FINAL EVALUATION OF BUNGOMA DISTRICT MALARIA INITIATIVE (BDMI)

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For

BDMI and USAID/Kenya

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Annexes

LIST OF ACRONYMS

AIDS	Acquired Immuno-deficiency Syndrome
AIMI	The African Integrated Malaria Initiative
AMREF	African Medical Research Foundation
ANC	Ante Natal Care
APHIA	AIDS Population and Health Integrated Assistance Project
ARI	Acute Respiratory Infection
BDMI	Bungoma District Malaria Initiative
BUCHO	Bungoma Community Health Organization
CAs	Collaborating Agencies
CDC	Centers for Disease Control and Prevention
CIF	Community Improvement Fund
CIMCI	Community Integrated Management of Childhood Illness
CORPS	Community Owned Resource Persons
CQ	Chloroquine
DFID	Division for International Development
DHMB	District Health Management Board
DHMT	District Health Management Team
DPHC	Division of Primary Health Care
DPHN	District Public Health Nurse
EOT	End of Training Assessments
EU	European Union
FIF	Facility Improvement Fund
HCDC	Health Centre Development Committee
HFS	Health Facility Survey
HIV	Human Imunno-deficiency Virus
HMIS	Health Management Information System
IEC	Information, Education and Communication
IMCI	Integrated Management of Childhood Illness
IPT	Intermittent Presumptive Treatment
ITMs	Insecticide Treated Materials
ITNs	Insecticide Treated Nets
JKJ	Jirani-Kwa-Jirani
KDHS	Kenya Demographic Health Survey
KEMRI	Kenya Medical Research Institute
K-FPHCP	Kenya Finland Primary Health Care Programme
MCH	Maternal Child Health
MOH	Ministry of Health
NMS	National Malaria Strategy
NHSSP	National Health Sector Strategic Plan
OCG	Organized Community Groups
OJT	On-Job-Training
ORT	Oral Rehydration Therapy
PMO	Provincial Medical Officer
PSI	Population Services International
QAP	Quality Assurance Project
RBM	Roll Back malaria
SP	Sulfadoxine Pyramethamine
TBA	Traditional Birth Attendants
TOF	Training of Facilitators

USAID	United States Agency for International Development
UNICEF	United Nations Children's Fund
VTV	Vendor to vendor
WHO	World Health Organization

I. EXECUTIVE SUMMARY

1.1. The Bungoma District 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 programme "The Africa Integrated Malaria Initiative" (AIMI), 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 this respect, the project is in line with and operates within the Kenya national set goals under MOH, aimed at reducing morbidity and mortality among children under five years and pregnant mothers.

1.2. Goal and Objectives of the Project

The goal of BDMI is to reduce mortality and cases of severe illness due to malaria in Bungoma District.

Specifically the objectives of BDMI are:

- Improved management of fever and anemia, principally among children under-5 years of age, by health workers at the health facility.
- Improved capability of mother and other caretakers to manage fever and anaemia at the 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.

1.3. Objectives of the Evaluation

The BDMI has been the single largest program working on the prevention and management of fever among children under the age of five years and in pregnant women in Bungoma district. The evaluation team was s expected to assess changes in, or extent to which, the project has impacted on each of the objectives. The question to answer is whether the various interventions made a significant difference in the management of malaria among under-fives and pregnant women in Bungoma District.

The evaluation team used a variety of approaches. To discern any changes that may have taken place, the issues raised at baseline were as much as possible raised at the end-line evaluation to facilitate comparability. Given the time frame the evaluation was organised in terms of review of documents, preparation of instruments such as checklists, guides for focus group discussion, questions for exit interviews and simulation exercises. Interviews at health facilities comprised health providers, Exit with caregivers, exit with ANC clients and observations of management of a sick child.

Other approaches used for validation included random review of previous cases in the register managed at the health facility and simulation exercises around case management. There was also spot check on supplies at the health facility to gauge the extent to which systems support was in place.

For logistical considerations the information pertaining to each of the objectives was collected simultaneously at the selected health facilities, and to some extent their catchment areas. At the policy level interviews were held with MOH officials particularly the relevant divisions of Child health (IMCI) and National Malaria Control programme. In addition organisations, which are programmatically linked to the project were interviewed Community representatives such as ANC mothers at exit, CORPs represented by TBAs, drug vendors and organized community groups (OCGs) were also interviewed.

In the project document there were process and outcome as well as impact measures spelled out for each of the objectives. Jointly, these were supposed to contribute towards lower child/maternal morbidity and mortality. However, it is important to note that the timing of implementation of the various interventions is variant. Apart from IMCI interventions, which were initiated even before the formal BDMI project, most of the interventions started implementation in year 2000 and 2001, around the time of the mid-term evaluation. Therefore, for this end of project evaluation it is more feasible to talk about trends rather impact, which requires a longer period of implementation, stringent monitoring and evaluation of project activities and careful account of the contribution of other players within the district.

The BDMI operated within the national set goals aimed at reducing morbidity and mortality among children under five years and pregnant women. In this respect, two integrated strategies were being tested: one to improve the care of sick children and the second to reduce the burden of malaria especially on children and pregnant women and by extension, the community as a whole. The project has provided useful baseline information on knowledge, attitude and practices both at the health facility and community levels. This has in turn informed refinement and adjustments in the implementation of the project; allowing for flexibility and innovativeness as a response to the various demands created in the course of the project life (Seltzer 2002),

IMCI training and supervision has contributed to improved capability among health workers. Multiple evaluations of IMCI case management have shown that quality of care can be improved with a reasonable level of support (Herman, HFS, 2002). Based on a random review of case management at the health facility and observation there is an overall impression of good practice. Out of the 13 health providers observed 11 were found to be undertaking correct assessment, correct classification and correct treatment. This is largely reflected in the Health facility survey (Herman, HFS 2002). The provider-client interaction has improved evidently by the provider welcoming the client, giving advice and telling the diagnosis. However, because of the synergy of interventions it is also plausible to argue that the successes visible in IMCI would also be attributable to the presence of other NGOs providing complementary training and/or systems support.

Client appreciation of the IMCI approach noted at midterm evaluation has continued to grow (Olenja 2000). Caretakers were happy with the fact that they were told the diagnosis and that drugs were administered instantly. These views were echoed at the final evaluation of the project. Through exit interviews caregivers were asked about their perspective of the service received. Most caregivers were satisfied with the comprehensive examination of the child and treatment. Waiting time and service, which had been an issue in some respect, was said to be satisfactory. Of the cases that were observed health providers spent on average 20 minutes with the child. This is consistent with the HFS 2002 finding that providers spent on average 24.8 minutes per encounter (Herman 2002).

Training and supervision are the most expensive aspects of the IMCI but they are also critical inputs at the health facility level for any significant impact in the provision of quality care. Consequently there are several options under consideration to sustain training and supervision. For cost-

effectiveness of the IMCI strategy pre-service training is an option. There are discussions between MOH and relevant training institutions to revise the curriculum to accommodate IMCI. Meanwhile on-job-training that was already working in Bungoma and peer supervision need to be evaluated for their feasibility and modalities for certification.

The community IMCI was launched as an essential component of the IMCI strategy at the first IMCI global review and Co-ordination meeting in September 1997. CIMCI focuses on 16 practices covering an array of primary health care practices, largely preventive and promotive. BDMI has just begun to address some of these, particularly malaria control and prevention. The vendor-to-vendor (VTV) and Jirani- Kwa- Jirani (JKJ) are complementary interventions, one addressing the issue of access and the other, community awareness of effective and prompt treatment of malaria. Drug vendors have existed, often filling a gap due to a weak health care delivery system. These two interventions are instrumental in the rollout of community IMCI in the district and should be supported.

From a community perspective TBAs are a key resource yet from a programme standpoint their role in maternal health remains ambivalent. In the context of BDMI their contribution is yet to be seen as only 100 were trained in November 2002. Given the divergent views on the role of TBAs the project could well recast this, emphasizing their role as change agents and advocates in the community, particularly encouraging women to attend ANC appropriately. In one of the dispensaries, Milo; TBAs who had been trained were already demanding the ANC card from pregnant mothers as evidence of ANC attendance; before they could attend to them. Currently the number of women who attend ANC is high, those who get SP are growing but because they come late for ANC they are often overdue for the second dose of SP. In this respect BDMI should link up with other partners in the district to work out an appropriate role for TBAs who may be instrumental in getting ANC mothers to seek service in time to receive both doses of SP.

Cost is a major barrier in the purchase and use of nets. As a measure of sustainability and exit strategy OCGs were encouraged to form an umbrella body that would be able to coordinate sources of nets after the project. The Bungoma Community Health organization (BUCHO) was established and registered as a Community Based Organization (CBO). The participation of the community through organized groups in this project has been one of the innovative pathways to linking the community with the health care system. On discussion with BUCHO officials it was evident that although they are senior retired civil servants, they are not tested in their proposed role. Currently they have limited capacity to undertake the onerous responsibility of overseeing net distribution. They would require capacity building in financial management and marketing. Given that PSI nets are cheaper and that they have an established network in the district, their role as overseers of ITNs distribution should be explored.

At mid-term review it was recommended that USAID and implementing partners review the current monitoring and evaluation strategy. Two years later, this was not well articulated to the evaluation team. Whereas there has been activity level data that has facilitated interim adjustments in specific project areas, more rigorous data collection and collation did not occur. From the discussions with DHMT and particularly with the officer in-charge of records, other health providers and observations at health facilities, it is clear that this component of BDMI remains the weakest. Future support for the project should focus on monitoring and evaluation by way of designing tools to collect and collate project specific data on a continuous basis. This will be key given that the interventions are now consolidated and underway.

The lessons learned from the interventions under BDMI have wider application, nationally, regionally as well as internationally. This is particularly so with the community interventions of VTV and JKJ. With regard to community IMCI the activities in Bungoma will inform the national

assessment for community IMCI that is ongoing. Regionally, as a result of the presentation of the VTV manual, BASIS/Ghana and Uganda are reportedly adapting these approaches while organizations in Cambodia and Rwanda have requested QAP to assist in adapting these approaches.

Malaria remains a priority area and the integrative nature of the project reflecting case management, vector control, malaria in pregnancy and IMCI indicates that the BDMI project was really piloting the policies that are already spelt out at the national level. This is reflected in the National Health Sector Strategic Plan (NHSSP) covering the period 1999-2004. Within this Plan there are various strategies that are regarded high priority for morbidity and mortality reduction, specifically Malaria and IMCI strategies. In terms of validity and replicability, the BDMI was modeled in line with the national context and policies reflecting the health sector reform with emphasis on the decentralization, focusing on priorities and resource allocation.

Although the operations research component was expensive and therefore not so amenable to replication, this was a relevant and key exercise for the project in that it provided the necessary benchmarks that are important for monitoring and evaluation. In terms of viability, the IMCI component of the project is the most amenable to replication in that it is more inclusive/integrative in approach, addressing health issues in a continuum, from the health facility to the community level. The 16 components as a package can be addressed with the community as partners increasingly playing a key role in their own health. BDMI has just begun to implement some of the interventions that will inform the national needs assessment for community IMCI that is ongoing.

At the level of organization of the project it important to recognize that in the implementation of the key interventions, the DHMT, representing the MOH took the lead while the NGOs and CAs provided technical and logistical support. The synergy of interventions, as a result of complementary expertise did contribute to the capacity of the DHMT even when the work seemed like an overload. However, coordination for results at the appropriate time can be daunting particularly when some of the key players are not physically present. This was observed at mid term and some adjustments were made to improve the working relationships**.** Whereas AMREF was effective in the direct tasks/interventions with the DHMT the project coordinator seemed often experience difficulties as the coordination role did not come with any amount of leverage or control over the other CAs other than rely on persuasion and good will.

In spite of the late startup of most of the interventions, the overall impression is that the project has made notable contributions at policy and programmatic levels. Even though it was not feasible to measure impact at this point in time of the project, the trends are indicative of the potential contribution of the various interventions to maternal health and child survival.

1.4. **Recommendations**

- Create a balance between operations research and implementation of other project components during the project life to allow adequate time for interventions.

- In planning for a similar project it is critical to involve all relevant stakeholders and in particular the office of the PMO who would often backstop supervision as well as monitor the different NGO activities in the district to rationalize resource utilization.

- It is acknowledged that the Bungoma DHMT displays a high level of commitment and constitutes a much needed resource team for national level training. It is partly for this reason that supervision at the district level suffers. The DHMT will need to address this as a management issue; balancing the needs of the district against service at the national level.

- Bungoma DHMT will need to maximize on the use of available resources from partners working in the district on complementary health projects to effectively address issues of referral and supervision.

