MID-TERM REVIEW OF BUNGOMA DISTRICT MALARIA INITIATIVE (BDMI)

For USAID-Kenya and MOH, Kenya

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CONTENTS

LIST OF ACRONYMS

AIDS	Acquired Immuno-deficiency Syndrome
AIMI	The African Integrated Malaria Initiative
AMREF	African Medical Research Foundation
APHIA	AIDS Population and Health Integrated Assistance Project
ARI	Acute Respiratory Infection
BDMI	Bungoma District Malaria Initiative
BI	Bamako Initiative
CAs	Collaborating Agencies
CDC	Centres for Disease Control and Prevention
CDD	Control of Diarrhoeal Diseases
CIF	Community Improvement Fund
CO	Clinical Officer
CORPS	Community Owned Resource Persons
CQ	Chloroquine
DCO	District Clinical Officer
DFID	Division for International Development
DHEO	District Health Education Officer
DHMB	District Health Management Board
DHMT	District Health Management Team
DLT	District Laboratory Technologist
DMOH	District Medical Officer of Health
DMRO	District Medical Records Officer
DN	District Nutritionist
DPHC	Division of Primary Health Care
DPHN	District Public Health Nurse
DPHO	District Public Health Officer
EOT	End of Training Assessments
EPI	Expanded Programme on Immunization

FIF	Facility Improvement Fund
HCDC	Health Centre Development Committee
HIV	Human Imunno-deficiency Virus
HMIS	Health Management Information System
ICM	Integrated Case Management
IEC	Information, Education and Communication
IMCI	Integrated Management of Childhood Illness
ITMs	Insecticide Treated Materials
ITNs	Insecticide Treated Nets
JHU	John's Hopkins University
KDHS	Kenya Demographic Health Survey
KEMRI	Kenya Medical Research Institute
K-FPHCP	Kenya Finland Primary Health Care Programme
OCG	Organized Community Groups
PSI	Population Services International
QAP	Quality Assurance Project
SP	Sulfalene/salfacholine Pyramethamine
USAID	United States Agency for International Development
UNICEF	United Nations Children's Fund
WHO	World Health Organization

1. EXECUTIVE SUMMARY

Introduction

The Bungoma District Malaria Initiative (BDMI) is a five-year project (1998-2002) funded by USAID and the Kenya Government. Project objectives focus on malaria prevention and the management and treatment of febrile illness and anaemia in children and pregnant women. This was to be achieved through a partnership of the Ministry of Health (MOH), the Bungoma district community and collaborating agencies (CAs) that would provide technical assistance through training and operations research.

The expected outputs of the BDMI were:

- Health workers trained in correct diagnosis and appropriate treatment of febrile illness, anaemia and maternal malaria infection.
- Capacity for early recognition of fever and anaemia at the household level is improved.
- The distribution and use of Insecticide-treated Materials (ITMs) at the community level is increased.
- The delivery of malaria drugs through antenatal clinics for prophylaxis and presumptive treatment during pregnancy and the use of ITMs by pregnant mothers promoted.

In combination, these outputs were expected to contribute to a reduction in numbers of deaths and cases of malaria through improved access to and use of services at both the facility and community levels. This would be enhanced by a health system that has health providers with improved capability in diagnosis, treatment, counselling and interpersonal skills. At the national and district levels the project is expected to disseminate information on how to design and implement facility and community based approaches for the delivery of effective and sustainable control of malaria.

The purpose of the mid-term review is to assess the progress towards the achievement of project objectives; the current and potential contribution to child survival in Kenya; challenges and lessons learned with a view to refining the approach and strengthening future project implementation.

Main Findings

The project has been in operation for two and half years. By design, the operations research dominated the first two years of the project activities, delaying the implementation of interventions. However, the training component was initiated in the first year of the project and progress has been made towards improving the management of fever and anaemia principally among children, at the facility level.

Project management has been undertaken by various actors. It is understood that AMREF administers funds for the implementation of project activities while the DHMT is the project implementing agency. The CAs make recommendations based on their studies but the decision on what to implement is jointly made by the DHMT, USAID and CAs during the annual workplan meetings. Given that not all recommendations from all studies can be implemented through USAID funding, the DHMT is expected to make a decision on priority areas with technical advice from AMREF. AMREF may not have performed this role satisfactorily by asserting itself as the co-ordinator of the project. This may partly explain why implementation of activities was, at times, ad hoc. This is exacerbated by a limited oversight role of USAID/ Nairobi. The Mission through its senior staff has not been proactive in providing programmatic support to the project.

One of the key areas of concern is the capacity building of DHMT members to be able to carry out activities in the future. This will depend on the extent to which they have been prepared for the task. Training so far has equipped them with knowledge and skills on management of illness, and they are capable of imparting the same to others. However, there has been an omission in equipping the DHMT members with the necessary skills for data analysis report writing and appropriate use of information gathered.

Generally activities undertaken by the District Health Management Team (DHMT) are in line with the stated objectives, although some are weighted differently in terms of emphasis. Facility-based interventions have been given priority over community based ones with training and supervision having a major thrust so far.

In general, dissemination of project activities, including findings from research conducted has been inadequate and slow. Even within the project, communication between the CAs was reported to be limited. Nevertheless, the findings so far have great potential for policy and programmatic change.

Management skills were often cited as lacking among the DHMT and the in-charges of peripheral health facilities. The need for training in management was therefore presented as one of the priority needs. This is in readiness for the decentralisation process that is underway and the financial and human resource responsibilities that are expected to come with it.

It was evident that Bungoma district under the BDMI experiences constraints that are largely logistical and relate to resource availability, both financial and human. For instance even though supervision is scheduled to be carried out weekly by the DHMT, some IMCI trained providers had been supervised at most once or twice a year since they received the training. A major obstacle is the lack of transport facilities noting that there is only one reliable vehicle at the district headquarters that is assigned supervisory activities.

Sustainability of the programme was also a source of concern especially with regard to supervision. Transport at the district level is problematic. Presently the project is providing for transport and lunch allowances. It is anticipated that through cost-sharing, funds would be set aside for supervision. Already the DHMT have decided to integrate the IMCI supervision with the general supervision to maximize on the use of available resources.

At the community level, a positive response has also been harnessed through the Health Centre Development Committees (HCDCs). The funds generated under Facility Improvement Fund (FIF) and Community Improvement Fund (CIF) are partly used to purchase basic supplies particularly essential drugs and equipment for Oral Rehydration Therapy (ORT) corners. In one Community, Kaptenai, the health provider indicated that community members were beginning to notice fewer deaths in the community among children and they attributed this to the new approach at the health facility; reflecting the practice of IMCI.

In NGO facilities, ANC mothers are not given presumptive treatment with SP; if at all they are given, this is selective for those mothers who can afford to pay for it. This also applies to folic acid and ferrous sulphate tablets. In all the government health facilities visited, presumptive treatment for pregnant mothers attending ANC was provided though not always consistently and correctly. In addition, when the supply of SP is irregular at the health facility level, there is a tendency to use it for general treatment rather than prophylaxis for ANC mothers. Moreover, in facilities with Facility Improvement Funds (FIFs) that now charge for services, the provision of SP for ANC mothers is problematic since the current policy states that maternal and child health services are to be provided free of charge.

Patient referral is a major problem affecting project performance. This is not limited to Bungoma district alone but is a nationwide problem, affecting access to appropriate and quality care. Often patients referred failed to comply for a variety of reasons that included lack of transport and the fear that they may not get adequate attention at the next level.

At the stakeholders workshop it was reported that laboratory equipment in the district hospital and the health centres was obsolete. A presentation at the workshop based on assessment of microscopic diagnosis of malaria in the health facilities raised issues of concern with regard to the accuracy of the results noting that the negatives were too high with a predictive value of 93.

Community members recognise the value of nets as prevention against malaria. However the issue of availability and particularly affordability may prohibit the actual use of ITNs. The creation of demand for bednets through identified community outlets and willingness to pay for them as a means of protection against malaria will be a major achievement towards the project goals.

The issue of poverty resonated in all the discussion groups. A visit to the health facilities and a discussion with the ITN distributors within the community revealed that there is willingness among community members to use bednets as protective mechanism against malaria. However, the issue of cost is real and it is not quite clear how behaviour change can be achieved at community level in the absence of uplifted standard of living among the population to acceptable levels to enable them participate fully in the development processes and health provision in particular.

Overall, the IEC strategy as developed by BASICS was very clear on the activities to be implemented and the mechanisms for doing this. Initially the implementation of the IEC component was by different CAs who developed and disseminated activities without coordinating and harmonizing messages, resulting in overlap and overload to the community. Currently AMREF is responsible for IEC and it is hoped that coordination and harmonization of IEC messages will be one of the tasks AMREF undertakes to avoid overlap and duplication of information while maximizing on available resources.

In terms of a strategic approach, the BDMI blends very well with the IMCI. The latter has been embraced by health providers who value the systematic management applied to a sick child. This approach is also appreciated by caretakers as being comprehensive. It is evident that the two components of IMCI - improving case management skills for health workers and improving the health system to deliver IMCI - are being addressed within this project.

However, to realize the full potential of BDMI in addressing child survival, an aspect of the strategy aimed at the community will be crucial in the remaining part of the project. This was emphasized at all levels including CAs, policy makers, service providers and other stakeholders working on child survival.

Within the project there are data that have been collected on behavioural and preventive aspects of health. The Centres for Diseases Prevention and Control (CDC) research on malaria in pregnancy indicates that in terms of home care and care-seeking practices, caretakers are principle providers of anti-malarial treatment to children with fever. This provides a strong evidence base for undertaking community–based approaches, which would complement the activities currently being implemented at the facility level. By focussing on caretakers as a means to achieve the project goals and objectives one would simultaneously address improving compliance to appropriate treatment which remains a major challenge to the success of IMCI and consequently child survival.

Conclusion

BDMI as an integrated child survival project is doing more than IMCI. Although the programmatic focus of BDMI has been on malaria, the introduction of IMCI as a mechanism for accelerating its objectives reintroduces a broader child health perspective to the project. It provides a logical platform for cross- sectional collaboration and integration of child health strategies in immunisation, nutrition, HIV/AIDS, among others to occur. Given the point that it includes a substantial component of maternal health, it is simultaneously addressing the issue of safe motherhood and child survival, which is a key component in the National Reproductive Health strategy.

Project activities are on course and research findings are available even though these have not been systematically disseminated. This arises partly from the fact that AMREF as the co-ordinator of the project has not asserted itself enough to provide technical leadership and a framework within which the CAs were to operate.

This is exacerbated by a limited oversight role of USAID/ Nairobi. The Mission through its senior staff has not been proactive in providing programmatic support to the project.

Furthermore communication and co-ordination in general were said to be problematic This is particularly in reference to internal sharing of reports among the CAs. Whereas it had been agreed that quarterly reports would be circulated to all CAs to date this has not happened. Similarly at the November 1999 planning meeting it was agreed that an electronic database of BDMI documents would be created to which all CAs would contribute. However only CDC is reported to have undertaken this.

The DHMT raised their lack of management skills. Equipping the DHMT with these skills and their participation would allow for a sense of ownership as well as demonstrated partnership and capacity building as stipulated in the project goal and objectives. In addition it was felt that the roles and responsibilities of the project deputy manager were not clear and formalised. Both concerns are critical for capacity building.

Bungoma district has just embarked on a range of activities that simultaneously touch on all the five project objectives. A community-based component is already evolving, and drawing from experiences of other donors and collaborating agencies, it is likely to contribute to achieving the project outputs and consequently its goals. This is likely to result in a BDMI working model that could be replicated nationally with appropriate modifications through the planned national adaptation of IMCI.

There is potential for community participation particularly in drug supply although the issue of gazettement will need to be clarified by the MOH.

Patient referral remains problematic and is a major challenge to practice and success of IMCI. To address the problems presented by patient referral will require harnessing both facility-based and community-based resources.

