2000).

- Information

The success of HMM will depend on effective information, education, and communication (IEC) programmes to improve recognition of malaria, promote health-seeking behaviour and use of appropriate antimalarials, ensure referral of severe cases to health workers, etc. Experience has shown that the better the IEC for communities, the better the programme output.

- Training and retraining

Training of all providers – from health care workers within the formal health system to community agents – is a key component of improved HMM. All providers should be trained to recognize uncomplicated malaria, provide antimalarial treatment, give correct instructions, emphasize the need for full compliance, refer severe case, keep records, and educate caregivers.

¹ DALY = disability-adjusted life year.

- Remuneration

Experience shows that, to ensure continued motivation of community-based agents, some form of incentive (not necessarily monetary) is necessary, as well as support from the community and the health system through supervision, and provision of supplies, transport, and other basic resources.

- Community ownership

Community ownership is important for the success of any community-based programme, including HMM. It can be enhanced by developing community capacity and a communications programme based on community dialogue.

- Supervisory support

Effective supervision of community providers by health staff and community resource persons is essential for success; incorporating supervision into the routine activities of health workers is one of the challenges.

- Monitoring and evaluation

The coverage, quality, safety, and impact of HMM are monitored using indicators such as level and pattern of drug use, side-effects, resistance to the antimalarial drugs used, and treatment outcomes. Careful record-keeping is critical in monitoring the performance of community-based providers.

- Integration

All countries scaling up HMM are integrating these activities with existing community-based health care programmes, such as those for Integrated Management of Childhood Illness (IMCI – acute respiratory infections, diarrhoeal diseases, nutrition education, Expanded Programme of Immunization monitoring), disease surveillance, environmental management, and sanitation.

In summary, large-scale research studies and pilot studies have shown that scaling up HMM is both feasible and effective – and is already being implemented on a limited scale in some African countries. Research experience and demonstration projects have provided guidance on how HMM can be scaled up to reach the majority of populations.

Experiences and lessons learned have been compiled in this handbook to assist with scaling up by countries with technically sound national strategic action plans on HMM. The handbook is intended as a reference document to help define the mechanisms for scaling up HMM in the African region. Aimed at MCP managers, malaria interagency coordinating committees, international donor organizations, and nongovernmental organizations (NGOs) involved in malaria control, and at research and training institutions, the handbook should be used in conjunction with other RBM documents on advocacy, drug policy change, national treatment guidelines, and monitoring and evaluation.

1. Introduction

1.1 Why is this handbook important?

The challenges of scaling up implementation of HMM – expanding beyond small geographical areas and/or controlled conditions – are enormous. In a research project, it is relatively easy to provide services for participating communities because of the relatively small size of the operation. However, such services are difficult to duplicate and sustain in large-scale district or nationwide operations. All major steps of programme implementation – from procurement and delivery channels for drugs to training, financing, monitoring and evaluation – must therefore be analysed and the challenges addressed realistically.

It has been recognized that, in endemic countries, most malaria episodes are treated outside public health facilities, mainly at home; health facility-based treatment does not reach the majority of the population. As a result, the provision of improved home-based treatment of uncomplicated malaria has become a key strategy for meeting RBM country targets. Strategies for improving HMM by training members of the community and the private sector are important because of the private sector's accessibility and distribution capacity. Training in communities has addressed malaria recognition, appropriate treatment, and changes in health-seeking behaviour, but lessons learned from effective local-level activities in research settings have not been translated into larger programmes.

This handbook is a compilation of these experiences. It considers issues relevant to scaling up HMM to help countries expand implementation and achieve the RBM targets. For a variety of reasons, the handbook's publication comes at a critical time in the drive to ensure prompt and appropriate effective treatment of malaria, especially in Africa:

- At the RBM Summit in Abuja in April 2000, heads of state of most African countries made a commitment to ensure that, by the year 2005, 60% of malaria episodes are adequately treated within 24 hours of onset of symptoms. Concerned states were called upon to:
 - “...make diagnosis and treatment of malaria available as peripherally as possible in the health system including near the home”
 - and
 - “...make appropriate treatment available and accessible to the poorest groups in the community”.
- Accumulating experience shows that improving the management of malaria at household and community levels is feasible and reduces morbidity and mortality. Such experience includes the training of shopkeepers in Kenya (Marsh et al., 1999) and Uganda, unit-dose packaging of antimalarial drugs in Burkina Faso, Ghana, Nigeria, and Uganda, and training of mothers in home-based management of febrile illness in Ethiopia.

- Increased funding from various sources, including the Global Fund to Fight HIV/AIDS, Tuberculosis and Malaria, is now available for malaria control efforts and should be used to improve home-based treatment for malaria as a key RBM strategy.

1.2 Why is it important to improve home-based treatment of malaria?

Home-based management is a popular early treatment option

In Africa, more than 70% of malaria episodes in rural areas and more than 50% in urban areas are self-treated (McCombie, 1996). The first treatment often involves drugs bought from ordinary retail shops that sell daily essentials to the local population.

- Home-based treatment for most febrile episodes is initiated promptly and usually within a day of onset of symptoms.
- Decisions to seek outside help from, for example, a public health facility are made only if home-based treatment is ineffective.
- Mothers are often aware of the poor advice they receive from drug sellers but still consult them because of limited time, transport, or funds for hospital fees.

Home-based treatment is often inappropriate and fewer than 15% of episodes are treated correctly

- Mothers are able to recognize the symptoms associated with uncomplicated malaria. In one community in Nigeria and two in Ghana (Dunyo et al., 2000), a mother's recognition was very closely correlated with the diagnosis made by the medical assistant and a positive blood-slide for malaria. Most fevers in children (> 60%) are treated with simple fever drugs, e.g. paracetamol and aspirin, but not with antimalarials. Even when antimalarials are purchased, they are commonly (> 80% of cases) administered in inappropriate doses.
- The private sector is the major source of drugs and provides information for about two in three malaria cases. However, lack of knowledge plus the private sector's profit interests may mean that malaria patients receive ineffective, inappropriate, or expired drugs, in incorrect doses.

Early treatment is critical to illness outcome

- Progression to severe malaria is always rapid, and most children die within 48 hours of onset of illness. Treatment must therefore be prompt. In a study in Burkina Faso, Sirima et al. (2003) showed that provision of early treatment within the community reduced progression to severe malaria episodes by 50%.
- The nearer the source of appropriate treatment is to the home, the more likely it is that proper treatment will start early.

Home-based management of malaria produces public health gains

- 50–70% childhood deaths occur at home without any contact with formal health services.
- Studies reveal that HMM reduces progression to severe disease by more than 50% and under-five overall mortality by 40% (Kidane & Morrow, 2000; Sirima et al., 2003).
- Appropriate use of antimalarials – through provider and community training and pre-packaging of the drugs – provides opportunities to control an increasingly chaotic component of the informal health sector and may reduce drug resistance.
- Educating mothers and providing them with antimalarials through mother coordinators have resulted in early treatment that has saved lives.
- Unit-dose packaging of antimalarials, including child-specific formulations (not syrups), has improved both safety and compliance with treatment.
- Trained shopkeepers, drug vendors, village volunteers, and schoolteachers can be effective and acceptable channels for HMM.
- Health care providers in the public health sector have been shown to be willing and able to support and supervise HMM programmes.

Old fears are no longer valid

In the past there has been opposition to improving HMM because of concerns that indiscriminate use of antimalarials by the so-called “illiterate population” could lead to increased antimalarial drug resistance. Mothers were thought to be unable to comply with the complicated diagnosis and dosing schedule that proper treatment requires. It is now generally agreed that, with appropriate training and using prepackaged drugs, mothers can recognize fever, and administer prompt, appropriate treatment. It is uninformed households seeking ineffective treatment that contribute to the development of drug resistance.

1.3 What are the major challenges to overcome?

Many players involved in treating malaria, particularly the informal sector, offer inappropriate drugs and incorrect treatments. Given the importance of self-treatment and the fear that drug resistance is likely to follow indiscriminate use of antimalarials, strategies to improve the quality of self-medication are a cornerstone of successful implementation of HMM. Proper training of mothers, community health workers (CHWs), and shopkeepers, and the prepackaging of antimalarial drugs can build upon existing community practices. The following are some of the practical challenges of large-scale implementation:

- the increasing ineffectiveness of commonly available and relatively cheap drugs for treating malaria;
- developing community ownership and sustainability of community volunteers through provision of incentives;

- ensuring that severely ill children are rapidly referred and appropriately treated; referral facilities are often very few, provide inadequate service and poor-quality care, and are mistrusted;
- reluctance to scale up HMM;
- fears that actively promoting home treatment of malaria will encourage inappropriate drug use and accelerate the development of drug-resistant parasites.

1.4 What has been shown to improve home-based management of malaria?

The following approaches have been shown to improve HMM in research settings:

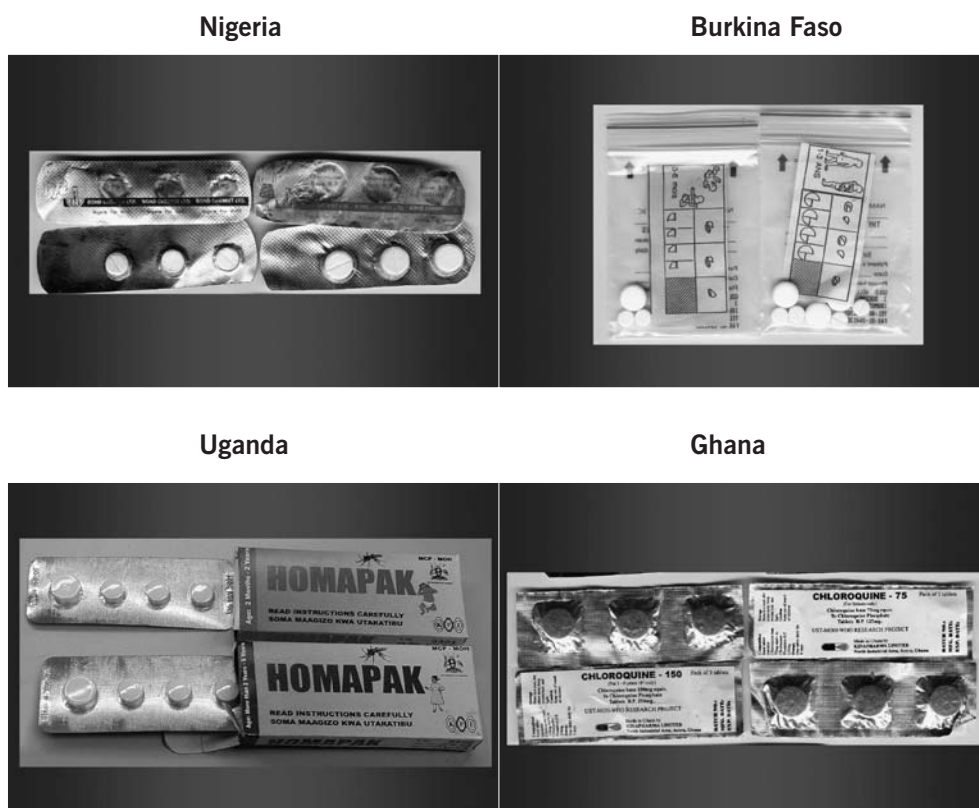
- unit-dose packaging of full-course therapy, and pictorial labelling;
- training of local communities, especially mothers and other community resource persons;
- training of shopkeepers, drug vendors, chemical sellers, and drug-shop owners;
- community-targeted IEC for behavioural change.

Unit-dose packaging

Qingjun et al. (1998) showed that in China, use of blister packs with written instructions increased compliance to 97% (compared with 83% in the control group, who were provided with drugs in simple envelopes). In Africa, home-based treatment using unit-dose pre-packaged antimalarials has been implemented at district level in Burkina Faso, Ghana (Ansah et al., 2001), Nigeria, and Uganda, where – except in Burkina Faso – local drug manufacturers have been able to produce reasonably priced age-specific pre-packs for preschool children. In Burkina Faso, health facility staff used simple plastic bags (Pagnoni et al., 1997). Examples of pre-packs are shown in Fig. 1. Two blister packages of full courses of chloroquine treatment have been developed, one with 75-mg tablets for the 6–12-month age group, and the other with 150-mg tablets for the 1–6-year age group. Package size, coloured labels, and pictorial identifiers make it easy for care providers to distinguish between the two packs.

In addition to improving compliance, unit-dose packaging encourages care providers to give appropriate treatment without over- or under-dosing and increases the chance of the patient receiving a full therapeutic course. Unit-dose packaging also helps with dispensing, permits effective labelling (including colour-coding and symbolic labelling for non-literate people), and facilitates social marketing of antimalarials.

Fig. 1 Examples of locally produced pre-packs of antimalarial drugs



Training of community residents

Training of mothers and mother coordinators

In successful programmes, mothers, as their children's primary caregivers, were trained to recognize symptoms of malaria and give appropriate early and prompt treatment (Kidane & Morrow, 2000). "Core mothers" or mother coordinators were selected in collaboration with local leaders, communities, and women's groups. After training, they passed the information on to other community members, so giving the programme community ownership.

Mothers' ability to recognize malaria and give prompt appropriate treatment resulted in a 40% reduction in overall childhood mortality in the programme area. The success of the programme was attributed to the involvement of mothers as principal care providers for children and to community involvement.

Training of community health workers and village volunteers

Various channels of intervention have been used for HMM through training CHWs or village health workers (VHWs). When CHWs, VHWs, or primary health care coordinators were used as drug distributors by themselves, they were generally

under-utilized by the community and had a variable impact on malaria. However, when they worked in collaboration with mothers and with adequate supervision and were supported by good availability of drugs, there was much greater use of their services.

In Burkina Faso, village volunteers (the “village cell”) and CHWs were trained to recognize malaria symptoms and treat childhood fevers using pre-packaged chloroquine and paracetamol. These drugs were available in four different colour-coded packages for different age groups, each containing a full course of treatment and a label with pictorial instructions on how to administer the drugs. Training also covered recognition of malaria patients who need to be referred to the health centre. Access to treatment was increased, compliance with recommended dosages improved, and progression of uncomplicated malaria to complicated forms of the disease was significantly reduced (Sirima et al., 2003).

Training of village health committees

In Mali, a community health programme that has been implemented in several health districts is based on village health committees that maintain a village drug kit consisting of oral rehydration salts, chloroquine syrup and tablets, paracetamol, alcohol, simple adhesive dressings, and tetracycline eye drops. This approach has resulted in increased access to treatment and improved home treatment of malaria.

Training of for-profit private-sector providers

Training shopkeepers or drug sellers to offer appropriate antimalarial drugs at the right dosage can lead to major improvements in the way shop-bought drugs are used at home. This has been shown to be possible without compromising profit margins; better still, it has been shown to increase sales.

Shopkeepers and drug sellers

In a programme in Kenya, (Marsh et al., 1999) local shopkeepers were trained in the correct use of antimalarial drugs so that they could advise their customers and persuade them to buy appropriate malaria treatment, and could provide accurate instructions on how to use the treatment according to a child’s age. Before the programme, only 25% of children treated with shop-bought drugs were given antimalarials and just 8% received the right dose. Afterwards, half of the children treated through shops received antimalarials, and 60% of these were in appropriate doses. The number of people buying the right antimalarial drugs at the correct dose increased from 32% to over 80%, and the proportion of children treated correctly with over-the-counter drugs increased from 4% to 66%.

The programme was acceptable to caregivers, shopkeepers, trainers, health workers, community leaders, and community and health managers. It is now being expanded to cover a wider area and a greater number of shops. Countries such as Ghana, Nigeria, and Uganda have also used the same approach to successfully provide appropriate treatment and advice.

Franchise drug shops

Some NGOs have used franchise methods to motivate health workers to provide good-quality service and as a means of alleviating poverty through community empowerment. Cry for the World Foundation (CFW) operates micro-finance enterprise businesses, and created a micro-franchise business model called “CFW shops”. Franchisees operate small drug shops that are strategically located in the community to improve access to essential drugs; they ensure that drug handling and distribution regulations are adhered to and that good dispensing practice is followed. This activity has enabled trained health workers to operate their own businesses for treating the common diseases that cause 70–90% of illness and death in their communities.

Vendor-to-vendor training

“Vendor-to-vendor training” is another innovative method that has been used in Bungoma, Kenya (Paula Tavrow, unpublished). This intervention involved distributing information to drug outlets on the correct dispensing of drugs by using wholesale counter attendants trained in correct antimalarial dispensing practices, who subsequently gave customized job aids to mobile vendors for distribution to small rural and peri-urban retailers. Outlets that received the shopkeeper job aids found them useful and were more likely to provide correct antimalarial treatment and information. Six months after the training, an increase in the number of malaria patients receiving proper treatment was recorded.

Community-wide use of information, education, and communication for behaviour change

Education for behaviour change has been an integral component of all programmes that use community-based approaches to the treatment of malaria. The emphasis has been on educating communities using messages and materials, tailored to individual settings, that emphasize knowledge of symptoms of both uncomplicated and severe malaria, prompt care-seeking, and compliance with recommended doses. Various approaches have been used to achieve this, including health education, promotional social marketing, and community participation.

2. Steps in designing implementation of home-based management of malaria

A large-scale HMM implementation programme requires detailed preparation including situation analysis, setting of objectives, in-depth planning, and strategy development. Numerous critical decisions are needed on such aspects as what and how to scale up, the implementation strategy, policy issues on drugs and financial access, cost and pricing, drug procurement and distribution, and programme monitoring. It is essential to develop an effective advocacy strategy and build partnerships at all levels of implementation. Most of these aspects are covered in detail in the modules of this handbook – the most important are summarized below.

2.1 Conduct a situation analysis

One of the most important activities before scaling up begins is a country situation analysis of health-seeking behaviour and access to antimalarial treatment. Reviewing existing information and collecting additional data can be very helpful. The type of information that may be required includes:

- knowledge, awareness, attitudes and practices prevailing in the country;
- most common options for treatment of malaria in the community;
- quality of available drugs and treatment options;
- availability of antimalarial drugs and accessibility to the communities;
- cost of drugs, affordability, and people's willingness to pay;
- health-seeking behaviour for severe disease, and referral practices;
- distribution, availability, and attitudes of the private sector;
- availability and willingness of drug manufacturers to pre-package and support the HMM strategy.

2.2 Set the main goals and objectives

It is important to set goals for scaling up, to guide subsequent decisions. The following are examples of possible overall goals:

- Reduce deaths among children under 5 years of age and morbidity resulting from treatment non-availability, inaccessibility, and non-compliance, inappropriate treatment, and lack of referral.
- Improve treatment quality by improving product formulation, packaging, appropriateness, and storage.
- Improve behaviours related to provider and consumer practices, and appropriate treatment.

2.3 Establish a core working group

Scaling up HMM is a huge task and requires all stakeholders to be part of the programme. It would be very difficult for one programme single-handedly to address all the issues involved in implementation. In countries that have tried to scale up, a core working group that included all stakeholders was found to be useful in terms of advocacy, planning, and implementation. The group should have strong linkages with key ministry of health (MOH) departments – IMCI, drug regulatory authorities, pharmaceuticals, health education and promotion, etc.

2.4 Undertake advocacy, build partnerships, mobilize resources

Successful implementation of HMM will require advocacy, partnership, and resources. These are some of the most challenging issues, especially as the strategy is new and the key partners need sensitizing to ensure they will support its implementation. The tasks include:

- developing an advocacy strategy and plan;
- forming appropriate partnerships;
- mobilizing resources.

Developing an advocacy strategy and plan

The purpose of advocacy is to build support for HMM – it is crucial that the public health sector, governmental and nongovernmental organizations, and commercial, legal, policy, medical, and media sectors, as well as donors, “buy into” and participate in the strategy. More details on advocacy are provided in *RBM advocacy guide* (WHO, 2000).

Methods of advocacy

Advocacy involves addressing specific issues at different levels by using a variety of methods:

- letters, statements, memoranda, or briefs to senior officials;
- face-to-face sensitization meetings and telephone calls;
- representation in public forums (conferences, meetings, lectures, hearings, symposia, etc.);
- field missions.
- press releases.