- There is need to support IMCI training to reach the target of 60%. In some instances, training using On-job-Training (OTJ) may be the way to go with intensive peer supervision to bridge the gap between trained and untrained health workers on IMCI. However, these approaches will need to be evaluated for their feasibility.

- Through appropriate training strengthen the capacity of TBAs to become advocates and change agents, emphasizing the importance of IPT for pregnant women and the need to attend ANC promptly.

- Links with poverty reduction programmes and local employers will be key in addressing issues of affordability for ITNs.

- Future support to Bungoma district should focus on support to community based interventions that have just been rolled out as well as M&E system, including development of monitoring tools that would be needed to collect data continuously and data management.

- At an appropriate time, undertake a household survey to gauge the impact of the project on the community, specifically on maternal health and child survival.

II. BACKGROUND

2.1. Introduction

According to the Kenya Demographic and Health Survey (KDHS) of 1998 under fives mortality has risen from about 80 deaths per 1,000 live births to currently 112 deaths per 1,000 live births. Maternal mortality ratio of 590 per 100,000 live births was also reported. The Kenya health system has been sensitive to this and through the establishment of the maternal and child health (MCH) programme; has attempted to address areas of morbidity and mortality specifically for the vulnerable groups; pregnant women and children.

In terms of disease burden 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. Malaria, ARI, diarrhoea, measles and malnutrition are the leading causes of mortality to over 70% of the deaths in this age group[1]. Malaria continues to have a major effect on the health and survival of children in Kenya, particularly in areas where malaria is endemic or where epidemics appear periodically. Since the mid-1980s there has been a re-emergence of malaria, in part due to increasing drug resistance and to inadequate health services.

In response, the Kenya Health Policy Framework Paper (1994) proposed strengthening of activities directed at the reduction of morbidity and mortality due to malaria. In order to achieve this, the Ministry of Health has developed the National Health Sector Strategic Plan (NHSSP) covering the period 1999-2004. Within this Plan there are various strategies that are considered high priority for morbidity and mortality reduction. Of relevance to the proposed evaluation of BDMI are the National Malaria and IMCI strategies. The National Malaria Strategy (NMS) aims "To reduce the level of malaria illness and death in Kenya by 30% by the year 2006 and to sustain that improved level of control to 2010"[2]. This strategy was launched in 2001 as part of Africa malaria day. In addition, Kenya has adopted IMCI as a strategy for reducing morbidity and mortality in children and enhancing child survival. The implementation of this strategy is already underway in 17 districts.[3] It is recognized that to meet the set goals in health, the development of partnerships under the umbrella of MOH as well as harnessing the role of the community as the recipients of the service is critical.

2.2. Bungoma District Malaria Initiative (BDMI)

The Bungoma District Malaria Initiative (BDI) 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 programme "The Africa Integrated Malaria Initiative" (AIMI), 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 this respect, the project is in line with and operates within the national set goals aimed at reducing morbidity and mortality among children under five years and pregnant mothers.

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[1] MOH: National Implementation Plan for Integrated management of Childhood illness (IMCI) Strategy 2001-2004

[2] Ministry of Health: National Malaria Strategy 2001-2010

[3] Ministry of Health: The status of IMCI implementation in Kenya

2.3. Goal and Objectives of the Project

The goal of BDMI is to reduce mortality and cases of severe illness due to malaria in Bungoma District.

Specifically the objectives of BDMI are:

- Improved management of fever and anemia, principally among children under-5 years of age, by health workers at the health facility.
- Improved capability of mother and other caretakers to manage fever and anemia at the 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.

2.4. Objectives of the Evaluation

The BDMI has been the single largest program working on the prevention and management of fever among children under the age of five years and in pregnant women in Bungoma district. The evaluation team is expected to assess changes in, or extent to which, the project has impacted on each of the objectives comprising:

- Management of fever and anemia at the facility and community levels as a result of the project
- Use of intermittent presumptive treatment (IPT) with sulfadoxine pyrimethamine (SP) for prevention of malaria in pregnant women in the district as a result of this project.
- Community access to ITNs
- Capacity of the DHMT to collect, analyze and use data for planning and for informing policy at the national level.
- Community and health workers knowledge and practices in regard to prevention, treatment and management of fever and anemia as compared to baseline surveys, initial needs assessment and any other relevant surveys and assessments

2.5. **Broad Hypothesis**

The broad hypothesis tested was whether the various interventions made a significant difference in the management of malaria among under-fives and pregnant women in Bungoma District.

2.6. **Methodology**

The evaluation team used a variety of approaches to address the Scope of Work as spelt out in the terms of reference (**Annex 1)**. To discern any changes that may have taken place, the issues raised at baseline were as much as possible raised at the end-line evaluation to facilitate comparability. Given the time frame the evaluation was organised as follows:

- *Review of documents*
  Baseline and current documents were reviewed. The review included appropriate policy documents and guidelines regarding management of anaemia and malaria among under 5s and pregnant women.

- *Preparation oft evaluation instruments* (Checklists, guides for focus group discussion, questions for exit interviews and simulation exercises).

- *Interviews and observations at health facilities* (Health providers, Exit with caregivers, exit with ANC clients and observations of management of a sick child as well as random check of management of previous cases in the register). Other approaches used for validation included simulation exercises around case management. For example: "If a child comes in with: fever, diarrhoea etc – what would you do?"
- *Spot check on supplies/inputs at the health facility*

- For logistical considerations the information pertaining to each of the objectives was collected simultaneously at the selected health facilities, and to some extent their catchment areas. A detailed field evaluation programme is attached as **Annex 2.**

- The level of collaboration between the Collaborating Agencies (CAs), which is crucial to this project, was measured by frequency of joint review meetings and the extent to which relevant adjustments were made to improve the implementation of the project. The linkages in terms of joint effort in dissemination of the findings were also explored. This was achieved through discussions with the DHMT as the project implementer and AMREF as the coordinator of the project as well as one of the CAs.

- At the policy level interviews were held with MOH officials particularly the relevant divisions of Child health (IMCI) and National Malaria Control programme. In addition organisations, which are programmatically linked to the project such as WHO, UNICEF, DFID were also interviewed. Other stakeholders/NGOs such as Population Council and AMKENI focussing on similar issues either in Bungoma or elsewhere were also interviewed.

- At the provincial level the PMO, Western Province was interviewed while at the district level members of the DHMB and the HCDCs were interviewed. In addition community representatives such as ANC mothers at exit, CORPs represented by TBAs, drug vendors and organized community groups (OCGs) were interviewed.

- Finally, a dissemination workshop was held at which the preliminary findings of the evaluation were presented. The list of participants is attached as **Annex 3.** Comments from the workshop have been incorporated in the final report.

2.7. **Presentation of the Report**

The presentation of the report is by objective showing the various activities undertaken, the tracking system of the indicators where possible and the extent to which the targets have been met by the end of the project. In as far as possible the constraints for achieving the targets have also been identified, discussed and recommendations made. In section IV key issues are presented and discussed. This comprises the management of the project; policy implications in the context of roll back malaria, sustainability and replication of elements of the project. Conclusions, recommendations and lessons learned are made. A financial analysis of this project has been made and is presented as a separate document.

III. Findings

Each of the objectives generated specific activities/interventions based on findings of pre-design and baseline assessments. The first two years of the project were devoted to process indicators so that operations researches and logistical activities dominated this initial phase of the project[4]. During the year 2000, planning of specific activities was provided for under each objective and this marked the beginning of a full-fledged intervention phase of the project. The following section presents the planned activities and achievements against the targets based on the project objectives.

3.1. Objective One: Improved management of fever and anemia, principally among children under-5 years of age, by health workers at the health facility.

Planned activities for this objective were:

Operations research to guide the interventions

Training:

- Laboratory microscopy for laboratory technicians and clinic staff
- IMCI case management for clinical health workers
- Malaria case management for health workers

Supportive supervision

These activities were based on the baseline findings of 1994 and evaluation of 1997, both before the initiation of the project. Key findings from these two activities (baseline and evaluation) were:

- Waiting time was long
- Short consultation time
- Inadequate clinical evaluation and classification of illness
- Poor client –provider interaction
- Children with health cards leave facilities without validation for immunization status
- Over-prescription and different medications
- Unclear instructions on medication
- Mothers were not told the diagnosis of their child's illness
- Quality of care for sick children was low

Data from a 1997 analysis of HWs performance immediately after training and 1-3 month post training as well as data from supervisory visits had documented a persistent problem with the identification, treatment and referral of children with severe illness. This deficiency was addressed in subsequent supervisory visits as well as the application of QAP principles to address barriers to

[4] Olenja, J. 2000. Mid-Term Evaluation of BDMI

consistent use of IMCI guidelines. Community pharmacies were also introduced to address the issue of drug shortage, utilizing revolving funds to purchase essential IMCI drugs.

In 2001 the DHMT introduced three interventions in 14 randomly selected facilities to further address concerns regarding health worker performance. These comprised:

1) Site visits by senior members of the DHMT to promote the consistent use of IMCI.
2) Incentives in the form of trophies and recognition to facilities that improve the quality of care of sick children.
3) IMCI clinical registers introduced to serve as a job aid for managing the sick child systematically.

At mid-term (June 2000) 125 health workers had been trained. By the year 2002 a total of 151 clinical health workers had been trained on IMCI case management. As a result of the training the number of health workers attending to sick children, in both GOK and NGO health facilities, who have received IMCI case management training rose from 5% at baseline in 1999 to 40% in 2002.

Development of supervisory checklists, supportive supervision and updates were continuously undertaken during the project period. The introduction of IMCI registers facilitated health providers in their management of under-fives in addition to the on-job-training for those yet to undergo formal training in IMCI. The following table 1 shows the extent to which the defined indicators have been achieved in terms of health worker training and performance.

Table 1: Indicators of Improved Management For Fever At Health Facility Level

INDICATORS	BASELINE	CUMULATIVE BY SEPT. 2002	TARGET BY DEC. 2002	COMMENTS
Number of health workers seeing sick children in both GOK and NGO health facilities who have IMCI case management training	5% (1999)	40%*	50%	Transfer and deaths of IMCI trained staff (about 30) may have contributed to limited achievement of set target.
Number of children<5 seen at outpatient with IMCI classification of very severe febrile disease who are correctly classified according to the IMCI guidelines	15% (1997)	50%**	50%	Several factors combined contributed to noted rise including: the introduction of clinical registers, provision of IMCI drugs by national IMCI Unit, and incentives (trophies and recognition) and the improved supervision.
Number of children<5 seen as outpatient with IMCI classification of very severe febrile disease who are correctly classified and treated according to the IMCI guidelines	Not measured	64%	50%	
Number of children<5 seen as outpatient with IMCI classification of very severe febrile disease who are correctly classified, admitted/referred according to the IMCI guidelines	0% (1998)	72%	50%	

* Target was originally 60% but was revised during the project period.
** Target was originally 80% but was revised during the project period.

The progress of health worker performance on completion of assessment tasks as required for all sick children based on the IMCI guidelines, has been tracked through a series of health facility surveys during the project period. Although the BDMI project started in 1998 there had been relevant pre-design project activities going back to 1994. For this reason assessments of this earlier period, particularly with regard to training are included for comparative purposes. Results of these are summarized in table 2 below. The indicators are measured against set targets.

Table 2: Health Worker Performance as Assessed Percent of Children (2-59 Months) for Whom General Assessment Tasks were Completed*

Assessment Task	Survey 1994	Survey 1997	Survey 2002
Ask about three general danger signs	0	42	73
Ask about cough/ difficult breathing**	76	90	96
Ask about diarrhoea	29	82	93
Ask about fever	83	93	97
Ask about three main symptoms	19	74	91
Ask about ear problems	3	67	84
Weigh the child	73	84	97
Check weight for age	44	53	77
Undress the child completely	***	45	76
Check palms for pallor	5	73	88
Check the immunization history	59	86	90

Source: Herman, E. HFS 2002

* The denominator includes all children presenting for initial visit and without missing results i.e. 553 for the 2002 HFS, 586 for the 1997 GOK-HFS and 747 for the 1994 Baseline.