The study intervention namely, problem-solving teams may not have been adequately understood or defined prior to the start of the study as evidenced by the difficult start-up. An inexperienced trainer was used to introduce the approach and the subsequent need was to re-train the teams as well as provide substantial 'coaching' or external support to apply the problem-solving steps. It is acknowledged that 10 senior health workers, 5 of whom are DHMT members were trained in Quality Assurance concepts and methodology. Yet from the discussions with the DHMT, the activity seemed to lack adequate ownership at this level and the expected improvements in IMCI as a result of this approach were not realised.

To monitor trends in malaria morbidity and service utilisation rates, a basic tool is record keeping at the health facilities. From the workshop presentation on Health Information System (HIS), follow-up discussions with relevant officers, health providers and observations at health facilities, it is clear that this component of BDMI is the weakest. At the time of the review there was an exercise to pilot data collection forms in selected health facilities and at the community level. However, at the moment these are project specific and there is a danger that they may not be applicable nationally given that the MOH headquarters has not been involved in their development for standardisation.

On evaluation and observation, health providers still have difficulty in recognising severe illness among children. In one facility a pregnant woman was given SPs in the ninth month. This is a pointer to the need to revisit the training strategy and supervisory mechanisms that would facilitate retention of skills through practice and assessments.

The results from the study on assessment of microscopic diagnosis of malaria raised the issue of quality control. This calls for training of laboratory personnel given the importance of malaria microscopy at the higher referral levels.

Training and supervision are the most expensive aspects of the IMCI. For cost-effectiveness of the IMCI strategy pre-service training is an option. This is already being implemented at the Universities of Addis Ababa, Ethiopia and Dares-Salaam, Tanzania.

The review team learned that some of the components are already being taught to students at the Medical School, University of Nairobi, Kenya. There are plans to extend to medical training colleges and nursing schools. Medical officers posted to the field and who are already acquainted with IMCI would be informed supervisors who would steer child survival activities within the district.

At the beginning of the initiative, there may have been some misgivings at the national level, principally because the project approaches and activities may not have been very clear to all parties, but with time this has changed. Recently different MOH personnel have participated at various levels as part of the project implementation including training, provision of malaria guidelines for training and participation in the project quarterly meetings. From the discussions with MOH senior staff, it was evident that BDMI is expected to provide insights into the implementation of IMCI nationally.

Recommendations

Consolidation of the IMCI activities in Bungoma rather than expansion of the same to other parts of Kenya should be a priority for the project. Expansion could still be achieved by providing a working BDMI model, which could be replicated nationally, with appropriate modifications, through the planned national adaptation of IMCI**.** To this end, USAID can contribute at the policy level by participating more actively in the review of the adaptation process and facilitating the dissemination of findings of the project so far.

USAID senior health staff could play a more active role in representing the achievements of BDMI at the national level by participating in relevant task forces/technical committees. This would serve to bridge this pilot USAID-funded activity with national malaria control, IMCI, RBM and other related strategies currently under development as well as help leverage the resources of other development partners.

In project management USAID/Kenya will need to strengthen its oversight role such that if the implementation and monitoring needs of the Mission are not being met by the current reporting process the issues should be raised promptly with AMREF management. In the same vein, there is need for greater AMREF/Nairobi senior staff involvement in the project to provide the needed technical backup to the project manager in Bungoma. This would ensure that priority areas agreed upon at the planning meetings are addressed in a timely manner and that the CAs adhere to these requirements. Additionally, AMREF as the co-ordinator should be more proactive in facilitating communication between the CAs. This is especially so with regard to distribution of reports among the CAs to promote awareness of each other's activities and how they fit together in the overall objectives and goal of the project.

USAID and implementing partners should review the current monitoring and evaluation strategy. This should distinguish between the need for programmatic (activity-level) data that would allow USAID and project managers to make interim adjustments/corrections in specific project areas, and the need for more rigorous measures of district-level performance and impact.

The working relationships of the CAs and accountability to the DHMT were reported to have greatly improved. However, USAID should consider formalizing the position of the DHMT deputy manager in the contract agreement in order to facilitate the administration of the project, particularly in the absence of the AMREF coordinator.

To facilitate acquisition of management skills for DHMT members and health facility in-charges, the project will need to identify and organise for short-term management courses that are available locally.

In the second half of the project it will be timely to forge a true linkage between organisations that work in child survival activities, the Division of Primary Health Care (DPHC) as well as the BDMI. Presently Siaya district under Care-Kenya offers a Community-based model for IMCI and may provide insights for replication in Bungoma district.

There is good information already collected on behavioral and preventive aspects of health which provides a strong evidence base for undertaking community–based approaches. Should such an approach be undertaken, they should build on the existing community structures and activities of CBOs and NGOs working to address the key IMCI household and community behaviors, and forge multi-sectoral linkages across Ministry departments and among organizations working in child survival.

The need for alternatives to the current modes of supervision should be explored given that transport and allowances are currently provided by BDMI. The expectation is that the DHMT will somehow absorb these costs once the project ends, but to sustain the intensity and frequency of current visits will require some considerable planning and mobilisation of additional resources, including at community level.

Based on the premise that routine points of intervention work better; building on them rather than creating new structures is a cost-effective approach to improving maternal and child health. In this respect, AMREF should harmonise the IEC strategy with opportunities for intervention principally at the ANC level, while strengthening the existing points of outlets for ITNs. The original BASICS framework could also be re-visited to provide guidance in this exercise.

Given that the government fully supports a social marketing strategy, it would be worthwhile from the onset that this strategy and a community-based distribution strategy be combined in order to increase access to ITNs. In this respect, Population Services International (PSI) has had experience with social marketing of bednets in the coastal

region and it would be worthwhile to explore links between AMREF and PSI for social marketing of nets in Western Kenya. This initiative should be facilitated by USAID.

Community-owned resource persons (CORPS) and drug vendors handle drugs such as SPs. These drugs are gazetted as part II poison. BDMI should seek clarification from the National Malaria Control Programme and the Pharmaceutical Board to avert the fear by CORPS of being prosecuted for handling prohibited drugs.

SPs are not always prescribed for pregnant mothers as providers are not sure whether to charge or not; given that as a policy ANC services are free. It is therefore important for MOH to ensure that adequate supply of SPs is included in the drug kit for use in MCH/FP.

Community pharmacy is a cost-effective strategy that fills the gap created by drug shortage at the health facility level while making drugs more available at the community level. They are complementary to drug vendors and shopkeepers, ensuring access to treatment at the community level. This is made possible by the Community Improvement Fund (CIF). However, the MOH headquarters needs to formalize and regulate CIF within a legal framework to counter exploitation and abuse**.** At the moment the MOH at the district level has no control over the finances and the expenditures of these pharmacies. Subsequently the team has learnt from DHMT that the Division of health care financing is in the process of preparing regulatory mechanisms to address the issue but will not control the funds raised under CIF.

The issue of patient referral requires review at the national level in terms of appropriately equipping the health facility and especially ensuring that there is a functional ambulance at the district level. More importantly, community participation should be harnessed to realize their role in facilitating referral using available local means and resources.

Malaria microscopy is more critical at higher referral levels since most dispensaries do not have laboratory facilities. But adequate equipment, supervision and quality control as

well as refresher training for the laboratory staff should be provided in those facilities where microscopy is available.

For improved management of IMCI there is need for repeated exposure to a high concentration of severe cases. This would then facilitate better practice and allow for frequent assessment and evaluation as required. This may only be possible in large hospital settings on a rotational basis, six months after training. This arrangement should be explored for its feasibility.

At the moment only a select group of professional health providers and some DHMT members have received IMCI training. All Medical Officers and all DHMT members in Bungoma district should undergo IMCI training to facilitate their role as supervisors and to ensure appropriate management of children who have been referred from other health facilities and the community level. IMCI training needs in private NGO facilities should also be examined as well as pre-service alternatives. Training of CORPs should be supported by a strategy to ensure that adequate monitoring and supervision are available.

At this point in time basic data will be necessary against which indicators will be tracked partly to monitor project activities and subsequently measure impact at the end of the project. At the time of the review, data collection instruments were being piloted in selected health facilities and at the community level. It will be crucial to liase with the MOH headquarters at the onset to standardize the instruments for national application. Again, the team has learnt that this process has been initiated by AMREF.

More importantly, given the fact that there was a prior system in place that has since collapsed it may be cost-effective to rehabilitate this system through provision of supplies particularly tally sheets and retraining of data collection staff to re-orient them on the importance of collecting data. This is crucial for the project in that as it moves into implementation, indicators for monitoring would have to be tracked on baseline data.

The approach of QAP teams was acknowledged to have value as a management concept, although the discussions around its practical usage remained diffuse. In light of these findings, the DHMT, QAP and other CAs should re-evaluate the contribution of this team-based approach towards the achievement of BDMI objectives, and critically assess the 'value added' of this activity given the remaining time and resource constraints of the project and modify implementation as needed.

Given the short time remaining in the project, more consideration should be given to maximising the use of prior research i.e. implementing the recommendations, before embarking on new ones. Any future research should perhaps focus on assessing the effectiveness of the interventions currently underway in the true spirit of 'operations research', although exceptions, such as formative work to explore the problem of misclassification of severe illness, may be needed.

Dissemination of project activities, including findings from research conducted is yet to occur. The findings so far have great potential for policy and programmatic change. In principle the IMCI approach in Bungoma is accepted within the national health policy and is in line with the national adaptation process. Similarly, linkages to the National Malaria Control Programme are quite strong. It is expected that the Bungoma experience would help inform the national agenda for expansion of IMCI and new initiatives such as RBM. USAID/Kenya could again, effectively broker this. This would be to a broader audience consisting of researchers in maternal and child health, policy makers, senior IMCI programme staff, other related health providers especially at district levels and the donor community working in maternal health and child survival.

3. BACKGROUND

Introduction

The gains made in child health previously in Kenya have been lost as reflected in the latest Kenya Demographic and Health Survey (KDHS) of 1998. The Survey revealed that the under fives mortality has risen from about 80 deaths per 1,000 live births to currently 112 deaths per 1,000 live births during the1990s. Maternal mortality ratio of 590 per 100,000 live births was also reported. This is in spite of the existence of a health system that has attempted to address areas of morbidity and mortality in the two decades preceding 2000. The establishment of the maternal and child health (MCH) programme was a step toward better health for mothers and their children, but along the way some obstacles have arisen, influencing negatively the expected outcomes. A key issue is the resistance to the traditional chloroquine treatment for malaria, a leading cause of morbidity and mortality.

Malaria remains the leading cause of morbidity and mortality, and therefore a major public health problem in Africa. Between 300 and 500 million episodes of malaria and 1.5 to 2.5 million deaths occur annually in Africa. At least 14,000 children in Kenya require admission each year due to complicated malaria. Approximately 26,000 children die each year from direct consequences of malaria infection. In Bungoma district malaria prevalence rate across all ages is up to 75%, and accounts for 39% of outpatient morbidity and 42% of inpatient morbidity. Inpatient mortality of 36% is directly caused by malaria. Specifically 20% to 25% of childhood deaths are due to malaria. The resistance to chloroquine has complicated treatment of malaria, which has been easily available and affordable. Bungoma district is located in the Lake Victoria Basin, which has a high resistance rate of the malaria parasite to chloroquine to the tune of 85% (Bungoma District Health Annual Report, 1995).

The Kenya Health Policy Framework Paper (1994) proposes strengthening of activities directed at the reduction of morbidity and mortality due to malaria. In order to achieve this, one of the priorities of the Ministry of Health is appropriate retraining of health workers at all levels on current treatment of malaria. In response to this, the Ministry of Health launched new national guidelines for diagnosis, treatment and prevention of malaria in 1998. According to the new guidelines sulfadoxine/ sulfalene pyrimethamine (SP) is the first line drug for treatment of simple malaria. In 1999 SP was gazetted as Part II Poison drug and is available over the counter while chloroquine was rescheduled to a prescription drug under Part I Poison drug.