Every advocacy effort needs a strategy that builds upon the findings of a situation analysis, so that it is focused on specific goals. There should be clear paths to achieving the desired goals and objectives of scaling up HMM. Because the task is enormous, it is essential to use an established working group to develop an advocacy strategy and plan the activities.

Steps to consider for an advocacy strategy

In developing an advocacy strategy, the following steps should be taken:

- Identify the primary and secondary audiences (professional, undecided, competitors such as those marketing fake or inappropriate drugs).
- Develop SMART (specific, measurable, appropriate, relevant, time-bound) objectives.
- Position the issue to offer key decision-makers a unique and compelling benefit or advantage.
- Identify resources and plan to build coalitions and mobilize support. Seek out and work with appropriate partners, coalition advocates, spokespersons, and the media. Identify competitors.
- Plan the activities that are most appropriate for the intended audience.
- Refine positions to achieve a broader consensus. Minimize the opposition or find as many areas of common interest as possible.
- Prepare an implementation plan and a budget.
- Plan for and combine multiple channels of communication, including personal contacts, community media, mass media (print, radio, television), and new information technologies such as e-mail and the Internet.

It is important to monitor, and respond rapidly to, other views or opposition to the strategy and to adopt a more flexible attitude. Controversy should not be feared –rather, it should be turned to advantage (while, obviously, avoiding any illegal or unethical activities). Policy-makers should be held accountable for commitments and records must be kept of successes and failures. The role of policy-makers and coalition partners must be acknowledged and credited. Planned activities should be carried out continuously and on schedule. Ways of keeping all coalition members informed of the activities and results must be established, including media support with personal contacts, press releases, press conferences, and professional assistance. Most importantly, public opinion should be monitored and positive changes publicized.

Continuity

Advocacy is an ongoing process rather than a single policy or piece of legislation. Planning for continuity means articulating long-term goals, keeping functional coalitions together, and keeping data and arguments in tune with changing situations. Keeping track of what is going on can be aided by:

- evaluating resulting situations;
- monitoring implementation to see whether desired changes occur and, if not, reviewing previous strategy and actions, and repeating the advocacy process or identifying other actions to be taken;
- developing plans to sustain/reinforce change.

Difficult advocacy areas may lie where government funds are decentralized to district or lower levels, among medical professionals perceiving a loss of authority and even business, and among pharmacies if non-traditional distributors are engaged. It is especially important to negotiate, sell, and advocate continuously and not to underestimate the need for achieving a high degree of acceptance of HMM – it is a new concept.

Building partnerships and defining roles

Coalition of partners

Scaling up HMM will involve many partners, including the MOH, other government departments at national, district, and community levels, the community, the private commercial sector (including distributors, manufacturers, and medical professionals), the media, international and national NGOs, community-based organizations, organized CHWs, patent medicine sellers' associations, indigenous/traditional healers, schools, community/opinion leaders, faith-based organizations, and women's organizations. The roles to be played by each partner must be clear from the outset, and all should be encouraged to participate actively by incorporating key persons from their organizations in the working group and all activities. In building and maintaining partnership, the following are important:

- networking to enlarge and maintain the partnership;
- identifying and verifying key facts and data and incorporating them into the plan, to support the HMM implementation strategy;
- compiling information or documentation that supports the importance of HMM, and organizing a sensitization meeting for advocacy;
- identifying partners with comparative advantages that can be used to lead some activities of the strategy;
- delegating implementation responsibilities clearly to partners, but monitoring specific events and activities;
- developing a schedule and sequence of activities for maximum positive impact;
- emphasizing the urgency and priority of recommended actions;
- involving the electronic news media by organizing coverage to publicize appropriate events, present new data, and credit key players;
- rallying visible national, district, and community support;
- ensuring that partners are consulted often and have a forum for sharing issues even during implementation.

Examples of comparative advantages of partners

- *Government: provides credibility and strengthens implementation by offering access to government resources and promoting the programme through existing public health networks.*
- *National or federal government: could be responsible for negotiating with manufacturers and ensuring quality.*
- *District government: could purchase and distribute drugs, ensuring that supply to community-based agents is reliable.*
- *Private commercial sector: can often has the capability to provide high- quality products, efficient distribution, marketing through advertising.*
- *International NGOs: can provide access to financing, advocacy, technical assistance, implementation, multi-country experience, social marketing experience.*

Integration with other programmes

From the planning stage to the time of reaching the community, integrating efforts with other health programmes may reduce duplication of effort, lead to savings in costs and time, and provide consistency in methods and messages. Existing structures and programmes that provide maternal and child health services and reach young children, such as the Expanded Programme on Immunization (EPI), can be used for distributing pre-packaged antimalarials to caregivers of young children.

Implementation should be planned to coordinate with other malaria information and prevention interventions, such as social marketing of insecticide-treated bednets. Integration with other programmes could be achieved through combined educational and awareness activities, especially at community level, e.g. providing bednet and discount coupons in treatment packaging.

Key components of scaling up, and possible roles of partners

Partners for implementation will differ in each country. Implementers' responsibilities may include production of IEC materials; implementing behaviour change programmes; promotion, education, and training of community-based agents; and direct provision of community-level care. Partners may include NGOs, municipalities, and health personnel in both public and private sectors. The following are examples of key scaling-up components in which partners can play a role:

- *Antimalarial registration and certification*

The malaria control programme may have to present relevant information to other bodies, while the national drug regulatory authorities will have to register and certify the drugs for use.

- *Information on malaria*

The MOH, in collaboration with other government departments and research institutions, will have to provide authoritative information on populations, treatment practices, certified antimalarials, and monitoring of drug quality.

- *Importation of supplies*

Organizations with tax-free status, e.g. embassies and United Nations agencies, could help save money through centralized procurement or customs duty waivers if supplies are imported.

- *Storage and distribution*

Government, nongovernmental, or commercial organizations could assist in storage and distribution of supplies. Potential outlets for antimalarials may include health facilities, hospitals, drug shops, vendors, supermarkets, churches, schools, cooperatives, VHWs, CHWs, and local companies.

- *Training*

Suitable trainers may be found in the MOH, district health facilities, universities, development agencies, and NGOs.

- *Behaviour change*

An NGO that specializes in behaviour change through social marketing may design a brand name, logo, and promotional materials. Universities are another potential source of theoretical and practical information on behaviour change methods. Health facilities, schools, and community and drama groups can be involved in education and promotion of HMM. Local media may give space to promotional and educational messages.

- *Monitoring and evaluation*

Social scientists from universities, government, NGOs, and United Nations agencies can help to design community, participatory, or operational research, and can carry out external evaluation.

Mobilizing resources and funding

Resource mobilization is key to scaling up, and plans should be made to ensure sustainability. However, it may sometimes be necessary to start with whatever resources are at hand in order to show what can be achieved by the strategy. Draft a funding proposal using all available information and plans of action, estimate the level of funding required, and get the approval of the working group.

The government should endorse the proposal and be willing to contribute – its resources are more sustainable than donors' resources. However, it is important to be aware of potential donors and the type of proposal they will need. Try to determine their interests and needs; if it is reasonably certain that they are interested, find out as much as possible about the type of proposal and the level of detail they need.

It is important to convince donors and other partners that HMM is a good investment. This should not be difficult because treatment for malaria is known to be a cost-effective intervention. Goodman, Coleman & Mills (2000) showed in a case-management model that pre-packaging, training, and health education to improve compliance in the United Republic of Tanzania cost the government US\$ 0.09 per outpatient visit and US\$ 500 000 annually. Ghana makes a case by pointing out that 40% of outpatient consultations are for malaria.

A proposal should describe in detail the major components of the programme, such as the drugs and packaging, production, procurement, and distribution plans, community education, promotion materials, monitoring and evaluation, and the overall budget. It is important for the working group to complete decisions and plans for supplies, the method of distribution, and the strategy for behaviour change, and to consider the issue of cost-recovery. If multiple interventions are planned, ensure that fundraising activities are not carried out in isolation for each activity but rather are coordinated, whether a donor commits to the entire programme or only to certain aspects of it. Funding may be "patched" together to achieve an overall programme, e.g. donor A takes CHW training, donor B takes the national IEC campaign, and donor C takes the cost of drugs and packaging. This calls for more management skills but has the advantage that no single donor is depended on to sustain the entire programme.

Many donors have a particular form or list of items to be included in a programme proposal, and it is important to follow their prescribed guidelines. Ask donors for their proposal guidelines and contact others who have written successful proposals to that donor for helpful suggestions. Keep in mind that HMM is still a relatively novel idea and must be “sold” to the donor. Most donors want to be associated with something that is good, can be implemented, and has clear, measurable outcome goals. Some typical interests of donors are:

- plans for programme recognition, partnering with others, programme contributions (in-kind or monetary);
- cost-per-beneficiary analysis, evidence that intervention(s) have worked in similar settings, programme needs;
- availability of implementation capacity, potential for sustainability;
- integration with existing programmes, evidence that there is no unnecessary overlap in interventions.

Examples of potential sources of funding

- National and local governments
- Global Fund to Fight HIV/AIDS, Tuberculosis and Malaria
- United Nations agencies: World Bank & African Development Bank
- Foundations
- Government agencies: USAID & Italian Government
- Nongovernmental organizations: Rotary International
- Private sector: local manufacturers & advertising and media organizations

Launch programme as a special event

A special launch event (or multiple launch events if a phased approach is used) is a promotional activity to introduce the programme in an area and generate excitement and awareness among the target population. Timing of the launch is very important in some settings; it is most effective if implementation has already begun. A launch event should preferably be timed to coincide with the start of the malaria season, when people are especially motivated to avoid disease transmission and need treatment.

However, the launch should not delay programme implementation and does not have to be expensive. It might even consist simply of a meeting with community leaders, local politicians, community volunteers, and health workers, who then take the information back to their villages. For large-scale launches, it is desirable that the press is present to disseminate the information.

2.5 Formulate policy and drug regulation

Addressing specific policy and legal issues regarding HMM can facilitate programme planning and the implementation process, and may provide cost savings. It may be necessary to analyse and modify laws and regulations such that there is no need for prescription, allowing drugs to be supplied on an over-the-counter basis and different providers to keep drugs without having a licence. Drug registration procedures and quality control structures may have to be consolidated.

Once policy decisions have been made, they must be stated clearly and disseminated. Policies should be made sufficiently flexible to accommodate future changes in treatment policy, e.g. changes in first-line antimalarial drugs.

Examples of policy decisions that may need to be made:

- Phase out loose tablets and make unit-dose packaging, with instructions, the new standard for antimalarials.
- Phase out syrups and phase in children's formulations of antimalarial tablets.
- Broaden, or remove unnecessary barriers to, antimalarial drug distribution.
- Adjust drug pricing and provider mark-up controls to fit with programme goals.
- Remove tax barriers on drugs, or create protections for antimalarial drugs.
- Address unnecessary barriers related to advertising, promotion, and education.
- Require shopkeepers to sell full courses of treatment, especially if loose tablets are on the market.
- Facilitate drug registration by manufacturers.
- Enable the registration process of a branded antimalarial by an implementing agency.
- Determine additional policy issues from country-specific research.

2.6 Develop training and information, education, and communication materials

Training of providers

Develop training materials for all the different providers expected to participate in the implementation of HMM. Training of health personnel, CHWs, community drug distributors (CDDs), mothers, and the commercial private sector is a cornerstone of successful implementation of the strategy; it should be well planned and avoid too many participants in one course. In most cases, communities select individuals who are able to read and write but occasionally participants are illiterate. The training should therefore be simple, with very clear messages that are crucial for the tasks expected.

For the commercial private sector, it is important to list the types of provider that will be involved in actually selling drugs in the community (pharmacies, drug shops, retail shops) and the tasks that they should perform; their training needs and the availability of antimalarials should be assessed.

Information, education, and communication

Targeted IEC materials should be developed to help promote the strategy, and sufficient quantities of the materials for all anticipated needs must be printed. It is usually more cost-effective to print a large quantity than to repeatedly reprint smaller quantities each time supplies run out. The materials should be distributed in good time, so that they reach all outlets and should be in the hands of those who will use them in advance of the launch.

2.7 Plan for drug procurement and storage

Procurement

Drug procurement should be well established. To reduce costs, it is advisable that procurement is centralized, allowing economies of scale. Drugs could be procured through the national procurement system, i.e. from suppliers certified and licensed by the national drug authority or the government procurement system, or imported through United Nations agencies. Drug standards, labelling requirements, maximum shelf-life, and packaging standards should all be made clear to the suppliers.

Drugs should be of high quality and produced to certified high standards according to good manufacturing practice (GMP). It is important to secure drugs of high quality, and to establish access channels and treatment outlets, e.g. clinics, pharmacies, NGO clinics, volunteer sales people. How the public or private sectors can access the drugs when required should be clearly defined to ensure that there is no leakage from the public sector. This could be done by allowing the private sector to access drugs through the national distribution systems or by having specific brands for the private sector that manufacturers can provide through their normal channels of sales.

Storage

Drug storage is a crucial aspect of scaling up HMM, especially when it involves volumes that cannot be handled by district or health facility stores. A well defined storage system should be planned. As a rule, the public health sector drug stores will be most appropriate as there is generally a national medical store, or district or sub-district medical stores. At the community level, there could be an organized mechanism for keeping the drugs in sufficient quantities to prevent too many being stored in the field at any one time.

For the private sector, use of existing pharmacies or drug shops as a source of the drugs may obviate the need to have special storage facilities. It is essential to monitor deliveries and ensure that they are made in a timely manner so that families who hear of the programme and seek care are not disappointed. Distribution should be coordinated by the district health services to ensure that pre-packaged drugs are constantly available at the health facility and community level. A system for collecting expired drugs from the field is also essential.

2.8 Decide on the implementation strategy – how and what to scale up

Deciding on implementation strategy

Consideration should be given to forming a scale-up working group, composed of representatives of key stakeholders and partners, to provide oversight and a coordination mechanism. In deciding on the HMM implementation strategy, consider what it will take to achieve the set goals, objectives, and targets within the desired timelines. What is defined for scale-up should be based on these goals, objectives and targets in terms of geographical coverage and the parties or sectors involved.

Regardless of the implementation strategy chosen, it is important to consider what skills and staffing are needed for scaling up in the light of the planned activities. Decide what type of skills will be required for each of the following activities, and estimate how much staff time will be needed to implement them.

Implementation strategies

Social marketing

Social marketing uses commercial marketing methods, including the concepts of market segmentation, consumer research, and communication, to make antimalarials acceptable and create a demand. It may include aspects of commercial distribution combined with incentives, subsidies, management, or advertising inputs from the public sector or an NGO. The aim is to support distribution systems in the short term while demand is created and until a market becomes well established.

Subsidizing distribution costs and/or introducing price controls may ensure that the price is kept as low as possible while providing distributors with a reasonable profit. These approaches seek to enable shops or other outlets to sell to the community before involvement with the commercial system is established. The hope is that, once people learn about and use the products successfully, they will continue to want the products and significant demand will be created.

In the case of HMM, social marketing could encompass interventions to improve production, packaging, and labelling of the antimalarials, negotiated and affordable pricing, promotion and public education, and placing the home management programme into the public and private sectors.

Scaling up through outsourcing

Outsourcing means buying services from external providers – and commonly involves forming relationships with others who have complementary capabilities. Ministries of health, for example, have always contracted for shared access to resources that were beyond their individual reach. Outsourcing offers many advantages. Tactically, it could help the MOH to reduce or control operating costs and acquire capital funds, access resources not available internally, and get assistance with functions that are difficult to manage or are out of control. Strategically, outsourcing might help the MOH to improve the focus for home management programmes, access better capabilities, accelerate benefits, share risks, and free resources for other programmes.

Outsourcing may save the need to create new internal management positions. If the outsourcing involves an NGO, that organization's ability to work at the community level and to serve as a bridge between the commercial sector and government system could be a substantial advantage. On the other hand, a commercial implementer may bring the advantage of linking with social marketing and the private sector. It is always important to ensure that outsourcing involves a reliable and experienced organization. The following criteria may be considered in its selection:

- understands and is committed to public health needs;
- understands malaria and treatment issues in the country;
- can scale up;
- can work with other agencies;
- understands the commercial sector (manufacturers, distributors, advertising agencies);
- understands legal and policy issues;
- committed to affordable pricing;
- works to secure financing;
- is cost-efficient;
- is flexible in approach in order to meet needs of country/community;
- works with MOH research needs.

Community mobilization

Community mobilization engages communities in discussion about health in order to create shared understanding between community members and service providers. This process should begin at community level, triggered by the introduction of the HMM programme, a mass media campaign, or even the implementation of a new malaria treatment policy. Once an understanding of the communities' vision for their health has been reached, joint action plans are created. The communities will then decide how to implement HMM in their area in terms of who are the most suitable providers, how they will participate, and how incentives will be provided for volunteers.

This process could also be used in the development of messages and materials in partnership with community members.

Scaling up the distribution system

Various structures can be used to ensure availability in the communities of drugs for HMM. However, a combination of different structures, depending on the country- or programme-specific needs and treatment policies, will inevitably be required. Below is a summary of the possible implementation structure that could be used.

Government public health systems

Distribution can be organized through government systems in one or more ways:

- Distribution of branded antimalarials can be added to a distribution infrastructure that is already in place, e.g. for supplying government health centres.
- An ad hoc approach can be adopted, using government vehicles to deliver products from the central government stores to more peripheral government offices, health centres, or other outlets.

- A separate distribution system, specifically for malaria treatment, can be established.

Nongovernmental organization systems

NGOs may approach distribution in one of two ways:

- If they are implementing an HMM programme, they may organize their own distribution systems.
- If they focus on distribution activities, e.g. supply of essential drugs, they may distribute treatment through their existing systems.

A distribution system organized by an NGO for its own programme may work well but may be expensive and unsustainable if donor support is discontinued. If the NGO is small, it may be limited to a small geographical area.

Commercial sector

Commercial sector distribution involves distributing treatment through existing commercial distribution systems and retail outlets. In most areas there are large and small established companies that can capably manufacture a product. They can also distribute the product through commercial channels appropriate for the locality. When the private sector makes a product widely available and prominent, people use it. This approach requires a market of consumers with sufficient demand for the products or a demand-creation campaign. Product prices must be low enough to be affordable and high enough to include sufficient profit margin to motivate the distributors. Use of a commercial sector arrangement is generally sustainable.

Deciding how to scale up

Decisions on scaling up require comparison of the advantages of phasing (region-by-region launch of selected components of the programme, or extending the coverage of selected interventions at different times) with those of countrywide implementation. Sometimes the decision could be to address the most vulnerable population first, e.g. children first and adults later, as has been done in some countries. However, in all strategies, the availability of resources and capacity to implement needs to be taken into consideration.

Some strengths and weaknesses of the two approaches are shown in Table 1.

Table 1. **Strengths and weaknesses of phased and countrywide strategies**

	Phasing	Countrywide approach
Strengths	<ul style="list-style-type: none"> • More manageable, particularly when financial resources are limited • Provides opportunities to learn from experience 	<ul style="list-style-type: none"> • Attractive to drug manufacturers • Achieves nationwide impact, for example with IEC programmes • Attractive to potential donors • Allows economies of scale
Weaknesses	<ul style="list-style-type: none"> • Funding may be difficult to obtain • Momentum may be lost • Vulnerable to changes in priorities and thus to re-direction of funding into other areas • Areas of the country not initially involved may be displeased 	<ul style="list-style-type: none"> • Costs and staffing levels needed could be enormous • Risk of not having identified the most appropriate strategy

Deciding what to implement on a large scale

Increasing near-home availability of trained care providers who able to distribute drugs
Increasing near-home availability of trained care providers can be achieved in various ways, by training available providers in the community or by identifying suitable new providers. After training, the providers should be supplied with pre-packaged antimalarial drugs. There should also be:

- a nationwide, regional, or district training programme for community treatment providers such as CHWs, village volunteers, mothers, community resource persons, shopkeepers, and drug vendors in order to improve the skills and practices related to antimalarial drug treatment;
- first-line antimalarial drugs widely available through the trained care providers with the aim of increasing treatment availability and access as close to the home as possible.