** If a caregiver told the HW that the child had a symptom, the HW was credited as having asked.

*** Information not collected during the 1994 survey.

The training enabled health workers to look for important signs and symptoms that were ordinarily missed. Notable changes were looking for ear problems (3% to 84%) and anaemia (5% to 88%), asking about three danger signs (0 to 73%) and seeking the three main symptoms (19% to 91%). This is evident in **Figure 1a** and is amplified in **figure 1b** where these key areas of notable change are isolated for eases of reference**..**

Figure1a: Distribution of Proportion of Sick Children whose Specific signs and Symptoms were sought for between 1994 and 2000

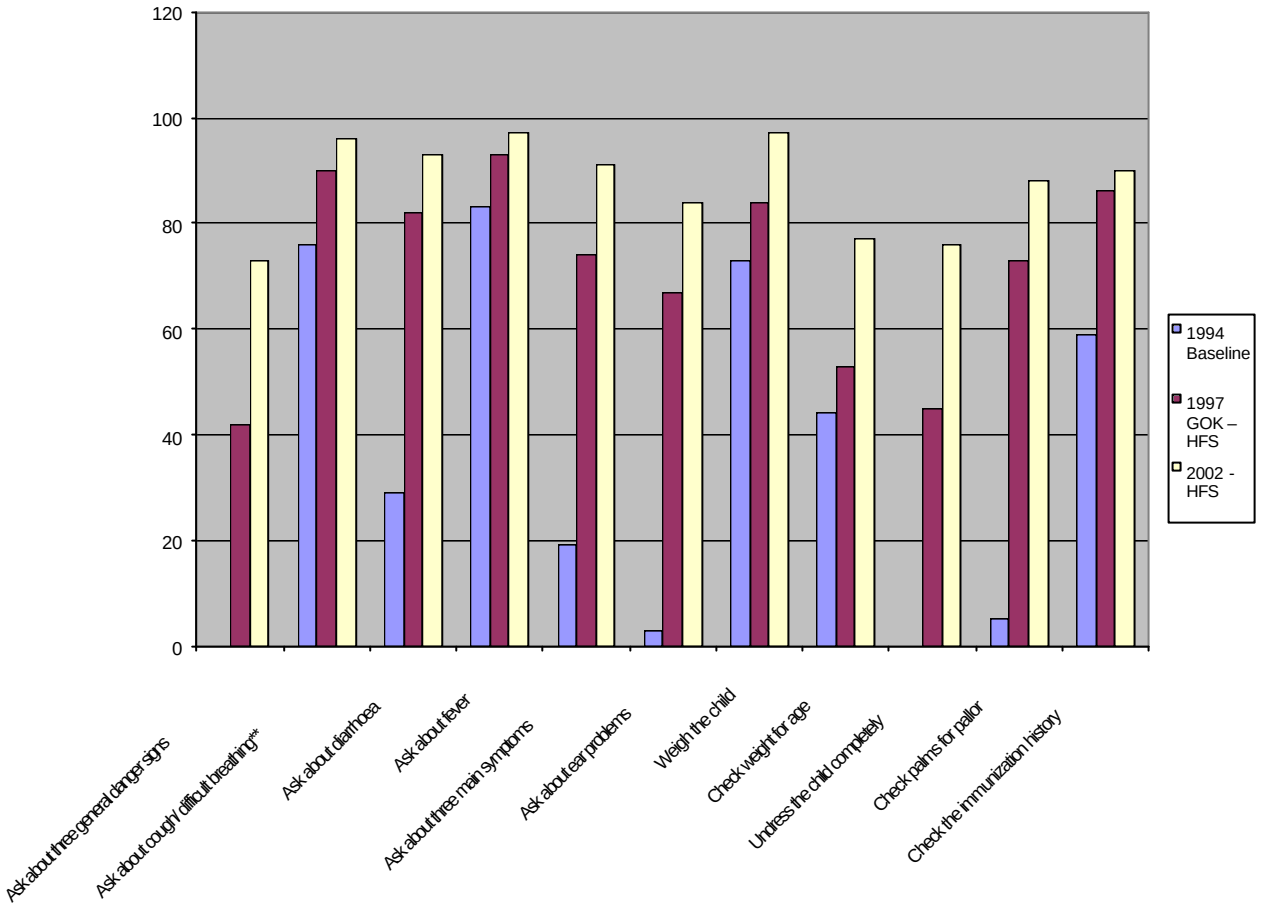
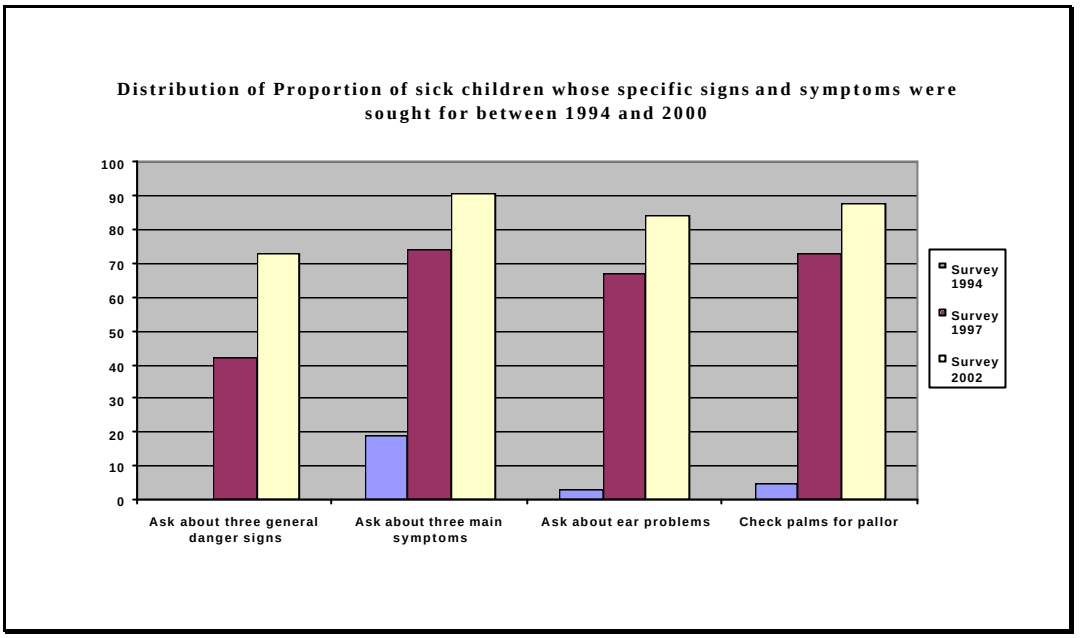


Figure1b: Distribution of Proportion of Sick Children whose Specific signs and Symptoms (with the most notable changes) were sought for between 1994 and 2000



As evident in table 3 and figure 2 below, in 1994 caretakers of sick children were mainly asked about duration of illness; for cough, diarrhoea and fever. Rarely were respiratory rate assessed (2%), thirst (1%) or neck stiffness (2%). But after training there was marked improvement in the latter three as shown over the project period. There is a marked rise in assessing dehydration, checking for neck stiffness and measuring respiratory rate, all at greater than 70%. Overall there is marked improvement in health worker capability to manage under-fives with fever at the facility level.

Table 3: Percent Children (2-59 months) for whom Symptom-specific Assessment Tasks (required by the IMCI Guidelines) were Completed*

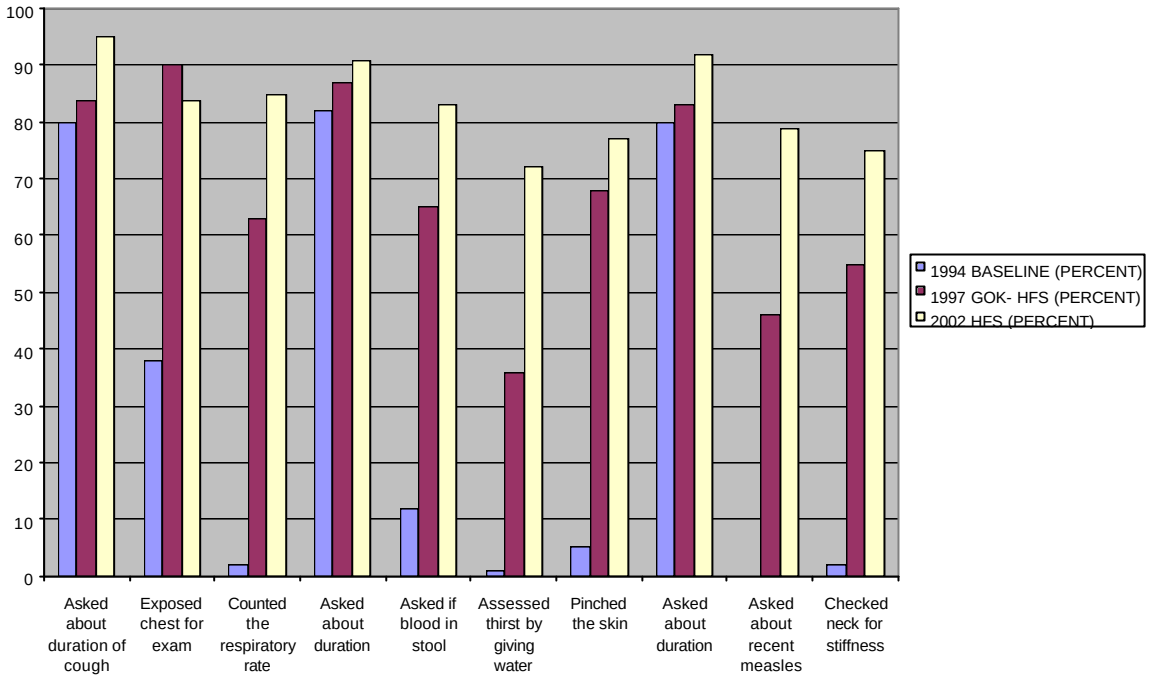
Denominator	Assessment task	Survey 1994	Survey 1997	Survey 2002
Children with cough or difficult breathing	Asked about duration of cough	80	84	95
	Exposed chest for exam	38	90	84
	Counted the respiratory rate	2	63	85
Children with diarrhoea	Asked about duration	82	87	91
	Asked about blood in stool	12	65	83
	Assessed thirst by giving water	1	36	72
	Pinched the skin	5	68	77
Children with fever	Asked about duration	80	83	92
	Asked about recent measles	**	46	79
	Checked neck for stiffness	2	55	75

Source: Herman, E. HFS 2002

* The denominator includes all children with the symptom and without missing observations.

** Information not available.

Figure 2: Distribution for sick Children from whom Symptom-specific Assessment Tasks were Completed



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At midterm it had been observed that health workers had difficulties in classifying and treating severe illness. Several support activities were suggested to improve this. The following tables (4 and 5) compare the performance of health workers evaluated immediately after IMCI training (EOT) and 1 to 3 months after IMCI training (1-3MPT) in 1996 and 1997 with the performance of IMCI-trained health workers observed during the 2002 health facility survey. Figures 3&4 isolate the performance of health workers with regard to classification and treatment of severe illness respectively.

TABLE 4: Number of cases of moderate and severe illnesses and percentage of illnesses correctly classified by health workers trained in the Integrated Management of Childhood Illness guidelines:

Classification	EOT 1996-1997 No. (%)	1-3MPT 1996-1997 No. (%)	2002 HFS No. (%)
Severe			
All severe classifications*	**173 (31)**	**72 (24)**	**62 (52)**
Severe Pneumonia/VSD	**71 (45)**	**25 (32)**	**24 (55)**
Very severe febrile disease	**48 (23)**	**24 (13)**	**28 (65)**
Severe malnutrition	**36 (19)**	**17 (18)**	**3 (25)**
Moderate			
All moderate classifications**	677 (85)	156 (83)	565 (80)
Pneumonia	115 (90)	27 (78)	118 (79)
Malaria	384 (96)	96 (96)	347 (96)
Acute ear infection	32 (28)	7 (43)	3 (38)
Anemia	80 (73)	16 (56)	48 (43)

* Cases of severe dehydration, severe persistent diarrhea, severe complicated measles and severe anemia are not listed individually but are included in the analysis of all severe classifications.

** Cases of diarrhea with some dehydration, persistent diarrhea, dysentery, chronic ear infection and very low weight are not listed individually but are included in the analysis of all moderate classifications.