The new guidelines also recommended presumptive treatment of malaria during pregnancy by administration of a dose of SP at the beginning of the second trimester, and a second dose at the beginning of the third trimester. The new guidelines are in use in Bungoma district under the Bungoma District Malaria Initiative (BDMI).

A. The Bungoma District Malaria Initiative (BDMI) [1]

The Bungoma District Malaria Initiative (BDMI) is a five-year project (1998-2002) funded by USAID and the Kenya Government at an estimated cost of US$ 5 million. BDMI is part of USAID's regional **"The Africa Integrated Malaria Initiative" (AIMI)** which is being implemented in three other African countries: Zambia, Malawi and Benin. The aim of the initiative is to explore programmatic options for reducing morbidity and mortality among children under the age of five years and among pregnant women, and to strengthen local capacity to deliver effective and sustainable integrated malaria control at the health facility level.

In Kenya, Bungoma District was selected as part of USAID/Kenya's District Focus component of its Child Survival APHIA Project.[2] The following criteria were used:

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[1] The project has also been known as the Bungoma District Initiative, or BDI project, but was renamed the Bungoma District Malaria Initiative, or BDMI, by the DHMT

- high malaria burden among vulnerable populations
- variety of service delivery environments as indicated by both urban and rural service needs
- opportunities to collaborate and build upon prior USAID Integrated case management (ICM) and FINNIDA investments in infrastructure and capacity building.
- feasibility of improving management and financial operations as indicated by adequate potential for cost sharing.
- availability of resources as indicated by adequate ratios of beds and staff per capita and the mix of facility levels represented.
- adequately diverse service provider pool, indicated by presence of NGOs and private providers.
- approval by the Ministry of Health

The activities of the BDMI project were begun in 1996, although the project was not formally launched until March 1998. During this time, the Kenya-Finland Primary Health Care Programme which had for an extended period supported the rehabilitation of health sector infrastructure, focusing on upgrading health worker skills as well as strengthening community-based MCH and water and sanitation services, withdrew its support.

The main project partners are the MOH, the Bungoma District community, and collaborating agencies (CAs): the Centres for Disease Control and Prevention (CDC), the Quality Assurance Project (QAP), AMREF, and formerly BASICS (Basic Support for Institutionalizing Child Survival). The CDC and QAP are USA-based groups providing technical assistance to BDMI through training and operations research. AMREF, a

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[2] APHIA Project's District Focus aimed to demonstrate impact and programme synergies achievable through integrated service delivery in the public and NGO sectors; by developing and testing innovative and sustainable approaches for maternal and child health, including management and prevention of malaria-related morbidity and mortality; and by strengthening managerial and financial operations at district level.

Kenya-based NGO, provides both technical inputs as well as project coordination, while the District Health Management Team (DHMT) is tasked with overall field implementation as well as technical leadership and management oversight.

B. Project Objectives

The project is expected to contribute to the broader goal of reduced malaria-related mortality and morbidity in Bungoma District through the achievement of the following objectives.

- Improved management of fever and anaemia, principally among children under five years of age by health workers at the health facility.
- Improved capability of mothers and other caretakers to manage fever and anaemia at household level.
- Improved prevention and management of malaria in pregnancy.
- Increased household use of insecticide-treated materials.
- Effective collection and use of information for planning, monitoring and evaluation.

The activities intended to address these objectives are: -

- Training health workers in correct diagnosis and appropriate treatment of febrile illness, anaemia and maternal malaria infection.
- Educating mothers and other caretakers on early symptoms of malaria and appropriate health seeking behaviour.
- Promoting the distribution of ITMs through micro-enterprise and education of households on their appropriate use.
- Promotion of the delivery of malaria drugs through antenatal clinics either as routine prophylaxis or presumptive treatment during pregnancy and the use of ITMs by pregnant mothers.

C. Expected Accomplishments over the Five-year Project Period

People-Level Impact

- Reduction in the numbers of deaths and cases of severe illness attributable to malaria infection through improved access to and use of service for diagnosis and treatment of malaria infection.
- Reduction in malaria infection through improved access to and use of insecticide-treated materials.

Community/household-Level Impact

- Increased capacity at the household level for early recognition of the signs of febrile illness by mothers and other caretakers, leading to prompt and appropriate health-seeking behaviour for malaria management.
- Increased recognition of the high risk of maternal infection and demand for appropriate chemoprophylaxis treatment.
- Increased access to appropriate and affordable antimalarials.
- Increased demand for and access to insecticide-treated materials and insecticides.

Health Facility–Level Impact

- Improved capability of clinicians to diagnose and treat febrile illness, anaemia and maternal malaria infection, including referral and management of complicated illness, counselling caretakers, and interpersonal communication.
- More cost effective use of human and material resources through improved planning, management, training and supervision.

National and Regional-Level Impact

- Dissemination of information on how to design and implement facility and community-based approaches for the delivery of effective and sustainable control of malaria.

E. BDMI MID-TERM EVALUATION

i. Evaluation Objectives

This evaluation marks the completion of two and a half years of the BDMI project. The purpose of the evaluation is to review mid-term progress towards the achievement of project objectives, assess current and potential contribution of the project to child survival in Kenya, and document challenges and lessons learned with a view to refining the approach and strengthening future project implementation. (See also attached Scope of Work - Appendix I)

ii. Methodology

The evaluation team used a variety of approaches to address the terms of reference. At a two-day workshop, the DHMT and Collaborating Agencies (CAs) presented status reports on their project activities in relation to the BDMI objectives. The roles and inputs of these agencies at the different stages of the initiative were discussed, focusing on their successes and constraints. Due to scheduling difficulties and other reasons, the workshop was convened very early in the process as the evaluation team had only been in place for a few days prior to the start of the meetings. As a result, a number of issues identified during the site visits in the subsequent week could not be adequately vetted with the implementing partners, although the team attempted to validate findings through available proxy measures.

The evaluation team conducted interviews with community representatives, caretakers, pregnant women and service providers at health facilities. Issues discussed at community level included perspectives on malaria and its current management at the health facility, any changes or improvements they would like to see, as well as their perceived role in the management of malaria. Key issues related to malaria treatment, its prevention and the sustainability of project activities were discussed.

In addition to site visits, background documents and annual project reports were also reviewed, and information was obtained from other key stakeholders. The latter included interviews with the central MOH, the implementing partners: African Research and Medical Foundation (AMREF), Centres for Diseases Prevention and Control (CDC), and the Quality Assurance Project (QAP), USAID/Kenya and USAID/Washington, and members of the DHMT. The views of technical staff from UNICEF, WHO and DFID were also sought.

3.0 FINDINGS

3.1 PROJECT MANAGEMENT

A. The Role of AMREF and the DHMT

The project management structure is comprised of a project manager (appointed by AMREF), a deputy project manager (a member of the DHMT) and a project accountant (appointed by AMREF). Though the roles and responsibilities of AMREF in partnership with the DHMT were said to be delineated and understood, the terms of reference of the DHMT deputy project manager are not formalised contractually.

USAID wished to contract a Kenya-based NGO to manage and coordinate all of USAID's technical and program support to the initiative. Though initially AMREF signed the contract to coordinate the BDMI project, AMREF assumed some technical responsibilities (i.e. implementation of the ITNs component of the project) in order to fill

the gaps not taken up by CAs. However, the co-ordination role of the project has had some shortcoming. The project manager has not received adequate support from the senior staff of AMREF. In this respect, through the project manager, AMREF has not sufficiently asserted itself in co-ordinating the activities of the other CAs and advising USAID accordingly.

The BDMI embraces a local partnership comprising various actors; the DHMT and the Collaborating Agencies (CAs). The roles and responsibilities are stipulated in the project document with the DHMT as the implementor and the CAs providing technical support. There are several modalities of coordination including annual meetings of all the CAs during which the next set of activities are planned and discussed together as a team.

Initially there appeared to be some confusion in the management and co-ordination of the various project activities, often leading to ad hoc implementation of activities by the CAs; who apart from AMREF were not based within the district with less accountability to the DHMT. The project design allowed for many actors but lacked a strong central mechanism of control. This administrative arrangement caused planning and implementation problems for the BDMI project. For example, by design the CAs' research was expected to inform the selection of intervention strategies. However, feedback of research findings to the district often took a long time and, as a result, the project did not move from research to implementation as planned.

The lack of adequate coordination of activities caused undue stress on the DHMT who had other responsibilities over and above the BDMI. This has since been rectified following the development of implementation ground rules by the DHMT. Within this arrangement, the DHMT defines the planning process under which the CAs must operate. This new arrangement was reportedly working well for all the parties.

The need for a stronger DHMT role in the CAs' activities was further addressed by AMREF. A DHMT counterpart was attached to every CA activity and this also ensured equitable distribution of tasks among DHMT members. The relationship between the

various parties had also been strained in other areas. For example, in terms of payment of allowances the DHMT expected more than the rate as paid by AMREF. This was discussed and a rate agreeable to all the parties was established.

i. Discussion & Recommendations on the Role of AMREF & DHMT

AMREF as the technical body designated to provide guidance to the project and advice USAID accordingly has not sufficiently exerted itself. Thus the co-ordination and advisory roles have not been performed to satisfactorily. Despite some 'hiccups' early on in the management of the project, the working relationships of the various implementing partners and accountability to the DHMT were reported to have greatly improved. In particular, technical leadership and ownership of the project by the DHMT has been re-enforced through its efforts to develop operational ground rules for the CAs and through the designation of DHMT counterparts to every CA activity. However, AMREF will need to ensure that priority areas identified are addressed appropriately and timely feedback to USAID/Kenya is provided.

That said, USAID should consider formalizing the position of the DHMT deputy manager in the contract agreement. It was felt that the deputy manager should be given more authority in decision-making not only to facilitate operations in the absence of the project manager but also as an element of capacity building. A formal agreement would give legitimacy to this expressed concern of the District.

B. The role of USAID/Kenya

The role of the USAID/Kenya Mission, as described by the 1st Year Plan, was to provide direct management and technical assistance, through the AMREF mechanism, in support of in-service training, behavioural change, improved management and administrative systems, quality assurance and health financing, operational research, and where appropriate provide resources for commodity procurements.

USAID/Kenya monitors the project principally through three mechanisms namely:

- Quarterly meetings comprising the project manager, members of the DHMT, a member of the DHMB and the National Malaria Control Programme. At this meeting the project manager presents a summary of the programme, highlighting progress and constraints. This affords an opportunity to raise policy issues that the government representative can respond to or take note of for further action.

- Quarterly programme reports, which are prepared jointly by the project manager and the DHMT. These usually constitute the objectives and activities for the last three months. They would also include plans for the next three months. The quarterly reports are basically narrative rather than analytical in content, making them less useful for USAID monitoring purposes. The extent to which these reports were disseminated and read by other internal USAID staff or by the implementing partners was not reported.

- The USAID programme officer responsible for the project makes quarterly field trips. Frequent correspondence and communication among the various implementing partners and with AIMI staff at USAID/Washington as needed complement these field trips.

i. Discussion & Recommendations on the Role of USAID/Kenya

USAID/Kenya has provided both managerial and technical support to the formation of the BDMI project. It was felt, however, that senior health staff at the Mission has not provided sufficient programmatic direction. Additionally USAID/Kenya has not been active enough in representing Bungoma accomplishments and issues at the national level. By way of example, the contribution of relevant operations research findings (discussed later in this report) to the planning and implementation of child health strategies such as IMCI, and the policy implications of Bungoma's district-level demonstration activities, require vetting and dissemination at the national level in order to inform the national

planning process. The MOH and some donors are currently taking note of the work being undertaken in Bungoma and much could be gained, programmatically, by having USAID broker some of the ongoing discussions around the Bungoma experience.

USAID senior health staff could play a more active role in representing the achievements of BDMI at the national level by participating in the relevant task forces/technical committees. This would serve to bridge this pilot USAID-funded project with national malaria control, IMCI, RBM, and other related strategies currently under development. Such a link would facilitate leverage of resources from other development partners.