Improving quality of and compliance with antimalarial treatment

Ensuring quality of the antimalarial drugs supplied is important and could be achieved through pre-packaging. Various studies have shown that there is increased compliance when drugs are pre-packaged. Improving the quality of drugs and enhancing compliance through unit-dose blister packaging of first-line antimalarials is the recommended approach for at least the highest risk group and for the under-fives. Special children's packs are recommended.

Increasing general population knowledge of malaria and its treatment

Scaling up of HMM targets the population, so it is critical to educate the people and improve their knowledge. So long as good-quality antimalarial drugs are widely available, a nationwide IEC campaign on recognition of malaria, health-seeking behaviour, and treatment can be started. Some of the distribution channels are briefly described below:

- *Printed materials*

Health facilities display posters and staff use brochures when teaching family members about malaria treatment. Posters are hung in places where groups will see them, e.g. markets, post offices, shops.

- *Dissemination of messages to groups*

Messages can be broadcast through radio spots, demonstrations can be given at community meetings, mobile audiovisual units can visit communities and show videos on malaria treatment, and promotional events can be staged using drama groups.

- *Interpersonal communication*

Health staff teach clients about malaria diagnosis and treatment; they answer questions and ensure that clients understand how to use the branded antimalarial drugs. Pharmacists and shopkeepers promote the treatment and can teach clients about it when they sell the product to them. Neighbourhood health committee representatives can talk with community members about the treatment.

2.9 Develop a monitoring and supervision plan

Monitoring plan

Monitoring of programme implementation is essential. It permits follow-up of the programme and provides systematic, consistent, and reliable information on progress. Systematic collection and use of data should therefore be an integral part of programme implementation and operation from the outset, using the RBM indicators that have been developed. Information obtained by means of indicators allows problems to be identified and solved quickly.

Evaluation plan

An evaluation plan should be developed at the outset – it is vital to check whether the objectives have been achieved. Evaluation requires data to be collected before and after a given period of HMM implementation and operation; these data are compared and analysed to see whether the activities (strategies) proposed and implemented have worked. This can be done by all the partners or by an external evaluation process, mid-term, annually, or after an appropriate period. Evaluation of the process may be more important and more difficult than evaluation of the impact, but is vital for guiding further implementation. Some of the things to plan for are:

- establishing and measuring intermediate and process indicators;
- evaluating specific events and activities;
- documenting changes based on initial SMART objectives;
- comparing final results with indicators to measure change;
- documenting unintended changes;
- sharing results with and publicizing successes to stakeholders in a clear and understandable manner.

2.10 Cost and pricing

As part of the implementation strategy, cost and pricing factors such as the following must be considered as they affect programme design and advocacy efforts:

- *Cross subsidization*

A differential pricing system can be used whereby, for example, making a more expensive antimalarial (or any other product) available for private health care will cover the costs of providing antimalarials for the poor, advertising and IEC, monitoring and evaluation.

- *Economies of scale*

Mass production of goods results in lower average costs. For example, in scaling up HMM, bulk purchases of antimalarials and other supplies, combined purchases with other countries, centralized production of posters, leaflets, etc. could be considered.

- *Should drugs be provided free?*

The decision on whether to provide home treatment free is a matter of policy and should be based on existing policies, financial sustainability, and the expected health impact.

In countries where cost-sharing is already a feature of the public health sector and well-tested exemption mechanisms exist, it might be more realistic to charge for drugs made available to communities and homes.

In countries such as Botswana, Eritrea, Ethiopia, South Africa, and Uganda, where drugs are always provided free, the same should probably apply to home treatment.

Providing drugs and services free of charge can result in increased health access for the very poorest and most needy people. However, they may perceive the drugs to be of low quality and ineffective, which could lead to possible misuse – including hoarding and selling on the black market. Free treatment may also prove unsustainable in the long term.

If charges are to be made for the treatment, they should be kept as low as possible to allow access for the most vulnerable. “Ability to pay” surveys can help in identifying what households in the poorest sectors can afford.

Ultimately, access to appropriate health care is the basic right of every child, and cost should not be the deciding factor as to whether the poor receive treatment. In disaster settings, making even a token charge may not be possible.

2.11 A checklist of activities before large-scale implementation

- Situation analysis of supply, demand, and practices (pricing, quality, income levels, preferences, accessibility, ease of use, information, who the decision-makers are and how to target them).
- Meetings with MOH, public and private sector physicians, pharmacies.
- Setting up technical teams to undertake various tasks and mobilize financial resources.

- Designing the programme and taking decisions on principal strategies:
 - work with existing product – engage a new or an existing manufacturer on issues of drug quality, reputation, packaging, registration, and pricing;
 - introduce a new product – consider MOH approval, lead times, effect on market;
 - localized, phased, or national strategy, with clear scale-up plan;
 - distribution strategy – existing distributors, commercial distributors, CHWs.
- Communications/advertising:
 - test messages
- Writing proposal, securing funding, identifying partners to help carry out programme.
- Procurement/packaging/pricing:
 - select contents of packages; age and weight categories;
 - select manufacturer of drugs and blister packs or if latter is unavailable, obtain blister packing machines;
 - design packaging, inserts, dispenser boxes, etc;
 - test pricing in the different age and gender groups;
 - produce blister packs.
- Training:
 - develop training programmes (on diagnosis and first-line treatment) for vendors and CHWs;
 - print training booklets/charts for health providers;
 - select and train providers.
- Launch/distribution:
 - distribute drugs;
 - organize launch events, regional or local;
 - restock.
- Ongoing monitoring and evaluation:
 - monitor providers;
 - monitor patient compliance through interviews, vendor reports, etc;
 - evaluate marketing strategy;
 - monitor performance of both distributors and health workers;
 - collect information on health outcomes and impact;
 - feed information back into policy/strategy decisions.

Module A: Improving medication

Unit-dose packaging, paediatric formulations, labelling and instructions, branding

Tasks

- Select the antimalarial drug(s).
- Design packaging and instructions.
- Decide on paediatric formulation.
- Select manufacturer(s).
- Ensure quality.
- Develop branding – name and logo.
- Handle procurement issues.

Unit-dose packaging is probably one of the greatest single changes a malaria programme can adopt to achieve significant improvement in case management of malaria and thus in the burden of the disease.

Benefits of pre-packaged treatment

1. **Improved case management** – doses given according to weight and/or age.
2. **Improved compliance** – easy to understand and easy to remember instructions; more effective counselling.
3. **Reduced cost to the families per episode of illness** – reduction in the number of drugs prescribed and avoidance of excess chloroquine consumption.
4. **High acceptability** – to both staff and patients.

Blister packing offers particular advantages over packaging in envelopes or simple plastic bags. Studies show that these advantages are not just better effectiveness, management, and convenience, but also overall cost savings – even allowing for the added expense of special packaging (a cost the consumer does not necessarily have to absorb) (Yeboah-Antwi et al., 2001). For drug outlets, pre-packaged treatment combined with demand creation activities can mean increased profits, demonstrating that benefits apply to the private as well as the public sector. It is possible that, even when treatment availability and price are not a problem, demand creation and managed drug dosing and instructions can improve diagnosis and compliance.

Pre-packaging with instructions is empowering. Consumers report that they like pre-packaging with instructions – when the instructions are clear they do not need someone to read for them.

As a country is forced to change its first-line drug from the more easily managed chloroquine, unit-dose packaging combined with appropriate IEC and social marketing become even more important.

It is important to note that changing to unit-dosed, pre-packaged medicines for the treatment of malaria leads to improved case management, regardless of the drug used, simply as a result of better compliance with treatment doses and regimens. Moreover, the implementation mechanisms needed for large-scale deployment of unit-dosed, pre-packaged antimalarial drugs differ only minimally with the drug(s) used, and can be adapted in case of change in treatment policy.

The issue of cost

As a result of packaging in unit doses, the amount of money to be paid “on the spot” by the caregiver (often a crucial factor in a poor environment) is less than the cost of a standard number of tablets (e.g. 20), which is often more than are needed to treat a single episode of illness.

The sale of a standard number of tablets allows for some to be left over to treat future episodes of illness, thus reducing the cost per episode. However, this practice is currently discouraged because it very often leads to poor quality of treatment.

A.1 Choosing an antimalarial

While the antimalarial drug to be used in HMM is determined by the drug policy in force in the country, it is useful to examine the advantages and disadvantages of using a first-line recommended drug already on the market and those of creating a new product or brand.

Working with first-line recommended drugs already on the market

It is possible to subsidize and promote an existing product on the market if the goals of the programme and the manufacturer coincide. Advantages to working with existing drugs on the market may include:

- The quality of an antimalarial that is already available and in use can be ensured.
- The lead-time to launching the scaled-up programme is shorter.
- If the drug has proved acceptable and popular, there will already be awareness of its value.
- Recognizing the benefits of impending demand creation activities, the manufacturer may permit changes in formulation, packaging, and branding.
- If quality levels are met, a number of drugs on the market may be over-branded (marked with a brand name and/or a quality seal of approval), showing no preference for manufacturer.
- Start-up costs are likely to be lower than those associated with the creation of a new product/brand.

Among the disadvantages may be the following:

- As long as the antimalarial remains in the manufacturer's control (i.e. there is no specific contract for its production), a number of problems may arise, including the manufacturer unwillingness to modify the drug.
- If a decision is reached to keep the manufacturer's brand name, this name will not be in the domain of the implementing organization.
- Pricing issues may be difficult to circumvent.
- It may not be possible to overcome any bad associations or habits that consumers have developed in connection with the drug(s).

Working with a relatively new treatment policy or creating a new product or brand

A change in treatment policy, and the consequent need for a new drug, may offer a number of advantages:

- complete control over design and final formulation and packaging;
- no established association on the part of consumers;
- a new drug can be marketed as new and special;
- new brands, including government "brands", can easily be added.

Possible disadvantages may include:

- potential backlash by manufacturers of antimalarial(s) already on the market, because of non-acceptance;
- longer time to launch;
- high start-up costs (need to create product and demand).

A.2 Selecting and monitoring manufacturers for quality

Regardless of whether an existing or a new product is being promoted, ensuring and setting a high standard for quality is critical. In a 1998 study on the quality of chloroquine in Kampala, 30% of the tablet samples and 33% of the injection samples contained less than the stated amounts of active ingredient (Ogwal Okeng, personal communication). Significant amounts of commercial chloroquine in Nigeria have been found not to conform to pharmaceutical standards. In a sampling in Viet Nam, it was found that 70% of the drugs sold did not meet WHO standards despite supposedly meeting quality requirements (Cong et al., 1998).

Since unit-dose packaging of antimalarials is relatively new, manufacturers need to be carefully selected; all steps of production, distribution, and monitoring should be negotiated. Selecting just a single manufacturer offers the advantage of less administration – and the unique position is clearly more attractive to that manufacturer. Choosing multiple sources, on the other hand, means less dependence on a particular manufacturer, more negotiating power, and more capacity to respond to market needs.

The key benefit of the HMM strategy to manufacturers will be the increased product demand as a result of IEC demand-creation activities. In addition, manufacturers will probably have access to research that they otherwise would not undertake, and might discover opportunities for innovation and increased markets.

Manufacturer selection criteria

Manufacturers need to be interviewed for their:

- capacity to meet the manufacturing needs of a scaled-up programme;
- quality control programme, including acceptability and openness to review;
- history of responsiveness, including meeting procurement deadlines;
- buy-in to the social marketing programme and particular formulation, packaging, and pricing needs;
- ability to work with a packaging partner, if they do not package themselves;
- experience with children’s formulations, and willingness to produce new formulations especially designed for children of different age groups;
- acceptance of over-branding, as applicable;
- capacity to evolve from monotherapy to combination therapy, if necessary.

A.3 Children’s formulations

In many countries children are treated with syrup or with tablets made for adults, which may need to be broken up to the recommended dose. Both practices have weaknesses that can contribute to under- and over-dosing of children and to wastage of antimalarial drugs.

Tablets have many advantages over syrups, and the phasing out of antimalarial syrups is recommended. In Ghana, it was found that what was supposed to be a 5-ml, i.e. 1 teaspoon, dosage actually ranged from 1 ml to 9 ml, depending on the spoons used. Adherence to treatment with chloroquine syrup was very poor (42% compliance) – 47% of children were under-dosed and 44% over-dosed. When tablets were introduced, adherence to the regimen more than doubled (91% compliance with pre-packaged tablets) regardless of the educational levels of caregivers. Ninety percent of caregivers said that tablets were acceptable to them and 62% of mothers preferred pre-packaged tablets to syrup (Ansah, 2001).

After appropriate sensitization and training, it is easier for caregivers to administer tablets correctly because no measuring is involved and the package label is easier to understand. Other advantages include the cost of unit-dose tablets – only a third the cost of syrup – and the taste of the tablets, which is often reported to be better than that of syrup. In addition, the temptation for caregivers to save “extra” syrup, which is considered unstable and should not be kept for long periods in the home, is removed. Both WHO and UNICEF generally discourage the use of syrups, and it is worth noting that the IMCI programme does not use syrup.

Nonetheless, there are shortcomings to the use of tablets. They must be broken to make an appropriate dosage; this can be very inaccurate, and there is wastage with

each divided tablet. When a consumer asks the provider to break the tablets, this takes up more of the provider's time and is not necessarily any more accurate.

To avoid the risks associated with dividing tablets to treat children, it is important for advocacy efforts to encourage manufacturers to produce a child-appropriate dosage (e.g. a 75-mg chloroquine tablet) rather than only larger dosages or syrup. Efforts intended to change attitudes to the use of syrup will also need to target the consumer.

The advantages outlined above provide a good basis for "selling" this new approach and countering misconceptions such as tablets being suitable only for adults, or tablets causing vomiting when syrups do not. Research shows that smaller tablets are considered to be more marketable because they are thought "appropriate" for children – and thus easier to take.

Research has also demonstrated that the taste of antimalarial treatment is an issue in many countries, including Burkina Faso and Nigeria. Tablets that are palatable to children need to be prepared – not merely as a matter of preference but because the bitter taste can cause children to vomit the drug and thus reduce compliance. Consumers need to be shown how to crush tablets or dissolve them and mix them with sweeteners or food.

China has been successful in increasing compliance by instituting blister packs with written instructions. Health providers are now held accountable to consumers with packaging that specifies the 3-day regimen (Rozendaal, 2000). In Cambodia, the outer package surfaces fold out to provide instructions with information on self-diagnosis, recognizing malaria symptoms, etc. (Rozendaal 2000).

Education and promotion activities should include this information, and other ways of simplifying the dosing process for caregivers and their children should be considered. Promotion should include a campaign that targets young children, showing them how they can cooperate with treatment.

A.4 Supplemental drugs

It is possible to add a supplemental drug to pre-packaged treatment for malaria, such as an antibiotic (co-trimoxazole) to treat acute respiratory disease. Research is currently under way to investigate the effect of such combined treatment on child survival. Although paracetamol, to reduce fever, is frequently combined with antimalarial treatment, it may not be necessary as chloroquine itself has antipyretic activity.

The benefits of adding other drugs to pre-packaged antimalarials should be carefully weighed against the risks. While adding a drug will allow more than one potentially fatal disease to be treated, it will also increase the cost of treatment and may result in poor compliance with the antimalarial.

A.5 Packaging and labelling

Sealed bags, pillow packs, and blister packs are forms of packaging that allow drugs to be “dispensed” individually, helping consumers to distinguish between different dosages and encouraging them to accept the entire regimen as a “unit” of treatment. Choice of packaging will depend on financial resources, consumer preference, and the packaging capability available. Blister packaging, while relatively more expensive, is the best option: it allows better conservation of the drug(s) and offers ease of opening and professional appearance. On the other hand, production in sealed bags does not require sophisticated technology and can be undertaken at more peripheral levels, thus allowing closer supervision of the process. If a programme does its own packaging, it needs to obtain a mould for the blister packaging and to ensure that the packaging meets sanitary requirements. Although this may require some preparatory work before production is started, once the technology is acquired and running, it may be used for blister packaging of other drugs as well, thus allowing cost-sharing between different programmes (Stefan Hoyer, personal communication).

In Nigeria, meetings with drug manufacturers resulted in their willingness to produce reasonably priced, pre-packaged, age- or weight-specific antimalarial tablets.

Two blister package types were developed:

- for ages 6–12 months: 75-mg chloroquine tablets, three per pack, one taken daily;*
- for ages 1–5 years: 150-mg chloroquine tablets, three per pack, one taken daily.*

Packaging sizes and colours are easily distinguishable by distributors and consumers. The 75-mg package printed in blue shows a crawling child and contains the smallest sized tablets. The packets are sealed inside a nylon bag.

As mentioned, one of the primary advantages of packaging compared with loose tablets is that step-by-step diagrams can be provided with each dosage. These can be included as inserts or, better, printed on the packaging, or both. Pictures and instructions should explain who the treatment is intended for (age/weight designations), at what times of the day it should be taken, and the combination of dosages, if relevant. Special attention must be paid to the design of pictorial instructions, bearing in mind that the target population consists mainly of illiterate caregivers. Ways to encourage patients to take the entire treatment should also be considered.

Packaging for each age/weight group targeted should be clearly distinguishable by colour coding. Because age estimations can be unreliable, it may be helpful to use pictures of children breastfeeding, crawling, walking, and talking to distinguish the different age groups. The package information should include date of manufacture and expiry, the dosage, interval, time of day, and duration of treatment, and warnings, storage information, and side-effects. A picture of a mosquito helps to indicate that the drug is an antimalarial and should also be included.

If multiple lines of distribution are introduced to reach special target groups, e.g. public sector free-of-charge treatment is introduced along with a private sector brand, the nature of the packaging should indicate the difference between the products. In addition,

the same drug with a marked-up price could be introduced for those who are able to pay, in parallel with a socially marketed product so that the profits from the former could be used to subsidize the latter. Again, packaging should reflect the targeting of different market segments.

Dispensing units for use in shops and other outlets may help to ensure that age- and weight-appropriate regimens are sold. Design of dispensing boxes, as well as unit-dose and outer packaging design, should be considered. An outer package seal can also indicate quality and deter tampering.

A.6 Branding, over-branding, “umbrella” branding

Branding of pre-packaged drugs is beneficial in markets where there are large quantities, many of which may not even be approved for malaria treatment: different drugs have different dosage regimens, and consumers can be confused by the choice. In a study of childhood malaria treatment in Rakai district, Uganda, (Twebaze, personal communication) noted that most of the chloroquine used (61.4%) was branded blister-packed chloroquine, e.g. Homaquine, Dawaquine, and that the branded product was thought to be “trendy”, different from, and more potent than generic chloroquine. A formally promoted brand name improves understanding and can improve patient compliance.

Changes in drug policy, especially because of resistance to first-line drugs, affect branding, and this must be taken into account in selecting the initial brand name. For a smooth transition without the risk of losing any of the consumer “family”, identical or similar brand names need to be considered.

With the presence of so many “fake” drugs, a “seal of approval” by recognized organizations (WHO, UNICEF, USAID, MOH) may be beneficial and serve as an “umbrella” brand for several approved antimalarials.

A.7 Best practices and lessons learned

General

- Pre-packaging of treatment works; it provides many benefits to the provider and consumer.

Service delivery

- Use the benefits of pre-packaging, including profits, to persuade private providers to take extra time with clients. (Training can include customer service protocol.)
- Consider ideas for helping caregivers overcome problems (bad taste, vomiting) in administering drugs.