Source: Herman, E. HFS 2002

Figure 3: Percentage of severe illnesses correctly classified by health workers trained in the Integrated Management of Childhood Illness guidelines

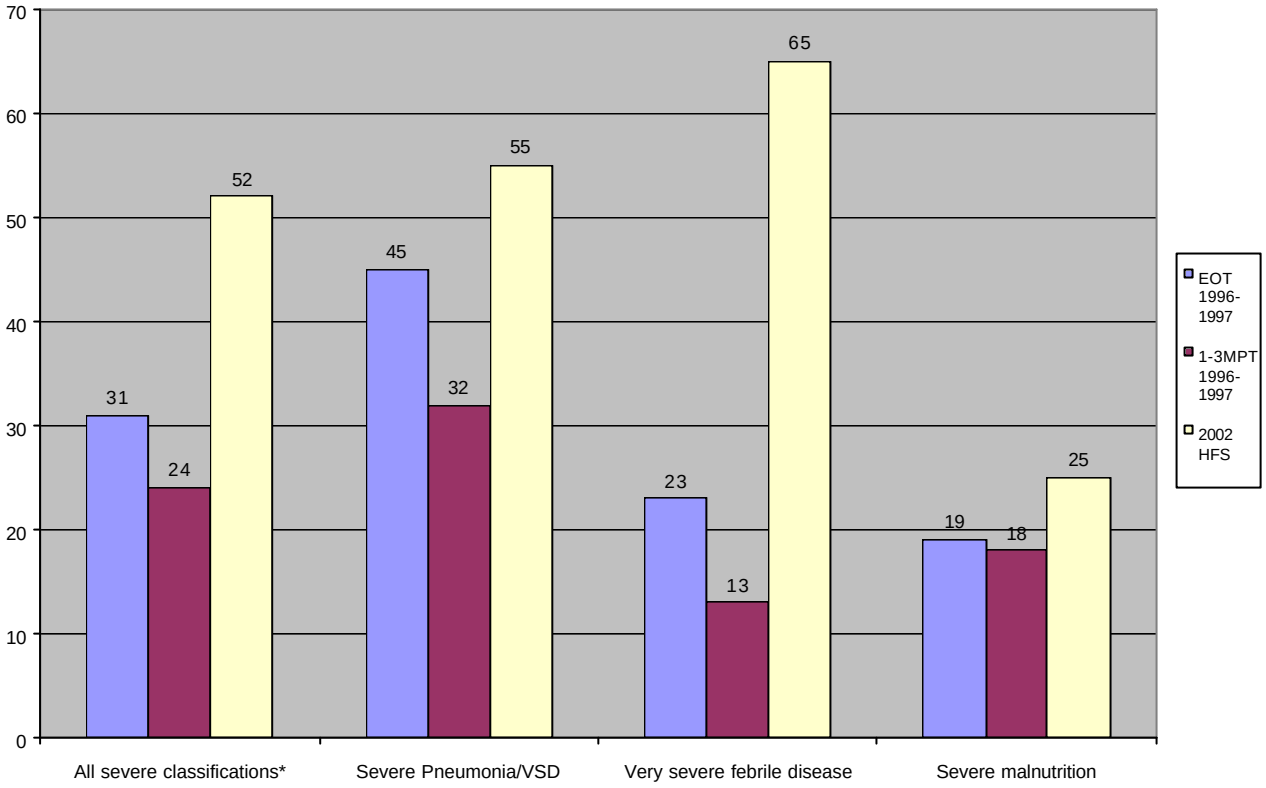


TABLE 5: Number of cases of moderate and severe illnesses and percentage of illnesses correctly treated* by health workers trained in the Integrated Management of Childhood Illness guidelines:

Classification	EOT 1996-1997 No. (%)	1-3MPT 1996-1997 No. (%)	2002 HFS No. (%)
Severe			
All severe classifications**	**173 (32)**	**74 (26)**	**63 (55)**
Severe Pneumonia/VSD	**71 (38)**	**25 (48)**	**31 (72)**
Very severe febrile disease	**48 (31)**	**24 (8)**	**24 (57)**
Severe malnutrition	**36 (11)**	**17 (6)**	**3 (30)**
Moderate			
All moderate classifications***	656 (84)	152 (85)	536 (77)
Pneumonia	115 (88)	27 (67)	116 (78)
Malaria	384 (95)	96 (99)	337 (93)
Acute ear infection	32 (63)	7 (86)	3 (38)
Anemia	80 (54)	16 (38)	49 (45)

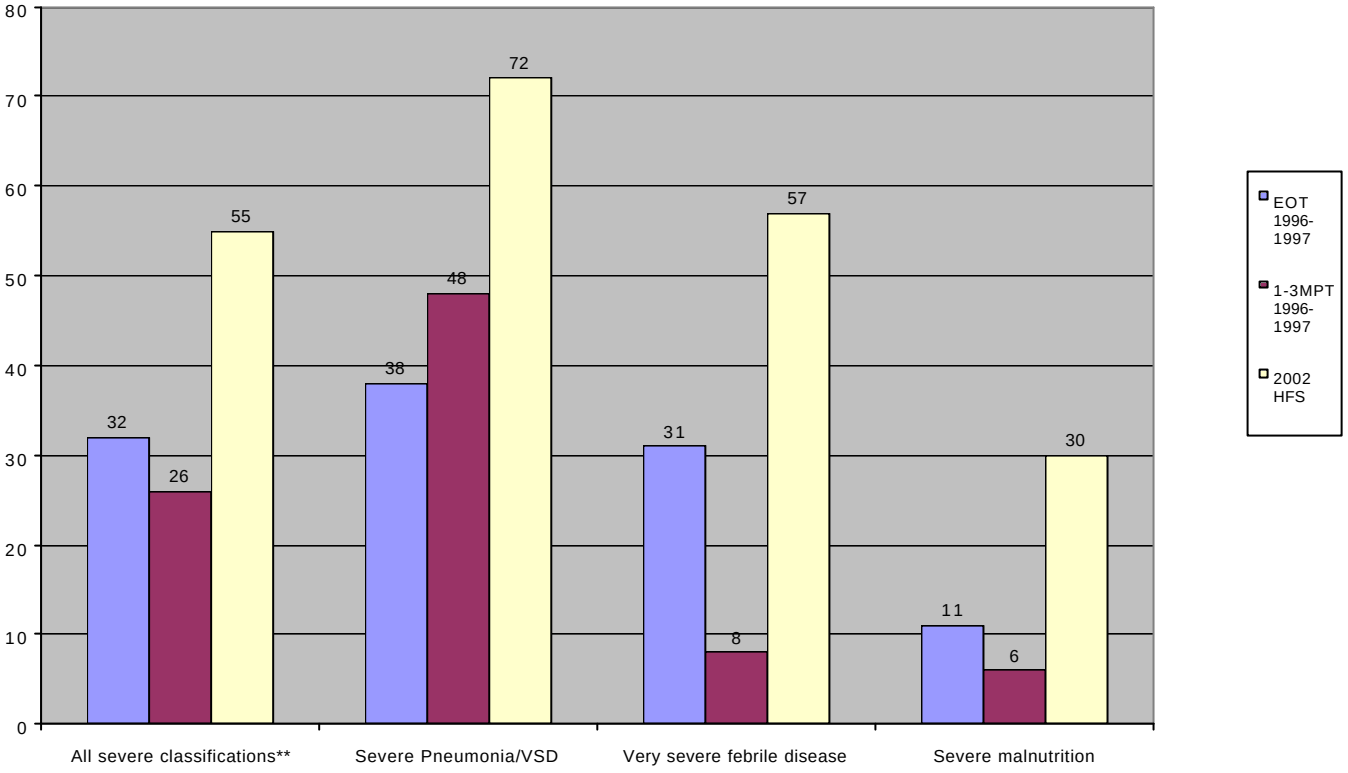
* Correct medication prescribed (not including dosage) and child referred if indicated.

** Cases of severe dehydration, severe persistent diarrhea, severe complicated measles and severe anemia are not listed individually but are included in the analysis of all severe classifications.

*** Cases of diarrhea with some dehydration, persistent diarrhea, dysentery, chronic ear infection and very low weight are not listed individually but are included in the analysis of all moderate classifications.

Source: Herman, E. FHS 2002

Figure 4: Percentage of severe illnesses correctly treated by health workers as observed over the three period- EOT, 1-3 months after training and end line evaluation (1994, 1996/97 and 2002)



As Tables 4&5 indicate and amplified in figures 3&4, health workers performed well at the end of IMCI training in completing assessment tasks and in classifying and treating moderate disease, but performed poorly in classifying and treating severe illness. The findings also suggest a small decline in performance, particularly in classifying and treating severe illness, in the short follow-up period following training. However, the consistent improvements in performance of trained health workers in the 2002 survey suggests that factors other than training alone must have had an impact on performance (Herman, E. 2002).

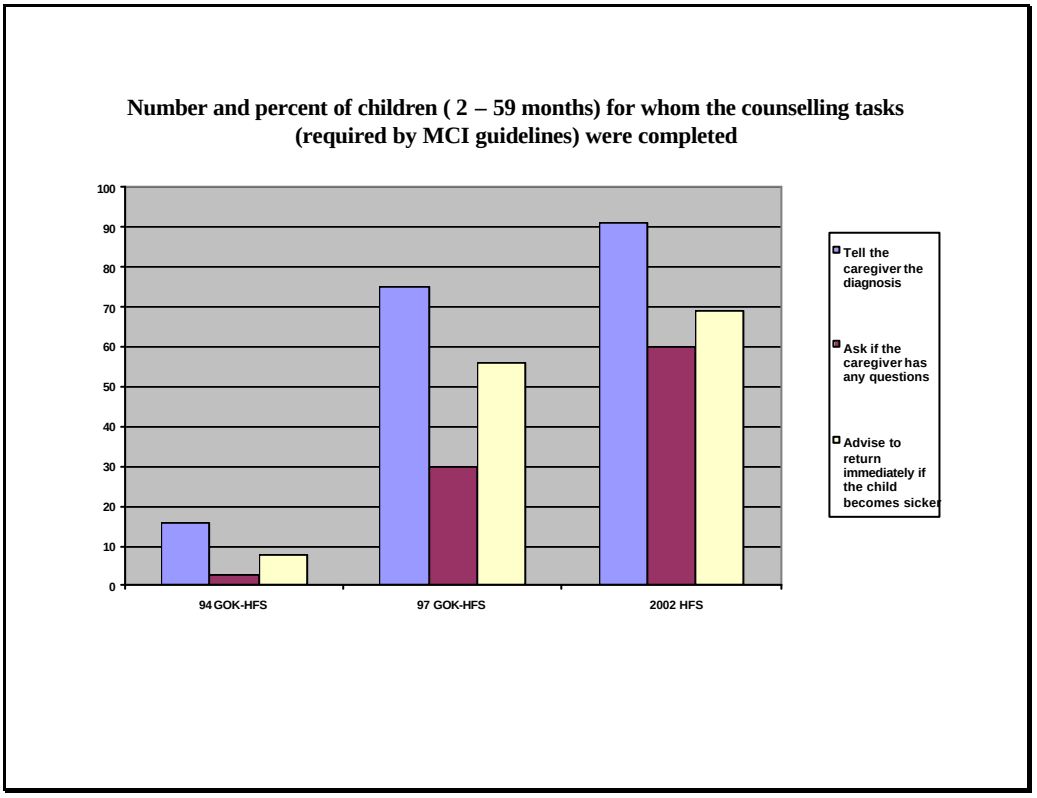
At the 1994 baseline no support counseling for follow up took place; however after training the 1997 follow-up survey, indicated that health workers had began to undertake this task even though it was still low; at less than 50%. Counseling was also identified as a major challenge by the (WHO/MOH 2002) evaluation team. Advice on return of the child if the child does not improve was given by a significant number of health workers (75%) at follow up in 1997-, which would be the baseline for BDMI. Findings from the HFS 2002 show marked improvement. This was particularly marked in telling the caregiver the diagnosis (16% to 91%); Asking whether the caregiver has questions (3% to 60%) and advice to return if the child does not improve (8% to69%)
This improved to 30% in 1997 and to 60% in 2002.

Table 6: Percent* of Children (2-59 Months) for whom the Counseling Tasks were Completed: *A comparison of results from the 2002 HFS with results from the 1994 baseline and the 1997 GOK-HFS*

Counseling Task	94 GOK-HFS	97 GOK-HFS	2002 HFS
Tell the caregiver the diagnosis	16	75	91
Ask if the caregiver has any questions	3	30	60
Tell the caregiver to give extra fluids	n/a**	33	54
Tell the caregiver to continue feeding or breast feeding	n/a	48	58
Advise to return immediately if the child cannot drink or breast feed	n/a	37	48
Advise to return immediately if the child does not improve	8	56	69
** Information not available			

Source: Herman E: Report on Findings From The Health Facility Survey 2002.

Figure 5: Percent of children (2-59 months) for whom the counseling tasks were completed.
A comparison of results from the 2002 HFS with results from the 1994 baseline and the 1997 GOK-HFS



When asked about encouragement to using the IMCI guidelines in their daily practice, health workers who attended to sick children, (45.3% strongly agreed that other health workers encouraged them to do so. Fewer health workers (36.4% cited in-charges as encouraging them to use guidelines; an observation that needs to be addressed as in-charges; by virtue of their position should support their staff.

