



CHILD SURVIVAL PROJECT

Nampula, Moçambique

Final Evaluation

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ACRONYMS AND ABBREVIATIONS

ACT	Artemisinin combination therapy (for malaria)
ANC	Antenatal care
BCC	Behavior change communication
CHV	Community Health Volunteer
CLC	Community Leader Council
CS	Child Survival
DIP	Detailed implementation plan
DDS	District health director
DPS	Provincial health director
DTP	Diphtheria, tetanus, pertussis vaccine
EPI	Expanded program for immunization
HIV	Human immunodeficiency virus
HMIS	Health management information system
IEC	Information, education and communication
IMCI	Integrated management of childhood illness
IPT	Intermittent presumptive treatment (for malaria in pregnancy)
ITN	Insecticide treated (mosquito) net
KPC	Knowledge, practices and coverage (survey)
LLITN	Long-lasting insecticide-treated (mosquito) net
LOE	Level of effort
LOP	Life of project
MCH	Maternal and child health
OPV	Oral polio vaccine
ORS	Oral rehydration salts
ORT	Oral rehydration therapy
PMI	President's Malaria Initiative (US Government)
SP	Sulfadoxine pyrimethamine (for IPT of malaria in pregnancy)
TT	Tetanus toxoid
USAID	United States Agency for International Development

A. Summary

The CARE CS XVII project was carried out in two rural districts of Nampula Province in northern Mozambique with a combined estimated total population of 259,000. Activities focused on 76 target communities. The program was designed with the following five key objectives:

1. Improve infant and young child nutritional status through improved feeding practices, including exclusive breastfeeding until 6 months of age.
2. Improve maternal nutritional status through dietary changes, iron supplementation (pregnant women), and Vitamin A supplementation (post-partum women).
3. Improve access to malaria treatment for both women and children.
4. Increase demand for and use of bed nets for malaria prevention.
5. Improve MOH capacity to provide quality services using the IMCI algorithms and support EPI campaigns.

The indicators for these objectives are grouped into three results areas:

Result 1: Improved quality, access, and use of MOH services.

Result 2: Communities empowered to improve selected health practices.

Result 3: Healthy behaviors practiced by families.

The project was designed with a relative level of effort as follows: maternal and child nutrition and breastfeeding: 45%, malaria: 45%, strengthening of MOH services: 10%. The principal strategies used to achieve results areas two and three included the training and support of volunteer community health workers and community leaders who mobilized communities and provided community-based education through educational talks, home visits, and demonstrations. At the same time, CARE supported training and supervision of health workers in relevant health topics and IMCI, and provided financial and logistical support for MOH outreach activities including immunization. Finally, CARE purchased almost 8,000 mosquito nets for sale in communities at highly subsidized prices.

Some indicative results from the KPC survey include the following:

- An increase in exclusive breastfeeding in children age 0-6 months from 2% to 47%
- An increase in mothers adding oil to children's food from 15% to 69%, and adding foods rich in vitamin A from 43% to 62%.
- Children age 6-23 months who received vitamin A in the past 6 months rose from 52% to 72%
- Children age 0-23 months who slept under a treated mosquito net the night before rose from <1% to 26%
- Children whose parents sought care for fever within 48 hours rose from 42% to 51%
- Complete immunization in children age 12-23 months by 12 months of age rose from 55% to 65%, but showed significant differences between the two districts in the final survey (43% in Malema against 88% in Nampula).

Whereas the quality of care in health facilities was generally considered to have improved significantly during the life of the project, IMCI was only partially implemented. Stockouts of

essential medicines were reduced and emergency services at most facilities are now available twenty-four hours a day, improvements that were not a direct result of project interventions, however. By the end of the project, communities and health facilities were more engaged with each other. Volunteer Community Health Workers (CHWs) and community leaders regularly meet with health facilities to plan and coordinate outreach activities and CHWs volunteer their services at health facilities.

There was no increase in feeding frequency for young children, and no increase in giving colostrums in the first hour after birth. Problems remain with insufficient outreach activities in Malema district. Mosquito net use could have been higher if more subsidized nets had been made available, as demand outstripped supply.

The behavior changes are likely to be sustained, especially in the area of breastfeeding and child feeding, as they have been adopted as the community's own. Sustainability of the improvements in MOH services will depend on factors outside the project's control, but will likely continue to improve. The incoming President's Malaria Initiative provides an opportunity to further expand ITN coverage.

One reason for the success of the project was the focus on a limited number of high-priority messages, and the multi-pronged approach to behavior change, including volunteers, leaders, and mothers' groups. Lessons learned in this project can be easily translated to CARE/Save the Children's OKUMI CS project in the same region.

B. Assessment of Results and Impact of the Program

1. Results: Summary Chart

The goal of the Child Survival Project is to empower families and health care providers to improve the health and nutritional status of children under five and women of reproductive age through targeted interventions that improve maternal and child nutrition and access to treatment and preventive measures for malaria.