Furthermore, if the current reporting process is not meeting the project monitoring needs of the Mission, the issues should be raised with AMREF management. This may require that USAID and implementing partners review the current monitoring and evaluation strategy. This was not well articulated to the evaluation team and subsequently not adequately assessed. In particular, the strategy should distinguish between the need for programmatic or activity-level data that would allow USAID and project management to make interim adjustments in specific project areas, and the need for more rigorous measures of district-level performance and impact.

C. Funding Mechanisms

The BDMI is jointly funded by the USAID with in kind contributions from the Government of Kenya. USAID is providing, on average, funds in the amount of US $ 1 million annually. The funds are channelled through AMREF headquarters (USA); CDC (Atlanta, USA); and QAP/Bethesda. The Collaborating Agencies (CAs): CDC and QAP were funded on the basis of agreed upon activities. Local costs, however, were paid by AMREF.

From March 2000, under the USAID's bilateral support to Kenya, a direct agreement between the USAID office in Nairobi and AMREF/Kenya was signed in the amount of US. 450,000 dollars, excluding the local costs for CAs. The CAs are now expected to

incorporate the local cost component in their overall budget. This arrangement is expected to streamline disbursements and improve the management process of the project. The affected CAs have indicated their dissatisfaction with this arrangement due to the possible inconveniences that it could entail. In this regard, the affected CAs have requested to channel funds for local costs through AMREF under the agreement between USAID/Washington and AMREF/USA. USAID/Washington has agreed to this proposal but will implement it only after October 2000.

3.2 Project Implementation

A number of project activities were planned on annual basis although the project agreement is for a five-year period. For the period under review, reference is made to the work plans for the years 1998, 1999 and 2000. Due caution has been paid to the work plan for the year 2000 since the review has occurred about mid-way of that year.

Project activities in the first year (1998) were concentrated on operations research and the rehabilitation of the District health facilities mainly at the District hospital. In addition, it was devoted to establishment of the project office through personnel recruitment, procurement of project equipment and related supplies, and vehicle rehabilitation.

During the first year, 9 operations researches, 3 training programmes and 2 workshops were planned. These activities were undertaken except for operations research where 7 researches were conducted. Based on the training, health workers began to apply their skills towards improved management of fever and anaemia at the health facility level.

The second year (1999) was devoted to operations researches, training programmes, problem-solving teams, IMCI and DHMT supervisory visits. It was also the period when IEC materials were planned for implementation. In addition procurement of vehicles, laboratory diagnostic and office equipment were purchased. Most of these activities were undertaken as planned. However the IEC component was not implemented because of the expiry of the contract of BASICS with USAID. A few other activities did not fully meet

their implementation levels for instance operations research where 5 out of 8 researches were implemented, training of health workers on the new guidelines on diagnosis and treatment, prevention and control of malaria and both IMCI and DHMT supervision.

Issues arising from the first two years of the project relate to the design of the project. It was expected that the first year of the project would be devoted to operations researches alongside logistical activities. The operations researches were supposed to inform the interventions to follow in the second year of the project. However this did not happen as planned as operations researches were carried over to the second year delaying the start-up of activities.

During the year 2000, planning of specific intervention activities was provided for under each objective and this marked the beginning of a full-fledged intervention phase of the project.

The following sections organise the achievements of each activity as well as recommendations for their improvement around the objective under which they were to contribute.

B. Objective 1: *Improved management of fever and anaemia, principally among children under five years of age by health workers at the health facility*

Eight activities are planned under the **case management at facility level objective**. These include training of health workers in case management, adaptation of national IMCI materials to district level, review of IMCI referral registers and also undertake DHMT & IMCI supervision. On the whole the implementation of activities under case management at facility level objective is on schedule. Some of the activities that are ongoing include DHMT and IMCI supervision, coaching and support of teams. The only activity that is yet to commence is the development of clinical guidelines for malaria microscopy.

The use of IMCI as the main mechanism for accelerating this BDMI objective is consistent with global initiatives (such as AIMI and WHO/Rollback Malaria), and with the MOH's own strategies to reduce malaria-related morbidity/mortality and strengthen local capacity to deliver effective integrated malaria control. The IMCI activities undertaken so far within BDMI contribute, in some measure, to all three components of the WHO implementation strategy:

IMCI's first component primarily involves the improvement of health workers' skills and practices at the health facility level using a systematic, clinically tested approach to case management of malaria in children under five years of age and pregnant mothers. The approach also includes preventive and promotional activities at the facility level including encouragement of breast-feeding and promotion of Vitamin A supplementation.

In its second component, improving health systems, IMCI requires that SP and pre-referral drugs like quinine are made available and, through the IMCI adaptation process, ensures that corresponding changes are made to anti-malarial drug policy. Adequate monitoring, supervision, and referral systems are also major considerations, as are mechanisms to improve the organisation of work.

The operational aspects of the third component, improving family and community practices, are currently being explored for Bungoma District. This component promotes 16 key practices at the family/household level for improved child survival, growth and development, many of which contribute to malaria control strategies at the community level. This incidentally is consistent with the recommendation of the APHIA mid-term evaluation team to adopt an overriding community-based approach in targeted districts.

i. IMCI Training

Training ranks high in the priorities of the Ministry of Health as spelled out in the Health Sector Policy Framework. The BDMI project integrates training within the DHMT's planned annual activities.

A variety of training activities relating to IMCI have been conducted as follows:

- 125 operational health workers from both the GOK and NGO health facilities;
- Ten teams from ten rural health facilities have undergone a problem-solving/quality assurance course;
- 813 health workers have been trained on new guidelines on malaria diagnosis, treatment and prevention;
- 80 public health officers and public health technicians have been trained on the use of insecticide-treated nets;
- 6 DHMT members have been trained on TOF;
- Two DHMT members have been trained in IMCI in Tanzania.
- An unspecified number of DHMT and facility-level staff have been trained in the conduct of health facility assessments which utilise IMCI performance indicators and in relevant community-based surveys

Future training will include some training in the local adaptations for IMCI, refresher training in the new malaria guidelines as needed, and proposed training for Community Owned Resource Persons (CORPs) in the simplified malaria guidelines as well as training of TBAs (see Objective 3).

a. Discussion & Recommendations for IMCI Training

CDC's health facility surveys and post-training IMCI evaluations confirm that training improves performance, but the data also indicate that significant problems still exist in the assessment and management of severe illnesses. This may be due in part to the infrequent number of severe cases seen by IMCI trained health workers at the first level referral facilities and perhaps could be remedied by exposing these staff to more cases in a larger hospital setting. Additionally, the problem could be one requiring more focused monitoring and supervision post-training, or if it is a behavioural issue then some formative work may be needed to explore the underlying causes.

In any case, these are critical issues, which should be investigated through additional operations research. The relative 'seriousness' of the problem of misclassifying severe illness by IMCI trained health workers should be examined as this will have programmatic implications for the expansion of IMCI and the achievement of project outcomes. At present, the DHMT and implementing partners should re-think the current strategy being employed to train health workers in IMCI and should explore ways; such as gaining practical experience with severe cases in a larger hospital setting to strengthen post-training performance in these areas.

A number of health workers at first level referral sites have been trained in IMCI and the initiative is ongoing. However some consideration should be given to train medical officers and other cadres of health staff who have not yet been trained but who will have responsibility for supervising IMCI trained staff.

On-the-job training for IMCI is being undertaken in some of the government health facilities but in the NGO sector this is minimal. A CDC report (September 1999) identified a number of qualities of care issues within non-government facilities. As such, the DHMT and partners should further explore IMCI performance issues and training needs in private, NGO facilities.

IMCI training is one of the more costly activities for the MOH. As a cost-effective alternative, pre-service IMCI training may be an option. The review team learned that some of the components were already being taught to students at the Medical School, University of Nairobi, Kenya. There are plans to extend to medical training colleges and nursing schools. Medical officers posted to the field and who are already acquainted with IMCI would be informed supervisors, and have the ability to initiate and coordinate training for their staff at the facility level.

Community Resource Persons (CORPs) completed simplified guidelines in 1998 for use, but training was held up because the guidelines could not be reproduced and disseminated. In any case, the training of CORPs is not supported by a strategy to ensure

that adequate supervision will be available. Based on past training experience, the idea of CORPs 'going solo' is reportedly a common and possibly dangerous occurrence. This suggests that the DHMT should begin to identify possible incentives as well as supervisory mechanisms to ensure a higher return from this training exercise. Other training activities and issues are discussed within the context of specific project activities reported in subsequent sections of this report.

ii. Supervision

Retention and refinement of skills is improved and sustained through frequent and supportive supervision. Supervision was reported by the supervisors to be inadequate and health providers confirmed this in the field. There are three types of supervision: The general DHMT supervision of rural health facilities (both the GOK and NGO), IMCI supervision and QAP supervision.

a. General DHMT Supervision

Supervision of Governmental and Non-governmental health facilities by the DHMT is critical. This supervision provides an avenue for the overall improvement of health services through interpretation and implementation of the Ministry of Health (MOH) policies at the district level.

The DHMT is provided with a standard checklist for supervision. Initially the DHMT used to undertake supervisory functions twice every week. However, these have been reduced presently to once a week. Currently, the BDMI supports supervision with the provision of transport and allowances.

b. IMCI Supervision

IMCI supervision is geared towards ensuring that IMCI trained health workers maintain knowledge and skills gained during the training as well as up-dating those skills. It also

enlists the support of the Health Centre Development Committees (HCDC) to supplement drugs and other supplies in the health facilities.

Two IMCI supervisors, one clinical officer and one public health nurse, usually undertake this supervision. These supervisors use a standard checklist and observe two sick children being examined by a health worker. The same children are each then re-examined by the supervisor, who gives feedback on assessment, illness classification, treatment and counselling to the health worker. The health workers preferred this mode of supervision as they felt that it was supportive given that feedback was immediate. These supervisors also check supplies, drugs, dressings, vaccines and equipment using a facility checklist.

The team-based problem solving approach employed by QAP was intended to improve the performance of health providers in applying the IMCI algorithm .The coach coordinator reportedly conducts supervision together with DHMT members trained in the approach.

c. Discussion & Recommendations for Supervision

The constraints experienced in Bungoma district under the BDMI are largely logistical and relate to resource availability, both financial and human. As observed earlier, supervision is scheduled to be carried out weekly by the DHMT. Some IMCI trained providers had been supervised at most once or twice a year since they received the training. A major obstacle is the lack of transport facilities noting that there is only one reliable vehicle at the district headquarters that is assigned supervisory activities.

The need for alternatives to the current modes of supervision should be explored given that transport and allowances are currently provided by BDMI. The expectation is that the DHMT will somehow absorb these costs once the project ends, but to sustain the intensity and frequency of current visits will require some considerable planning and mobilisation of additional resources, including at community level

The DHMT is currently considering an integrated approach, which includes IMCI supervision and QAP coaching which may provide a viable alternative. In addition, CDC has developed an IMCI register, which could provide a means for monitoring quality of care between supervisory visits.

iv. Drug Supply

Drugs are often in short supply and patients are expected to buy their drug requirements. To bridge this gap, the community buys drugs through the Community Improvement Fund (CIF). The problem is that there is no legal framework to regulate and control the activities of the CIF. Unscrupulous officials defrauding the kits have often duped community members and the community has no form of recourse.

a. Discussion & Recommendations for Drug Supply

Community pharmacy is a cost-effective strategy that fills the gap created by drug shortage at the health facility level while making drugs more available at the community level. Unlike the traditional BI community pharmacies, these belong to the health facility and so far they seemed to be operating well as facility income generating activities. They are supervised and monitored by the DHMT or the in-charges of the relevant health facility. They complement drug vendors and shopkeepers in the community. This is made possible by the Community Improvement Fund (CIF). However, the MOH headquarters needs to formalize and regulate these within a legal framework to counter exploitation and abuse**.** At the moment the MOH at the district level has no control over the finances and the expenditures of these pharmacies. Subsequently the team has learnt that the DHMT has requested the Division of health care financing to work out regulatory mechanisms to guide the community on CIF although there still will be no control over the finances.