Table 7: Percent Distribution of Health Workers' Perception of Support to Use IMCI Guidelines with Every Sick Child 2002 HFS, Bungoma District, Kenya (N=84 Health Workers)

	Strongly Agree No. (%)	Agree No. (%)	No opinion No. (%)	Disagree No. (%)	Strongly disagree No. (%)	Not Applicable No. (%)
Other HWs encourage you to use IMCI with every sick child	29 (45.3)	25 (39.1)	1 (1.6)	4 (6.3)	1 (1.6)	4 (6.3)
The in-charge encourages you to use IMCI with every sick child	28 (36.4)	20 (26.0)	3 (3.9)	2 (2.6)	0 (0)	24 (31.2)

Source: Herman, E. Health facility Survey 2002

3.1.1. Health Systems support

The support system that includes availability of equipment, drugs, workload and working space are also considered as they influence performance over and above training and supervision. These would facilitate provision of services appropriately for sick children if they were functional.

In 2002 it is noted that out of the 30 facilities surveyed 22 had ORT corners (Herman 2002). But WHO/MOH team that visited the district in 2002 also observed that "… ORT corners were inadequately provided for in a number of the health facilities visited". In terms of drug supplies it was observed that all facilities had either amoxycillin or cotrimoxazole in stock- the recommended medications for treating pneumonia. For malaria treatment, additionally all facilities had amodiaquine and only one did not have sulfadoxine/pyrimethanmine in stock **(see Annex 4).** Transport for emergency referral was not readily available in some health facilities visited and there was no monitoring indicator in place to specifically track it in the health facility report yet it is crucial for an effective referral system.

3.1.2. Observation at Selected Health Facilities

On observation in selected health facilities (10) health providers who are IMCI trained were found to provide optimal service, a reflection of the earlier findings of the health facility survey (Herman 2002). Based on a random review of case management at the health facility and observation there is an overall impression of good practice. Out of the 13 health providers observed 11 were found to be undertaking correct assessment, correct classification and correct treatment. It was observed that the health workers had varied performance on the assessment of suspected symptomatic HIV infection and this may be due to several re-adaptations, which took place even after refresher training. The health workers were comparatively taking a shorter time with the client than immediately after training (currently 20 minutes per client which is reasonable for a comprehensive examination).

Untrained health providers were also practicing IMCI using job aids. They were positive about their work and said they would require supportive supervision and eventually formal training in IMCI to get certified. In 14 health facilities where IMCI registers are piloted the clinic assessment was better

and it would seem that such a register routinely used would guide good practice that is important. It was said that the production of the registers is expensive and for this reason they may not be used widely even though they greatly support the health worker practice. Job aids, especially for those health providers who are not trained in IMCI appear to be useful in the management of sick children.

The supply of the IMCI supplementary drug kit has ensured that at any given time drugs are available for treatment. In a few health facilities notably, Kimalewa and Kimaiti, irregular supply of drugs was experienced. While this would ordinarily be common to all health facilities, those with an active Community Improvement Fund (CIF) utilized the funds for drugs and other supplies when need arose.

3.1.3. *Health Provider Perspective on IMCI*

Health providers across the health facilities visited noted that there was a marked improvement in the management of sick children using IMCI guidelines that facilitate the comprehensive examination and management of a sick child. Referral had been reduced to a minimum, as they were able to manage most cases locally. This is a reflection of what was intimated at the mid-term review 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"(Olenja 2000).*** At Mid-term when the IMCI approach was not yet entrenched, in one 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. While this was the feeling at mid-term, currently, the health providers seem to be comfortable with the time they take with clients, suggestive that they are now more appreciative of the IMCI approach.

3.1.4. *Client's Perspective of Services*

The community perspective on IMCI would best be captured through a comprehensive community survey. For the purpose of this exercise these perspectives are captured at ANC and caregivers exits. Client appreciation of the IMCI approach has continued to grow. At mid-term Caretakers interviewed were impressed with IMCI and appreciated the comprehensive manner in which a child was handled. The undressing of a child was an indication of the health worker's thoruogh examination of 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. These views were echoed at the final evaluation of the project.

Through exit interviews caregivers were asked about their perspective of the service received. Most caregivers were satisfied with the comprehensive examination of the child and treatment. Waiting time and service, which had been an issue in some respect, was said to be satisfactory. Of the cases that were observed health providers spent on average 20 minutes with the child. Conversely counseling of caregivers appeared inadequate with non-IMCI trained staff and caregivers were not told the diagnosis, leaving the health facility dissatisfied. In Naitiri health centre, it was explicitly stated that patients referred others to use the service and noted an improved client –provider interaction.

Community confidence in the health workers was attributed to the detailed examination. In one health facility one of the IMCI untrained health providers noted that ***caregivers had with time come to recognize those providers who were more thorough and insisted that these see their children; thus creating discomfort among the health providers and therefore under pressure to be trained as well.*** In addition, the comprehensive examination enables health providers to pick missed immunization and that as a result of caretakers' appreciation of the service, vitamin A uptake is on the rise (Naitiri). The issue of client satisfaction was realized in all health facilities visited and reflected a move towards client-oriented service

3.1.5. *Lessons Learned*

- Training, supportive supervision and complementary inputs towards health systems support enhances the skills and capability of health workers to provide quality care.

3.1.6. Recommendations:

- Enhance supportive supervision.
- Evaluate On-Job- Training, peer supervision and subsequently work out modalities of certification of On-Job-training (OTJ) noting that training for IMCI, though necessary is very expensive
- During training there is need to focus much more on counseling skills to ensure client oriented services.
- IMCI clinic registers should be used widely to support health worker practice.

3.2. Objective 2: Improved Case Management at Household and Community Levels

Prompt and effective treatment of malaria in sick children is part of effective case management, whether performed by health workers in health facilities or by caretakers in the home. This is built on the premise that many sick children including those who die from malaria are rarely taken to formal health facilities (Meek et. al. 2001). Given this, more attention has been given to reaching caretakers, and involving the informal health providers. The second objective of this project was to educate the caretakers to recognize malaria as an illness so that appropriate treatment can be sought. Key indicators to assess this are:

- Caretakers knowledge of preventive measures of malaria
- Use of bed nets
- Treatment compliance
- Prompt care seeking
- Appropriate management of sick child at home

Baseline surveys on care seeking behaviour revealed that over 47% of malaria cases are treated at home as the first form of contact and of these 91% were started by the second day of fever, with chloroquine and often incorrect dosage (Hamel et al 2001). The medication was obtained from a variety of local shops, chemists and pharmacies. This prompted a needs assessment of potential drug vendors and their practice. The assessment revealed that while most shopkeepers had never received training on drug use and 87% were giving their customers some instruction on dosages. However, 27% could not differentiate between anti-malarials and anti-pyretics (DHMT 1998).

Based on these findings a series of interventions were implemented by DHMT, QAP and AMREF to improve prescribing practices at these different outlets for medicine. The planned activities to address this objective were:

1. Training
    - Drug vendors
    - IMCI for health workers
2. Consumer education on appropriate malaria prevention and treatment (5-5 pyramid education approach)
3. Household and community IMCI training for health workers and CORPs

The Vendor-to-Vendor education was designed to equip vendors with relevant skills in order to serve the community better. The training focused on:

General information about malaria
Signs and symptoms of malaria
Dangers of malaria especially to children and ANC mothers
Prevention and treatment of malaria
Kenya Gazette Notice on SPs & Part II Poison Act

The development of job aids as well as the training of wholesale drug vendors was expected to facilitate communication between vendors and clients. Vendors were supplied with two job aids, a shopkeeper job aid and client job aid. As part of a social marketing strategy the drug vendors proudly wear T-shirts and caps with messages on malaria treatment.

Using the mystery client module the vendor- to- vendor (VTV) intervention was internally evaluated in 2000. This showed that that 66% of the vendors displayed job aids and most had significantly improved knowledge and prescribing practices. Furthermore 63% of the shoppers who purchased SP at intervention outlets were given the correct dosage (Tavrow, Shabahang and Makama 2002). These findings resulted in the strengthening of VTV education and practice through training of more vendors.

As a complementary to this activity, the Jirani-Kwa-Jirani (JKJ) intervention was instituted principally to address the knowledge needs of clients in the community; empowering them to demand for the correct drugs and dosage. They were also expected to share similar information with neighbours. JKJ involved training of Public Health Technicians who would in turn train 5 community members each. These would then train 5 others each. This relay system was seen as a feasible way of social mobilization for the management and prevention of malaria. As reinforcement, the approach also utilized a comic book on control of malaria commonly known as **Mushauri WA Nandako** - a brochure dialogue on appropriate treatment of malaria for the under-fives at home. This was used in conjunction with ***"Homa inaweza kuwa ni malaria"*** - an MOH brochure on correct treatment and prevention of malaria. Although these community-oriented interventions had only been implemented for three months before internal evaluation (BDMI quarterly report April-June 2002), the findings are encouraging. In relation to performance towards the second objective; in this activity it was shown that:

- 73% of the outlets (vendors, shops, chemists) in the intervention areas knew correct dose of fansidar compared to 49% in the control sites
- 90% of community members in the intervention areas knew that fansidar can be sold in shops whereas 69% in control sites knew this
- 95% of vendors in the intervention knew they should not sell under-dosages whereas in the control this was 89 %
- 63% of community members in the intervention area knew fansidar is not too strong for children compared to 39% in control area.

Similarly, on evaluation of the Jirani-Kwa-Jirani intervention it was found that:

- 61% of community members had asked for the drug they purchased by name
- 46% of the targeted community had been exposed to the messages compared to 14% in the control area
- 57% of those exposed to messages on malaria management had purchased correct dosages and treatment compared to 35% in the control site

As a result of these complementary interventions there is indication of improved management of fever at the household level to the extent that the proportion of caretakers who had relevant IEC materials has surpassed the target (54% versus 50%). Although the number of under-fives managed effectively at home is below the target it is well above the baseline (see table 8).

Table 8: Improved Management of Fever at Household Level

Indicators	Baseline	Cumulative by September 2002	Target by December 2002	Comments
Number of general retail shops in rural areas selling SP	0% *	36%	40%	The vendor-to-vendor approach and close monitoring coupled with change in policy on SP contributed to this increase
Number of children <5 with an episode of fever prior to two weeks who were treated at home with an effective anti-malarial drug according to national policy	35%*	61%	90%	The JKJ 5-5 pyramid education was instrumental in achieving this target
Number of caretakers of children <5 who received IEC message on case management at home	Not measured	54%	50%	The JKJ 5-5 pyramid education may have been largely instrumental in achieving this target

*Baseline 1998. It is also notable that at this point in time SP had not been gazetted as a drug of choice to be sold off the counter without a prescription.

At exit interviews with caregivers it was evident that they are knowledgeable on what to do when there is fever. They are able to recognize key signs and symptoms of disease. However, in some cases there was discrepancy in treatment. They said they would give panadol or paracetamol but rarely reported use of SP. The variance in management may be due to the fact that **NANDAKO** had only been implemented in 4 sub-locations and is yet to be rolled out in the other sub-locations. In terms of prevention for malaria, use of bed nets was low even though there was an expressed desire to have them. Poverty was cited as the barrier to use of nets.

Another strategy employed in the project was a visit by implementers to Siaya and Uganda who were already implementing IMCI. With the lessons learned, AMREF and the DHMT conducted community assessment of community practices for community IMCI in 2001. This was followed by the establishment of district CIMCI committee; drawing membership from various sectors and training of community own resource persons (CORPS) on the use of simplified malaria guidelines. As part of the implementation strategy, AMREF and the DHMT developed knowledge/information packages to facilitate training of the health workers/CIMCI trainers. The packages are presented in four main broad categories of the key family/community practices adopted from WHO and UNICEF in June 2002 as follows:

- Growth and development
- Home care of minor childhood illness
- Care seeking and compliance
- Disease control

The use of schools as an approach was applied. So far CIMIC activities have been introduced in 40 schools. Pupils have been used to collect household based morbidity data and priority areas identified. Across the board, malaria ranked the highest. Through the children key areas in nutrition and hygiene are addressed. The key focus is on teaching, treatment and prevention, particularly clearing bushes, draining stagnant water and use of bed nets. One teacher asked about IMCI said:

" It is working well - people can get appropriate treatment rather than MARAMOJA- a painkiller".

3.2.1. Lessons Learnt

- The use of existing vendors as outlets for medication in communities can be enhanced through updates and provision of IEC materials.
- Exposure to new ideas can lead to the development of innovative strategies such as the use of committees for IMCI interventions at community level, which was the case in this project.

- Children as an entry point into communities are an efficient and feasible approach for addressing health issues in a broader context while linking home and schools.

3.2.2. Conclusions

- The vendor to vendor and **Jirani-kwa-Jirani** are complementary interventions, one addressing the issue of access and the other awareness of effective and prompt treatment of malaria at community level.

- Drug vendors have existed, often filling a gap due to a weak health delivery system. Thus the project has used an existing channel that has then been empowered to serve the community better. Currently there are about 70 Drug Vendors in the district and 58 have been registered.

- The vendors appreciate the knowledge and the job aids, which facilitate their contribution to malaria prevention and control at community level.