There are five program objectives:

1. Improve infant and young child nutritional status through improved feeding practices, including exclusive breastfeeding until 6 months of age.
2. Improve maternal nutritional status through dietary changes, iron supplementation (pregnant women), and Vitamin A supplementation (post-partum women).
3. Improve access to malaria treatment for both women and children.
4. Increase demand for and use of bed nets for malaria prevention.
5. Improve MOH capacity to provide quality services using the IMCI algorithms, and support EPI campaigns.

There is some mismatch between the objectives above and the results listed in the results framework, but all of the above are covered in the results framework under the following three results:

- Result 1: Improved quality, access, and use of MOH services.
- Result 2: Communities empowered to improve selected health practices.
- Result 3: Healthy behaviors practiced by families.

The indicators from the results framework, targets and results of baseline and final KPC surveys, and results of analysis during the final evaluation are summarized in the following table. Results from the final KPC survey showed that the project reached or exceeded targets for three of seven indicators with specified targets, and showed sizeable improvement in three others. The survey also showed improvement in all additional Rapid Catch indicators but one (family planning).

TABLE 1: KPC RESULTS						
Result 3: Healthy behaviors practiced by families						
Indicator	Source	Definition	Baseline	Target	Final	Comment
A) % of children under 6 months who are exclusively breastfeed	KPC	Number of children under 6 months exclusively breastfed divided by the total number of children under 6 months	2.0%	25%	46.6%	Target exceeded; note - MOH changed recommendation from 4 months to 6 months during LOP.
B) % of children between 1 and 2 years who are offered food five times a day	KPC	Number of children 12-23 months fed 5 or more times per day divided by the total number of children 12-23 months	2.5%	30%	2.7%	No change.
C) % of mothers who add oil to waning food in children 6-23 months	KPC	Number of children 6-23 months that receive food with added fat or oil divided by the total number of children 6-23 months	14.6%	60%	69.3%	Target exceeded.

Result 3: Healthy behaviors practiced by families						
Indicator	Source	Definition	Baseline	Target	Final	Comment
D) % of children under 2 years being fed orange sweet potato, pumpkin, or carrot > 3 times per week	KPC	Number of children 6-23 months that received pumpkin, carrot or orange sweet potato, green leaves, mango, or papaya 3 or more times per week divided by all children 6-23 months	42.7%	60%	62.3%	Target reached.
E) % of children 6 to 23 months who receive prophylactic vitamin A	KPC	Number of children 6-23 months who received vitamin A in the past 6 months divided by the number of children 6-23 months	52.3%	80%	71.6%	Close to target.
F) % of mothers who seek treatment within 48 hours from CHW or DDS when child has fever	KPC	Number of mothers of children 0-23 months with fever in the past 2 weeks who sought treatment from a CHW or health facility within 48 hours of the onset divided by the number of children 0-23 months with fever in the past 2 weeks	41.7%	65%	50.5%	Some improvement.
G) % of children under 2 years sleeping under treated bed nets	KPC	Number of children 0-23 months who slept under a treated mosquito net the night before divided by the total number of children 0-23 months	4.0% any net 0.4% treated net	50% any net N/A	34.3% any net 26.0% treated net	Sizeable improvement.

Additional indicators of Project Impact						
Indicator	Source	Definition	Baseline	Target	Final	Comment
H) % of children 12-23 months with the minimum vaccination schedule complete before 12 months	KPC	Number of children 12-23 months with 3 doses of polio, 3 DTP and measles registered on a card divided by the total number of children 12-23 months with a card	54.8%	N/A	64.9%	Some improvement. Note: 97/110 children (88%) had immunization card.
I) % of children under 2 years who received colostrum within one hour after delivery	KPC	Number of children 0-23 months who received breastmilk within one hour after delivery divided by all children 0-23 months	60.3%	N/A	38.5%	Decrease; see comment in text.
J) % of children 20-23 months receiving breast milk	KPC	Number of children 20-23 months who receive breast milk divided by all children 20-23 months	58.4%	N/A	63.6%	Some improvement.
K) % of children 6-9 months who receive food	KPC	Number of children 6-9 months who receive food divided by all children 6-9 months	88.3%	N/A	100%	No change.
L) % of mothers who receive 2 or more doses of tetanus toxoid before the last delivery	KPC	Number of mothers reporting 2 or more doses of TT before the last delivery divided by all mothers	58.7%	N/A	83.7%	Some improvement; Self report.
M) % of deliveries attended by a trained health professional	KPC	Number of mothers reporting that the last delivery was attended by a health professional divided by the total number of mothers	32.9%	N/A	45.1%	Some improvement.