The Bamako Initiative Pharmacies (community-based pharmacies), like those being implemented in Siaya, utilise trained and certified CHWs to make needed drugs more

available to the community. The lessons learned from this initiative should be examined for their relevance to Bungoma.

Community-owned resource persons (CORPS) and drug vendors handle drugs such as SPs. These drugs are gazetted as part II poison. BDMI should seek clarification from the National Malaria Control Programme and the Pharmaceutical Board to avert the fear by CORPS of being prosecuted for handling prohibited drugs.

v. Patient Referral and Compliance

IMCI is an effective strategy to deal with the major causes of morbidity and mortality especially in peripheral health facilities that are usually poorly equipped. But IMCI is designed to operate in the periphery as initial management and not final, which underscores the importance of having an adequate referral system.

a. Discussion & Recommendations for Referral

Referral remains problematic and it is acknowledged that this is a national problem. The factors contributing to the observed problem range from structural to institutional, and include lack of transport, money, poor reception and shortage of essential supplies at the referral facilities. In the absence of all these essentials, patients opt to remain away from referral facilities. In many instances patients did not go to the referral facilities but rather "referred" themselves back to the initial facility whereby providers felt obliged to treat a condition that was really for higher level management.

An assessment of the behavioural factors, which affect patient compliance with referral, should be undertaken. The supervision summary provided to the evaluation team by the DHMT during the 2-day workshop indicates that supervisors will review the referral registers that record children with severe classifications. A mechanism will presumably be employed to follow up children who have been referred to identify reasons why they

do or do not comply. This will be done in the context of a formal referral study conducted with assistance from CDC.

In addition, the referral system in Bungoma lacks basic inputs such as ambulances. It was observed that no government facilities had them and only a few NGO facilities reportedly have them. The main District referral hospital does not have a functional generator. These and other shortcomings in the current referral system undermine efforts to improve the pre-referral practices of IMCI trained health workers and should therefore be given some consideration in future project planning exercises.

vi. Laboratory

Laboratory diagnosis is crucial in providing a confirmatory support to clinical diagnosis. This requires that essential equipment be available and functional. At the stakeholders workshop it was reported that laboratory equipment in the district hospital and the health centres was obsolete. A presentation at the workshop based on assessment of microscopic diagnosis of malaria in the health facilities raised issues of concern with regard to the accuracy of the results noting that the negatives were too high with a predictive value of 93. This raised the issue of quality control, which should be an integral part of laboratory services. Malaria microscopy is more critical at higher referral levels since most dispensaries don't have laboratory facilities. But adequate basic laboratory equipment, supervision and quality control, as well as refresher training for the laboratory staff should be provided in those facilities where microscopy is available.

B. Objective 2: *Improved capability of mothers and other caretakers to manage fever and anaemia at household level*

Four activities were planned under the household management of fever objective for the year 2000. Under this objective only two activities have been accomplished namely:

- Completion of the training materials for drug vendors and their subsequent training on rational use of drugs; and
- The development of IEC messages for household level, child to parent using microteaching on fever, rational drug use and on ITNs.

In the current plan period, there will be piloting and adaptation of the simplified malaria guidelines for CORPS and the development of IMCI guidelines on community practices (16 household practices/ behaviours). This will be followed by supervisory visits to trained drug vendors and developing a monitoring system for mystery shoppers of private drug outlets (see Operations Research section below).

i. Discussion & Recommendations for Improved Household Management

Based on an early baseline study done by BASICS on health seeking behaviour of caretakers, it was found that over 90% of caretakers treat fever at home ("treatment" as defined by the caretakers by giving either an antimalarial or antipyretic). The 1996 CDC household survey found that 47% of children received an antimalarial at home; 90% of antimalarial treatment at home was started by the second day of fever. Other CDC studies recommended that home treatment be strengthened through health education and that home care guidelines be developed for caretakers since home treatment was provided as often and more promptly than treatment at a facility. Studies such as these should have triggered the need for a community focus much sooner.

There is good information already collected in Bungoma on behavioural and preventive aspects of health. The CDC research on malaria in pregnancy also indicates that in terms of home care and care-seeking practices, caretakers are principle providers of anti-malarial treatment to children with fever.

These and other studies, again provide a strong evidence base for undertaking community–based approaches to complement the activities currently being implemented at the facility level. The approach should build on the existing community structures and

activities of CBOs and NGOs working to address the key household and community behaviours relevant to those circumscribed by the Community IMCI component.

For example, the CARE-Kenya's Community Initiatives for Child Survival in Siaya is working to reduce mortality and morbidity of children under five and women of reproductive age and to increase the capacity of community committees, the MOH, and other local institutions to sustain these reductions. Lessons learned from the community-based strategies employed here for example; training of CHWs, generation of health data by the community, use of community based pharmacies and increased IEC should inform the development of the Community IMCI component for Bungoma District.

The need for multi-sectoral collaborative effort is critical to rationalize use of resources. IMCI and the current Early Childhood Development (ECD) under the Ministry of Education are essentially focussing on the same concerns: the child and the caregiver, yet there is no collaboration between the Ministry of Health and Ministry of Education. Several ministries could be added to the list, for instance Ministry of Agriculture & Rural Development and Ministry of Home Affairs, National Heritage & Sports, to adequately address the issue of resource mobilisation at the household and community levels for improvement of child and maternal health.

C. Objective 3: *Improved prevention and management of malaria in pregnancy*

Four activities were planned under the **prevention and management of fever in pregnancy objective**. Out of these four planned activities, only the development of IEC programme on SP, folic acid/iron supplementation for pregnant women had been undertaken at the time of the review.

From the field visits, the evaluators noted that in NGO facilities, ANC mothers are not given presumptive treatment with SP. If they are given at all, it is selective for those mothers who can afford to pay for it. This also applies to folic acid and ferrous sulphate

tablets. In all the government health facilities visited, presumptive treatment for pregnant mothers attending ANC was provided though not always consistently and correctly.

Randomly selected exit interviews with mothers indicated some potentially serious problems. In one health facility SP was given in the ninth month, yet this is inconsistent with current guidelines which state it should be given at the beginning of the second and third trimesters. When SP was given there was no explanation provided to the mother as to why this was necessary. From the November 1998 CDC study, it was found that health workers had little understanding of malaria prophylaxis in pregnant women and how prophylaxis differed from treatment. Given these, the DHMT should review available data to determine the extent of this problem with a view to exploiting all such opportunities to improve health worker compliance with the malaria guidelines as well to impart the relevant messages to ANC mothers regarding malaria prevention and treatment.

In addition, the evaluation team observed that when the supply of SP is irregular at the health facility level there is a tendency to use it for general treatment rather than prophylaxis for ANC mothers. Moreover, in facilities with Facility Improvement Funds (FIFs) that now charge for services, the provision of SP for ANC mothers is problematic since the current policy states that maternal and child health services are to be provided free of charge. The latter indicates that policy level intervention will be needed to ensure that adequate SP supplies are included in the MCH kit and that ANC mothers get the SP when needed.

From a baseline study by the CDC on malaria in pregnancy, it was evident that whereas 65% of ANC mothers come for ANC services, they do so late in their pregnancy. Moreover, a similar percentage delivered at home under Traditional Birth Attendants. To be able to reach a majority of ANC mothers, interventions beyond the health facility will be needed. Appropriately, one of the planned activities will be to train CORPS (Community Owned Resource Persons) especially Traditional Birth Attendants (TBAs) to effectively support care seeking among ANC mothers.

D. Objective 4: *Increased household use of insecticide-treated materials*

Six activities were planned under the provision of insecticide-treated nets (ITNs) **objective** and the implementation of these activities is on course. The activities implemented so far in the year 2000 are:

- Community mobilisation for ITNs and establishment of Organized Community Groups (OCG**)**.
- Training of Education Officers/teachers and DHMB on malaria control and ITNs.
- Finalization of training materials and training of PHT/PHO and other health workers.
- Training of community Initiative sites officials and HCDC officials and implementation of ITNs programme at health facility.

Based on the year 2000 work plan, 4000 nets and 4000 K-O tabs have been purchased by 16 Community ITNs outlet/ distributors or Organized Community Groups (OCGs). AMREF and the DHMT have provided training to these groups.

i. Discussion & Recommendations for Increased Household Use of ITNs

ITNs are a cost-effective alternative to other vector control methods, which call for specialized equipment, technical expertise, a large workforce and widespread application of chemicals. In areas with seasonal and perennial transmission of Malaria in Africa, the use of ITNs reduced malaria morbidity in children by between 44% and 63% (Premji et al 1995, Nevill et al 1996). In areas of seasonal transmission in Africa the use of ITNs reduces all cause mortality in children by between 17% and 63%(Binka et al 1996, Nevill et al 1996). The use of ITNs has also reduced mosquito population, reduced malnutrition and led to improvement in child growth. It has further increased communities' commitment and enthusiasm to adopt the technology in the control of malaria and willingness to buy nets and participate in net re-impregnation process.

AMREF is in-charge of community mobilisation and ensuring that nets reach community members. In this respect a community-based distribution model seemed the most appropriate for Bungoma district based on AMREF's experiences both in Kilifi district under WHO/KEMRI controlled trials' study and the Community-based Malaria Control project in Sagana, Turkana, Taita Taveta and Migori districts. It also echoes aspects of the Bamako initiative in which bednets were bought and distributed to community groups at a subsidized rate for sale.

This is not in line with USAID's view that the way forward is to promote the value of bednets and thereby create demand for them through social marketing. These bednets would in turn be supplied in the market by the private sector. The social marketing strategy is advocated for Bungoma district where various forms of media can be employed to reach a wider audience.

One also wants to make sure that the products for social marketing are available in the community. For this reason AMREF community based approach is an initial way of addressing availability; elsewhere referred to as "pump-priming", before social marketing. To increase the coverage it may therefore be worthwhile to employ the strategy of social marketing at this early stage as a complement to community-based distribution. Given that the government fully supports a social marketing strategy, it would be worthwhile from the onset that this strategy and a community-based distribution strategy be combined in order to increase access. In this respect, Population Services International (PSI) has had experience with social marketing of bednets in the coastal region and it would be worthwhile to explore links between AMREF and PSI for social marketing of nets in Western Kenya.

The creation of demand for bednets through identified community outlets and willingness to pay for them as a means of protection against malaria will be a major achievement towards the project goals. Community members recognise the value of nets as prevention against malaria. However the issue of availability and particularly affordability may prohibit the actual use of ITNs.

The issue of poverty resonated in all the discussion groups. A visit to the health facilities and a discussion with the ITN providers revealed that there is willingness among community members to use bednets as protective mechanism against malaria. However, the issue of cost is real and it is not quite clear how behaviour change can be achieved at community level in the absence of uplifted standard of living among the population to acceptable levels to enable them participate fully in the development processes.

E. Objective 5: *Effective collection and use of information for planning, monitoring and evaluation*

Five activities were planned around the effective collection and use of information for planning, monitoring and evaluation objective.

The effective collection and use of information is poor. Generally government health facility reporting rates on vital statistics are low (43% in 1999) while no information is received from the NGOs. Of the planned activities, two are ongoing: Analysis and distribution of DHMT/IMCI supervisory visit reports and End of Training (EOT) assessments. These are intended for monitoring the project activities.

Operations research is undertaken on the premise that although the issues are known the studies provide evidence base for interventions. However without baseline data it will not be possible to measure impact. This is compounded by the fact that record keeping at the moment is very poor. At the workshop it was stated that reporting from the various facilities had dropped from 90% in 1995 to 43% in 1999. Furthermore the available facility records were only from five facilities and this was sporadic such that they could not be used for comparative purposes. Yet for the project, effectiveness of monitoring and evaluation tools would depend on available and reliable data, which are not being collected at the moment.