- The involvement with the project and particularly the training accorded them legitimacy as an income-generating group. This has implications for sustainability of this intervention given that vendors were already in existence as health service providers at the community level.

Vendors experience challenges that include: low investment capital; poverty, which reduces purchasing power of community; availability of the recommended drugs and infrequent supervision by MOH staff. In spite of these challenges, this strategy has greatly influenced access to appropriate medication. Based on their own observation and experience the vendors noted that there were now fewer deaths in the communities and they attributed this to the availability of drugs locally and therefore prompt care seeking.

3.2.3. Recommendation:

Scaling up of implementation using approaches such as these at the community level should be the objective for an extended part of the BDMI project. As an exit strategy capacity building in terms of financial management and investment in the local structures such as vendors and schools that steer implementation of these activities is crucial for sustainability.

3.3. Objective 3: Improved Prevention and Management of Malaria in Pregnancy

To reduce the risk of morbidity and mortality among pregnant women, anaemia and low birth weights among newborns, intermittent preventive treatment with SP has been recommended as policy in Kenya and has been implemented in Bungoma under BDMI. A baseline study by CDC and DHMT recorded among others that:

- Anaemia and low birth weight were problems, with the highest rates recorded among primigravidae
- Health workers had little understanding of malaria prevention in pregnancy and how prophylaxis differed from treatment. Most were not aware of the new policy on Malaria prevention in pregnancy
- Only 4% of pregnant women had used malaria prophylaxis
- 16% of pregnant women reported the use of bed nets.
- TBAs were perceived to have an important role in pre-natal care, but had limited community and facility support

An assessment of TBA services and practical skills (MABS, Population, Health and Development Consultants, 2001) revealed that generally TBAs undertake unsafe and risky practices and some failed to refer patients with complications. It was also evident that although pregnant women attend ANC, a majority of them deliver at home with TBAs.

Based on this background, several activities were planned to address prevention and management of malaria in pregnancy. These included:

- Ensuring provision of SP for IPT
- Training of health workers on malaria in pregnancy including SP IPT
- Training of TBAs
- IEC materials production

3.3.1. *Training of health workers on malaria in pregnancy*

The purpose of this training was to equip health workers with knowledge and skills in management and prevention of malaria in pregnancy. A total of 240 (82%)health workers out of the target of 270 (90%) have been trained.

3.3.2. *Training of TBAs*

Under BDMI TBAs were identified as key in the provision of antenatal and delivery services at the community level. An appropriate curriculum with input from the DHMT and MOH Headquarters was developed. Under this project the target was to train 300 TBAs. However, only 100 of them were trained in November 2002**.** The delay in training of TBAs was due to a concomitant delay in the approval of the curriculum by the MOH and the Nursing Council.

3.3.3. *IPT coverage*

The orientation of health workers on Malaria in Pregnancy and the introduction of SPs and ANC cards in the health facilities in Bungoma was initiated in 2001. An assessment for IPT coverage was conducted in October 2002 consisting of a household survey and an exit interview at health

facilities. This survey was undertaken in 30 clusters (sub-locations) randomly selected from the 109 sub-locations in the district. The target population was mothers of children less than 2 years old. A total of 319 respondents were interviewed. About 94% had attended ANC at least once during their pregnancy. At the exit interview, of the respondents given SP 65.7% had taken one dose and 34.3% had taken two doses. Thus on introduction of this intervention, although the SP uptake increased significantly to over 60% in 2002 up from 4% in 1998 (Williams and Mungai 1999), this was essentially for one dose as clients came too late to qualify for the second dose.

Table 9: Improving Management of Malaria in Pregnancy*

Indicators	Baseline	Cumulative by September 2002	Target by December 2002	Comments
Women who delivered in the last 6 months and who took 2 doses of SP as an intermittent preventive treatment	4%**	34.3%	40%	The training of health workers, provision of IEC materials and supportive supervision help achieve these targets
Number of ANC workers who have received orientation training in preventive intermittent treatment with SP	0%*	82%	90%	

Source: BDMI Quarterly Report, July – September 2002
***Baseline 1998**
** Baseline 1999

In the health facilities visited during the evaluation pregnant mothers were noted to come late but just in time to receive a single dose. Very few women take the second dose of SP. This is demonstrated by data from Kimalewa and Chwele health centers as shown in table 10 below.

Table 10: Uptake of SPs by ANC Mothers: July - December 2002 in two Health centres

	Chwele H/C			Kimalewa H/C	
	1ST Dose	2ND Dose	Net	1ST Dose	2ND Dose
July	170	21	21	42	6
August	137	43	32	27	4
September	164	54	37	26	9
October	158	61	37	24	10
November	134	88	41	40	5
December	135	72	35	-	-

Discussion with health providers alluded to the observation that pregnant mothers came late for ANC; mostly in the 8th month, a confirmation of a baseline study by CDC, which revealed that whereas 65% of mothers come for ANC they do so late in their pregnancy. This is corroborated with the observation that of the 11 clients who had been seen in Kimalewa in January 2002 three of them were already overdue for SP. One of the clients who were observed came in for treatment, claimed to have a gestation of 5 months but on examination she was 36 weeks and had therefore to be admitted but was clearly overdue for SP. With reference to the skills of the health workers, most of them knew when to give SP except in Kimalewa where a mother missed to be given SP even

though she was 8 months pregnant. This anomaly illustrates the need and the importance of support supervision.

One of strategies for malaria prevention is that a pregnant mother sleeps under a treated net to prevent malaria. Through the promotion and sale of nets in the community, awareness has been created. At baseline in 1998 only 16% of pregnant mothers were reported to sleep under a net (William and Mungai 1999). This had only marginally risen to 18% by (2001) whereas the target is 40% by the year 2002. On observation in one of the health facilities (Chwele) fewer mothers reported use of nets as indicated in table 4. On discussion with the health providers and exit interviews with ANC clients the issue of cost was reported to stifle use of nets.

3.3.4. Lessons Learnt

- Training as a strategy without follow-up to ensure appropriate practice and support cannot effect change in the management of malaria in pregnancy.
- Late attendance for ANC means that fewer clients take the two doses of SP. Repeat visits would provide the opportunity to take SP as stipulated.
- TBAs are a good source of information that is the basis for change at the community level. Therefore appropriate use of TBAs would complement the work of health workers at facility level.

3.3.5. Recommendation:

There is need to have in place a strategy to ensure appropriate ANC attendance. One alternative is to train TBAs as change agents rather than service providers. This would ensure that they act as advocates in the community particularly to encourage women to attend ANC appropriately. The project would need to team up with other partners in the district to address this issue.

3.4. Objective Four: Promotion of Insecticide Treated Nets (ITNs) use at Household Level

Promotion of the use of ITNs is critical in the prevention of malaria at the community and household level. The focus in the BDMI project is on access and use. In response to this the following activities were planned:

- Operations research
- Training of health workers and CORPs on malaria vector control and use of ITNs
- Establishment and monitoring performance of ITNs distribution outlets
- Training teachers and strengthening school health clubs

At baseline it was established that only 12% of households owned one net purchased from shops (Some 1999). Of these 25% knew about re-treatment of nets and 21% had retreated nets. In terms of the vulnerable groups and use of nets, 5% of children less than five years of age had slept under a bed net and none of the nets had been treated (Hamel et al 2001). This figure had risen to 8% by 2001.

Activities of the first two years of the project after the baseline surveys included, community mobilization for ITNs; establishment of Organized Community Groups (OCGs) for the distribution

of ITNs, development of training materials and training. In 2000 there were 15 OCGs and by 2002 this had risen to 70, surpassing the estimated number of one outlet per location. There are 44 locations. Access to bed nets was therefore enhanced.

In the final year of the project various activities were initiated including establishment of new ITNs distribution outlets as an effort to improve accessibility. To this end 27 additional organized community groups were established as outlets and their officials trained on financial management, leadership, business skills, interpersonal skills, as well as malaria prevention and control. In addition there were promotional campaigns, using public health technicians to give talks in schools and providing visual aids in market places to popularize the use of bed nets.

An important community activity is the recognition of the role of schools in malaria prevention activities. A total of 40 schools were selected to spearhead these activities. Two teachers in each of the schools have been trained on household/community IMCI key practices including malaria prevention and treatment. School health clubs have been formed and students have become key players in message relay to their families and other children. Relevant IEC materials have been provided to these schools.

In August 2002, an assessment of ITN coverage was undertaken in 30 clusters (sub-locations) and the findings indicate that mosquito net coverage is 31% up from 12% in 1998 and re-treatment is 28.5% from 21%. About 19% of children below five years sleep under a mosquito net. This is evident in table 11 below.

Table 11: Percent Distribution of indicators on nets between 1998 and 2002Insecticide Treated Materials

Indicators	**Baseline**	**Cumulative by Sept 2002**	**Target by Dec. 2002**	**Comments**
Number of households that own and use at least one net	12% **	31%*	30%	The entry of PSI with cheaper nets; The 5-5 pyramid training approach, opening of new distribution outlets and the school health activities contributed to these achievements
Number of children <5 who slept under a mosquito net the previous night	5% **	19.2%	30%	
Number of pregnant women who sleep under an ITN	16% ***	20.3%	40%	
Number of ITN retreated within the appropriate time	21% **	28.5%	30%	

** This is in spite of the observation that bed net sales were going down. The first six months of May to September 2000 there were 417 nets sold, January to December 2001 there were 6110 nets sold and January to December 2002 there 4935 nets sold. This might be due to entry of PSI whose bed nets are cheaper.*
*** Baseline 1998*
**** Baseline 1999*

Despite the issues of poverty and affordability, there is a gradual increase in the use of bed nets for the vulnerable groups; pregnant women and children. Source: PSI 2002 in MOH/DMC 2002

3.4.1. Lesson Learnt

Availability of nets is not necessarily equal to use. Financial access is a major factor in the use of nets.

3.4.2. Conclusions

- The increase in the sale of nets is as a result of concerted efforts at the community level through the various complementary interventions of vendor to vendor, Jirani-kwa-Jirani and an aggressive provision of IEC materials at strategic points such as shops, schools and health facilities.

- Cost remains a major barrier in the purchase and use of nets. Possible solutions were discussed but there is need to revisit this issue with the community members, the outlets and suppliers.

- Given that PSI nets are cheaper and they have an established network in the district, their role as overseers of ITNs distribution should be explored.

3.5. Objective Five: Collection of Data and Use of Information for Planning, Monitoring and Evaluation

To monitor trends in malaria morbidity and service utilisation rates, a basic tool is record keeping at the health facilities. From the discussions with DHMT and particularly with the officer in-charge of records, it is clear that this component of BDMI remains the weakest. Elaborate indicators were developed by CDC and subsequently revised by DHMT to suit their needs but this was not effective; to the level that would have been expected.

Indicators for the project under this objective such as the number of rural health facilities that produce timely reports on morbidity and mortality, number of visits by supervisors were tracked and the trend over time is shown in table 12 below

Table 12: Distribution of Indicators on Data Collection over the Project Period, Improving Data Collection

Indicators	Baseline	Cumulative by September 2002	Target by December 2002	Comments
Number of health facilities receiving supervisory visits at least twice annually	10%*	5%	80%	DHMT involvement in other activities affected this activity
Number of health facilities that submit monthly reports by 15 day of the following month	43%* *	21%	60%	Few supervisory visits by DHMT affected the activity

*Survey of 1999
**Survey of 1998

No set mechanism for data collection, collation and documentation were in place and therefore. Record keeping, submission of reports and monitoring of the project was not fully satisfactory. As a result useful data that could have been generated has not been sufficiently captured quantitatively.

The IMCI checklist is in place and has been used for monitoring and evaluation but these data has not been analyzed on a regular basis. What has contributed to adjustment in health worker performance is the assessments undertaken by Cas, particularly CDC.

DHMT agreed that all data generated is not adequately captured in the District Health Management System. Nevertheless as a pilot the project could have collected project specific data systematically to facilitate monitoring and evaluation of the project. For instance Population Council has been able to continuously collect data on IPT in all the health facilities in Bungoma for the year 2001 using designed tools. Part of the reason why information is not available at the district level is that supervision is not as frequent as it should be otherwise the problems with recording and reporting should have been detected sooner.

Documentation and dissemination of available information as a record of lessons learned was limited. This was corroborated by the PMO and the DHMB. On reviewing the MOH Annual report for Western province, whereas recent projects such as AMKENI and Population Council are covered BDMI is not. An interview with the current and outgoing DHMB revealed that whereas they appreciated the project, they would have liked to have feedback or update from the project more often as community representatives. As it is, they were invited to a meeting in 2002 after a long time only to be informed that the project is coming to an end when as far as they are concerned it had just attained the stage for take off.