Additional indicators of Project Impact						
Indicator	Source	Definition	Baseline	Target	Final	Comment
N) % of mothers who recognize 2 or more danger signs that indicate the need to seek treatment in children 0-23 months	KPC	Number of mothers reporting recognition of 2 or more signs (high fever, won't eat or feed, fast breathing, vomiting, convulsions, won't play normally) divided by all mothers	55.4%	N/A	94.1%	Sizeable improvement.
O) % of mothers using a modern family planning method	KPC	Number of mothers using a modern family planning method divided by all mothers	11.3%	N/A	6.9%	Decrease; Pill, injectable and condom only.
P) % of mothers who know 2 or more means of reducing the risk of HIV infection	KPC	Number of mothers who know at least 2 means of reducing the risk of HIV infection divided by all mothers	26.8%	N/A	80.9%	Sizeable improvement.

Result 1: Improved quality, access and use of MOH services						
Indicator	Source	Definition	Baseline	Target	Final	Comment
A) % of district personnel who have one supervision DDS visit in the past quarter	Interviews with health workers during final evaluation	Estimate of percentage of district personnel with at least one supervision visit using a standardized instrument in the previous 3 months	Not determined	50%		Senior staff of both districts now visit each health facility every 2 months (Nampula) or 3 months (Malema). Nampula-Rapale uses instrument (only very recently), Malema does not.
B) % of district personnel following IMCI protocols for pediatric cases	Interviews with health personnel during final evaluation	Estimate of percentage of health facilities with personnel trained in IMCI Observation of pediatric consults	There were 5 IMCI trainers in the area at project outset.	80%		Most health centers and some posts have someone trained (26 were trained). IMCI protocol forms are present in many exam rooms. None are following formal IMCI protocols, none were using IMCI flow-sheet forms, and none had chronometers or were observed measuring respiratory rate.
C) % of health facilities with fewer stockouts of cotrimoxazole, chloroquine, iron Vitamin A	Interviews with health personnel during final evaluation	Number of health facilities with adequate stocks of: --cotrimoxazole --Vitamin A -- iron -- anti-malarials -- ORS	Severe limitations in iron and vitamin A at mid-term. No comment on antimalarials.	Majority		Cotrimoxazole and anti-malarials (ACT) supplies are adequate in all facilities. ORS is sufficient. Intermittent problems with vitamin A and iron were reported, though most reported significant improvements in 2006.

D) % of referrals who receive counter-referral	Data from referral system	Total referrals recorded for children under 2 years and women of reproductive age (15-49 years) in the previous month	No community to health services referral system existed at baseline.	N/A	Jan-Jun 2003: 972 referrals Jan-Jun 2006: 1353 referrals	17% of all referrals were for malaria. Counter referral data not available.
Pilot post-partum Vitamin A administration, baby friendly units, and IMCI are models for National level	District data	Existence of pilot post-partum vitamin A administration, baby-friendly units, and IMCI serving as national model	Not available	N/A	Limited vitamin A post-partum (1226 doses admin in Nampula in Jan-Mar 2006 vs. 2613 doses of DTP1 in 0-11 months applied in the same period) No baby-friendly units. IMCI not fully implemented.	

Result 2: Communities empowered to improve selected health practices						
Indicator	Source	Definition	Baseline	Target	Final	Comment
A) % of community groups that conduct effective meetings	1) Project MIS 2) Final evaluation interviews	Number of Community Committees that plan and evaluate divided by CLCs interviewed during final evaluation	N/A	100%	55/86 communities have a CLC. Wide variation in capacity observed. Some formal planning and evaluation observed. One CLC presented a written evaluation report of project.	
B) % of communities with maps and census	1) Data from project MIS 2) Final evaluation interviews	Number of communities visited with maps and census divided by all communities visited during final evaluation	N/A	100%	All communities have census. Variation in degree of updating and utilization.	
C) % of CHWs using counseling and participatory education to transmit health messages	Qualification of counseling and education during evaluation	Qualification as excellent, good, or needs improvement during final evaluation	Mid-term found a need to be more participatory	80%	No direct observation of education techniques performed during final evaluation. Reports of creative activities in use especially by counselors during meetings of mothers groups. KPC results very positive for knowledge and practice indicators, especially nutrition.	
D) % CHWs implementing growth monitoring sessions in 100% of pilot communities	1) Data from project MIS 2) Quality observed during final evaluation	Qualification as excellent, good, or needs improvement during final evaluation	N/A	100%	All 8 pilot communities have growth monitoring. All CHWs observed performing technically "well"; some problems with completeness in graph. Special weakness in counseling.	

2. Results: Technical Approach

a. Brief overview of the project

The CARE CS project was implemented according to plan in two Districts of the Province of Nampula. Nampula Rapale District is a doughnut-shaped district in a ring around the provincial capital city of Nampula. Malema is the westernmost district of the province. Both are predominantly rural, though access to services is much better in Nampula Rapale than Malema.