In November 1999 an attempt to collect morbidity and mortality data on Malaria in 9 health facilities in Bungoma district revealed gaps in data. The data that was availed to

the team shows that there is no systematic form of data collection and for this reason the data sets from the different facilities were not amenable to comparison. A cursory look at records by the review team in some of the health facilities revealed that even where there were tally sheets these were not routinely used and in others the tallying was inconsistent. In cases where data were collected and forwarded to the district headquarters, there was no evidence of analysis and feedback to the collecting health facilities.

With this realisation the DHMT has developed data collection forms which are being pre-tested at selected health facility and community levels. It will be crucial to harmonize these forms with the HMIS at the headquarters to avoid parallel systems of data collection.

More importantly given the fact that there was a prior system in place that has since collapsed it may be cost-effective to rehabilitate this system through provision of supplies for instance; tally sheets and retraining of data collection staff to re-orient them on the importance of collecting data. This is crucial for the project in that as it moves into implementation, indicators for monitoring would have to be tracked on baseline data.

F. Operations Research: Appropriateness and Timeliness

As stated earlier, operations research was intended to provide the evidence base for the selection of project interventions. To this end, various collaborating agencies undertook a number of operations research studies within the project area. However, the sense was that the project should have moved from research to implementation much sooner. The delay may have been due in large part to the length of time it took for the CAs to start up activities as well as to process and feed back their results. With so little time left for the project and given that BDMI activities are expected to contribute to the goal of reduced malaria related morbidity and mortality in Bungoma, it is uncertain how the current and proposed activities will be able to operate at such a scale as to achieve impact.

In addition, dissemination of project activities, including findings from research conducted has been inadequate and slow. Due attention should have been paid to the dissemination of this body of work to a wider audience given their potential contribution to national-level program planning, as is the case for IMCI and Roll Back Malaria. As such, the current study activities and findings should be made more accessible to relevant units within the MOH, research institutions, and other local partners who could benefit from the technical exchange of information around malaria control and the mechanisms such as IMCI and ITNs being used to achieve impact. To give the results a high profile they should be disseminated under the auspices of the MOH with the support of USAID either through organised workshops or special meetings around programmatic themes.

The participation and ownership of these studies was reportedly also an issue with the DHMT, particularly with regard to the CDC research. The DHMT were involved in the research process principally at the level of data collection. They expressed dissatisfaction that they were not, however, adequately involved in data analysis, an area they felt would contribute to capacity building in terms of data management and report writing. CDC acknowledged this fact but felt that their schedule did not always allow for in-country data analysis, at times the DHMT staff was busy with other responsibilities at the time.

If additional research is needed, BDMI and its implementing partners should consider undertaking more operational, more timely, and perhaps less rigorous studies around the current program interventions in order to better gauge their 'effectiveness'. In the case of IMCI, the use of the approach as an investment strategy for the health sector as well as a viable means for accelerating BDMI objectives needs to be further demonstrated. To that end, studies such as those to address the cost-effectiveness of alternatives to undertaking IMCI supervision and training, cost-savings resulting from its application, and effects on client utilisation and health worker performance at facility-level. Similarly, use of a simulated client approach (not unlike the current QAP/DHMT activity) or other tools to monitor IMCI compliance, among others, could further inform the national process which is now beginning to roll out and serve to build advocacy within USAID as well as among its collaborators.

The following sections describe the main Operations Research (OR) activities implemented by each CA and the corresponding findings of the evaluation team.

i. The Centres for Disease Control and Prevention (CDC)

To date, CDC has conducted studies in the following areas:

- Pre-BDMI and BDMI quality of care studies at health facilities (including baseline and follow-up GOK health facility surveys, a referral study, and a baseline of Health Worker performance in non-GOK facilities)
- Malaria in Pregnancy
- Assessment of Microscopic Diagnosis of Malaria

CDC on balance has produced studies that are scientifically valid and of programmatic value. Some of the research has provided critical input to the development of IEC and social-marketing strategies. Other studies have leant further support to previously identified areas for intervention e.g., the use of Traditional Birth Attendants (TBAs) to support care seeking among antenatal mothers.

However, it would seem that much of the research data generated has not been utilized, disseminated, or the resulting issues vetted in such a way as to adequately inform the BDMI planning process or facilitate implementation on the ground. For example, data on the classification of severe illness by trained IMCI health workers gathered during the 1994 baseline health facility survey, immediately after IMCI training in 1996, during supervisory visits conducted 1-3 months post-training, during the 1997 follow-up facility survey, and during supervisory visits conducted between July 1998 and October 1999, indicate that the failure of health workers to correctly classify and treat severe illness is a consistent deficiency. Such findings should have lead to more timely investigation or intervention. Only recently has discussion of the issue been revived, and this is largely in response to USAID/Washington concerns that no remedial actions have yet been undertaken.

As described earlier under **Objective 2**, CDC studies had indicated that home treatment was provided as often and more promptly than treatment at a facility and that caretakers were principle providers of antimalarial treatment. Yet, these had not lead to the timely development of a strategy focused at the household and community level to improve the capability of mothers and other caretakers to manage fever and anaemia (BDMI's Objective 2).

The November 1998 Malaria in Pregnancy study underscored some important issues: deficiencies in health worker knowledge of malaria treatment and prevention, selective provision of ANC services, and mothers' misperceptions about malaria, among others. Yet although an objective was to assess the extent and impact of malaria infection during pregnancy, the study was conducted in the low malaria transmission season thus presenting lower than anticipated prevalence of parasitemia. A repeat survey had to be scheduled for the high malaria transmission season.

As discussed earlier, CDC and other implementing partners should work to more effectively and expeditiously disseminate study findings to the multiple 'end-users' i.e. the DHMT, USAID, CAs, MOH, and others in the research community such as KEMRI. Given the short time remaining in the project, more consideration should be given to maximising the use of prior research by implementing the recommendations, before embarking on new ones. Any future research should perhaps focus more on assessing the effectiveness of the interventions currently underway in the true spirit of 'operations research', although exceptions, such as formative work to explore the problem of misclassification of severe illness, may be needed.

ii. African Medical and Research Foundation (AMREF)

AMREF has a double role of manager/coordinator and implementor, with 75% of the time devoted to management and coordination, and 25% on implementation. So far

AMREF has conducted three studies and some of their recommendations have been utilised in defining interventions. These researches include:

- Assessment of Non-technical Barriers to Supervision that led to establishing a strategy of supportive supervision based on work plans with set targets, supervisory guidelines and checklists.
- Community KAP on Insecticide-treated Materials (ITMs) & Potential Delivery Systems, and
- Assessment of Community Financing Systems for Mosquito Nets & Insecticides by AMREF and the DHMT.

iii. Basic Support for Institutionalizing Child Survival (BASICS)

The operations research carried out by BASICS prior to the expiry of its contract included formative research on Health Seeking Behaviour of Caretakers and Assessment of IEC Materials. These studies formed the basis of the IEC Strategy developed by BASICS in collaboration with the DHMT and community representatives. Some of the activities that resulted from this research included:

- IEC messages' development workshop.
- IEC materials development workshop and subsequent pre-testing of both messages and materials for ANC mothers emphasizing presumptive treatment using SP; for caretakers emphasizing early recognition of symptoms of Malaria and early health seeking.
- A poster emphasizing fathers' role in facilitating early health seeking.
- A poster for ITNs' promotion.
- Training and support of Shopkeepers as drug outlets.

However, given the significance of the findings contained in the research on health seeking behaviour one would have expected more community-focused interventions.

iv. The Quality Assurance Project (QAP)

The Quality Assurance Project currently implements two research activities under BDMI:

- assessing the cost-effectiveness of using facility-based problem-solving teams to improve health worker compliance with IMCI standards
- improving private drug outlets' compliance with malaria treatment guidelines.

Based on the July 1997 CDC findings that showed declines in health worker performance levels with regard to IMCI compliance, CDC requested the assistance of QAP to address this issue. QAP has been working in a number of other contexts to apply the techniques and tools of quality management, including the use of work teams, as a means for identifying and resolving quality of care problems. The working assumption of the team approach is that, with proper training and 'coaching', teams comprised of health workers will be best able to understand the causes of problems in their facilities and propose suitable solutions to address them. Thus for BDMI, the expectation was that healthcare providers trained in IMCI would apply this approach to identify specific problems in the application of the IMCI standards and subsequently improve performance in those areas.

Around the first of the two QAP activities above, the evaluation team identified a number of critical shortcomings based on the presentation of preliminary study findings, review of available documents, interviews with the relevant DHMT and health facility staff, and subsequent discussions with QAP headquarters staff. These issues, which are related to the design, implementation, and outcome of the study intervention, included the following:

One of the critical concerns with regard to IMCI implementation was/is the non-use of the approach in the absence of a study observer or IMCI supervisor. The evaluation team gathered similar anecdotal evidence from ad hoc interviews with IMCI-trained health workers who cited time and other constraints as factors limiting the effective application of IMCI. Recognising the difficulties faced in collecting such performance data, QAP

nonetheless tried to engage the teams to address this issue through a prescribed problem-solving approach. Despite a sincere and concerted effort on the part of QAP, AMREF, and the DHMT, to address this particular concern as well as other possible underlying problems, the preliminary results were not encouraging.

The team-based activity appeared to be heavily resource and time dependent with no demonstrated effect on health worker compliance (the main dependent variable). Even though the health staff often mentioned other benefits such as teamwork, better organisation of work, and the crosscutting nature of the approach as a management tool interviewed.

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The study intervention i.e. problem-solving teams may not have been adequately understood or defined prior to the start of the study as evidenced by the difficult start-up as well as the use of narrowly circumscribed performance indicators. An inexperienced trainer was used to introduce the approach and the subsequent need was to re-train the teams as well as add on substantial 'coaching' or external support to apply the problem-solving steps.

Regarding performance measures, the QAP pre- and post- assessments primarily evaluated how well the health workers were following the specifications of the IMCI algorithm. Although QAP was presumably working to address the issue of non-use of IMCI as described above, and stated that it was still too early in the process to be seeing significant changes in performance, the researchers did not change the performance measures or otherwise define the parameters of improvement that could be attributed to the work of the teams.

The introduction of the team approach requires that team members gain new competencies not only in teamwork but in the use of problem solving tools. The desired performance outcome would thus depend in part on the coach's and team's skill in conducting problem analysis. These skills may not have been sufficiently measured or assessed as such. From the conclusions presented at the workshop, "teams in general have

not adequately mastered problem-solving tools"… "..some coaches have not adequately mastered problem-solving tools", "the tools developed for team monitoring were not analyzed and used effectively by coaches to improve team performance, in part because they were not fully mastered," and "few coaches demonstrated a high level of coach competence," among others.

In addition, facility-level issues such as organisation of work, time management, staffing patterns, system improvements -- all of which may have particular relevance to the creation of an enabling environment for IMCI and, moreover, are often 'default' problem areas that QAP teams elsewhere are commonly known to address, were not conceptualised as part of the original study design.

The teams were not coached to use the baseline data, particularly that regarding clinical service quality, in their problem-solving activities. The resulting solutions for example procurement of drugs, time allocation and scheduling of staff, on-the-job training in IMCI, punctuality and other mundane problems such as getting water to the facility, were not seen by the evaluation team to contribute substantively to the expected IMCI performance outcomes.

The review team felt that supportive supervision, whether internally done by an in-charge or externally through designated IMCI supervisors, could better address many individual performance problems identified in the baseline assessment rather than a team-based approach. The rigorous stepwise process prescribed by the QAP trainers, along with the implied need for consensus among team members, should not be utilised for every problem, particularly when common sense and experience should prevail. Yet the few team members interviewed by the evaluators were insistent that the complete process as opposed to a more selective approach to using various tools had to be applied every time.

Other factors may have contributed to the failure of this activity to achieve results. For example, although the DHMT was said to have nominated the participants for training, the activity appeared to lack adequate and informed ownership at the District level. Some

BDMI staff viewed the QAP work as an adjunct activity, not clearly contributing to the broader aims of the project.