To a limited extent there has been an attempt to share information. For instance the project coordinator and some members of the DHMT have prepared papers for presentation at workshops internationally and locally. These have been largely based on materials from the community component of the project specifically on ITNs. In one instance a dissemination workshop was held in 2002 to share the initiatives of VTV and JKJ. Scientific papers may have been presented and published in international journals by the CDC team but this was not verified. One would have expected that the coordinator of the project would have this information available but this was not the case. It is plausible to state that in terms of broader dissemination this has not occurred. This is evident in Seltzers' report of 2002 in which it is noted that: ***"none of the research studies was cited in either of the WHO papers on IMCI (Gelbond and Stansfield 2001) or on malaria control (Meek et al .2001). Nor does it seem to be any association between Multi-Country Evaluation of IMCI and the BDMI project (WHO 2001)"***.

3.5.1. **Lessons Learned**

- Information is critical for planning and implementation. The lack of this affects performance. This is reflected in the indicators for other objectives of the BDMI.
- Management systems at the district level including supervision results in a failure to achieve targets especially in Health information system
- For project visibility dissemination is a critical component of project implementation

3.5.2. **Conclusions**

- Development of appropriate tools to collect/collate data on a continuous basis will assist program/project monitor, revise and or implement activities rationally.
- Management styles, including delegation and shared responsibility in ensuring improved performance will need to be addressed by the DHMT
- Future support to the project should focus on improving data collection and collation. This will be key given that most of interventions are now consolidated and underway.
- Ensure dissemination and wider use of project/study findings.

IV. Discussion: Key Issues

This project had five components that were implemented over a five-year period albeit with variant startup points. Case management through the implementation of IMCI is fully entrenched in the health facilities in Bungoma with a supportive health system particularly in terms of drugs supply and trained personnel. Community IMCI was initiated later in the project, partly because of the project design that had an initial focus on health facility level activities and partly the need to keep pace with the national level concerns over the implementation of IMCI. A range of factors influences the implementation of the project principally: project management and capacity building, working relationships/partnering and levels of engaging the community. Specifically, at the implementation and programmatic level, data management and information dissemination, support supervision and the ability to refer as well as follow up are critical. However, supervision and referral remain a challenge to the project.

4.1. Project Implementation and Capacity Building

Project implementation has gone on well and more importantly contributed to capacity building of the DHMT members. Training of DHMT members as TOFs, on IMCI case management and PRA were cited as key areas that have empowered the DHMT. The DHMT prides itself in having a training team consisting of a course director, two clinical instructors, nine facilitators and nine supervisors who serve at the national level as trainers. Participation in research is an additional area that was cited and there are examples of studies undertaken singly by the DHMT. Of particular reference are the VTV and JKJ interventions, which were largely executed by DHMT with minimal technical support from QAP. On discussion with the DHMT it was observed that IMCI training has enhanced health worker approaches such that children under five are managed appropriately. Demand for training in IMCI is so great that retirees are requesting to be trained in IMCI so as to be effective private practitioners. In addition it was observed that health services have been revolutionized such that there is a partnership between the service provider and the client and by extension the community.

4.2. Project Coordination and Working Relationships

The BDMI had multiple players each bringing in their unique contributions. A project that has several operating agencies has advantages but may also have its pitfalls. Based on the mid-term review, the working relationship between the CAs was not always very clear often-causing confusion and undue overload to the DHMT. It was reported that in the last three years (2000 – 2002) of the project have witnessed tremendous improvement in the working relationships. Part of the reason has been that USAID became more proactive in ensuring that the CAs provided plans for their activities that were then synchronized for implementation. AMREF as the coordinator was able to organize the CAs and agree on the timing for implementation of given activities. This was preceded by a clear delineation of key roles for each CA so that CDC took the lead in IMCI and Malaria in pregnancy; Community activities especially ITNs were the prerogative of AMREF; Vendor-to-Vendor and JKJ activities were led by QAP. All these were governed by ground rules/expectations drawn by the DHMT and AMREF. Data collection, analysis and dissemination were supposed to be crosscutting. Further collaboration was through the exchange of meetings and quarterly reports.

However, because a majority of the CAs were as not physically present in Kenya, planning and implementation of activities often presented a challenge. There were fewer consultations than would be the case if the CAs were physically present and keeping to schedules; especially with regard to production of reports remained problematic. A case in point is that although some important studies that would have been key for the final evaluation were undertaken, the production

of the final reports had not been finalized at the time of the final evaluation. At this point, the coordinating agency did not seem to have sufficient control over the CAs in the production of results.

4.3. Contribution of Operations Research to Project Interventions

Operations research, though expensive and time consuming was necessary as a baseline for project activities. For example the baseline data on malaria in pregnancy was instrumental in the training of health workers in IPT and introducing SP for IPT for pregnant women at health facilities. Since then the uptake of IPT has progressively increased. Similarly BASICS undertook community formative surveys, which spearheaded activities in Community IMCI. Those activities included development of training materials to address delays in care seeking, appropriate home care and referral. The VTV, JKJ and the development of job aids' interventions support community initiatives in malaria prevention and control. The Job Aids assisted in anti-malarials thus enhancing capability while JKJ brochures served to create an informed consumer to demand for correct treatment from the shopkeepers. Whereas at baseline very few people slept under nets, on introduction of ITNs community members are buying nets, initially in small numbers. The project, among others, has initiated innovative approaches to health among community members in Bungoma district.

Out of the operations research CDC developed indicators for tracking the implementation of the various interventions. The indicators guided the subsequent interventions of assessment and evaluations. So far the project addressed 16 indicators out of possible 31 indicators. Interventions were designed as a response to address the issues raised in the operations research. Thus Operations research findings helped to shape the nature and scope of the interventions that were strategically designed to address project needs. These were built into the Bungoma District Health Plans and the DHMT began to include priority areas as identified in the operations research. These areas formed the focal points of activities becoming an integral part of MOH activities

4.4. Supportive Supervision

Although separate IMCI clinical supervision continued throughout the BDMI project, it was not to the extent originally planned. No supervisory visits were conducted between first October 1998 and fourth April 1999. Only 65 percent of the supervisory visits planned for the period between April 1999 and September 1999 were completed (Ngugi 1999), so health workers did not benefit from supervisory support to the extent anticipated. In the year 1999 the number of health facilities that received supervision were estimated at 10%. Based on this, a target of 80% was set. In the interest of sustainability and the thinking that the DHMT would have to take up IMCI supervision by incorporating it in the routine DHMT supervision, an attempt was made to this effect. However, this did not work well due to the difficulty of coordinating multiple schedules (Seltzer 2002). Thus IMCI supervision dropped to a low of 5% of the number of health facilities receiving supervision at least twice a year in 2002. This was also partly because the supervisors were involved in IMCI case management training in Homa Bay, Vihiga and Kakamega districts (BDMI quarterly report April-June 2002)

As support supervision is key to improving and maintaining health provider skills, it remains a major challenge for the future of health worker performance and other ways will have to be explored to address this. In facilities where in-charges are trained IMCI supervisors, there is an attempt to supervise the other health workers and this seemed to work well. This may fall in line with the current thinking to promote peer supervision[5]. The evaluation team was informed that

[5] Personal communication with AMKENI representative

MOH with the support of AMKENI was in the process of working on decentralized supervision whereby the PMO would play a central role in training facilitators at the facility level who would in turn spearhead peer supervision of on-job-training and give certification. This would improve on performance as well as cut down on training costs. On-job-Training is already underway in some facilities in Bungoma and would therefore fit in well with this arrangement.

4.5. Referral

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. Essentially IMCI is designed to operate in the periphery as initial management and this underscores the importance of having an adequate referral system. Referral remains a major bottleneck to IMCI. 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 two health facilities: Naitiri and Karima patients who are referred often come back to the same health facility or do not go at all partly due to transport problems. Thus lack of appropriate transport for referral contributes to delays in completing referral. Even where there is transport lack of money among most households militates against this. For this reason caregivers may not accept the child be referred expecting the start treatment to be adequate or the health provider to complete referral care at this first level of contact. This problem was evident during the mid term review of the project and seems to persist. To address this issue the DHMT has renovated a land rover that is stationed at Tongaren for use by adjacent health facilities that can contact each other on cell phones. Since referral is beyond the redress of the project, innovativeness on the part of the DHMT, the HCDCs and the community hold the key to this problem.

4.6. Malaria in Pregnancy and the Role of TBAs

To accelerate the uptake of IPT uptake requires that pregnant mothers are encouraged to attend ANC. This in turn calls for a concerted effort both at the facility level by ensuring that SPs are readily available but also that at the community level potential ANC mothers are prompted to seek this service. The closest people to pregnant mothers in the community are TBAs and wield immense influence in this regard.

Currently the role of TBAs is ambivalent. TBAs exist as community structures that have been seen at one level as contributing to ANC and postnatal care. There are proponents who advocate for their training and use in the absence of skilled staff, while those against TBAs argue that high maternal mortality is experienced where TBAs command a large following of pregnant women. The shift from TBAs to skilled delivery either at a health facility or at community level has been prompted by the consistent observation, that every pregnancy is a potential risk hence the need to plan delivery at a site with adequate labour monitoring systems and adequate referral facilities**.** These arguments are raised against the backdrop of the reality that in Bungoma district 68% of the deliveries are conducted at home with the TBA in attendance. Given this, a crucial point is to identify the appropriate role the TBA can play to facilitate appropriate care seeking behaviour among ANC clients especially in respect to use of SP and focused antenatal care.

4.7. Establishing Community Partnerships

A key component of this project is the role of the community in the realization of the objectives both as actors as well as recipients of services. With the establishment of the CIMCI the role of the community comes into sharp focus. Perhaps the most notable is the formation of social groups to address directly issues of health and entrepreneurship. These are the Organized Community Groups (OCGs) and the vendors who prepare and distribute nets as well as prepare drugs and other relevant IEC information. The fact that these are established community structures assures a form of sustainability. However support is still required for these groups, particularly in financial management.

4.8. Other Partners Working in Bungoma

Apart from the BDMI project, there are other projects operational in Bungoma on related health issues. AMKENI has been working in Bungoma for about two years now. AMKENI focuses on the broader issues of reproductive health, which include safe motherhood and child survival at which level they would be focusing on similar issues as BDMI. AMKENI has selected twelve health facilities, which include two as "centres of excellence." So far they have trained health workers, which include the DHMT on RH and safe motherhood. It has also trained health workers on IMCI in Lugari district. AMKENI works through CBOs, which would then be complementary to the CORPS who are instrumental in mobilization for the implementation of IMCI activities and malaria prevention.

The Population Council has been implementing a safe motherhood demonstration project in Western Kenya including Bungoma district. 31 health workers have been trained on safe motherhood and delivery sets have been provided to 8 dispensaries. As with the BDMI, the Population Council works through the DHMTs, DHMBs and HCDCs as well as forging community partnerships to enhance safe motherhood and child survival. FHI through IMPACT implement HIV/AIDS programme, working through CBOs. As part of coordination of activities in Western province all the NGOs working in Western Province have quarterly meetings chaired by the PMO. These meetings have the potential to review activities, strengths, approaches and rationalize use of resources

4.9. The Contribution of the Project to the MOH Policy and Programming

The DHMT, as the key arm of the MOH, is the implementing agency for BDMI. This is evidenced by the lead role they play in each of the objectives of BDMI; while the project facilitates the logistical inputs. There are notable interventions that were pioneered by the DHMT under BDMI and have an appeal at the national level. These include the CIMCI for which the DHMT have developed training materials. JKJ intervention was spearheaded by DHMT with minimal assistance from QAP. These are already being rolled out in other districts through the support of MOH. For instance, Kilifi, Homa Bay and Vihiga have visited the BDMI over the JKJ. As of January 2003 there were plans for some DHMT members to travel to Kilifi to provide technical support on the implementation of JKJ.

Through the V-T-V component anomalies in drug dosages had been detected and this prompted a change in policy on SP. The DHMT was instrumental in the development of the National Malaria Guidelines and IEC materials that are visible in health facilities and market centres. A pool of trainers exists in Bungoma and is often called upon by the Ministry to train nationally. The DHMT has also contributed towards the development of the National Training Curriculum on TBAs.

In terms of sustainability of the project, all the IMCI drugs are supplied by the MOH. The IMCI/WHO Report for 2002 observed that the DHMT owns the process of IMCI in Bungoma district (IMCI/WHO, 2002). The yearly work plans were prepared jointly with USAID, MOH, DHMT and AMREF. In this regard the DHMT in Bungoma has demonstrated the practicability of collaboration among national and donor agencies towards achieving a common goal, while forging and maintaining a national outlook.