TABLE 2: Summary of Project

	Nampula-Rapale	Malema	Total
Target population			
Direct (project census)	74,608	62,027	136,635
Indirect (MOH statistics)			259,000
Children <5			44,999
Women 15-49			60,087
Total			105,086
Communities (direct)	38	48	76
Pilot communities	3	5	8
Health facilities	3 of 5 Centers targeted 4 of 4 Posts targeted	3 of 3 Centers targeted 3 of 4 Posts targeted	6 of 8 Centers targeted 7 of 8 Posts targeted
Volunteers			
CHWs trained	130	120	250
CHWs present	123	115	238
Mothers trained	43	46	89
Mothers present	43	45	88
Leader councils	27	28	55

Source: DIP, census, and CARE CS team

There are or have been other CARE Mozambique projects in Nampula province, including the VIDA agriculture and nutrition project, a reproductive health project (completed in 2001), micro-credit, and a USAID Mission-funded Child Survival project (OKUMI). About one-third of project target communities also received benefit from one or more of these projects.

The goal of the Child Survival Project is to empower families and health care providers to improve the health and nutritional status of children under five and women of reproductive age through targeted interventions that improve maternal and child nutrition and access to treatment and preventive measures for malaria.

There are five program objectives:

1. Improve infant and young child nutritional status through improved feeding practices, including exclusive breastfeeding until 6 months of age.
2. Improve maternal nutritional status through dietary changes, iron supplementation (pregnant women), and vitamin A supplementation (post-partum women).
3. Improve access to malaria treatment for both women and children.
4. Increase demand for and use of bed nets for malaria prevention.

5. Improve MOH capacity to provide quality services using the IMCI algorithms, and support EPI campaigns.

The results framework organizes indicators under three results:

Result 1: Improved quality, access, and use of MOH services.

Result 2: Communities empowered to improve selected health practices.

Result 3: Healthy behaviors practiced by families.

Results for project indicators are found in Table 1. Results from the final KPC survey showed that the project reached or exceeded targets for three of seven indicators with specified targets, and showed sizeable improvement in three others. The survey also showed improvement in all additional Rapid Catch indicators but one (family planning)

The intervention mix is as follows:

- Maternal and child nutrition and breastfeeding 45%
 - Breastfeeding promotion 15%
 - Complementary feeding 15%
 - Maternal nutrition 15%
- Malaria prevention 45%
- Capacity building of MOH and IMCI 10%

The project took a two-pronged approach: community promotion of knowledge, behaviors and demand, and improvement in the quality of and access to services. The community aspect included the training and intensive supervision of about two Community Health Workers (CHWs) and one Nutrition Counselor Mother in each community. In addition, the project provided training to community leaders and formed formal Councils of Leaders in 55 of the communities. These entities were responsible for home visits, educational talks and demonstrations aimed at promoting healthy behaviors with emphasis on the key intervention areas of malaria prevention, prompt care-seeking, breastfeeding, complementary feeding, and maternal nutrition.

Volunteers received intensive support by a team of 3 to 4 CARE Health Assistants in each district under the supervision of the CARE Project Manager and Deputy Manager. All volunteers received initial training. Some received follow-up training and were visited by a CARE Health Assistant weekly.

In addition, CARE supported the sale of ITNs at subsidized prices and the establishment of a referral/counter-referral system from communities to health facilities. The project also helped communities establish and maintain an active census in each community.

The project supported the health system through donation of diagnostic equipment, training of health workers in technical areas, IMCI training, and joint supervision of the health workers with the District and Provincial officers. In addition, the project provided the Districts with a monthly allotment of fuel for cold chain and community outreach activities, and supported national campaigns with manpower and transportation.

The CS XVII project spans the period from October 1, 2001 to September 30, 2006. The Project budget is \$2,044,446, with \$1,300,000 coming from USAID and \$744,446 provided by CARE's match funds.

Progress report by intervention area

Important methodological note: in interpreting the results of the final KPC survey, comparisons are made between districts for some indicators. The KPC survey used a cluster sampling frame with twelve clusters of twelve houses in each of the two districts. It is recognized that analyzing the data for each district separately is not statistically significant. Special caution must be used in interpreting comparisons between districts for those indicators that are most likely to cluster, such as service delivery coverage. However, for some indicators, the results are instructive, are internally consistent and are in agreement with what is known about the local situation. These comparisons are therefore to be treated only as indicative of trends, but without true statistical significance.

b. Maternal and Child Nutrition and Breastfeeding

i). Results baseline to final

The results baseline to final can be seen in the preceding results summary table. The nutrition intervention was very successful judging by the behavioral changes achieved. Indicators that rely on improvements in the health system showed more modest improvement (or none at all).

Breastfeeding

The increase in exclusive breastfeeding among children 0-6 months from 2% at baseline to 47% at the end of the project is impressive and far surpasses the project target (25%). There was greater improvement in Namupla (55%) compared with Malema (41%). Both represent striking improvement, and the difference is probably not statistically significant. Continued breastfeeding in children age 20-23 months did not show significant improvement (58% baseline to 64% final).