Packaging design

- Before developing packaging, consider the possibility of a mid-programme change in the first-line drug; it is critical that product awareness does not diminish with a change in packaging.
- Home storage instructions should include the importance of keeping the medicine out of the reach of children (another likely benefit of blister packs) –accidental ingestion of medicine is a problem. A tamper-proof seal could be beneficial, will increase consumer confidence, and should be stressed in promotions.
- Make packaging (the blister pack itself, the box, the instruction sheet) something that a family will keep and not throw away until the treatment is completed. This will improve compliance.
- Label information should include pictures and words that clearly explain dates, dosages, intervals, time of day, duration of treatment, warnings, storage information, side-effects.
- Take care not to create confusing (or poor-quality) instructions.
- Polyethylene bags should be avoided because they may disintegrate within a month if not stored properly (Yeboah-Antwi, 2001).
- Provide a standard size of box for all age categories (for distribution, shelf display, etc.).
- Instructions on the box of pre-packaged drugs could be the same for all age/weight classifications and provide dosing information for each, with information for the particular enclosed drug highlighted in an obvious colour.
- Separate dispensing boxes can help to prevent mixing of packages for different age and weight categories.
- Include a quality seal of approval by a trusted organization.

Drug formulation

- It is better to use tablets specially formulated for children than to divide adult tablets or to use powders or syrups for children. Tablets for infants and children should be provided with instructions on how to crush the tablets and improve their taste.
- Children's tablets should be smaller than tablets for adults.

Branding

- Branding helps the consumer to identify an approved drug.
- Brand with a name that has perceived value (perhaps medical sounding, implying health or well-being, and/or urging "try me first", i.e. before home remedies) and is distinct for each age/weight category.

Other

- Avoid use of price stickers (which could be removed by providers) and permanent prices (which cannot be adjusted as necessary). IEC campaigns can be used to make everyone aware of the price.

- Programme follow-up may be enhanced by having consumers return the packaging after use, for a reward (as practised in Cambodia), thus providing the opportunity for obtaining feedback. During the trial phase, the programme captured personal information at the time of purchase (name, age, sex, address, for whom the drugs were purchased, place of infection, stand-by treatment), and information on product satisfaction and compliance when the original package was returned and the financial reward collected. Pre-packaging with a serial number allows for tracking of which product goes to which outlet and helps in detecting inappropriate practices (Rozendaal, 2000).
- Developing packaging within the context of research will enable compliance to be assessed (Gomes et al., 1998). Monitoring and quality control measures benefit programme strategy as well as basic research efforts.

Module B: Increasing drug availability

Traditional and non-traditional outlets, assured supply, and rural availability

Tasks

- List all possible entry points to the community that can be considered for drug distribution.
- Select providers (commercial and non-commercial networks).
- Consider mechanisms for provider incentives or remuneration.
- Consider and assess possible methods for distribution including existing public and private systems or infrastructures.
- Select the methods of distribution and plan them in more detail.

Treatment is frequently unavailable near the home for reasons such as distance to the health centre, direct and indirect costs of travelling, and inconvenience for the patient of long waiting times or non-availability of drugs at the clinic (McCombie, 1996). It is estimated that only 20% of the rural population in Africa has access to medical facilities, diagnosis, and treatment (Ahorlu et al., 1997).

The advantage of HMM is that, on average, those who practise self-treatment seek care 3 days earlier than those who turn to the public health sector for treatment (McCombie, 1996). In Ghana, symptoms are usually reported in the home setting on the day when they occur; in the health centres, the median duration of symptoms before a child is seen is 3 days (Dunyo et al., 2000). In Uganda, 38% of individuals seeking treatment at a health centre had been ill for more than a week, and 24% for more than two weeks (Kengeya-Kayondo, 1993). In Thailand, people waited a full week on average before receiving treatment at a clinic (Foster, 1991). These data need to be interpreted in the light of the fact that most children who die of malaria do so within the first 48 hours of illness. Although there is no unequivocal proof, it is reasonable to believe that promptness of treatment has a major impact on the outcome of the disease.

In 1991, it was estimated that the private sector provided 40–60% of antimalarials – and even more in rural areas. Unofficial outlets accounted for 20–50% of the private sector supply and for as much as 25% of all sources of drugs (Foster, 1991).

Before the advent of essential drugs programmes in Kenya, Zimbabwe, and various other countries, shopkeepers were responsible for a significant portion of antimalarial sales. Consumers found that the shops provided a faster service, more convenient opening hours, and better-quality “valued” drugs; shops asked few questions but gave good advice and were better stocked and more friendly than other sources (Foster, 1991). In Togo, mothers obtained antimalarial treatment primarily from private drug sellers (Foster, 1991). In a 1985 study in Zimbabwe, 43% of antimalarials were

purchased from shops, which were found to be better stocked than health centres (McCombie, 1996). In Uganda, 42% of drugs purchased for home treatment were obtained without a health worker's prescription; 28% of all drugs (not just antimalarials) purchased came from private clinics, 16% were already in the home, 10% came from pharmacies, and 4% were obtained from neighbours or relatives (Lubanga, 1997).

The private sector continues to be preferred for ease of access, availability of drugs, perceived quality of service, price, credit, and option to buy drugs in affordable amounts (Goel, 1996). Urban areas benefit more from availability than rural areas, where drugs supplies are low, out of stock, or never available. Lack of accessibility has impeded pharmaceutical treatment and encouraged usually inferior home remedies. However, drug sellers and other private outlets have their own expectations in dealing with the public and generally follow practices that will bring them higher profits, which can lead to a less than optimal quality of service provided for the population.

Buying antimalarials in “affordable amounts” from private outlets

The possibility of buying drugs in affordable amounts from unsupervised, untrained private outlets often leads to under-dosage – and thus to less effective treatment at the individual level and to the risk of increasing drug resistance at the general level.

While involving the private sector is critical to increasing drug availability at the community level, there is a clear need to ensure, through training and supervision, the correctness of treatment purchased through this channel (Marsh et al., 1999). In this respect, the use of unit-dose, pre-packaged drugs can be considered a critical measure for achieving the objective.

HMM means making correct antimalarial treatment promptly available and easily accessible to target households. This requires procurement, storage, distribution, and dispensing of the pre-packaged product. Factors to remember when planning distribution are:

- the geographical area that will be covered,
- the systems or infrastructures for distribution that already exist.

The options for distribution are:

- government systems;
- nongovernmental systems;
- commercial sector;
- social marketing.

These systems may be used singly or in combination, although it is likely that a combination will achieve the best results.

Similar steps are involved in planning and implementing each option, whatever the means of distribution:

- procure the product;
- establish the price;

- plan distribution through recognized, reputable, and convenient sites;
- work out logistics of transportation and distribution;
- prepare educational materials;
- train or inform staff at outlets;
- manage flow of product and money;
- plan for emergency response;
- monitor and evaluate.

Distribution in **Burkina Faso** is integrated into an existing system. “With the sale of the first stock of drugs (which had been provided free), the CHW instituted a revolving fund that allowed him/her to replenish the stock by buying new pre-packaged drugs at the health centre drug store. The health centre is supplied by the higher level in the system, the district store, which in turn is supplied by the regional store, which in turn is supplied by the central governmental store. The part of the chain above the health centre existed before the programme, and was put in place through the Bamako Initiative.” (Pagnoni F et al., 1997)

B.1 Possible methods of distribution, including existing systems

Government systems

Distribution can be organized through government systems in one or more different ways:

- adding distribution of a branded antimalarial onto a distribution infrastructure that is already in place, e.g. for supplying government health centres;
- an ad hoc approach using government vehicles to deliver products from central government stores to more peripheral government offices, health centres, and other outlets;
- establishing a separate distribution system specifically for malaria treatment.

Government systems can usually distribute large volumes of supplies rapidly and into distant areas that are underserved. They allow for better integration into the health system and for economies of scale. However, they require functioning vehicles and staff, which some governments may not be able to afford or manage. Using a government system for distribution of treatment may divert resources from other health service activities and may not be sustainable over a long period without careful planning. The possibility of a public distribution system that operates in parallel with a private system should always be explored.

Nongovernmental organization systems

Nongovernmental organization systems may approach distribution in one of two ways:

- those that implement HMM programmes may organize their own distribution;
- those that focus on distribution activities, e.g. supply of essential drugs, may distribute treatment using their existing systems.

A distribution system organized by an NGO for its own programme may work well but may be expensive and unsustainable when donor support is discontinued. If the NGO is small, it may be limited to a small geographical area.

Distribution that relies on a larger NGO has the advantage of using existing structures and may thus be more credible and sustainable. The permission of the appropriate authorities to distribute treatment must be obtained and a means found to cover the distribution costs.

Nigerian model

Nigeria's situation analysis showed that most people (60%) act quickly and go to patent medicine vendors (PMVs) to purchase treatment. However, only 20% receive the correct treatment. PMVs know the correct treatment but let the customer buy what they can afford (e.g. "5 naira's worth").

The Nigerian experience is an example of complementary efforts to address coverage. The interventions included pre-packaged treatment, training of distributors, IEC, and monitoring and evaluation. Three types of local retailers – CHWs, PMVs, and health staff – were employed to serve distinct purposes. Health staff sold more per capita as they had a central location; PMVs sold more as a group and were accessible at odd hours in more distant parts of the community; PMVs combined access at odd hours and central location; and statistically, use of programme medicines was associated with CHWs and PMVs. The lesson was that it took a combination of retailer types to meet the needs of the community and this produced a viable strategy for reaching rural areas. The policy needs to support each retailer type and the different form of programme management required in a decentralized government, where advocacy has a greater role than other aspects of implementation.

Distribution of health products through a combination of government and NGO systems is a common approach. Products are given away or sold through NGO clinics, government health centres and health posts, private or public pharmacies, etc. The advantages of such a combined system are that it may reach some individuals who are not served by commercial channels, and that the initial outlay is less than for private sector approaches.

Commercial sector

Treatment can be distributed through existing commercial distribution systems and retail outlets. In most areas there are large or small established companies capable of manufacturing a product and of distributing it through commercial channels that are appropriate for the locality. When the private sector makes a product widely available and prominent, people use it. This approach requires either a market in which there is already sufficient demand for the product or a demand-creation campaign. Product prices must be low enough to be affordable and high enough to provide a profit margin that will motivate the distributors. Use of a commercial sector arrangement is generally sustainable.

If a programme chooses to work with the private sector for distribution, it is important to reach agreement at the outset that private companies will not price the product above the reach of the target population.

Social marketing

Social marketing may include aspects of commercial distribution combined with incentives, subsidies, or management or advertising inputs from the public sector or an NGO. The aim is to support distribution systems in the short term while demand is created and until a market is well established. Subsidizing distribution costs and/or introducing price controls may ensure that prices are kept as low as possible while providing distributors with a reasonable profit. These approaches seek to enable shops or other outlets to sell to the community before involvement with the commercial system is established. Once people learn about and use the products successfully, the hope is that they will continue to want the products and so will create significant demand.

Social marketing can be very effective, combining the advantages of private sector marketing with the knowledge and experience of traditional health care delivery. It generates enthusiasm about a product and includes a system of distribution that ensures the product is accessible and is sold (at a low price, but not free of cost), so that it will be valued and used.

Marketing coordinators can direct the distribution strategy. Distributors will receive the products after importation or manufacture, store them in the proper conditions, sell them to wholesalers and retail outlets. They should also ensure that points of sale are well stocked. Documentation of the distribution process is necessary to ensure that the target groups are adequately served. Social marketing will ensure sufficient incentives for distributors to stock, promote, distribute, and sell the treatment. While the consumer price of the treatment will remain affordable, profit margins will be similar to those in the commercial sector. The channel management strategy would first focus on commonly used outlets, such as pharmacies and retail shops, to lend a quality image and credibility to the treatment brand. Sales agents can be used to focus on reaching non-traditional outlets.

A regional marketing manager can oversee research agencies contracted to conduct distribution audits. These audits will monitor sales velocity (quantity sold per month per outlet), percentage of outlets by type at which the treatment is sold, merchandising of the product (existence of point-of-purchase material; product on display), product retail prices, restocking patterns, and market share. Data on coverage can be collected through monthly distribution and sales reports and through periodic distribution surveys, and are used to monitor progress.

Alternatively, if financial support is more limited, elements of the social marketing approach could be used in other types of distribution systems. For example, a programme could use consumer research to develop a product brand and advertising for treatment that could be distributed and promoted through a government or NGO system of outlets.

Community-based distribution

Community distribution would ideally be part of any type of distribution selected, whether governmental, commercial or social marketing – CHWs can receive drugs through any of these channels. Community-based distribution can be the most costly and time-consuming, but can be the best means of reaching underserved markets. Possible variations of distribution could be:

- unit-dose treatment stored by CHWs and core mothers trained to educate, promote, and distribute drugs;
- multiple retailers/providers comprising health staff, CHWs, and commercial drug vendors;
- sole CHW providers supervised by health staff.

Any programme should explore all distribution options. The different options offer unique advantages, and the likelihood of programme sustainability and success is enhanced by making use of several options. For example, complete distribution systems might consist of the following:

- central medical store → levels of health system → village health worker and private sector → purchaser; or
- commercial depot → wholesaler → retailer → purchaser; or
- central medical store → district level → peripheral levels → retailer → purchaser/client.

B.2 Selecting providers

A wide array of providers and combinations of providers have been successful over the past few years in providing early and appropriate treatment to target populations in small-scale projects. Providers have included mother coordinators (Ethiopia), caregivers and CHWs (Burkina Faso), private drug vendors (Kenya), community-based agents and health facility staff (Ghana), CHWs, patent medicine vendors (PMVs), and health staff (Nigeria). In deciding who to use as a community-level provider, a situation analysis may be useful to identify who is already making diagnoses, reveal the availability of CHWs and community resource persons trained by other programmes, and enlist organizations or individuals who are already providing health care. In Cambodia, for example, before pre-packaged drugs were made available to the community, 90% of diagnoses were made by CHWs. In this way, a group that is already established and trusted by the consumers can be built on.

These existing community resource persons may need to be supplemented to meet programme needs, for instance by incorporating female CHWs if the networks comprise only male CHWs, or getting specific CDDs for the antimalarials. Desirable traits in CHWs include literacy, honesty, and general interest in health activities. The needs of each particular community may dictate how many CHWs should be selected for training; it may be useful for additional CHWs to attend the training so that they can serve as back-ups.

In Ethiopia, training mothers to recognize symptoms and side-effects, to give the correct dose according to a treatment chart, and to report monthly to a supervising mother coordinator has been shown to be an effective intervention. The mothers were taught by CHWs to provide early home treatment for malaria, while treatment supplies were guaranteed at the health facility and were distributed by the CHWs. Education and availability of drugs enabled mothers to care for their children: the reduction in under-five mortality from this intervention was 40.6%. Mother coordinators collected information on births, deaths, migration and referral, checked drugs, and reported problems (Kidane & Morrow, 2000).

Selection of CHWs, CDDs, or mother coordinators should preferably be made by the community as a whole, after sensitization. Each village should select at least two such drug distributors or an average of one per 10–15 households. Try not to influence the selection process but guide the community to ensure that selected CDDs are well distributed across the community to avoid leaving some areas underserved.

Ideally, all providers – as listed above – should be trained in proper drug dispensing. A clear explanation of their role or job description should be given, including the average time that will be spent on malaria-related activities, number of people likely to be served per month during high- and low- transmission seasons, dosage or types of pre-pack for specific age groups, providing information that will ensure compliance by the patient, detection and referral of severe cases or treatment failures, record keeping (e.g. quantity of drugs dispensed, number of cases referred), and attendance at monthly meetings to discuss activities, identify problems, collect drugs, submit reporting forms, and collect new forms. Ultimately, their role is to dispense drugs and provide health education, and to detect/refer severe cases, while the decision to treat simple fever cases is entrusted to the mother.

The concept of training mothers was once dismissed because it meant giving drugs to illiterate and unqualified individuals. However, it has been shown that training mothers is an effective tool in trying to bring treatment closer to the home or into the household, especially in remote areas. Having drugs available nearby and administered by mothers can overcome many barriers to early and prompt treatment. It may also improve treatment-seeking behaviour and compliance, as mothers are empowered by malaria health education.

In Kenya, training of shopkeepers resulted in sales of children's antimalarials increasing by 34–79% over three months; sales of adequate supplies of chloroquine increased from 32% to 83%, and appropriate use rose by 62%.

The shopkeepers, serving populations of 5000, had the added responsibility of advising people, and appreciated the increased knowledge (even for treating their own family members), social status, confidence, and profits (Marsh, 1999).

Commercial providers can be invited to participate in training activities, based on their location, with good representation to ensure coverage. Care should be taken to train actual providers, not just managers of pharmacies. In addition to promoting recognition of malaria symptoms and ease of use of unit-dose packaging, training can be seen as a way for shopkeepers to increase their sales and profits.

B.3 Remuneration and incentives

Mechanisms are needed to support the interaction between a CHW with the community. Incentives are critical for the success of any programme involving members of the community and CHWs – who may or may not receive remuneration – are no exception. Incentives may be in the form of recognition in their communities, certificates for completing workshops, and badges or T-shirts identifying them as malaria community workers; bonuses might be considered for specific achievements or long service with the programme. Appropriate job aids such as treatment charts, counselling cards, and regularly replenished supplies can help ensure that CHWs feel competent to do their jobs. Peer support is also important, in forms such as regularly working together, frequent refresher courses or training, or membership of a CHW's association.

The question of further incentives in the form of remuneration should be carefully considered. Factors to be taken into consideration include the level of motivation of the community, and whether the drugs are given free or sold to the consumer. Although monetary incentives expose the risk of “formalizing” the relationship between the drug distributor, the health system, and the community, it would be difficult to withhold some form of monetary incentive from distributors who sell drugs and therefore make some profit. In Tigray, Ethiopia, for instance, it has been possible to avoid monetary incentives for mother coordinators because of the particularly strong motivation of the population in this war-affected region. In Burkina Faso, on the other hand, where the CHW programme had existed for 10 years and was losing momentum and where pre-packaged drugs are sold, the programme decided to allow CHWs to retain 10% of the cash paid as a cost-recovery measure.

*In Tigray, **Ethiopia**, the success of the CHW programme is attributed to community involvement, extension of coverage, regular drug supply, an information system based on routine reporting, operational research, and community contribution in kind and in cash. Since 1994, 735 CHWs have served 2327 communities of almost 1.74 million people, with an attrition rate of less than 3%.*

*In **Uganda**, where community resource persons treat malaria and collect data, the attrition rate is also less than 3%. It is worthy of note that these community resources persons have high expectations – e.g. of salaries, transport, and other benefits. Other programmes have had higher attrition rates (> 35%), and ways of addressing this problem are being identified.*

*Working with existing CHW networks (in **Nigeria**, for 20+ years) has also been effective. As in **Burkina Faso** and **Ghana**, CHWs have been retrained to promote pre-packaged drugs for malaria.*

Incentives for commercial sector providers may include recognition through being “licensed” to sell antimalarials, increased sales or retail sales margin, or posters showing that they have been trained in malaria treatment. When providers are asked to take on roles that may make them lose income through informed dispensing and even referral of patients, non-cash incentives might be used to supplement their returns. In addition, IEC activities should be used to promote confidence in and raise the status of the “licensed” providers as knowledgeable health care educators.

B.4 Selection and detailed planning of methods of distribution

The distribution method, or combination of methods, with the best chance of achieving programme objectives within the budget should be selected. It is important to remember that several entry points to the community have been tested in different settings and proved successful as distribution channels. These include mother coordinators, CHWs, shopkeepers, teachers, and traditional healers.

It may be helpful for programme planners to interview prospective distributors about characteristics of their system, such as:

- distribution area,
- population covered,
- type of outlets,
- number of outlets,
- other products distributed,
- distribution costs,
- frequency of distribution,
- distribution capacity (i.e. number of vehicles, number of units of product they can carry in a given period of time),
- use of retailers and access to them,
- whether distribution routes can be broadened, including to non-traditional outlets?
- product exclusivity?

B.5 Procurement

In Uganda, distribution and storage involve health units at all levels and mainly volunteers for distribution, supplemented by private distributors. Communities provide storage, while WHO provides the drugs, although it is expected that these will in future be supported by the Global Fund to Fight AIDS, Tuberculosis and Malaria.