4.10. Exit Strategy and Issues of Sustainability

This was a five-year project, but clearly addressing issues that are entrenched in the wider health care system that would have to continue long after the project. Many of the activities implemented under the project are key activities of the MOH namely: training, supervision and health systems support. The project has facilitated the implementation of these key activities. At exit the activities will go on albeit at a scaled down level in view of the large amounts of inputs required. However, there are other partners already in place who may contribute to the various activities. For instance funds from DARE project which supports Reproductive Health (RH) under which IMCI falls could be used to support training. The presence of AMREF would provide continuity in that Western Kenya remains a project area for AMREF and Bungoma would presumably become one of the priority areas.

Apart from USAID, other partners such as Rotary Club have been indirectly supporting BDMI activities for example the development of IEC materials on malaria and IMCI for use in Bungoma, Vihiga and Kilifi. AMREF also expects support from the European Union (EU) for Community IMCI in Ndivisi (a disadvantaged division in Bungoma, having no health facility), HIV/AIDS in Nyando, Kisumu, Homa Bay and Turkana. The MOH through the WHO hopes to receive funding for Roll Back Malaria (RBM) from DFID. AMREF plans to negotiate and access some of this funding for malaria activities in Bungoma. AMREF has also prepared a concept paper to SIDA who are planning to work in the greater Lake Victoria region with a focus on health, agriculture, fishing and infrastructure.

4.11. Lessons Learned for wider Application

Is The BDMI Model Still Valid and Therefore Replicable?

- The BDMI was modeled in line with the national context and policies reflecting the health sector reform with emphasis on decentralization, focusing on priorities and resource allocation. Malaria remains a priority area and the integrative nature of the project reflecting case management, vector control, malaria in pregnancy and IMCI indicates that the project was really piloting the policies that are already spelt out at the national level.

- It is also important to recognize that in the implementation of the key interventions, the DHMT (representing the MOH) takes the lead while the NGOs and CAs provide technical and logistical support.

- The synergy of interventions, while seeming to create overload, did contribute to the cumulative positive effect on health provisioning and promotion at the community level and equally stimulating community involvement at various levels. The V-T-V and sell of ITNs contributes to individual economic uplift as well as community health.

- Although the operations research component was expensive and therefore not so amenable to replication, this was a relevant and key exercise for the project in that it provided the necessary benchmarks that are important for monitoring and evaluation. In terms of

viability, the IMCI component of the project is the most amenable to replication in that it is more inclusive/integrative in approach, addressing health issues in a continuum, from the health facility to the community level. The 16 components as a package can be addressed with the community as partners, increasingly playing a key role in their own health.

- The MOH was already implementing the first component of IMCI in some districts. A national needs assessment of CIMCI was underway at the time of this evaluation and would draw from the implementation of the same in Bungoma under BDMI.

- Aspects of the project such as V-T-V and JKJ have already sparked interest in other districts such as Kilifi, Homa Bay and Nyando where there are plans to implement the same. In the course of January 2003 some of the DHMT members were to travel to Kilifi to provide technical support in setting up the strategy of JKJ.

African Integrated Malaria Initiative (AIMI)

- IMCI, which is key in the implementation of BDMI, involves complementary interventions in the community, at health facilities and improvements in the overall health system. IMCI was used as a mechanism to accelerating this. This is consistent with the global initiatives of AIMI and RBM. Given that BDMI was implemented along other similar projects in Malawi and Benin it should be possible to compare the lessons learned in all the three countries.

Roll Back Malaria (RBM)

- The goal of RBM is to combat malaria through intersect oral collaboration, community action, Partnerships and support. In 2000, WHO's Roll Back Malaria and IMCI task forces held a joint meeting in Harare and recommended steps for scaling up the two approaches. Subsequently, a framework was developed to scale up RBM and IMCI implementation in African Countries (WHO/AFRO2001). The IMCI activities undertaken so far within BDMI contribute, in some measure to all three components of the WHO implementation strategy for RBM.

- **E**xperiences and lessons learned, particularly the role of community partnerships and collaborative efforts between different agencies with complementary expertise evident in BDMI's efforts in both malaria control and IMCI tie into the proposed framework of RBM and would serve as a practical guide for scaling up implementation (Seltzer 2002).

- The RBM focus, and specifically indicators for Kenya tie in well with BDMI programmatic options for reducing morbidity and mortality among children under the age of five years and among pregnant women as well as strengthening local capacity to deliver effective and sustainable integrated malaria control at the health facility and community levels. (See Annex 5)

5.0 Conclusions

In the project document there were process and outcome as well as impact measures spelled out for each of the objectives. Jointly they were expected to contribute towards lower child/maternal morbidity and mortality. However, it is important to note that the timing of implementation of the different interventions is varied. Apart from IMCI interventions, which were initiated even before the formal BDMI project, most of the interventions started implementation in year 2000 and 2001, at the time of the mid-term evaluation. Therefore, for this end of project evaluation it is more feasible to talk about trends rather impact, which requires a longer period of implementation, stringent monitoring and evaluation of project activities and careful account of the contribution of other players within the district.

The BDMI operated within the national set goals aimed at reducing morbidity and mortality among children under five years and pregnant women. In this respect, two integrated strategies were being tested: one to improve the care of sick children and the second to reduce the burden of malaria especially in children and pregnant women and by extension, the community as a whole. The project has provided useful baseline information on knowledge, attitude and practices both at the health facility and community levels. This has in turn informed refinement and adjustments in the implementation of the project; allowing for flexibility and innovativeness in the project design as a response to the various demands created in the course of the project life (Seltzer 2002),

IMCI training and supervision has contributed to improved capability among health workers. Multiple evaluations of IMCI case management have shown that quality of care can be improved with a reasonable level of support (Herman, HFS, 2002). Based on a random review of case management at the health facility and observation there is an overall impression of good practice. Out of the 13 health providers observed 11 were found to be undertaking correct assessment, correct classification and correct treatment. This is largely reflected in the Health facility survey (Herman, HFS 2002). The provider-client interaction has improved as measured by the frequency of health workers welcoming the client, giving advice and telling the diagnosis. However, because of the synergy of interventions it is also plausible to argue that the successes visible in IMCI would also be attributable to the presence of other NGOs providing complementary training and systems support.

Client appreciation of the IMCI approach noted at mid-term evaluation has continued to grow (Olenja 2000). Caretakers were happy with the fact that they were told the diagnosis and that drugs were administered instantly. These views were echoed at the final evaluation of the project. Through exit interviews, caregivers were asked about their perspective of the service received. Most caregivers were satisfied with the comprehensive examination of the child and treatment. Waiting time and service, which had been an issue in some respect, was said to be satisfactory. Of the cases that were observed health providers spent on average 20 minutes with the child. This is consistent with the HFS 2002 finding that providers spent on average 24 minutes (Herman 2002).

Training and supervision are the most expensive aspects of the IMCI but they also constitute critical inputs at the health facility level for any significant impact in the provision of quality care. Consequently there are several options under consideration to sustain training and supervision. For cost-effectiveness of the IMCI strategy pre-service training is an option. There are discussions between MOH and relevant training institutions to revise the curriculum to accommodate IMCI. Meanwhile on-job-training that was already working in Bungoma and peer supervision need to be evaluated for their feasibility and modalities for certification.

The community IMCI was launched as an essential component of the IMCI strategy at the first IMCI global review and Co-ordination meeting in September 1997. CIMCI focuses on 16 practices covering an array of primary health care practices, largely preventive and promotive. BDMI has just begun to address some of these, particularly malaria control and prevention. The vendor to vendor and Jirani-Kwa-Jirani are complementary interventions, one addressing the issue of access and the other awareness of effective and prompt treatment of malaria. Drug vendors have existed, often filling a gap due to a weak health care delivery system. These two interventions are instrumental in the rollout of community IMCI in the district and should be supported.

From a community perspective TBAs are a key resource yet from a programme standpoint their role in maternal health remains ambivalent. In the context of BDMI, their contribution is yet to be realized as only 100 were trained in November 2002. Given the divergent views on the role of TBAs the project could well recast this emphasizing their role as change agents and advocates in the community; particularly encouraging women to attend ANC appropriately. Currently the number of women who attend ANC is high, those who receive SP are growing but because they come late for ANC they are often overdue for the second dose of SP. In this respect BDMI should link up with other partners in the district to work out an appropriate role for TBAs who may be instrumental in getting ANC mothers to seek service in time to get both doses of SP.

Cost is a major barrier in the purchase and use of nets. As a measure of sustainability and an exit strategy OCGs were encouraged to form an umbrella body that would be able to coordinate sources of nets after the project. The Bungoma Community Health organization (BUCHO) was established and registered as a CBO. The participation of the community through organized groups in this project has been one of the innovative pathways to linking the community with the health care system. On discussion with BUCHO officials it was evident that although they are senior retired civil servants, they are not tested in their perceived role. Currently they have limited capacity to undertake this responsibility of overseeing net distribution. They would require capacity building in financial management and marketing. Given that PSI nets are cheaper and that they have an established network in the district, their role as overseers of ITNs distribution should be explored.

At mid-term review it was recommended that USAID and implementing partners review the current monitoring and evaluation strategy. Two years later, this was not well articulated to the evaluation team. Whereas there has been activity level data that has facilitated interim adjustments in specific project areas, data collection and collation did not occur. From the discussions with DHMT and particularly with the officer in-charge of records, other health providers and observations at health facilities, it is clear that this component of BDMI remains the weakest. Future support for the project should focus on monitoring and evaluation by way of designing tools to collect and collate project specific data on a continuous basis. This will be key given that the interventions are now consolidated and underway.

The lessons learned from the interventions under in BDMI have wider application nationally and regionally. This is particularly so with the community interventions of V-T-V and JKJ. With regard to community IMCI the activities in Bungoma will inform the national assessment for community IMCI that is ongoing. Regionally, as a result of the presentation of the V-T-V manual BASIS/Ghana and Uganda are reportedly adapting these approaches while organizations in Cambodia and Rwanda have requested QAP to assist in adapting these approaches.

Although the operations research component was expensive and therefore not so amenable to replication, this was a relevant and key exercise for the project in that it provided the necessary benchmarks that are important for monitoring and evaluation. In terms of viability, the IMCI component of the project is the most amenable to replication in that it is more inclusive/integrative in approach, addressing health issues in a continuum, from the health facility to the community level. The 16 components as a package can be addressed with the community as partners, increasingly playing a key role in their own health. BDMI has just began to implement some of the interventions that will inform the national needs assessment for community IMCI that is ongoing

At the level of organization of the project it important to recognize that in the implementation of the key interventions, the DHMT (representing the MOH) took the lead while the NGOs and CAs provide technical and logistical support. The synergy of interventions, as a result of complementary expertise did contribute to the capacity of the DHMT even when the work seemed like an overload. However, coordination for results at the appropriate time can be daunting particularly when some of the key players are not physically present. This was observed at mid term and some adjustments were made to improve the working relationships**.** Whereas AMREF was effective in the direct tasks/interventions with the DHMT the project coordinator seemed often experience difficulties as the coordination role did not come with any amount of leverage or control over the other CAs other than rely on persuasion and good will.

In spite of the late startup of most of the interventions, the overall impression is that the project has made notable contributions at policy and programmatic levels. Even though it was not feasible to measure impact at this point in time of the project, the trends are indicative of the potential contribution of the various interventions to maternal health and child survival.

5.1. Recommendations

- Create a balance between operations research and implementation of other project components during the project life to allow adequate time for interventions.

- In planning for a similar project it is critical to involve all relevant stakeholders and in particular the office of the PMO who would often backstop supervision as well as monitor the different NGO activities in the district to rationalize resource utilization.

- It is acknowledged that the Bungoma DHMT displays a high level of commitment and constitutes a much needed resource team for national level training. It is partly for this reason that supervision at the district level suffers. The DHMT will need to address this as a management issue; balancing the needs of the district against service at the national level.

- Bungoma DHMT will need to maximize on the use of available resources from partners working in the district on complementary health projects to effectively address issues of referral and supervision.

- There is need to support IMCI training to reach the target of 60%. In some instances, training using On-job-Training (OTJ) may be the way to go with intensive peer supervision to bridge the gap between trained and untrained health workers on IMCI. However, these approaches will need to be evaluated for their feasibility.

- Through appropriate training strengthen the capacity of TBAs to become advocates and change agents, emphasizing the importance of IPT for pregnant women and the need to attend ANC promptly.

- Links with poverty reduction programmes and local employers will be key in addressing issues of affordability for ITNs.

- Future support to Bungoma district should focus on support to community based interventions that have just been rolled out as well as M&E system, including development of monitoring tools that would be needed to collect data continuously and data management.

- At an appropriate time, undertake a household survey to gauge the impact of the project on the community, specifically on maternal health and child survival.

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