Breastfeeding in the first hour did not improve, but, to the contrary, showed significant decline from baseline to final (60% to 38%). Some CARE staff thought that this may have been caused by a stricter definition of "first hour" by interviewers during the final survey compared to the baseline, though this could not be confirmed. It was clear from focus groups that this message did not receive as much emphasis as the exclusive breastfeeding message. Exclusive breastfeeding in the first three days of life produced much more favorable results, increasing from 34% at baseline to 68% at final. If the results are to be believed, the babies are receiving the benefits of colostrum, but post-partum mothers may not be receiving the protection from hemorrhage from early suckling.

It should be noted that the MOH changed its policy on exclusive breastfeeding during the third year of the project, extending the period of exclusive breastfeeding from 4 to 6 months, though this apparently did not adversely affect the outcome. In the group 0-4 months, 56% were exclusively breastfed against 47% in the 0-6 month age group—only a modest difference.

The results for exclusive breastfeeding to six months are almost certainly the direct result of the project intervention, as this message received considerable emphasis, especially the detail of not giving any water to the baby. This was heard from CHWs, Nutrition Counselor Mothers and mothers in the focus groups.

Complementary child feeding

Mothers adding oil and vitamin A rich foods to weaning foods both increased significantly, the former from 15% to 69%, and the latter from 43% to 62%. These are notable gains and surpass project targets. The following table outlines which foods children were being given:

Table 3: Solid and Semi-Solid Food Given in the Last 24 Hours (age 6 - 23 months) in 2002 (Baseline) and 2006 (Final)

	Baseline 2002 (%)	Final 2006 (%)	Change
Grains	60.2	92.6	+32.4
Pumpkin, orange sweet potato, carrot	6.1	17.7	+11.6
Roots, tubers	43.9	21.9	-22.0
Dark green leaves	38.3	54.4	+16.1
Mango, papaya	2.0	4.7	+2.7
Fruits, vegetables	19.9	31.6	+11.7
Meat, poultry, fish, seafood, eggs	31.6	30.2	-1.4
Beans, lentils, peanuts	25.4	42.3	+16.9
Cheese, yoghurt	0.3	0.5	+0.2
Oil, fat, butter	14.6	69.3	+54.7

Source: Baseline and final KPC surveys

Final 2006 n=149

The greatest increases were in oils, grains, dark green leaves, dark orange vegetables, beans, lentils, peanuts, and fruits and vegetables. Among sources of beta carotene, dark green leaves are given far more often than pumpkin, carrot or sweet potato. Clearly the variety of the child's diet improved from baseline to final. In order to confirm these findings, investigation of seasonal effects would be of interest.

The indicator of five or more feedings per day showed no improvement, remaining dismally low at just under 3%. Only 4% of children had received no feeds in the previous day, and 50% reported only 2 feeds. The CARE team thought that perhaps this could be attributed to a misunderstanding of the word "meal" in the survey question, with mothers not considering snack foods as meals. However, in the community focus groups it was clear that this message did not receive as much attention as the other feeding messages even though the CHWs had an illustrative poster with the "five meals a day" message. **In future projects, more specific messages to encourage feeding of "snack" foods should be considered in order to achieve reductions in malnutrition.** In this context, the message to prolong breastfeeding to 23 months should receive additional attention as well.

Vitamin A supplementation

The percentage of mothers reporting that their children age 6-23 months received a vitamin A capsule in the six months prior to the survey showed significant improvement, rising from 52% at baseline to 72% at the final, but did not quite reach the project target of 80%. The final results for the districts showed large differences, with Nampula exceeding the project's target with 89% coverage, while Malema had much lower coverage (56%). This difference is similar to inter-district differences found in immunization coverage and probably reflects health sector performance. An analysis of child health cards showed an even more striking difference, with 80% of children's cards in Malema lacking *any* registered dose of vitamin A, against 19% in Nampula. This difference is probably due to both poor registrations by health workers combined with poor coverage.

Growth monitoring and the HEARTH nutrition model

Growth monitoring is a proven means of early detection of faltering growth in children, and provides an opportunity to transmit key child nutrition messages. The project supported growth monitoring by several means, both direct and indirect. CHWs in eight communities were trained and equipped to perform growth monitoring in their respective communities. In addition, health workers received training in growth monitoring as part of IMCI training. In the communities, CHWs, Nutrition Counselor Mothers and Leaders educated families about the importance of regular child growth monitoring. CHWs regularly volunteer at all health facilities to assist in growth monitoring activities. They were observed assisting growth monitoring at all but one of the health facilities that were visited during the final evaluation, and all who were interviewed described a rotating schedule of voluntarily assisting in growth monitoring at their respective health facilities, many on a weekly basis.