In summary, the desired improvements in IMCI performance as a result of the QAP teams were not realised. The approach was acknowledged to have value as a management concept, although the discussions around its practical usage remained diffuse and sufficient evidence of its achievements with regard to facility-level improvements was not provided. In light of these findings, the DHMT and implementing partners should re-examine the contribution of this team-based approach towards the achievement of BDMI objectives, critically assess the 'value added' of this activity given the remaining time and resource constraints of the project, and modify implementation as needed.

The second QAP activity is testing a social marketing strategy to increase the likelihood that private sector vendors will adhere to malaria treatment guidelines. The innovative approach has been well received by the DHMT and ownership of this activity has been largely taken up by DHMT staff as described below.

v. District Health Management Team (DHMT)

In 1998 the DHMT conducted a survey to identify groups and individuals involved in the actual distribution of anti-malarials and anti-pyretics in the district. Shops or kiosks were found to be the main source of drugs for people in rural areas, and while most shopkeepers had never received training on drug use, 87% were giving some instruction on dosages to their customers and 27% couldn't differentiate between anti-malarials and anti-pyretics. The joint QAP/DHMT study currently being undertaken is testing an intervention to use drug wholesalers (wholesalers, mobile venders and large retail pharmacies) to communicate the malaria treatment guidelines to drug outlets (pharmacists, pharmacy attendants and shopkeepers). The intervention has two main components:

- the "social marketing" of job aids using a vendor-to-vendor approach and,

- the use of mystery shoppers and supervisors to monitor the implementation of standards

As was presented by the study team, this ongoing activity shows promise as an alternative to traditional and more costly approaches to training drug retailers. By taking advantage of the existing interactions between wholesalers and drug outlets, and creating mechanisms to ensure that pharmacists and shopkeepers give SP correctly and safely, the intervention could help minimise the adverse outcomes that may be associated with the dispensing of inefficacious or expired drugs and the receipt of incorrect information by the community.

G. Information, Education and Communication (IEC) Strategy

IEC is crosscutting and therefore is expected to be addressed in all the objectives. The move towards early recognition of malaria, prompt health care seeking by the caretakers, presumptive (therapy) treatment with SP for pregnant mothers, use of ITNs and subsequent reduction in morbidity and mortality was supposed to be propelled by strategically translating the developed IEC strategy into action. To facilitate this, BASICS and the DHMT identified the key activities for implementation. Unfortunately, BASICS contract expired and apparently, it was not clear who would manage or fund some of the activities. AMREF took over this component but in practice other CAs shares it. For instance, Quality Assurance Project (QAP) took over the vendor to vendor IEC component to improve the community drug outlets. Job Aids were developed for the vendors and posters for caretakers. Additionally vendors were trained on how to use the Job Aids as trainers of caretakers. QAP plans to train 'mystery shoppers' as well.

The John Hopkins University (JHU) undertook a related IEC activity focusing on Acute Respiratory Infections (ARI) based on the DHMT recommendations that pneumonia is one of the complications of malaria in the district. Although it was not a BDMI activity, it was complimentary to the project. Calendars and flipcharts on ARI were produced and used within the context of IMCI for the whole district.

The co-ordination of the various CAs' activities particularly the IEC component was problematic, resulting in overload and overlap of information imparted to the community whether through mass media, counselling at the health facility, or any other form of outlets. Harmonization of messages is therefore a key challenge for the project. At the moment AMREF is alone in the IEC area and will need to harmonize the messages to reduce the information overload to the community.

4. KEY ISSUES

A. Capacity Building & Sustainability

One of the key areas of concern is the capacity building of the DHMT members to be able to carry out activities once BDMI has concluded. This will depend on the extent to which they have been prepared for the task. The DHMT is highly motivated and identifies positively with the project. Training has equipped the DHMT members with skills and they are able to impart the same to others through on-the-job training thus having a multiplier effect at the local level. This will become increasingly so nationally as the IMCI adaptation process takes root.

However, the need for management skills for the DHMT and other health providers manning health facilities resonated in the discussions. This was based on the observation that with decentralisation the management of resources, particularly finance is pausing a challenge to health providers who have no experience or training in management and yet are expected to undertake this role within their facilities and those below them. Thus management training was identified, as a priority need.

The DHMT members have been involved in research alongside the CAs and were proud to have undertaken one research on their own and translated it into an intervention. However, the DHMT members decried their not being involved in the data analysis, report writing and dissemination activities by the CDC group. The involvement of the

DHMT would facilitate a sense of ownership as well as demonstrate partnership and capacity building as stipulated in the project goal and objectives.

During the evaluation interview, the CDC group conceded to this concern but felt handicapped in that their work schedule in-country does not allow for undertaking data analysis locally, a point that needs further consideration to ensure professional involvement of local project personnel in research activities at all levels. For empowerment and project sustainability it is imperative that the relevant DHMT members be involved in all stages of the research and data management processes.

B. Perspectives on IMCI at the Health Facilities

Some additional qualitative data was obtained through discussions and exit interviews held at the health facilities. Discussions with 9 health providers at sampled health facilities indicated that the IMCI approach was useful and effective in diagnosis and treatment. They indicated that they were able to systematically examine a child and arrive at a diagnosis with ease, give the correct treatment and use drugs rationally. However, the actual use of IMCI by these staff, in the absence of any observer or other such prompting, could not be ascertained.

The health providers felt that correct treatment in the long run would reduce the number of cases unnecessarily being referred to the next level of care. This was more so the case in the Government facilities. In one NGO facility it was noted that the referral cases coming from IMCI trained providers suggested that the initial management from those facilities was appropriate and had improved greatly. However in this same NGO facility the practice of IMCI was perceived as “first aid,” too time consuming, and would lead to wastage of drugs. For other facilities, IMCI was reportedly not easy to apply unless the patients were few.

Caretakers interviewed were impressed with IMCI and appreciate the comprehensive manner in which a child was handled. The stripping of a child was an indication of the

health worker's concern for the child and desire to give the best. Whereas those in the queue grumbled that a health provider took too long with patients, once in the consultation room, the caretaker began to appreciate the rationale for the extra time spent. Caretakers were happy with the fact that they were told the diagnosis and that drugs were administered instantly.

C. Issues for Expansion of the Bungoma Experience

Bungoma district has just embarked on a range of activities that simultaneously touch on all five project objectives. Consolidation of the IMCI, activities within Bungoma rather than expansion of these approaches to other Districts in Kenya should be a priority for the project. A community-based component, which is already evolving, and which can draw from the experiences of other donors and collaborating agencies, would contribute to achieving the project outputs and goals. However, the issues around the facility implementation of IMCI, including health worker compliance, training and post-training interventions, reorganisation of work and other 'enabling factors' within the facility, should remain a critical focus of the project.

Bungoma could contribute to expansion efforts by demonstrating a well-documented operational BDMI model, one that could be replicated nationally with appropriate modifications through the national implementation strategies for IMCI, Roll Back Malaria, or other related initiatives**.** BDMI presents an opportunity to identify the critical elements required for implementing IMCI at such scale as to achieve impact. Some retrospective data analysis could identify the start-up and recurrent costs involved in implementing the approach in Bungoma, and operational studies around its 'effectiveness' will inform the current IMCI planning process. USAID can contribute to the policy dialogue around these and other relevant issues by participating more actively in the review of the adaptation process and facilitating the dissemination of project findings.

D. Linkages to National Health Policy and Programmes

The inception of the BDMI project was based on an agreement between the Kenya Government and USAID, thus paving the way for acceptability even though IMCI had not been fully incorporated in the MOH policy. In principle the IMCI approach is accepted within the national health policy. This is based on the recognition that malaria is a major killer among the vulnerable groups especially children and women. In respect of the latter, the use of SP for treatment of malaria and as chemoprophylaxis is based on the technical recommendations of the National Malaria Control Programme.

There are various instances, which demonstrate that the BDMI project is linked to national health programmes. At the district level the DHMT acknowledged that the project's strategic approach had facilitated the integration of what are often parallel programmes at this level. It was observed that health providers examined a child in a holistic manner rather than the traditional focus on a narrow area of expertise. They gave examples of the outreach programmes that go beyond nutrition and immunisation status to incorporate the current health status of the child including identification of anaemia.

The national adaptation process of the IMCI has been finalized. This finalization has thus legitimized the position of the BDMI in many respects. The discussion with WHO indicated that the IMCI in Bungoma district is in line with the national adaptation process. It was also acknowledged that although Bungoma district project used generic materials for training, these have since been revised based on the national version of training modules. It is expected that the experiences arising from Bungoma district would be valuable to the national agenda.

All along a member of the Bungoma DHMT was seconded to the IMCI National Adaptation Task Force. With the completion of the adaptation process he has been involved in incorporating the necessary changes to the generic materials and district specific adaptation, particularly local terminology. Bungoma DHMT members who have been trained as facilitators will be involved in IMCI training activities for other Districts.

Although drug vendors have been trained and are motivated to participate in the prevention and control of malaria their legitimacy in this respect is a source of concern to health providers who feel responsible for them. The gazettement of SP has rescheduled it from Part I poison to Part II poison but has not been clear on whether community drug outlets can stock it or not. Therefore the gazettement is contentious, as it does not allow extensive availability of SP in community drug outlets such as kiosks, shops and community pharmacies. The existing policy requires that for one to stock SP, one has to obtain a part II licence worth Kshs. 1000/= which is prohibitive for small entrepreneurs. National Malaria Control Programme plans to readdress the issue so that SP can be re-gazetted to allow for availability of the drugs in the community outlets with ease.

The experiences in Bungoma district so far are already feeding back into policy discussions at the national level. For example health providers have already noted an anomaly in the management of children. There is a problem with harmonization of dosages of SP at this level and this has been brought to the attention of the MOH. The stakeholders comprising MOH and representatives of pharmaceutical companies are planning a meeting to address this issue.

A representative of the National Malaria Control Programme attends the BDMI Quarterly meetings that serve as a venue for continuous BDMI project review and monitoring. Besides members of the Malaria Control Programme participate in the training of Bungoma health workers on the new malaria guidelines. Furthermore, the National Malaria Control Programme has provided guidelines for training of Community Owned Resource Persons (CORPs) and Bungoma will be the first District to use these guidelines.

With regard to ITNs the MOH is working on an ITNs' Strategy document that will address the issue of accessibility and availability in the context of taxation exemptions on nets and netting materials. A stakeholder meeting for the development of an ITNs' Strategy Development held in Nairobi on the 14th of June 2000 formed an ITNs' task force that would coordinate the activities of research partners and source for the support of donor partners towards demand creation for bednets.

The promotion of bed-nets as a malaria preventive measure is consistent with the National Plan of Action for Malaria Control in Kenya. This is also reinforced by the participation of His Excellency the President of the Republic of Kenya in the Africa Summit on Roll Back malaria in Abuja, Nigeria in April 2000 and expressed unequivocally his support for the declaration that pledged to

> "*… reduce or waive taxes and tariffs for mosquito nets and materials, insecticides, antimalarial and drugs and other recommended goods and services that are needed for malaria control strategies …"*

To this end, it was resolved to

> *"… initiate sustainable action to strengthen health systems to ensure that by the year 2005, at least 60% of those at risk of malaria particularly pregnant women and children under five years of age, benefit from the most suitable combination of personal and community protective measures such as insecticide treated mosquito nets…"*

On the issue of the large stocks of chloroquine in health facilities, it was clarified that during this transition period health workers would use and clear the stocks, and that the MOH is not procuring any more chloroquine (CQ). CQ has not been banned, but rescheduled and is still useful in some cases. In the absence of SP, health workers can fall back on CQ.

DFID has supplied 19 million tablets of SP to the MOH and these were expected to be in the provinces and the districts by the time of the review. Some of these were to be used for presumptive treatment at ANC. The scaling up of SP implementation is in place. JIPIEGO under DFID is working in both Busia and Kilifi districts, while the Population Council with the support of DFID will incorporate the same in a safe motherhood initiative in both Kakamega and Vihiga districts.

It is evident that a variety of training programmes has been implemented under the BDMI. This will go along way in upgrading the knowledge and skills of the personnel involved thus enhancing the capacity-building component of the Bungoma District Health Team who will then be utilised by others for training and implementation in other Districts.