Accurate and timely procurement is key to ensuring consistent supply. In public sector programmes, drugs are often provided through national medical stores or essential drugs programmes; sometimes WHO and UNICEF may assist. Lead times for procurement in a 1991 study were as much as a year (Foster, 1991). Seasonal demand for antimalarial drugs will affect procurement cycles.

B.6 Strategies for making treatment available in hard-to-reach areas

In addition to working with NGOs and CDDs, the alternatives for reaching hard-to-reach areas include home storage and assisted sales agents.

Home storage

One possible distribution strategy is to encourage people to store drugs in their homes; this shortens the time needed for seeking care, particularly when a family is faced with more than five bouts of malaria per child per year. Factors to consider include:

- replenishment of antimalarial stocks;
- ensuring that adults in the household (not just the mother) know how to administer the drugs;
- storing the drugs out of the reach of children;
- ensuring correct dosage for age of the child;
- shelf-life of drugs;
- discouraging inappropriate use and possible of wastage of drugs where resources are limited.

Studies are currently being implemented to evaluate the feasibility and effectiveness of this option. An alternative approach would be to leave the decision on storing extra treatment in a home to the discretion of the CHW.

Yet another alternative is to store the drugs in the community, which would ensure that drugs are nearby, storage conditions are correct, drugs do not pose as great a risk for children in the home, dosing is facilitated by trained providers, a support system exists for difficult cases, and it is more likely that the correct dosage for age/weight will be given.

Opening new outlets

Trade promotions can push a product on to the market. Startup promotions are geared to stimulate retailers' interest and include a variety of point-of-purchase materials, attractive displays, incentives (T-shirts, key chains, etc.), and media advertisements. To quickly extend distribution to non-traditional outlets, a team of assisted sales agents can identify and open new retail outlets. Assisted sales agents can be contractual employees, working for limited periods (probably several months), with assigned territories and quotas, and paid a basic salary plus commission.

Clearly, the programme must pay close attention to distribution. Insufficient follow-up after initial distribution can lead to coverage failures. It is important that distribution requirements do not outgrow the capacity of the implementing agency to meet demand.

B.7 Best practices and lessons learned

- Avoid supply shortfalls: a study in the Democratic Republic of the Congo (DRC) showed a sharp drop in drug use when drug supplies were interrupted.
- Estimates of supply needs should consider 10 bouts of malaria per year for under-five-year-olds (DRC experience).
- Vendors or assisted sales agents can open markets and serve as “retailers”.
- Use a combination of distributors – formal commercial sector, mobile vendors, community health workers.
- Target rural areas where malaria drugs are significantly lacking.
- Consider the seasonal aspects of malaria when placing orders and stocking.
- Consider limiting the number of wholesalers and retailers in anticipation of reduced consumer demand with seasonal change.
- Establish an early-warning system for epidemics, to ensure adequate drug supply.
- Build distribution systems – or add to existing systems.

Module C: Increasing drug affordability

Tasks

- **Collect affordable pricing information.**
- **Use research and guidelines to decide financing.**
- **Ensure that the most vulnerable populations have exemptions or targeted subsidies.**
- **Build an amount for mark-up into the set price.**
- **Determine cost and calculate subsidy.**

C.1 Affordability as a barrier to access

Almost without exception, populations targeted by community home management of fevers are poor.

Evidence suggests that affordability can be a major barrier to accessing prompt and effective treatment for malaria: high prices may cause families not to treat at all, to purchase only part of the treatment, or to save any treatment that remains once the patient feels better. Such practices lead to higher morbidity, possibly to an increased risk of mortality, and to accelerated development of resistance to the drug. Price may also result in treatment being reserved for the breadwinner of the family rather than given to the child – who is at greatest risk of death. The cost factor often means that, although the mother will diagnose a child's illness, the father will decide whether the child receives treatment or not, and what kind. If obtaining medicines means travelling a great distance, at significant cost, a family may forego the trip if there is doubt about the availability of medicines (Douglass & Nyambe, 1999).

Thus it is imperative, in home management initiatives, that antimalarial drugs are made available at prices that are affordable by communities, regardless of their actual cost and the cost of delivery.

The increasing cost of antimalarial drugs

With conventional antimalarial drugs such as chloroquine and sulfadoxine–pyrimethamine, which were relatively inexpensive (a few US cents per treatment), it was possible for health systems to recover the cost of treatment even from the poor, while the private sector was able to provide antimalarial drugs on a purely commercial basis in situations where the public sector health system was deficient. Purchase of drugs in the private and informal sector means that the patient meets the entire cost of the drug – and allows a margin of profit for the seller.

However, antimalarial treatments are becoming more expensive, and this will have major implications for the financing of drugs in home management programmes. Single drugs are failing because of parasite resistance, and the recommended new and combination therapies cost much more. Combination therapies are currently priced at more than US\$ 1.00 per treatment – well beyond the ability of malaria-affected communities to pay. Until such time as the price declines with increasing demand and supply, the drugs will need to be highly subsidized if communities are going to be able to afford them.

Public sector financing and pricing policies

Because most nationwide home management initiatives will be launched as a means of extending the reach of the health system, the national pricing and financing policies that operate within the public sector will also apply to drugs provided within the home management scheme. Many malaria-endemic countries have a public financing policy for antimalarial treatments, under which treatment is provided free of charge to the patient. Several countries in sub-Saharan Africa have a policy of exempting high-risk groups, i.e. children under five years of age and pregnant mothers, from user fees for treatment of fever, although these policies are not fully operational in all countries. User fees levied for antimalarial treatment services within the public sector will have to be nominal to be within the affordability range of poor people, and amount to no more than a fraction of the drug costs in the case of the new expensive treatments. This in itself may justify the provision of free treatment in home management schemes. However, if nominal user fees are levied in HMM schemes, it will be for the sake of consistency with the financing policies of, for example, the Bamako Initiative, rather than an attempt to recover any significant proportion of the costs of antimalarial drugs.

Financing strategies for antimalarial drugs in home management initiatives should:

- in the public sector, be consistent with the national policy on treatment financing;
- allow for subsidies when the treatment is beyond the affordability of the community;
- engage the private sector in a subsidy scheme.

With these expensive combination treatments, HMM programmes operating within the public sector will therefore have two options: to provide treatment free of charge to the patient, or to enforce affordable pricing by imposing subsidies. “Free” treatment options for home management programmes, if they are consistent with national policy, will have to enforce adequate accounting procedures to guard against pilferage into the private sector if both channels are being used to provide treatment. Countries that have already launched such programmes, e.g. Cambodia and Uganda, have begun to address some of these challenges. These programmes include sector-specific drug packaging, which easily distinguishes public from private sector products, and fixing private sector prices to include a distribution charge for the vendor.

Drug subsidies and implications for the private sector

The situation is far more complex when it comes to dispensing free or highly subsidized treatments through the private sector. The private sector under consideration here is often an ill-defined, informal, and unregulated network of sellers who operate on the basis of full cost recovery and profit margins. These drug sellers may not have the capital to invest in stocks of expensive treatments; even if they did, most patients would not be able to afford the drugs.

How private sector distribution channels can be engaged for subsidized antimalarial drugs in these circumstances is therefore a critical question. The government (the public sector) could act as a franchising agent for the drugs and work through a few chosen and stable private sector outlets. The selected vendors would obtain the drug free of charge or at a nominal price from the government. In the latter case, the vendor would recover the nominal cost from the patient, together with a predetermined margin of profit. Such a franchising scheme would allow for a more regulated private sector, with the added advantage of enabling selected vendors to be trained in disease recognition and “good prescribing practices”.

There is little precedent for dealing with this type of challenge in malaria because antimalarial drugs have always been cheap and the private sector – and in some situations even the public sector – could operate on the basis of total cost recovery. The initial experiences of countries engaging in district-wide implementation of home management programmes will be valuable. They will provide insights into the possibilities and challenges of engaging the private sector in dispensing expensive malaria treatment to the poor at affordable prices.

C.2 Best practices and lessons learned

- When user fees are imposed and drug costs are high, use of health services declines and access to treatment worsens.
- When good-quality drugs are made readily available and affordable to the community, access to prompt treatment improves, hospital admissions and referrals decline, and lives are saved.
- Contrary to the widely held view that there is no value to a product given free of charge, abolishing cost recovery on antimalarial drugs does not impair usage. In many malaria-endemic countries where treatment is free, the public sector is widely used as the source of treatment, implying that the “perceived value” of a life-saving product is not diminished by its being free of charge.
- Price control of antimalarial drugs in the informal private sector is difficult to impose, especially where the drugs are scarce.
- User fees and cost recovery schemes require administrative and accounting infrastructures, which in themselves can be a burden on weak health systems.

Module D: Increasing caregiver and provider knowledge

Provider and community training

Tasks

- Obtain or develop training materials and identify suitable trainers.
- Conduct training for the trainers and selected providers.
- Provide job aids.
- Ensure monitoring and supervision.
- Conduct follow-up training.

In **Burkina Faso** and **Tigray, Ethiopia**, training of mothers to make presumptive diagnosis was effective (Pagnoni et al., 1997; Kidane & Morrow, 2000; Sirima, 2003). CHWs have also been used to distribute antimalarial drugs and to educate and train mothers, as in Cambodia, Nigeria, and Zambia.

In HMM, it is most strategic to use mothers to administer presumptive treatment with pre-packaged antimalarials as they are the primary care providers for their children. CHWs could complement the mothers by providing more in-depth health education, follow-up, and greater accessibility to the drugs, especially in hard-to-reach populations. More than 80% of parents seek treatment from shops rather than from the formal health system, and a strategy to train both formal and informal commercial sector providers is therefore most likely to achieve the greatest coverage. Major efforts have been made in the past few years to improve the availability of presumptive treatment at household level in some malaria-endemic countries or regions. These efforts have included training mothers and CHWs to administer pre-packaged antimalarials in the home, and training shopkeepers to correctly administer drugs. Recent trials of training mothers to provide presumptive treatment in the home had a considerable impact on childhood morbidity and mortality, giving strong support to the training of mothers in communities (Pagnoni et al., 1997; Kidane & Morrow, 2000; Sirima, 2003).

In many communities, especially in Africa, home treatment of malaria with drugs bought from shops, drug vendors, or chemical sellers is very common; the providers in this sector have therefore been identified as key to improving home treatment of malaria. They already have an established infrastructure that provides through the commercial sector, and could be of use in communities that have access to and are willing to pay for the services. To improve private sector provider practices, it is important to appeal to the interests and priorities of these providers. It is also important to provide them with training and health education and to monitor their performance based on positive reinforcement. Fortunately, unofficial drug vendors, shopkeepers, chemical sellers, and others are receptive to training and health education information (Foster,

1991). In some cases, for example in Viet Nam (Cong et al., 1998), providers have expressed a desire to be trained and were even willing to pay for training. In addition to training, experience in new provider practices has shown that unit-dose packaging of drugs is well liked by providers, and would certainly help to improve the dosing and quality of drugs.

This module gives a brief outline of training and monitoring of community-based providers of antimalarial treatment. It addresses CHWs and the informal and formal commercial private sector. The term “community health worker” refers to providers working at community level, e.g. CHWs, mother coordinators, CDDs, traditional birth attendants, teachers, village health workers, indigenous/traditional healers. The term “commercial private or informal sector providers” refers to a range of commercial providers such as pharmacists, drug shops, private clinics, shopkeepers, rural mobile vendors, chemical sellers, vendors of patent medicine, and other types of commercial sector providers who sell or dispense drugs including antimalarials.

D.1 Training and retraining

Health personnel

Involving health personnel in both private and public facilities is crucial to ensuring that they appreciate their role in the whole strategy. Health staff will need to be trained in national malaria treatment guidelines and to acquire an overview of home management of malaria. They should understand their role in the storage of drugs, distribution of drugs to CHWs, training of providers, health education, management of referred cases, supervision, and monitoring.

Community health workers, drug distributors, mother coordinators, and commercial sector providers

A training inventory of those who might have received related health training at community level can identify other possible participants. Everyone will need to be informed of the tasks they are expected to perform. Some will need further training to provide new skills.

The trainers must be sufficiently knowledgeable and preferably experienced in community training. At least one health worker from the nearest health facility should be part of the team. Community IMCI trainers or those already involved in malaria training or health education would be valuable. A trainer must be familiar with the subject being taught and able to give explanations and demonstrations, answer questions raised by the participants, and supervise practical sessions. The training team should have both female and male trainers to make the participants feel comfortable. If possible, training should be held within the community or in areas convenient to a number of providers; a snack should be provided for afternoon sessions, lunch for all-day sessions.

Content and training methods

Training materials should equip the provider with the skills to recognize and treat malaria and to advise on malaria treatment and what the mother should do in the event of her child having fever. Course materials should not be in the form of lectures but in the form of training manuals, which should provide basic information, simplified for easy understanding. Manuals should be adapted to the country situation and designed to give enough information and skills. Training should cover the following areas:

- brief overview of malaria as a disease, including transmission, signs and symptoms, treatment, prevention, and socioeconomic importance;
- the antimalarial drug of choice in the country, and the treatment regimen;
- the concept of different drug dosages for children of different ages (weights), and determination of the dosage or pack to give according to age;
- recognition of the signs and symptoms of severe disease;
- lowering the body temperature using physical methods and/or antipyretics;
- record keeping;
- drug storage.

Training methods

The training content and method should be essentially the same for all trainees (CHWs, mothers, drug sellers, etc.), although information needed specifically by commercial private providers (e.g. instructions for keeping records of sales or for re-ordering drug stocks) can be covered separately. Training should include discussions, demonstrations, practical exercises, videos, role-plays, and on-the-job practice; it should not last for more than two days.

In a study in Kenya, three-day training of shopkeepers in one of three workshops consisted of: role-plays to evaluate shopkeeper skills and the sort of information to provide to consumers, learning to use dosage charts and rubber stamps with treatment information for different ages/weights, and how to assess symptoms. The incentive was increased knowledge, increased ability to help their own families, social status, and profits. Later, 1–2-hour individual training sessions were held in the stores and permitted observation of shopkeeper practices. After 6 months, another two-day workshop was held to refresh vendor skills. Assessment showed that appropriate information continued to be provided 9 months after the training and 4 months after the research was discontinued in the community (Marsh et al., 1999).

For commercial sector providers, training should preferably last only one day; duration can affect participation, and training on other topics can be conducted later and/or can be supplemented by supervised on-the-job training. For training of commercial providers it is important for the trainers to understand: prescribing behaviour and the availability and role of professional staff (actual prescribers may not be professionals); sources of information on pharmaceuticals; economic incentives; staff levels of training or education; workload; expected efficacy of a pharmaceutical product; pharmacy ownership; authority structure; location and competition (Goel et al., 1996). Of the strategies this handbook addresses for training pharmacists, some key

aspects include ensuring credibility of the sponsoring (training) organization, presenting both sides of an issue and refuting incorrect information, and involving opinion leaders (Goel et al., 1996).

For effective interpersonal communications, the programme must train providers about malaria treatment and how to use printed IEC materials and ensure that messages are understood. Training should include information, examples and practical sessions:

- Train all providers to use educational materials for teaching target populations about malaria, signs of severe disease, compliance with treatment, and health-seeking behaviour.
- Train pharmacists, shopkeepers, volunteers, and other persons who will sell the products about the messages to give customers, use of sales brochures and other point-of-purchase materials, procedures for managing money from sales, and procedures for restocking supplies.

Shopkeepers need to be sufficiently confident to resist consumers who try to pressurize them into prescribing the wrong drug or wrong dosage – and in this respect consumer education is important. Training programmes should include the need for positive reinforcement (praise) by providers and re-education of patients/consumers who approximate correct behaviour.

In **Zambia** (Douglass & Nyambe, 1999), providers were trained to:

- determine whether the patient had had fever in the past 24 hours;
- determine whether the patient demonstrated any of the IMCI general danger signs;
- take the patient’s temperature;
- prescribe an antimalarial if the patient was febrile;
- instruct the patient about the correct and complete dosage of chloroquine;
- counsel the patient’s caregiver to return if the fever does not subside within 48 hours;
- refer patients with severe febrile disease to the next level of health care.

Provide job aids that will facilitate providers’ interactions with customers. The Zambia campaign developed wall charts for outlets and gave providers training-course material in a spiral-bound notebook. For consumers, pharmacies, and retail shops, slips of paper with dosage directions were also made available (Douglass & Nyambe, 1999). In addition, some or all providers should be trained to use a checklist to collect information on each transaction. Information to be collected includes: date, name, age, weight, sex of patient, head of household, person buying the drug, type of pack sold, number of treatment packs purchased, symptoms, date of onset of symptoms, and notes.

A much simpler format may be necessary to ensure that providers comply with reporting requirements (see the simple reporting format below for tracking sales of antimalarials in Nigeria).

Finally, a signed commitment on the part of the shopkeeper to sell full courses of treatment and to abide by the agreed price should be considered and included as part of the training certification.





D.2 Supervision, monitoring, and evaluation

It is difficult to supervise community-based activities, and close supervision and monitoring are therefore necessary to ensure quality and achieve strategic targets.

Community health workers

Supervision is the best way to reinforce and strengthen the skills of CHWs, and it ensures a link between the community and the health facility. As far as possible, supervision should fall within the existing district supervision framework. Because CHWs or CDDs may be involved in other activities or programmes at the community level, and are more or less an extended arm of the public sector, they should be linked to the health facility and supervised by health personnel.

The aim of supervision should be to support the CHWs and improve the quality of work of CDDs. Supervisors need to observe the CHW's routine activities and conduct interviews with community members about the CHW's performance and acceptance by the community, and about any problems arising between the CHW and the community. Supervisors could hold meetings every 2–3 months, perhaps on market days, to submit reports, provide support for CHW volunteers, and collect information on unusual cases identified by CHWs. Visits by the CHW or CDD to the nearest health facility (usually at monthly intervals) to replenish drug stocks present further opportunities for supervision.

Drug	Sales	Total
CQ < 1 	*****	
CQ 1-6 	***** *****	
Cotrimoxazole  	*****	

Data should be minimal and simple to collect, so as not to overburden the CHW. Data collected should include name, age, pack given, onset of symptoms, outcome, other comments. Supervisors should be able to look at the records, assess the performance, and assist where necessary.

Monitoring is essential as a way of tracking community activities, looking at progress and at whether targets are being achieved, and identifying operational problems, training coverage (trained CHWs per area and per population) and retention (attrition rate of

CHWs), and the proportion of CHWs submitting reports on time. CHWs may be assessed on the trend in number of treated patients, reported vs. expected drug consumption, frequency and completeness of reports, and number of patients receiving follow-up visits.

Commercial sector

The commercial sector is one of the most difficult areas to supervise, and a special strategy for supervision and monitoring may need to be developed. The sector deals with many brands of drugs and it may be difficult to ensure that the accepted drug is being promoted. Among the greatest concerns in the social marketing of antimalarials are quality and monitoring, especially in relation to the potential of vendor carelessness to increase drug resistance. Given that antimalarials are already widely misused, tackling the source of the majority of antimalarial purchases has huge potential for improving quality of care. Social marketing may, in fact, encourage participating providers to adopt a sense of responsibility towards the consumer: pharmacists and vendors could be “licensed” to carry branded drugs after training. As a quality control measure in the social marketing programme in Cambodia, pharmacies must pass a competence test to carry Malarine. They can publicize this status by displaying an approved vendor placard/sticker prominently in the storefront (Rozendaal, 1999, unpublished observations).

Other useful approaches are supervisory visits to providers, audits, and giving feedback and reminders to providers. It is important to note that conferences and workshops and distribution of educational materials have proved ineffective when not combined with reinforcing strategies such as consumer education (Brugha & Zwi, 1998). A multi-faceted IEC strategy is necessary if provider practices are to be changed.

Following training, supervisors can observe providers’ routine activities, use “mystery shoppers”, interview community members regarding performance and problems, hold monthly meetings (e.g. on market days or other occasions when people tend to congregate), and review sales reports.