Although the project did not directly support large-scale implementation of growth monitoring as an intervention, it is MOH policy to encourage this activity, and all health facilities were observed performing growth monitoring as part of routine well-child and sick-child care. All health facilities visited were observed to have adequate scales, and health workers and CHWs alike were adept in proper weighing. Graphing was inconsistent, however, and points were not always connected. On some growth charts, only the child's weight was recorded, but not graphed. In all facilities visited, all sick and well children are weighed (with the weight recorded on the child health card). Most health centers were very busy, weighing over 100 children daily. In these facilities, weighing was done "mechanically", and the health cards not returned to the mother until *after* the child was immunized and/or seen for illness. The heavy workload meant that there was little time and no appropriate venue for nutrition counseling based on the results of the weighing.

Coverage for growth monitoring was not included as a project indicator, so it is not possible to verify coverage through the KPC. Based on HMIS data, coverage can be inferred to be relatively high where access to health facilities is reasonable. During community visits, the majority of child health cards registered frequent growth monitoring, sometimes monthly. The following chart illustrates the number of weighings in each period:

Table 4: Growth monitoring

	Jan-Mar 2004	Jan-Mar 2005	Jan-Mar 2006
Initial weighings, 0-11 months	*	3755	4675
Subsequent weighings, 0-11 months	18,682	18,314	25,396

Source: DDS HMIS

*definition of “initial” changed. Not comparable with other years.

From the chart, one can infer that coverage is relatively high. There are an estimated 10,700 children age 0-11 months in the two districts combined. If one extrapolates the number of initial weighings in the first quarter of 2006 (4,675 initial weighings from January to March) to the entire year, there would be 18,700 initial weighings during the entire year, against an estimated 10,700 children in the 0-11 month age group. In addition, comparing the number of initial weighings in January to March 2006 with the subsequent weighings, each child will be weighed on average 6.4 times during 2006. Finally, coverage appears to be increasing. This may be due either to increased demand or better access to services.

As noted in the mid-term evaluation, the HEARTH nutrition model was not implemented as outlined in the DIP. It was felt that it would require too much effort to scale up for marginal benefit. Prevention of malnutrition rather than recovery from it was considered a better strategy at that stage of the project. This is appropriate. However, the mid-term evaluation recommended that CARE perform a nutrition study using positive deviance to identify positive nutrition behaviors and foods that could then be incorporated into nutrition messages. This was not done.

Maternal nutrition and maternal health

Maternal nutrition was included as part of the nutrition intervention, but indicators were not specified in the project design. Unfortunately, questions to measure behaviors regarding the key maternal nutrition messages were not included in the KPC survey, so it was not possible to objectively measure the outcomes. These messages included reduction of workload during pregnancy, eating extra meals, and resting during pregnancy, in addition to seeking antenatal care.

Some proxy measures of maternal health may be illustrative if one assumes that antenatal care consultation may positively affect maternal nutrition. Mothers reporting two or more doses of tetanus toxoid vaccine prior to the previous delivery rose from 59% at baseline to 84% at final.

The following table illustrates some indicators regarding antenatal care:

Table 5: Selected MOH output indicators

	Jan-Mar 2004	Jan-Mar 2005	Jan-Mar 2006
Initial antenatal care consults	4,462	5,215	4,736
Subsequent	7,292	8,113	8,692

	Jan-Mar 2004	Jan-Mar 2005	Jan-Mar 2006
antenatal care consults			
Post-partum consults	2,038	2,074	2,034
TT1 in pregnant women	2,585	3,218	2,760
TT2 in pregnant women	2,859	2,588	2,502
Vitamin A in post partum (Nampula only)	1,090	1,184	1,226

Source: DDS HMIS

Several conclusions can be drawn from these figures. First, each woman presenting for a first consult attended an average of 2.8 total consults. The fact that the number of TT2 doses administered to pregnant women is much lower than initial consults could easily be attributed to good coverage in previous pregnancies and doses administered to non-pregnant women of childbearing age. However, the coverage for post-partum vitamin A is apparently quite low (1,226 doses in Nampula against 2,345 initial antenatal consults in Nampula). As the number of post-partum consults exactly equals the number of post-partum doses of vitamin A administered, the low coverage probably represents low coverage for post-partum consults, and not stockouts of vitamin A.

Antenatal care coverage (at least one visit) is apparently quite high, based on estimated coverage for the population of 259,000. In the DIP, CARE estimated 14,900 deliveries per year. Extrapolation of the data in the above table to one year yields 18,944 initial antenatal care consults per year, an estimated coverage of well over 100%. There are also more initial antenatal care consults than doses of DTP 1 administered to children age 0-11 months in the same period (Jan-Mar 2006: 4,736 initial antenatal care consults; 4,047 doses of DTP 1 or OPV 1). If counseling were of high quality during consults, there would be an excellent opportunity to improve antenatal nutrition.