Conclusion

BDMI as an integrated child survival project is doing more than IMCI. Although the programmatic focus of BDMI has been on malaria, the introduction of IMCI as a mechanism for accelerating its objectives reintroduces a broader child health perspective to the project. It provides a logical platform for cross- sectional collaboration and integration of child health strategies in immunisation, nutrition, HIV/AIDS, among others to occur. Given the point that it includes a substantial component of maternal health, it is simultaneously addressing the issue of safe motherhood and child survival, which is a key component in the National Reproductive Health strategy.

Project activities are on course and research findings are available even though these have not been systematically disseminated. This arises partly from the fact that AMREF as the co-ordinator of the project has not asserted itself enough to provide technical leadership and a framework within which the CAs were to operate.
This is exacerbated by a limited oversight role of USAID/ Nairobi. The Mission through its senior staff has not been proactive in providing programmatic support to the project.

Furthermore communication and co-ordination in general were said to be problematic This is particularly in reference to internal sharing of reports among the CAs. Whereas it had been agreed that quarterly reports would be circulated to all CAs to date this has not happened. Similarly at the November 1999 planning meeting it was agreed that an electronic database of BDMI documents would be created to which all CAs would contribute. However only CDC is reported to have undertaken this.

The DHMT raised their lack of management skills. Equipping the DHMT with these skills and their participation would allow for a sense of ownership as well as demonstrated partnership and capacity building as stipulated in the project goal and objectives. In addition it was felt that the roles and responsibilities of the project deputy manager were not clear and formalised. Both concerns are critical for capacity building.

Bungoma district has just embarked on a range of activities that simultaneously touch on all the five project objectives. A community-based component is already evolving, and drawing from experiences of other donors and collaborating agencies, it is likely to contribute to achieving the project outputs and consequently its goals. This is likely to result in a BDMI working model that could be replicated nationally with appropriate modifications through the planned national adaptation of IMCI.

There is potential for community participation particularly in drug supply although the issue of gazettement will need to be clarified by the MOH.

Patient referral remains problematic and is a major challenge to practice and success of IMCI. To address the problems presented by patient referral will require harnessing both facility-based and community-based resources.

The study intervention namely, problem-solving teams may not have been adequately understood or defined prior to the start of the study as evidenced by the difficult start-up. An inexperienced trainer was used to introduce the approach and the subsequent need was to re-train the teams as well as provide substantial 'coaching' or external support to apply the problem-solving steps. It is acknowledged that 10 senior health workers, 5 of whom are DHMT members were trained in Quality Assurance concepts and methodology. Yet from the discussions with the DHMT, the activity seemed to lack adequate ownership at this level and the expected improvements in IMCI as a result of this approach were not realised.

To monitor trends in malaria morbidity and service utilisation rates, a basic tool is record keeping at the health facilities. From the workshop presentation on Health Information System (HIS), follow-up discussions with relevant officers, health providers and observations at health facilities, it is clear that this component of BDMI is the weakest.
At the time of the review there was an exercise to pilot data collection forms in selected health facilities and at the community level. However, at the moment these are project specific and there is a danger that they may not be applicable nationally given that the MOH headquarters has not been involved in their development for standardisation.

On evaluation and observation, health providers still have difficulty in recognising severe illness among children. In one facility a pregnant woman was given SPs in the ninth month. This is a pointer to the need to revisit the training strategy and supervisory mechanisms that would facilitate retention of skills through practice and assessments.

The results from the study on assessment of microscopic diagnosis of malaria raised the issue of quality control. This calls for training of laboratory personnel given the importance of malaria microscopy at the higher referral levels.

Training and supervision are the most expensive aspects of the IMCI. For cost-effectiveness of the IMCI strategy pre-service training is an option. This is already being implemented at the Universities of Addis Ababa, Ethiopia and Dares-Salaam, Tanzania. The review team learned that some of the components are already being taught to students at the Medical School, University of Nairobi, Kenya. There are plans to extend to medical training colleges and nursing schools. Medical officers posted to the field and who are already acquainted with IMCI would be informed supervisors who would steer child survival activities within the district.

At the beginning of the initiative, there may have been some misgivings at the national level, principally because the project approaches and activities may not have been very clear to all parties, but with time this has changed. Recently different MOH personnel have participated at various levels as part of the project implementation including

training, provision of malaria guidelines for training and participation in the project quarterly meetings. From the discussions with MOH senior staff, it was evident that BDMI is expected to provide insights into the implementation of IMCI nationally.

Recommendations

Consolidation of the IMCI activities in Bungoma rather than expansion of the same to other parts of Kenya should be a priority for the project. Expansion could still be achieved by providing a working BDMI model, which could be replicated nationally, with appropriate modifications, through the planned national adaptation of IMCI**.** To this end, USAID can contribute at the policy level by participating more actively in the review of the adaptation process and facilitating the dissemination of findings of the project so far.

USAID senior health staff could play a more active role in representing the achievements of BDMI at the national level by participating in relevant task forces/technical committees. This would serve to bridge this pilot USAID-funded activity with national malaria control, IMCI, RBM and other related strategies currently under development as well as help leverage the resources of other development partners.

In project management USAID/Kenya will need to strengthen its oversight role such that if the implementation and monitoring needs of the Mission are not being met by the current reporting process the issues should be raised promptly with AMREF management. In the same vein, there is need for greater AMREF/Nairobi senior staff involvement in the project to provide the needed technical backup to the project manager in Bungoma. This would ensure that priority areas agreed upon at the planning meetings are addressed in a timely manner and that the CAs adhere to these requirements. Additionally, AMREF as the co-ordinator should be more proactive in facilitating communication between the CAs. This is especially so with regard to distribution of reports among the CAs to promote awareness of each other's activities and how they fit together in the overall objectives and goal of the project.

USAID and implementing partners should review the current monitoring and evaluation strategy. This should distinguish between the need for programmatic (activity-level) data that would allow USAID and project managers to make interim adjustments/corrections in specific project areas, and the need for more rigorous measures of district-level performance and impact.

The working relationships of the CAs and accountability to the DHMT were reported to have greatly improved. However, USAID should consider formalizing the position of the DHMT deputy manager in the contract agreement in order to facilitate the administration of the project, particularly in the absence of the AMREF coordinator.

To facilitate acquisition of management skills for DHMT members and health facility in-charges, the project will need to identify and organise for short-term management courses that are available locally.

In the second half of the project it will be timely to forge a true linkage between organisations that work in child survival activities, the Division of Primary Health Care (DPHC) as well as the BDMI. Presently Siaya district under Care-Kenya offers a Community-based model for IMCI and may provide insights for replication in Bungoma district.

There is good information already collected on behavioral and preventive aspects of health which provides a strong evidence base for undertaking community–based approaches. Should such an approach be undertaken, they should build on the existing community structures and activities of CBOs and NGOs working to address the key

IMCI household and community behaviors, and forge multi-sectoral linkages across Ministry departments and among organizations working in child survival.

The need for alternatives to the current modes of supervision should be explored given that transport and allowances are currently provided by BDMI. The expectation is that the DHMT will somehow absorb these costs once the project ends, but to sustain the intensity and frequency of current visits will require some considerable planning and mobilisation of additional resources, including at community level.

Based on the premise that routine points of intervention work better; building on them rather than creating new structures is a cost-effective approach to improving maternal and child health. In this respect, AMREF should harmonise the IEC strategy with opportunities for intervention principally at the ANC level, while strengthening the existing points of outlets for ITNs. The original BASICS framework could also be re-visited to provide guidance in this exercise.

Given that the government fully supports a social marketing strategy, it would be worthwhile from the onset that this strategy and a community-based distribution strategy be combined in order to increase access to ITNs. In this respect, Population Services International (PSI) has had experience with social marketing of bednets in the coastal region and it would be worthwhile to explore links between AMREF and PSI for social marketing of nets in Western Kenya. This initiative should be facilitated by USAID.

Community-owned resource persons (CORPS) and drug vendors handle drugs such as SPs. These drugs are gazetted as part II poison. BDMI should seek clarification from the National Malaria Control Programme and the Pharmaceutical Board to avert the fear by CORPS of being prosecuted for handling prohibited drugs.

SPs are not always prescribed for pregnant mothers as providers are not sure whether to charge or not; given that as a policy ANC services are free. It is therefore important for

MOH to ensure that adequate supply of SPs is included in the drug kit for use in MCH/FP.

Community pharmacy is a cost-effective strategy that fills the gap created by drug shortage at the health facility level while making drugs more available at the community level. They are complementary to drug vendors and shopkeepers, ensuring access to treatment at the community level. This is made possible by the Community Improvement Fund (CIF). However, the MOH headquarters needs to formalise and regulate CIF within a legal framework to counter exploitation and abuse**.** At the moment the MOH at the district level has no control over the finances and the expenditures of these pharmacies. Subsequently the team has learnt from DHMT that the Division of health care financing is in the process of preparing regulatory mechanisms to address the issue but will not control the funds raised under CIF.

The issue of patient referral requires review at the national level in terms of appropriately equipping the health facility and especially ensuring that there is a functional ambulance at the district level. More importantly, community participation should be harnessed to realise their role in facilitating referral using available local means and resources.

Malaria microscopy is more critical at higher referral levels since most dispensaries do not have laboratory facilities. But adequate equipment, supervision and quality control as well as refresher training for the laboratory staff should be provided in those facilities where microscopy is available.

For improved management of IMCI there is need for repeated exposure to a high concentration of severe cases. This would then facilitate better practice and allow for frequent assessment and evaluation as required. This may only be possible in large hospital settings on a rotational basis, six months after training. This arrangement should be explored for its feasibility.

At the moment only a select group of professional health providers and some DHMT members have received IMCI training. All Medical Officers and all DHMT members in Bungoma district should undergo IMCI training to facilitate their role as supervisors and to ensure appropriate management of children who have been referred from other health facilities and the community level. IMCI training needs in private NGO facilities should also be examined as well as pre-service alternatives. Training of CORPs should be supported by a strategy to ensure that adequate monitoring and supervision are available.

At this point in time basic data will be necessary against which indicators will be tracked partly to monitor project activities and subsequently measure impact at the end of the project. At the time of the review, data collection instruments were being piloted in selected health facilities and at the community level. It will be crucial to liase with the MOH headquarters at the onset to standardise the instruments for national application. Again, the team has learnt that this process has been initiated by AMREF.

More importantly, given the fact that there was a prior system in place that has since collapsed it may be cost-effective to rehabilitate this system through provision of supplies particularly tally sheets and retraining of data collection staff to re-orient them on the importance of collecting data. This is crucial for the project in that as it moves into implementation, indicators for monitoring would have to be tracked on baseline data.

The approach of QAP teams was acknowledged to have value as a management concept, although the discussions around its practical usage remained diffuse. In light of these findings, the DHMT, QAP and other CAs should re-evaluate the contribution of this team-based approach towards the achievement of BDMI objectives, and critically assess the 'value added' of this activity given the remaining time and resource constraints of the project and modify implementation as needed.

Given the short time remaining in the project, more consideration should be given to maximising the use of prior research i.e. implementing the recommendations, before embarking on new ones. Any future research should perhaps focus on assessing the

effectiveness of the interventions currently underway in the true spirit of 'operations research', although exceptions, such as formative work to explore the problem of misclassification of severe illness, may be needed.

Dissemination of project activities, including findings from research conducted is yet to occur. The findings so far have great potential for policy and programmatic change. In principle the IMCI approach in Bungoma is accepted within the national health policy and is in line with the national adaptation process. Similarly, linkages to the National Malaria Control Programme are quite strong. It is expected that the Bungoma experience would help inform the national agenda for expansion of IMCI and new initiatives such as RBM. USAID/Kenya could again, effectively broker this. This would be to a broader audience consisting of researchers in maternal and child health, policy makers, senior IMCI programme staff, other related health providers especially at district levels and the donor community working in maternal health and child survival.

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