Data collection tools should be easy to use, requiring minimal information for the assessment of performance and adherence to standard treatment guidelines. CHW data can be compiled and analysed monthly at district level then sent to zonal and regional offices for feedback. In Uganda, for example, national level responsibilities include a database on main indicators showing impact, and monitoring of district level activities; whereas district level responsibilities include monthly or quarterly meetings at various levels, record keeping and compilation, and community supervision. In Ethiopia, district level responsibilities include monitoring of trends in number of treated patients, drug consumption, chemoprophylaxis cover and community participation. A national or third level would be responsible for computer analysis of data, review of supervision reports, and review of health institution data.

D.3 Best practices and lessons learned

General

- Recognize that mothers are the primary providers of health care to their children and can be trained to give treatment at home.
- Education, incentives, and accountability for quality of service (diagnosis, treatment, follow-up) are critical among public, private, and community-based service providers.
- The commercial sector already plays a substantial role in providing drugs to the community and is a source of information for the community on malaria treatment.

Provider training

- Provider training should include information and general health education on malaria disease, treatment dosage, compliance with treatment, health-seeking behaviour, and ability to recognize referral cases.
- Providers can be trained to improve patient–consumer understanding. Periodic retraining improves their performance and 6-monthly refresher courses should be planned.
- Provide dosage charts and rubber stamps for dosages (if not printed on packaging already) to providers.
- Videos and role-plays can help providers to learn and may also be useful for evaluating their consumer communication skills.

Job satisfaction (incentives, remuneration, sharing) helps to reduce turnover

- Enhance the role of providers through encouragement, incentives (monetary or otherwise), and IEC activities. Empowering them to serve consumers and holding meetings at which they can share work experiences reduces the attrition rate.
- Identify ways of enhancing the prestige of CHWs (e.g. public recognition, certificates).
- Incentives for commercial providers can include recognition through special “licensing” to carry a particular product and serve as a source of information.

CHW selection

- It is important to become familiar with the array of people who might provide entry points to the community and who have been used in previous projects and programmes.
- Make communities aware of strategy and help them to select their own CHWs.
- Female CHWs (mothers) may be particularly successful, although illiteracy, household responsibilities and cultural norms may be obstacles to their participation.
- Hold regular training for new CHWs to cover new areas and to replace CHWs who are no longer available because of illness, death, marriage, migration, employment, rejection by community, etc.
- Train illiterate groups using dosage charts that have pictures to represent age or other information.

Service delivery

- Provide job aids and promotional materials such as calendars and T-shirts.
- Include training on how to give medicine to children and those who may be vomiting or resisting.

Monitoring and supervision

- Any CHW not reporting for three consecutive months might be labelled inactive.
- CHWs can be selected from the group to serve as supervisors.
- Follow-up of patients by CHWs improves compliance.
- Attendance at meetings should be reimbursed to encourage health workers to attend.
- Monitoring by means such as “mystery shopper” surveys and consumer intercept surveys helps to ensure quality of service provision.
- CHW toolkit ideas include: treatment, treatment charts, notebooks, rulers, referral cards, stopwatches.
- Simple data forms should be used.

Module E: Information for behaviour change

Information, education, and communication

Tasks

- Plan the initial strategy.
- Conduct formative research and refine the strategy.
- Identify the specific target population for behaviour change.
- Plan the positioning and develop brand name or logo.
- Develop key messages.
- Identify methods to be used for behaviour change.
- Develop communication materials needed.
- Identify the communication channels to be used.
- Pretest messages and materials.
- Produce and distribute materials.
- Monitor the progress and effectiveness of the behaviour change.

An effective communication strategy is essential to support appropriate home-based management of malaria. The strategy must be multi-focused and involve individuals, households, and communities as well as care institutions, policy-makers, and resource providers. It must be designed to provide information on the behaviours and practices adopted by individuals as well as the underlying reasons for the adoption of those practices – which can then form the basis for reinforcing positive behaviours and modifying those that are less beneficial.

Behaviour is not merely a product of knowledge or availability of information; it also depends on such factors as prevailing social norms, availability of resources, and perception of priorities. Making lasting changes in the behaviour of individuals can be a slow and difficult process, and may lag behind expectations despite high levels of awareness (see box, “Example of high awareness and low behaviour change”).

Example of high awareness and low behaviour change

Home-based management of malaria in Ghana:

- 71% ($n = 489$) of mothers were able to accurately recall how to administer antimalarial drugs correctly,
BUT at home only 14.6% gave the correct drug, at the correct dosage, for the correct duration.
- 63% of mothers knew that a child with fever should receive tepid sponging and antipyretics,
BUT only 2.7% actually practised it.

Many different theories have been applied to bringing about behaviour change in a population and many different strategies have been used with varying success. An effective communication strategy must be based on the premise that sustainable behaviour change is heavily influenced by the social norms and relationships in households and communities. Change takes place at the interface between different levels of the system – individuals and family, households and community, individuals/households and care institutions, care institutions and community, community and policy-makers/resource providers, and so on. It is the management of communication at these interfaces, and the extent to which people's awareness is shared and widened, that lays the basis for sustainable change in beliefs and practices.

Too often, assumptions are made regarding the knowledge that individuals and communities possess. The box "Understanding practices regarding fever and diagnosis" illustrates that detection of fever and the subsequent linking of presence of fever to malaria may not be as obvious as we would like to think.

Understanding practices regarding fever and diagnosis

Fever in children is the key symptom in deciding to treat for malaria, but ability to assess fever varies widely among countries. Mothers in the Gambia, Ghana, and Zambia were readily able to recognize fever (Ahorlu, 1997; Douglass & Nyambe, 1999; Baume et al., 2000; Diallo, 2001), but in Cameroon (where 72% of patients thought they were febrile when they were not), Guinea (incorrect fever assessment in 78% of cases), Nigeria, United Republic of Tanzania, and Uganda, mothers were found to have a poor ability to detect fever (Verhoef, 1999; Diallo, 2001). However, despite their inability to accurately diagnose fever, mothers in Kenya had a good ability to recognize malaria.

Of Ugandan mothers who recognized fevers in their children, only 40% suspected the cause to be malaria, even in the malaria season and among more educated urban women (Lubanga, 1997). Reasons for this apparent difficulty included the fact that other symptoms, such as cough or cold, might have preceded the fever, causing mothers to be more concerned about other childhood diseases. Also, mothers often observed their children playing in dirty places and as a result considered worms as a cause before malaria.

E.1 Planning a strategy for changing behaviour

Behaviour change requires strategic thinking and must be developed as part of the overall HMM strategy – a plan within a plan. Malaria control programmes have used a mix of health education, community mobilization, and social marketing for behaviour change. On its own, health education alone is not sufficient but it is an important factor in raising awareness of malaria and its treatment. Community mobilization has great potential for defining community problems and will also create sustainability, ownership, and a powerful demand, even before the programme is implemented. Social marketing promotion techniques will influence access to or purchase and use of antimalarial treatment.

Experience has shown that, carefully implemented, each of these methods can have a significant influence on behaviours. IEC can influence other aspects of the strategy as well, such as tablet size or colour, and thus improve compliance. A well designed behaviour change strategy needs to begin with a situation analysis. In HMM, this should look at traditional practices related to malaria that may be difficult to change for many reasons, among them the following:

- Families may not consider malaria to be as serious a problem as other diseases and may not be motivated to use a product designed for treatment.
- Because malaria is seasonal, the perception of risk may vary by season.
- The treatment, if it has to be purchased, may seem costly.
- The new behaviours may seem inconvenient.

The HMM programme must therefore create demand and change the behaviours of the community with respect to seeking prompt and appropriate treatment. Ultimately, success depends on the degree to which target households can be persuaded to change their behaviour, specifically to:

- reliably recognize fever
- seek prompt treatment
- comply with instructions
- seek help in case of progression to severe malaria.

E.2 Steps in developing a strategy for behaviour change

Regardless of the methods that will be used in the strategy for behaviour change, there are some general principles and steps that are involved in planning all of them. The steps are:

- *Conduct formative research* – which is the foundation for selecting methods and for planning every aspect of each method. It is most effective when done by experienced people, so the research group should be selected with care. The outcomes of this research can also serve as a baseline by which progress can be measured.
- *Identify the specific target population(s)* for the behaviour change.
- *Plan positioning*, i.e. product identification, brand name, logo, etc.

- *Plan key messages* – which are the crucial idea to get across, regardless of how they will be conveyed.
- *Select methods for behaviour change* – which the programme will use to affect the behaviour of the community. Possible methods might include education, promotional social marketing, and community mobilization.
- *Decide on communication channels* – specific ways in which behaviour change methods are implemented. Possible channels include posters, radio spots, house-to-house visitors, community meetings, packaging inserts, local drama.
- *Specify communication materials* – the exact materials needed to implement the methods planned, including advertising and promotional materials, educational materials, training for implementers, video, radio spots.

The strategy for education and promotion in your programme will depend on the level of funding, staff, other resources available, and method of drug distribution. The extent of the effort devoted to research and design will vary with available resources and the size of the target population.

If a programme has a generous budget and qualified staff, a substantial effort may be made to implement promotional activities, train staff to deliver education, and support educational activities. If the programme's budget or other resources are very limited, educational activities might be limited to a smaller target population and the facilities used regularly by that population, such as health centres and outlets that sell the products.

Conduct formative research

Behavioural methods used to motivate households to change can be only as good as the information they are based on. The situation analysis should identify the gaps in knowledge about malaria, health-seeking behaviour, and malaria treatment that need to be addressed by educational activities. Formative research therefore seeks to:

- find out from people themselves what will motivate behaviour change;
- find out what advantages people see in adopting new practices;
- identify obstacles that need to be overcome;
- find out who in the household makes decisions about seeking health care and purchasing treatment, and who influences those decisions;
- identify media channels that reach specific audiences.

Further research on cultural and language issues, and on knowledge and beliefs about malaria and fever, will enable the programme to develop a meaningful product brand and effective promotional messages. The community's priorities and ways of doing things will largely determine how the programme will be undertaken. Examples of questions (taken from the Zambian programme) include:

- What do the target population know before the intervention is introduced?
- What is the treatment-seeking behaviour of the target population? What do they know about the course of treatment and its effectiveness?
- Do the target population understand the causes of malaria?

- What is the current behaviour of the target population – functional or dysfunctional?
- What do health workers do and prescribe?
- What motivates those who already use bednets and available treatment?

Formative research can be done by:

- a survey of knowledge, attitudes, and practices with regard to malaria;
- focus groups;
- cohort studies for disease problems;
- structured observations;
- structured interviews.

It is prudent to make an inventory of existing materials and activities and to assess the accuracy and appropriateness of messages before undertaking the formative research. Examine work done in other programmes or countries for ideas and potential cost savings. Find out whether the messages can be coordinated and misconceptions that have been created need to be corrected. Formative research should also include a study of other illnesses and how fever is identified in order to present clear messages to consumers.

Identify specific target audiences

Based on findings of the formative research, identify particular subgroups (e.g. mothers, shopkeepers, the community) who will be target audiences for behaviour change. Also identify individuals who influence that target group (e.g. health workers, traditional birth attendants, community leaders, elders, opinion leaders) so that they too may be targeted with education and promotion. These main groups in the community should be targeted by different methods through different communication channels. Specific target groups overlap and may include:

- individuals who make decisions about diagnosis and treatment;
- pregnant women, and schoolchildren and their teachers;
- children’s caregivers, mothers, and other household members who have influence over mothers.
- specific groups, individuals, or opinion leaders in a community who, by deciding to change their own behaviours, can influence behaviour change in the whole community;
- groups not typically targeted, such as men, who may divert family resources to other uses;
- shopkeepers, drug or chemical sellers, and pharmacists;
- indigenous/traditional healers;
- migrant workers or refugees (existing immunity can decline over time in adults and children, making them vulnerable on repatriation).

Plan positioning and developing brand name and logo

Developing the brand name and logo to position the treatment positively for the target population is a very important step. Having a brand name and logo can be advantageous –it gives people an easy way to identify the products. The best brand names are simple and catchy, and evoke healthy images in the minds of the target

population. When the brand name and logo are finalized, they should be incorporated in the various promotional and educational materials.

To “position” malaria treatment means to present it in a way that will motivate potential users to buy and use the products (that is, to change their specific behaviours related to malaria diagnosis and treatment). This can be effectively achieved by developing a brand name, logo, and packaging graphics. This is strongly recommended, regardless of the methods and extent of promotion planned, due to the potential advantages:

In **Uganda**, the brand name for pre-packaged treatment used during the study was **Mussujaquine**, based on the local word for fever (*musujja*). No problems were reported with the name.

When the MOH changed its policy to chloroquine and sulfadoxine/pyrimethamine as first-line treatment, the brand name chosen for national use was **Homapak**, based on the Swahili word for fever (*homa*).

- Brand names are highly desirable to help create a unique identity for the products and programme. A brand name helps the target population to identify the product.
- Branding can increase the perception of quality and value, create a positive and desirable image, and encourage people to try the product.
- Although IEC can provide people with information about the benefits of appropriate treatment, advertising a specific brand prompts them to translate this knowledge into behaviour change.
- Advertising a particular treatment helps to promote safe use of all treatments on the market. Experience with other socially marketed products suggests that promoting one brand has a “halo effect”, boosting sales of all types of treatment.
- Experience shows there is a high demand for subsidized products and that demand decreases as prices increase. Promoting branded products may help maintain demand at somewhat higher prices.

Plan and develop key messages

Developing messages and materials (posters, T-shirts, videos, etc.) is an important task within the communications strategy. This requires a careful participatory process, beginning with formative research, and may also require specialized persons or agencies. Appropriate language, terms, and the local dialect must be used to ensure that messages are relevant and can be understood by the target audience. If a new term is needed, it may be necessary to introduce it and use educational messages to explain its meaning. Educational and promotional messages should use both words and pictures that are understandable without the words so that they can be understood by illiterate members of the target population.

In developing messages, formative research provides information on:

- local language and terms suitable for the wording of messages;
- current knowledge about malaria;
- positive perceptions about treatment;
- negative perceptions and barriers to treatment.

Some messages may need to address negative perceptions (for example, about orthodox medicines) or barriers to use of the treatment. Negative messages or warnings tend to work less well than positive messages. Messages must give information that the audience wants and needs but does not currently have; they should target a few relevant practices or behaviours that will be feasible objectives for the behaviour change strategy. Messages should fulfil specific educational and promotional objectives; they should be:

- simple and easy to understand, and should use appropriate language and local terms;
- easy to remember, conveying only one or two ideas;
- positive – conveying the positive benefits of the product in a way that encourages its use;
- specific and action-oriented, rather than general;
- accurate, feasible, and relevant;
- sensitive to local cultural beliefs;
- attractive and interesting;
- conveyed in pictures that can be understood without words; this is particularly important for messages about how products should be used.

Messages should address the important knowledge that initial assessment and formative research found to be lacking in specific target audiences, such as:

- the risk of malaria for young children;
- the link between mosquitoes and malaria;
- the importance of prompt and complete treatment;
- how to obtain and take the treatment;
- where to purchase the branded or approved treatment;
- price of the treatment.

The actual messages will depend on the findings of formative research among the target groups and on the behaviour change objectives. The messages must advise caregivers when to seek clinical help for complications of malaria, e.g. signs of anaemia and convulsions.

Another consideration is incorporating traditional home treatments into the IEC messages, advising, perhaps, that mothers first administer the branded antimalarial and then a safe home remedy. In addition, messages may have to address malaria as a community issue and raise its importance among the multitude of messages about other important health issues. Achieving treatment for all may not be possible if malaria is not considered to be a health problem (Ruebush et al., 1995). Ultimately, it may even be best to encourage consumers, particularly in rural areas, to have treatment available to hand, particularly for children, in case they, their family, or neighbours, need it.

Examples of messages used in HMM programmes

The programme in Zambia (Douglass & Nyambe, 1999) used messages such as:

- "Treat a person with a fever promptly with chloroquine at a clinic or at home."
- "Give the correct dosage."
- "Give the complete, three-day dose of chloroquine."
- "If the fever does not go away after the second day, take the patient to a clinic."
- "If you see any of the danger signs of malaria, take the patient immediately to a clinic or hospital. Do not try to treat him or her."
- "Prompt, correct and complete treatment with chloroquine whenever fever is present".

When empowering target groups, be consistent with messages. In Nigeria the message was:

- "Mothers know children and are the best judges of children's health status and mothers know how to give the full course of medicine."

In Cambodia the primary message was

- "... malaria risk occurs in forested areas, and Malarine is the best, most reliable and cost-effective treatment and needs to be taken in 3 days for complete cure".

Another was

- "... take the full 3-day course. Any savings on drugs will be false savings because malaria will return."

Intuitively, the suggestion by Foster (1995) that antimalarials should be "prescription only" would appear to present a barrier to treatment. However, this designation may actually increase the value of treatment, imply greater quality, and increase consumer demand. Thus, antimalarials promoted without this distinction and available without prescription may be at a disadvantage in the mind of the consumer.

Pretest messages and materials

It is essential to pretest messages and materials with members of the community to ensure that they are clear and have the positive effect intended. By pretesting the pictures and words to be used in messages, expensive and time-consuming mistakes can be avoided. Pretesting can be done through in-depth interviews or focus group discussions with a sample of the target audience. The interviewers should listen carefully to the participants' impressions of the materials and not tell them what the messages are. If the participants do not understand something, the interviewer should record that and should not explain until the end of the interview or focus group session. This method enables an unbiased assessment of how well the materials convey the intended message. Pretesting should check the following:

In **Ethiopia**, focus groups helped implementers to realize that pictures of half spoons did not convey the message of half a teaspoon, as intended. In addition, focus groups helped implementers to identify illustrations of numbers of stirring spoons rather than Arabic numerals as a good way to represent age on posters.

- *Presentation*
Do people like the words and pictures?
- *Attention*
Does the message hold the audience's attention?
- *Comprehension*
Does the audience understand the intended messages and products?
- *Personal relevance*
Does the audience perceive the messages to be aimed at them or aimed at other people?
- *Believability*
Does the audience perceive the message and its source to be credible?
- *Acceptability*
Is anything (words, pictures, implications) offensive or culturally inappropriate?

Frequently the same material is presented in two or more formats, so that people can choose the one they prefer. Messages and materials should be revised on the basis of the feedback from pretesting, then tested again. Revision may involve changing text or illustrations, eliminating a particular element (such as distracting sound effects in a radio spot), combining parts of two different materials, or starting from scratch with a new idea prompted by the tests. Retesting with a sample of the target audience should show whether the modifications have improved the materials in terms of the audience's comprehension and the other criteria listed above, before full production begins.

Select, develop, and implement methods for behaviour change

Developing an effective behaviour change strategy and its components – brand name, logo, messages, materials, etc. – requires special skills, and it is recommended that the programme works with specialists to undertake this. Individuals who have the skills and experience to contribute in this area may be found in other departments within the MOH (e.g. HIV/AIDS, health education) and through outsourcing to private firms, advertising companies that have produced effective marketing campaigns, or NGOs with substantial behaviour change activities. This module presents three communication strategies that can be used in a comprehensive and balanced approach to improve HMM.

Health education

Educational activities aim to increase knowledge in the target population. The term “IEC” – information, education and communication – is sometimes used during planning and indicates that a broader range of activity is envisaged than just traditional classroom instruction or a health worker telling a group of mothers what they should do. Education activities can help to facilitate behaviour change by giving people the knowledge needed to understand the problem, access or purchase treatment, and administer the treatment correctly.

In HMM, educational activities are best planned using the results of formative research on the target population's knowledge, attitudes and practices. The activities

are usually implemented through interpersonal communication with health workers, CHWs, or sellers of the products through printed materials distributed in health centres or outlets, and through drama, electronic mass media and video/film presentations. The target audience needs to:

- be aware of the malaria problem, how to recognize the disease and its severity, the particular risk to young children and pregnant women, and the risk of death if treatment is delayed;
- recognize that children under the age of 5 years and pregnant women are particularly at risk from malaria infection and should therefore receive treatment as a priority;
- know how to treat using the recommended antimalarial at home, including the correct dosage of drugs, and to understand the importance of completing the full course of treatment.
- understand the importance of associated care, e.g. continuing to offer the patient food and water, tepid sponging to reduce fever, administering antipyretics;
- be given information about how to prevent malaria by using bednets and good home practices to prevent the creation of mosquito breeding areas.