During the focus group discussions, mothers and community members mentioned some of the messages regarding behaviors during pregnancy. Some mothers mentioned that there was growing acceptance of pregnant women reducing workload, asking for help and eating more.

Other sources of data: evaluation of nutritional status

CARE's VIDA agriculture and nutrition project carried out a series of nutrition surveys in all districts of Nampula Province, including Nampula-Rapale and Malema. Data are available only for the province as a whole, so results cannot be attributed directly to the Child Survival project. The most important results of these surveys are summarized as follows:

Table 6: Nutrition survey summary results
Severity of chronic malnutrition (height-for-age)
for children age 24-59 months, by Z score

Z score Height-for-age	BASELINE 1997		SURVEY 2002		SURVEY 2006 *	
	N	%	N	%	N	%
Severe stunting (<-3 sd)	304	34.5	210	25.3	255	23.9
Moderate stunting (<-2 sd and >-3 sd)	224	25.5	282	33.9	263	24.6
Mild or no stunting (>-2 sd)	352	40	341	41	536	50.2
TOTAL	880	100	831	100	1054	

Source: CARE VIDA sample nutrition surveys, Nampula Province

There has been a trend in reduction of severe stunting in children age 24-59 months from 1997 to 2006, with most improvement occurring before 2002. It is not possible to prove a direct link between the observed drop in malnutrition to the VIDA project, but the CARE nutrition survey report indicates that it was a likely contributor. The survey report also notes that there are small statistically insignificant differences between VIDA intervention communities and non-intervention communities.

The CS project did take advantage of VIDA's experience in the region, and adapted educational materials and messages from the project. In addition, the VIDA project provided strong input into the design of the nutrition intervention, especially recommendations regarding nutrient-rich weaning foods, such as local sources of oil and vitamin A rich foods.

ii). Factors affecting achievement of program objectives

The project used an intensive community-based BCC strategy that was largely successful in promoting improvements in the most crucial behaviors for improving child nutrition, namely, exclusive breastfeeding, adding fats to weaning foods (to increase caloric-density) and adding vitamin A rich foods to weaning foods. The BCC strategy will be discussed more fully in the later section on BCC/IEC strategy. A review of a sample of CHW records found a high percentage of home visits were for nutrition messages (10%) and 15% of educational talks had child nutrition as the theme.

During the first year of the project, most CHWs were male. By the mid-term evaluation, the imbalance was corrected, and about half were female. The project then proceeded to experiment with training "Nutrition Counselor Mothers", specifically to work with groups of mothers to reinforce child nutrition and child care messages. About two-thirds of communities had "Nutrition Counselor Mothers" by the end of the project. The project provided them with cooking pots, specific training, and frequent supervision. In focus groups, the Counselors'

contribution to behavior change was mentioned frequently. Finally, by bringing community leaders into the project (a late development), they reinforced messages by giving them credibility and convincing doubters.

The project provided Counselors and mothers groups with seeds, including tomato, kale, lettuce, and cabbage. These were used for demonstrations, and some were sold for cash to purchase more nutritious products and oil.

One reason for the project's success is that through the Counselors, CARE took advantage of the richness of the local agricultural base, and demonstration foods were contributed by Counselors and mothers themselves. Through collaboration with the VIDA project, use of local sources of oil were encouraged, including sunflower seed oil and others using home oil presses. The Counselors were especially useful in organizing creative demonstrations, including "cook-offs" and cooking competitions to reinforce nutrition messages.

In focus groups, community members most frequently mentioned messages regarding exclusive breastfeeding (not even water), though there was some confusion about whether it was to 4 or 6 months. They also frequently mentioned "enriched weaning foods" and "varied diet" as important messages. After the mid-term evaluation, the team mentions that further training emphasized food groups and their functions.

The project did not emphasize messages relating to lactational amenorrhea or exclusive breastfeeding in HIV positive mothers. This prioritization of messages was reinforced at the mid-term evaluation and was appropriate. By concentrating the messages on exclusive breastfeeding for nutritional purposes, messages were clear, and the benefits for birth spacing and prevention of vertical transmission of HIV would be mostly achieved even if not explicitly addressed.

iii). Contributing factors for objectives not fully achieved (constraints)

Before discussing constraints, it must be emphasized that the nutrition intervention was far more successful than unsuccessful. Overcoming the constraints discussed below would perhaps have helped CARE achieve even more.

The poor improvement in increasing feeding frequency and little improvement in prolonged breastfeeding were the two most important areas where project goals were not achieved. Coverage of vitamin A supplementation was excellent in Nampula, but low in Malema. The low coverage for "colostrum in the first hour" may be true or not, but half of the benefit was being achieved (for the baby).

In focus groups, it was clear that these messages received less attention from the project team and CHWs than the messages that had large improvements. The principal reason for this was a lack of clarity and prioritization of the complex array of nutrition messages being transmitted. If messages and materials had been more explicit and prioritized, even greater improvements could have been achieved. One constraint to improving BCC/IEC materials is the requirement that the MOH approve all materials before they are used, which complicates and delays implementation.