Although educational activities are necessary for providing knowledge about the problem and practical solutions, they are not effective when used alone. The manner and methods of conveying educational information can be extremely influential in laying a foundation for people to choose behaviour change.

It is important to coordinate IEC activities and to be consistent with those carried out by other programmes e.g. IMCI or immunization programmes, to avoid confusion in the target population. If other programmes are delivering messages that may conflict with those about HMM, tactful efforts should be made to harmonize them.

Promotion by social marketing

Providing information alone is seldom enough to change behaviour, and it is advisable to employ other approaches as well, both for free-of-charge treatment and for retail commodities. The target population will include low-income households with limited ability to pay for treatment; while the programme keeps the price of treatment low through subsidies, one of the goals of education and promotion is to make treatment a priority household expenditure.

Promotional activities can help to supplement educational activities. They should:

- be based on research in the population and the reasons for their behaviours;
- aim to stimulate individuals to sample new products and behaviours, and to continue using them;
- using effective channels of communication, disseminate messages specifically formulated to encourage the target population;
- motivate potential users to access or buy treatment, and assist in its correct and consistent use – requires more than just giving factual information about malaria.

Africa Malaria Day, April

Examples of activities in **2001**:

Botswana – sports matches between schools; national Roll Back Malaria plan announced by the Minister of Health.

Cameroon – round-table discussions broadcast; malaria clubs organized in schools; songs performed about the burden of malaria.

Mali – parades and campaigns in schools and communities.

Mozambique – national and local broadcasts on radio and television, including a speech by the President.

Togo – football matches in 35 districts.

Zimbabwe – presidential broadcast; speeches by health minister; an appeal for resources.

Continent-wide activities in **2002**:

- The “community health worker” celebrated and given recognition.
- National or district awards given for best community health worker.
- Media attention focused on the value of the community health worker.
- School competitions (poems, essays, songs, posters) held on the importance of health workers.
- Seeking of early treatment from a community health worker encouraged.

Promotional methods can be used in social marketing to persuade people to use products for reasons other than the primary reason of the programme. For example, the main reason for an HMM programme is to prevent morbidity and mortality due to malaria. Social marketing may imply, however, that caregivers who appropriately treat their children are better mothers or trend-setters or smarter.

The programme must decide which positive perceptions to reinforce and which benefits to emphasize in promotion, according to local circumstances. Promotion can be made effective by associating use of the treatment with a status and lifestyle that people aspire to, and messages can highlight the qualities desired by the target population. For example:

- Be a super mum.
- Be the first in your neighbourhood to use the treatment.
- Smart mothers use the branded treatment.
- To save your child and keep good health, use the branded treatment.

Community mobilization

Currently, a number of methods are used to engage communities in discussion about health in order to create shared understanding between community members and service providers. After an understanding of the communities’ vision for their health has been reached, joint action plans are created. This communication process may begin at the community level, triggered by the introduction of HMM programme, a

mass media campaign, or even the implementation of a new malaria treatment policy. The messages and materials are created in partnership with community members, representatives of the mass media, and commercial or social marketing organizations, in a participatory process that extends beyond pretesting of messages.

Rather than adopt a single “chosen” method for this important task, the country communication strategy for HMM could use a variety of familiar methods. Although more intensive and complex, community mobilization and community capacity development through participatory communication are more likely to lead to long-term behaviour change and to sustained adoption of improved practices for HMM by individuals and communities. Before embarking on a communication campaign, it is advisable for programme managers to enlist the assistance of organizations and agencies that have particular experience in this area. For example, UNICEF has considerable expertise in participatory approaches to communication for community mobilization around child health issues; some of these are highlighted in the box “Community engagement techniques”.

Community engagement techniques

Participatory rural appraisal/participatory learning and action. A set of proven participatory exercises to help outside specialists listen to and learn from community members, including community mapping, and the creation of seasonal calendars and pie charts.

Community dialogue. A participatory technique to develop village action plans based on the priorities of both community members and local government officials.

Participatory hygiene and sanitation techniques. A set of cards, each showing a picture (such as a mosquito), that community members can arrange in cause/effect sequences or that can be used to start community conversations.

Community-based management of information systems. Monitoring of community performance in specific areas of child health and development by community members themselves. Examples include community-managed birth registration and growth monitoring of infants.

Visualization in participatory planning. UNICEF's participatory methodology to facilitate workshops, using cards, games, and exercises, to ensure more equal participation across groups who may hold different positions of power in communities or governments.

Select materials and specify communication channels

Use information from formative research to select an appropriate mix of communication channels to reach each specific audience. It is important to have educational and promotional materials at points of sale or service that clearly describe how to use the products. At health clinics, the staff should actively use the materials to promote the treatment and its benefits.

Depending on resources, the programme may choose to use additional channels, such as house-to-house visits by a neighbourhood health committee member or a door-to-door sales person. Potential channels can be categorized as interpersonal

communication, local media, mass media, and printed materials. Choose communication channels that are available to the target group, appropriate for the target group, acceptable and cost-effective. Examples include:

- schoolteachers; health professionals; dramas on market days, which can be used for education activities.
- posters and brochures at outlets where treatment is sold; face-to-face communication with health workers; video trucks at markets, which can be used for promotion activities;
- community health promoters making house-to-house visits or health workers interacting with mothers of young children, which can be used for interpersonal communication;
- the neighbourhood committee or its equivalent, which is the key channel for community mobilization.

Common communications materials

- Mass media – radio spots, jingles, talk shows, TV spots, films on disease, treatment, and complications.
- Print media – newspaper articles, posters, stickers, placards, leaflets, calendars, charts, brochures, T-shirts.
- Theatre – songs, drama, dances.
- Billboards etc.

Common communication channels

When target audiences, positioning, key messages, channels, plans for distribution of the products, and pricing have been determined, a list can be made of the specific materials that will be needed. Below are some examples of educational and promotional channels and materials that have been used in improved HMM programmes and other social marketing programmes.

Mass media

Radio is often the primary medium used given its overall reach, cost-effectiveness, and ability to make contact with illiterate and low-literacy target groups. Radio time may be donated by government stations or can be purchased from commercial stations. Airtime on popular stations should be arranged and broadcasts scheduled for times when the target audience are likely to be listening. Television advertising can be strategically used to establish credibility for the treatment being introduced, and then be reduced as radio and point-of-purchase promotions grow to become the primary media. Where few people have television, arrange for use of a mobile, big-screen video programme, and schedule the video truck to visit different communities, markets, businesses, etc. Hire promotional workers (e.g. communicators, video programmers, truck drivers) and train them in communicating messages and responding to likely questions from families.

Point-of-purchase or service information

Signs, stickers, and notices are used to identify outlets and agents through which the treatment is sold. If a product has a brand name, it is promoted on these materials. Brochures, leaflets, and cards provide simple instructions on use of the treatment. Sales persons in shops and health centre staff use the materials to help teach

families how to use the products. Posters promote the treatment with simple messages about prompt and complete treatment. Promotional materials can be sold, especially if there is a high demand for cleverly created T-shirts or calendars. On the other hand, dosage charts, for example, would ideally be free of charge.

Community educators

Educators are recruited through neighbourhood health committees, or established community health workers are trained to teach households or small groups about diagnosis and treatment.

Small group activities

Presentations are made regularly at health centres, churches, schools or other appropriate community forums, organized by neighbourhood health committees.

Interpersonal

For effective interpersonal communications, choose people who will be credible in the eyes of the target audience and will have the time to carry out the interactions well. Communication can be greatly enhanced if people are trained to communicate messages, use printed materials, and ensure that messages are understood. The people chosen could be health workers, both voluntary and paid, and successfully treated individuals. Health workers at health centres and clinics educate potential users and support improved HMM. Sales persons in shops and house-to-house visitors educate potential users as part of their sales efforts.

Schools programme

Seminars are held to teach schoolteachers about malaria and home treatment and to encourage them to include this information in their curricula. Presentations are then held in schools to educate students and their parents.

Promotional materials

Items such as T-shirts, stickers, and pens may be used to promote awareness of the branded treatment.

Mobile video programme

A vehicle equipped to show videos on a large screen travels from place to place targeting potential users in different neighbourhoods, at schools, markets, festivals, and other public gathering places. Video is most effective when accompanied by an educational/promotional presentation and interaction with an audience.

Special events and local media

Malaria events are staged at significant times of the year, such as Africa Malaria Day. Sales agents and health workers make presentations. Songs, dance, drama, and contests create a major event for the community and draw large crowds. Local performers deliver essential messages through drama and jingles. Quizzes and competitions involving the crowd reinforce messages.

Small media and outdoor advertising

Posters, billboards, brochures, and leaflets are used to promote the benefits of a branded malaria treatment. The materials should use low-literacy pictorial images and be written in local languages. Local radio, television, or print media (e.g. newspapers) are used if they are accessible to households in the programme area.

- Develop text, artwork, and layout for the materials, which may include point-of-purchase signs, stickers, and cards to identify outlets and sales persons; brochures with instructions on product use and benefits; posters to promote the product and the benefits it provides.
- Develop videos. This includes writing the script, filming, editing the film, and adding narration and graphics.
- Develop specifications for, and list, the messages that may be included in wall paintings or murals, then commission community artists to do the paintings.
- Write newspaper stories or advertisements.
- Design small group activities such as presentations and demonstrations for community meetings, club meetings, etc., including writing scripts and instructions and designing visual aids.

Characteristics of good educational and promotional materials

<p style="text-align: center;">A good logo</p> <ul style="list-style-type: none"> • Simple, not cluttered • Explicit and not abstract, the audience should understand it immediately • Related to the key benefits of the treatment, a symbol of the idea • Positive, uplifting, conveys the idea of results • Easily reproducible • Works in different sizes and settings • Dramatizes the overall tone of the behaviour change strategy 	<p style="text-align: center;">A useful flyer, visual aid or brochure</p> <ul style="list-style-type: none"> • Carries the information most likely to be forgotten • Uses visuals to tell the story, not just words • Shows people performing key behaviours • Uses images attractive to the audience • Concise • Maintains same tone as overall strategy for behaviour change • Organized so that it favours a logical action sequence • Designed for easy use as a visual aid
<p style="text-align: center;">An effective public poster</p> <ul style="list-style-type: none"> • Dramatizes a single idea • Attracts attention from a distance of at least 10 metres • Uses visuals to carry the message • Memorable • Models the behaviour whenever possible • Shows how the product benefits people • Consistent with tone of overall change strategy 	<p style="text-align: center;">An effective radio spot</p> <ul style="list-style-type: none"> • Presents one idea • Begins with an “attention-grabber” • Is direct and explicit • Repeats the key idea at least two or three times • Asks listeners to take action • Makes the audience feel part of the situation • Maintains the same tone as the overall change strategy

Examples of programmes using different communication channels – Ghana

In Ghana, He Ha Ho – the national Healthier, Happier Homes campaign – incorporates malaria. In developing the campaign, the situation analysis highlighted these key issues: malaria is a leading cause of mortality and morbidity among children; most childhood fevers are managed at home, often inappropriately; improving home-based care presents an enormous opportunity. Formative research covered the causes of malaria, care-seeking practices, treatment practices, and acceptance of pre-packaging. Audiences for the campaign are caregivers, chemists, and policy-makers. The goal of the programme is to reduce childhood mortality and morbidity by improving the management of malaria in the home. At the service delivery point, the campaign is working to ensure chemists provide accurate information and dosage. Policy efforts are directed at ensuring political and financial support (MOH Ghana).

A radio programme developed for the programme included a series on health issues integrated into a health programme. Malaria was highlighted in selected shows. In the first show, the messages about malaria were that it:

- causes illness, pain, and loss of normal activity – not ordinary illness but serious disease, which can lead to serious complications and eventually death;
- results in loss of ability to work and earn income;
- deprives family members of income through ill health and time spent attending to the sick;
- causes the family's income to be spent on treatment and funerals;
- makes more work for women/mothers (caregivers, who attend to the sick);
- leads to loss of school time;
- leads to loss of labour and commercial productivity;
- affects children under 5 years of age the most.

The subsequent He Ha Ho show presented the following information:

- name of MOH-approved antimalarials and the dosage;
- how to use tepid sponging to reduce fever;
- the need to tell the chemical seller the age of the child;
- where to go for antimalarials and fever-reducing drugs (making a slogan of the actual dosage).

Other He Ha Ho shows presented the danger signs and the importance of seeking help when there is much vomiting, sleepiness, or unconsciousness, little urine, dark urine, or convulsions. Listeners were told that delay can lead to brain damage and even death. It was explained that convulsions are not a spiritual disease and should be treated at a hospital without delay, and that they should take the child immediately to a health facility, must not put the child in hot water, leave the child, wait for a man to pick the child up, give the child an enema, or try to give the child a drink.

Examples of programmes using different communication channels – Cambodia

Cambodia has employed a range of possibilities: promotion on packaging, dispensing boxes, posters, and billboards in high risk areas; T-shirts and caps with the Malarine logo; a radio jingle, video for village meetings, and advertising for television (Rozendaal, 2000). In an earlier intervention in Cambodia (1998), the programme confronted incomplete advice to patients from drug vendors and health practitioners, severe lack of consumer information, and frequent failure to purchase the full regimen or to complete the regimen. Compliance rates improved from 5% to 20% through posters and video. Combining the media, including posters and videos, had the greatest impact – 28% improvement in buying the full regimen and 58% improvement in compliance with the full regimen. However, posters were less than half as effective as video. With posters alone, compliance improved from 6% to 11% (Homedes & Ugalde, 2001). Doctors, vendors, and patients were all targeted. Improvements were greater with health practitioners than with drug vendors: videos and posters targeting health care providers reduced noncompliance by 40%, compared with only 2% in the case of vendors. In this study, impact on compliance varied with the type of health worker providing the information; it was thought that the advice of a private practitioner carried more weight than that of a pharmacist or vendor (Denis, 1998).

E.3 Producing and distributing materials

Estimate the number of copies of different materials (brochures, point-of-purchase displays, posters, videos, etc.) needed for distribution to the target population. Print the needed quantities and distribute them to health facilities and other outlets, health staff, marketing staff, organizations such as neighbourhood health committees, and warehouses that will resupply outlets. Also provide sufficient quantities for training sessions.

E.4 Monitoring and evaluation

It is important to monitor the effect of behaviour change activities in terms of changes in health-seeking behaviour, community recognition of malaria, treatment compliance, use of preventive methods, and attitudes of communities to the source of drugs and use of CHWs, drug distributors, and health facilities when referred. This can be done through routine data collection, research, or during evaluation of the programme as outlined in Module G.

In the case of social marketing, efforts need to be evaluated and monitored for effectiveness and progress. Consumer intercept surveys and other consumer behaviour research should be conducted to assess brand preference and product use, knowledge of and attitude to brands, the demographic profile of the product's consumers, recall and persuasiveness of product advertising and promotional campaigns, and patterns of purchase behaviour and self-treatment.

E.5 Best practices and lessons learned

Planning

- IEC and promotion efforts seem to be best organized around marketing a service (diagnosis, treatment, etc.) that includes a product, rather than a product alone.
- As with any social marketing programme, type, timing, messages, testing, and coordination are important to success. IEC can also help to regulate providers' actions and help regulators to be accountable to consumers.

Target groups

- Mothers, the primary caregivers, can be helped to improve their ability to identify fevers, appropriate treatment, side-effects, and the need for referral.
- Fathers are frequently the decision-makers regarding treatment when cost is involved, and this must be considered in targeting IEC strategies.
- Formative research should be used to identify any special target groups: children, adolescents, pregnant women, urban populations.

Methods

- Do not underestimate the power of person-to-person recommendations on diagnosis and referral; knowing someone who has used the drug has a big impact on adoption.
- Develop and distribute job aids (such as dosage charts) for the provider and for the consumer.
- Try to identify and use local school systems, opinion leaders, teachers, and students.

In the design process, involve the people who are going to be served.

Messages

- A few simple IEC messages (e.g. “prompt, correct, complete”) are more likely to be effective than numerous complex messages.
- Promotions must include information to consumers on product price, and regimen and dosage by age. When consumers are adequately informed, they can hold providers accountable.
- To communicate effective behaviour change, promote the non-health benefits – less loss of work, less worry about children, social activities not curtailed by illness, etc.
- Ensure that messages and modes of communication are culturally appropriate and acceptable.
- Try to unify messages with a child health theme (e.g. IMCI) when appropriate and productive.
- Promote knowledge of sellers on best treatment practices so that they will discourage consumers who request inappropriate treatment or dosages.

Module F: Strengthening of the public health system and integration with communities

Tasks

- List new responsibilities for public health sector staff.
- Identify expected roles.
- Identify areas to be strengthened.
- Address staffing needs.
- Identify partners and areas for strengthening.

In a district of **Uganda**, it was observed that slightly more than 60% of public health unit personnel interviewed did not know the right dosage of malaria treatment for children under 3 years of age, mainly because of inadequate training and lack of refresher courses. Only 27% of the health providers in public health units had received on-the-job training in malaria case management (Namusoby, 1998).

Communities must be linked to the district health system through the local health facilities since they will serve as referral centres, training centres, and drug storage facilities, and the health workers will train supervisors and monitor the implementation process. HMM is not a substitute for the formal health service and it is important that communities continue to use the health facilities when necessary. This will require improvement in the quality of care at facilities and establishment of a better referral mechanism.

In many countries, a clear link will need to be established between the communities and the health system. This could be through the district health management team or through health facility management teams that involve community members. It should be recognized that implementing HMM on a larger scale may necessitate institutional strengthening activities.

In addition, it may be necessary to improve training, reporting, and monitoring skills – the benefits of which go much further than HMM. Activities should go beyond training and should include strengthening with new capabilities, new staff, and resources.

F.1 Strengthening of public health sector

The objective is advocacy and consensus-building on the use of HMM through sensitization of all levels of the health system. The role and responsibilities of each level of the public health sector should be identified and clearly articulated. Weaknesses or deficiencies should be similarly identified, and mechanisms of correcting them must be part of the implementation process. Typical areas in which the public health sector provides support for HMM are training, drug storage, supplies, monitoring, supervision, and management of referred cases. Sustainability and quality of care may be compromised if public sector inputs function poorly.

In addition to HMM orientation, additional health system strengthening activities are needed, for example in improving training, reporting, and monitoring skills, and in adding new capabilities, staff, and resources.

Improving quality of care at the health facility

Improving quality of care at the health facility by training health workers in malaria case management and strengthening of health systems should be part of HMM implementation. Health workers should also be trained in communication skills, to make them more receptive to the population. They should be aware of what treatment is available at community level and what to do when they receive patients who have already been treated. They should be able to follow the national malaria treatment guidelines and to manage treatment failures and severe cases that may be referred from the communities. Staff need to be trained to understand the new approach to HMM and not to insult mothers who have treated their children at home before coming to the health facility because of complications.

It is also important that health facilities are appropriately equipped and organized to handle referred cases and can meet the demand that will be created. The system should ensure that there are no drug stock-outs, and that there are enough supplies for malaria diagnosis and supportive treatment.

The challenges are increased workload and responsibilities and additional training for staff who are already stretched. Integrating tasks with existing responsibilities and outsourcing certain activities should help to minimize the impact and alleviate stress and inefficiency. It is important to determine how much of an existing staff member's time can be allocated to being trained, supervising volunteers, collecting and reviewing forms, conducting training, following up, supervising commercial sector distributors, and reporting.

Drug delivery and quality assurance

Every effort should be made to ensure that drugs are regularly supplied and in stock, especially in the public health sector; drug stock-outs, which will frustrate the communities, can be avoided by putting in place an efficient supply system. Typically, procurement may be strengthened, supply streamlined, and administration, quality of care, and technical supervision improved. For the commercial private sector, a system should be in place that promotes and provides the recommended drug brands to ensure

that the drugs being marketed are safe, effective, and of good quality. This can be achieved as outlined below.

Ensuring drug supply

All drugs should be procured through the national procurement system, i.e. from suppliers certified and licensed by the national drug regulatory authority. Drug standards, labelling requirements, maximum shelf life, and packaging standards should be made clear to the suppliers. A mechanism should be worked out for the district or local government to ensure that primary health facilities and communities are able to access drugs. Working with a commercial distributor(s) can alleviate some of the burden of maintaining the supply chain – although supervision of supply should remain a government responsibility.

Periodic quality analysis

The quality of drugs should be checked periodically by the responsible national drug quality control team. Their laboratory will periodically sample and analyse drugs from different batches for chemical content.

Storage, transportation, and handling

There should be drug storage facilities at district level – and at any health facility that has to stock enough for community distribution. Community drug distributors should be adequately trained in proper storage and record-keeping procedures.

Supervision and monitoring

As far as possible, supervision of implementation should be integrated into the public health sector supervision system. Commercial private sector providers, and CHWs in particular, should submit monthly dispensing reports, including adverse reactions to drugs if possible. Supervisors should monitor the supplies received, amount used (old supply, new supply, total packs sold out, total remaining packs), amount damaged, expiry date, money on hand, creditors, knowledge, attitudes (care), practices (treatment advice), and materials (interpretation, display). They should also assess improvement on previous visits and provide feedback.

F.2 Strengthening relations with the community

Formally involving the community helped to make pre-packaged antimalarials more accessible in Nigeria.

Lack of community support and poor communication between a programme management committee and the community are common reasons for programme failure. Careful planning with community representatives can help. Identify common goals and resolve differences of opinion as early as possible. Identify key people who could be involved in the programme and develop their roles with them.

In **Uganda**, some communities have organized themselves into groups that carry the sick to hospitals (the "engozi" system). Communities carry patients on locally made stretchers over long distances in a mountainous part of the country. In addition to providing the labour to carry a sick person, the communities contribute financially to the expense.

Establish or strengthen community support structures. Communities should be encouraged to establish referral mechanisms, means of transporting very sick patients to the nearest health facility, means to replenish supplies, and the mechanism for sending reports. Where such support structures exist they should be promoted; where they do not exist, the communities should be sensitized and encouraged to start them. Community financing mechanisms can also be started. These can help to sustain community programmes.

F.3 Best practices and lessons learned

Strategies for improving supervision and staff motivation

- Give staff clear and detailed job descriptions so that they know what is expected of them.
 - Establish clear roles and allocate responsibility for supervision, especially if activities are being integrated into existing health programmes and activities and staff already have a range of tasks to carry out.
 - Hold regular meetings to ensure that staff at all levels are aware of plans, progress, and changes as a result of monitoring, and to exchange information about staff experiences.
 - Investigate and address the specific causes of poor motivation.
 - Ensure that volunteers receive sufficient incentives to play their expected roles and do their work well, e.g. bonus payments, recognition through prizes or awards, in-service training, promotion.
 - Budget for supervision and resources.
-
- Develop health workers' understanding of HMM so that mothers are not chastised for treating children at home and later seeking treatment for complicated malaria.
 - HMM should be completely integrated into the health system so that it is sustainable and strengthens the existing health system.
 - In Ghana, community health nurses are given extra management training and live in the community where they are responsible for CHWs.
 - Community development committees can help with supervision of CHWs and liaising with health staff, encouraging CHWs to be responsible primarily to the community.

Module G: Programme monitoring and evaluation

Tasks

- Identify activities and indicators for monitoring.
- Decide how the findings will be acted on.
- Identify sources and data collection methods.
- Design and pretest data collection tools and forms.
- Schedule monitoring.
- Review and evaluate programme objectives and activities.
- Determine sources of data for evaluation, and data collection methods.
- Plan for data gathering, data analysis, and report writing.

Monitoring is a management tool for tracking ongoing project or programme implementation. It permits follow-up of a project/programme and provides consistent and reliable information on progress through the systematic collection and use of data. Monitoring should therefore be an integral part of the scaling up of HMM, and requires data to be collected during programme implementation. The purposes of monitoring include:

- measuring progress of activities during implementation, using indicators that usually relate to quality or quantity and a particular time frame;
- highlighting which activities are being carried out well and which less well;
- providing information during implementation about specific problems and aspects that need modification;
- enabling managers to decide on allocation of resources and to identify training and supervision needs.

Evaluation is designed to check whether the established objectives were achieved. It therefore requires data to be collected both before and after a specific period of HMM project/programme implementation and operation. These data are analysed and compared data to determine whether the activities or strategies used for implementation have worked. Purposes of evaluation include:

- assessing whether the objectives have been achieved;
- looking at overall strengths and weaknesses;
- guiding the design of future phases or follow-up programmes.

To plan for monitoring and evaluation, specify the information that will be needed, how it will be used for decision-making, and how progress and impact will be measured. Plans for monitoring and evaluation should be developed at the same time as, and integrated within, plans for the whole scaling-up implementation programme.

At the beginning of the planning process, decide how monitoring and evaluation data will be collected and acted upon. Ensure that each piece of information collected has a purpose so that monitoring and evaluation are meaningful and help to advance the programme's goals and objectives.

G.1 Identify the activities and indicators for monitoring

Monitoring allows a programme to determine what activities are taking place, not taking place, or not working out as planned, so that corrections can be made along the way. It therefore requires the collection of data during programme implementation and operation. Monitoring of indicators allows problems to be identified quickly and solved. For example, monitoring could involve reviewing records of delivery of treatment to a specific number of health centres or shops, or assessing the availability of pre-packaged drugs in the community or retail shops.

First, review the programme objectives and the activities planned to achieve them, then construct indicators based on those objectives and activities. Each objective and each activity should have an indicator that will permit its follow-up. This follow-up will permit reorientation of the activity during the process and provide information for decision-making.

Indicators

Process indicators

Process indicators show whether the planned activities are being carried out (monitoring) or have been carried out (evaluation). For example, for training the indicator could be the number of target people trained or the dropout or attrition rate.

Outcome indicators

Outcome indicators monitor the results of the interventions (e.g. health care providers or drug distributors) in the target population, in terms, for example, of time between recognition of symptoms and obtaining treatment, number of patients who received drugs from CHWs or drug sellers, number of malaria cases treated as outpatients, number of severe cases referred.

Impact indicators

Impact indicators measure achievement of the proposed overall HMM objective – usually a decrease in morbidity and mortality; examples include proportion of severe cases seen at the referral centre, overall mortality in the communities.

G.2 Decide how the findings will be acted on

It is important to ensure that only useful data are collected so that effort is not expended on activities that do not contribute to programme implementation. The best way to do this is to think through how monitoring data of each type will benefit different levels and how will they be acted upon. For example,

- If you monitor drug consumption, it is easy:
 - to establish from drug distributors or sellers the average consumption over a period of time, and ensure that stocks are sufficient;
 - to stock age-specific pre-packs according to the consumption rate;
 - for the central store to also estimate required stocks according to demand.
- If the population is not purchasing the treatment:
 - the programme could find out why and address the cause;
 - look at pricing and probably subsidies;
 - find out how accessible the sellers are to the community, and improve the situation.
- If mothers are not getting treatment for their children within 24 hours, the programme can undertake an educational/behaviour change campaign targeting this group.

G.3 Identify sources and data collection methods

The programme monitoring system should be integrated, as far as possible, with the health information management system (HIMS) already existing in the country. For a few indicators, new data collection systems may need to be established, and for others existing data sources will be sufficient. For example, routine HIMS could provide information on the number of malaria patients referred to health facilities, and the number of malaria patients attending outpatient departments. For the private sector, it may be simple to track the invoices collected by businesses for all their sales; alternatively, a new system for recording sales of treatment at shops or other outlets could be established.

The staff who will conduct monitoring, and analyse and interpret the data, should be identified and trained in data collection and use. The methods of data collection that will be used to measure the selected indicators need to be defined. Possible methods for data collection include:

- Routine reports, such as:
 - routine health facility HIMS data,
 - data collected by drug distributors or CHWs,
 - records from manufacturers on volume produced and sales,
 - reports from sales outlets,
 - overall sales by community and region.
- Community registers of births and deaths.
- Supervisory visits to the communities and health facilities.
- Demographic health surveys.

- Occasional surveys to look specifically at implementation. Surveys should be limited in scope as they are labour-intensive and relatively expensive; since they are not part of the country health system, they will not normally reinforce it.
- Survey of drug shops or outlets in the target area (can include interviews with staff, examination of records of sales, observation of sales behaviours, inventory of stock).

G.4 Design and pretest data collection tools and recording forms

Design forms to collect information on drug distribution, age groups treated, and number of packs given out or sold in private sector outlets. At each level of activity, – drug production or storage level, at the national medical stores, at national or district level, at the health facility, and in the community – decide on what information is useful and how it can be collected. When designing data collection, be sure to include all the important information needed to monitor the selected indicators; omit extra information that may be “nice to know” but will not be used for decision-making.

Key issues in designing data collection tools are:

- Use indicators based on what is important to know to monitor the achievement of programme objectives, to assess the programme’s strengths and weaknesses, and to plan for future activities.
- Limit the activities being monitored to a manageable number that will provide the most useful information within the programme budget and staff limitations.
- Monitor behaviour change in the community - this is essential for the programme to succeed.
- Determine data sources and collection methods as described above in Section G.3.
- Design and pretest simple data collection tools or forms.
- Determine who will collect, analyse, and interpret evaluation data, write the report, and provide feedback.
- Set timelines for data collection, analysis, interpretation, and report writing.

G.5 Schedule monitoring

Monitoring will need to be more intensive in the early stages of a programme and it is essential to know how often data on each indicator should be collected. Decide on the timing of monitoring activities and draw up a schedule. Some activities or indicators may require weekly or monthly monitoring, whereas others may need to be measured only once or twice during a 6–12-month pilot programme. It is important to check some indicators early in the programme so that problems can be quickly identified and solved. For example, problems of delivery to drug distributors or outlets must be urgently resolved. Once the programme is established and running well, monitoring frequency can be reduced.

G.6 Review and evaluate programme objectives and activities

Evaluation requires data to be collected both before and after a given period of programme implementation and operation. It is important to review programme objectives and activities in terms of expected results. The fundamental purposes of evaluation are:

- to assess whether the objectives have been achieved;
- to look at the overall strengths and weaknesses;
- to guide the design of future phases or follow-up programmes.

It is important to match programme objectives with programme activities to ensure that sufficient activities will be carried out to meet the objectives within the proposed time frame. This will prevent evaluation being undertaken prematurely, when there is little or no chance of measuring an impact. For example, to measure the health impact of the programme, 20% of the population will need to be using the intervention. Until this level of participation has been reached, health impact evaluation would be premature.

Key issues in evaluation:

- Indicators for evaluation should be precise (an accurate measure of the phenomenon under study), reliable (consistent and dependable across applications or time), easy to interpret, and directly related to programme activities, so that a change in the indicator can be attributed to programme interventions.
- Specify the indicators/outcome on the basis of what it is important to know about the achievement of programme objectives, about programme strengths and weaknesses, and for planning future activities.
- Collect baseline data *before* programme implementation and evaluation data *after* an appropriate period of implementation.
- Limit the items to be evaluated to a manageable number that will provide the most useful information.
- Determine the sources of data for evaluation at the beginning of the project. Possible sources include:
 - interviews with members of target populations;
 - disease registries in health facilities serving target populations;
 - accumulation of monitoring results.
- Determine data collection methods. Possible methods include:
 - community surveys (baseline and follow-up), which can include interviewing family members in their homes and observing certain practices;
 - health facility and drug sales outlet surveys, which can include interviewing staff, observing sales and education behaviours, and checking stock;
 - exit interviews with families attending health facilities or purchasing treatment at drug outlets;
 - focus-group discussions with the target population (to assess perceptions of treatment acceptability, taste, and cost, and to probe for potential barriers to utilization, such as cultural factors, education, other priorities);

- special studies and surveys that can assist in understanding specific operational issues, e.g. case-control studies of malaria patients who visit health centres and their well neighbours;
- active malaria surveillance by home visits (health impact);
- mortality surveys or verbal autopsies.
- Design and pretest simple forms and questionnaires for data collection.
- Determine who will collect, analyse, and interpret data and write the report. It is essential to report on progress to donor agencies, to provide justification for future funding.

References

- Agyepong IA et al. (2002). Strategies to improve adherence to recommended chloroquine treatment regimes: a quasi-experiment in the context of integrated primary health care delivery in Ghana. *Social Science and Medicine*, 55:2215–2226.
- Ahorlu CK et al. (1997). Malaria-related beliefs and behaviour in southern Ghana: implications for treatment, prevention and control. *Tropical Medicine and International Health*, 2(5):488–499.
- Ansah EK et al. (2001). Improving adherence to malaria treatment for children: the use of pre-packed chloroquine tablets vs. chloroquine syrup. *Tropical Medicine and International Health*, 6:496–504.
- Baume C, Helitzer D, Kachur SP (2000). Patterns of care for childhood malaria in Zambia. *Social Science and Medicine*, 51:1491–1503.
- Brieger WR et al. (2002). Promoting prepackaged drugs for prompt and appropriate treatment of febrile illnesses in rural Nigerian communities. *International Quarterly of Community Health Education*, 21:19–40.
- Brugha R, Zwi A (1998). Improving the quality of private sector delivery of public health services: challenges and strategies. *Health Policy and Planning*, 13:107–120.
- Cong LD et al. (1998). Use and quality of antimalarial drugs in the private sector in Viet Nam. *Bulletin of the World Health Organization*, 76(Suppl.1):51–58.
- Diallo AB et al. (2001). Home care of malaria-infected children of less than 5 years of age in a rural area of the Republic of Guinea. *Bulletin of the World Health Organization*, 76:28–32.
- Denis MB (1998). Improving compliance with quinine + tetracycline for treatment of malaria: evaluation of health education interventions in Cambodian villages. *Bulletin of the World Health Organization*, 76(Suppl.1):43–49.
- Douglass EF, Nyambe J (1999). *A strategy for behaviour change for malaria prevention and control: Eastern Province (Zambia) Integrated Malaria Initiative*. Washington, DC, United States Agency for International Development (Activity Report EHP No. 57).
- Dunyo SK et al. (2000). Health centre versus home presumptive diagnosis of malaria in southern Ghana: implications for home-based care policy. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, 94:285–2888
- Foster SD (1991). Pricing, distribution, and use of antimalarial drugs. *Bulletin of the World Health Organization*, 69:349–363.
- Foster S (1995). Treatment of malaria outside the formal health services. *Journal of Tropical Medicine and Hygiene*, 98:29–34.
- Goel P et al. (1996). Retail pharmacies in developing countries: a behaviour and intervention framework. *Social Science and Medicine*, 42:115–116.
- Gomes M, Wayling S, Pang L (1998). Interventions to improve the use of antimalarials in South-East Asia: an overview. *Bulletin of the World Health Organization*, 76(Suppl. 1):9–19.
- Goodman CA, Coleman PG, Mills AJ (1999). Cost-effectiveness of malaria control in sub-Saharan Africa. *Lancet*, 354:378–385.

- Goodman C, Coleman P, Mills A (2000). *Economic analysis of malaria control in sub-Saharan Africa*. Geneva, Global Forum for Health Research (Strategic Research Series).
- Homedes N, Ugalde A (2001). Improving the use of pharmaceuticals through patient and community level interventions. *Social Science and Medicine*, 52:99–134.
- Kidane G, Morrow RH (2000). Teaching mothers to provide home treatment of malaria in Tigray, Ethiopia: a randomized trial. *Lancet*, 356:550–555.
- Lubanga RG et al. (1997). Maternal diagnostic and treatment of children's fever in an endemic malaria zone of Uganda: implications for the malaria control programme. *Acta Tropica*, 68:53–64.
- Marsh VM et al. (1999). Changing home treatment of childhood fevers by training shop keepers in rural Kenya. *Tropical Medicine and International Health*, 4:383–389.
- McCombie SC (1996). Treatment seeking for malaria: a review of recent research. *Social Science and Medicine*, 43:933–945.
- Namusobyia et al. (1998). Factors associated with high morbidity and mortality due to malaria in Iganga District – Uganda. Iganga, District Medical Office.
- Pagnoni F et al. (1997). A community-based programme to provide prompt and adequate treatment of presumptive malaria in children. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, 91:512–517.
- Qingun L et al. (1998). The effect of drug packaging on patients' compliance with treatment for *Plasmodium vivax* malaria in China. *Bulletin of the World Health Organization*, 76(Suppl. 1):21–27.
- Rozendaal J. *Social marketing of pre-packaged anti-malaria drugs in Cambodia* (unpublished) March 2000.
- Ruebush TK et al. (1995). Self-treatment of malaria in a rural area of western Kenya. *Bulletin of the World Health Organization*, 73:229–236.
- Sirima SB (2003). Early treatment of childhood fevers with pre-packaged antimalarial drugs in the home reduces severe malaria morbidity in Burkina Faso. *Tropical Medicine and International Health*, 8:1–7.
- Yeboah-Antwi JO et al. (2001). Impact of prepackaging antimalarial drugs on cost to patients and compliance with treatment. *Bulletin of the World Health Organization*, 79:394–399.
- Verhoef H et al. (1999). Anti-malarial drug use among preschool children in an area of seasonal malaria transmission in Kenya. *American Journal of Tropical Medicine and Hygiene*, 61:770–775.

Other useful reading

- Asenso-Okyere WK, Dzator JA (1997). Household cost of seeking malaria care. A retrospective study of two districts. *Social Science and Medicine*, 45:659–667.
- Kengeya-Kayondo JF et al (1994). Recognition, treatment-seeking behaviour and perception of cause of malaria in women in Uganda. *Acta Tropica*, 58:267–273.
- Medical Emergency Relief International (2001). *Training manual for shopkeepers on correct use of over the counter (OTC) drugs*. Nairobi, Kenya.

- Mwenesi H, Harpham T, Snow RW (1995). Child malaria treatment practices among mothers in Kenya. *Social Science and Medicine*, 40:1271–1277.
- Ofori-Adjei D, Arhinful DK (1996). Effect of training on the clinical management of malaria by medical assistants in Ghana. *Social Science and Medicine*, 42:1169–1176.
- Okonkwo PO et al. (2001). Compliance to correct dose of chloroquine in uncomplicated malaria correlates with improvement in the condition of rural Nigerian children. *Tropical Medicine and Hygiene*, 95:320–324.
- Schwe T, Myint L, Soe A (1998). Influence of blister packaging on the efficacy of artesunate + mefloquine over artesunate alone in community-based treatment of non-severe falciparum malaria in Myanmar. *Bulletin of the World Health Organization*, 76(Suppl. 1):35–41.
- Snow RW et al. (1992). The role of shops in the treatment and prevention of childhood malaria on the coast of Kenya. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, 86:237–239.
- Vundule C, Mharakurwa S (1996). Knowledge, practices, and perceptions about malaria in rural communities of Zimbabwe – relevance to malaria control. *Bulletin of the World Health Organization*, 74:55–60.
- WHO (1997). The advantages of pre-packaged antimalarials. *TDRnews*, 54:5.
- WHO (1998). Advantages of pre-packaged antimalarials. *Essential Drugs Monitor*, 25–26:20.
- WHO (1998). *Malaria*. Geneva, World Health Organization (fact sheet 94).
- WHO (1999). *Malaria: a global crisis*. Geneva, World Health Organization (Roll Back Malaria factsheet 1).
- WHO (1999). *Roll Back Malaria: a massive effort*. Geneva, World Health Organization (Roll Back Malaria factsheet 2).
- WHO/TDR (1999). Blister packages of antimalarials for babies, produced in partnership with local pharmacy. *TDRnews*, September, 60:6.
- WHO/TDR (2000). Home management of malaria: linking with the formal health care system. *TDRnews*, October, 63:11.
- WHO (2001). Survey tool will evaluate success in the community. *Roll Back Malaria News*, Issue 4.
- WHO (2001). *WHO Expert Committee on Malaria. Twentieth report*. Geneva, World Health Organization (WHO Technical Report Series, No. 892).