Mothers' groups included only a fraction of all mothers (estimated at no more than 6% of all mothers—see BCC/IEC strategy section below). In focus groups, non-participant mothers cited learning from participating mothers as an important vehicle of communication, and CHWs cited targeting home-visits to mothers of small children as a way of targeting behavior change. Greater changes could have been achieved if these were more systematic.

Perhaps the greatest missed opportunity of the project was in not adequately taking advantage of the relatively high coverage for antenatal care. Improving nutrition counseling and education at health facilities during these consults by training and supervising health workers and providing them with better (or any) educational materials would likely have had a large positive effect.

Virtually the same thing could be said for growth monitoring. The full advantage of this activity is not being realized, though coverage is relatively high in both districts. Graphing is not done consistently, and high patient loads do not allow sufficient time for nutrition counseling and education. A relatively small effort in health worker training and supervision by the project could have achieved even better results and led to greater sustainability. The full implementation of community-based growth monitoring is constrained by the fact that it is against MOH policy.

Another constraint related to the health system is the inadequate supply of vitamin A for child supplementation and post-partum women, and of prenatal iron. Both of these problems appeared to have improved during the last year, but intermittent problems continue. The greatest cause is the medication system in Mozambique. This system relies on a “push system” of medicine kits for treatment of ill patients for each facility based on previous patient load and complexity of the facility. This system includes limited supplies of vitamin A and iron, as they are destined for treatment of deficiencies, not prophylaxis.

Stocks for prophylaxis rely on a “pull system”, where facilities order supplies as needed. This system is known to have problems at various levels, from the national down to the facility level. In one health center that was visited, there was no iron for antenatal care. Yet, there were huge stocks of iron in the pharmacy that the pharmacy technician was stockpiling, thinking they were for ill patients and not for the maternity department.

The primary explanation for the poor coverage of vitamin A supplementation in Malema is related to the poor coverage of community outreach activities compared with Nampula. This was a chronic problem throughout the project and affected all aspects of the project that depended on the provision of outreach services. See the section below on “Health Service Strengthening” for more details.

As mentioned above, HEARTH was not implemented, but the positive-deviance nutrition study recommended in the mid-term evaluation was not done either. The planned introduction of sweet potato cultivars through collaboration with the agriculture/nutrition project was also not done due to problems with internal collaboration.

iv). Successes, Lessons Learned, and application to future

The CS program will close out, but some lessons learned will be applied to the OKUMI project. These in particular will be those related to recommendations for health system strengthening and health worker training, including improving growth monitoring and antenatal care counseling and education at health facilities. Of particular importance for reductions in malnutrition will be new messages to promote nutritious snacks throughout the day for young children.

v). Special outcomes and unexpected successes and application to future activities

The greatest unexpected success was the greater-than-expected increase in exclusive breastfeeding. This can be largely attributed to the successful BCC/IEC strategy that emphasized a combination of home visits, educational talks, creative use of demonstrations by mothers' groups, and engagement of community leaders. For those behaviors with clearly defined messages that were highly emphasized, large improvements were seen.

In addition, CARE's experience with the VIDA agriculture/nutrition project created highly detailed knowledge about the rich variety of agricultural products that were locally available and how to exploit them. The best example of this was encouraging the use of locally-available sources of oil to add to supplementary foods, and knowledge of locally available sources of foods rich in beta-carotene. Unfortunately, it is not known how many families took advantage of this knowledge and how many use commercial sources of fats and oils.

vi). Potential for scaling up or expanding

The expansion of the role of CHWs in the future is encouraged by the fact that the MOH recognizes the work of CHWs in its policies. However, although the MOH accepts the community health volunteer as policy (the "polyvalent health agent" is explained in the strategy document "ESTRATÉGIA DE ENVOLVIMENTO COMUNITÁRIO), there is a lack of MOH personnel and transportation for adequate training, supervision and follow-up of community-based activities. Future collaboration would have to rely on careful follow-up and meetings at health facilities (as during current weighing sessions with CHWs at health facilities) and during mobile team visits to communities.

Although CHWs are volunteers, frequent supervision and support are important in maintaining their interest and activities. Small incentives, including per diems, food, etc. are important in keeping them engaged. The districts are investigating the possibility of providing the CHWs with lunch on the days when they volunteer in health facilities.

c. Malaria

The malaria intervention included four different strategies designed to increase demand for malaria prevention and treatment services, to improve the quality of treatment services, and to improve access to prevention and treatment. The first strategy included community-based BCC activities to increase mothers', families', and leaders' knowledge about danger signs that require

seeking immediate assistance at a health facility through CHWs, Nutrition Counselor Mothers and leaders, as well as to increase the demand for ITNs. The referral system was also used to increase demand for treatment. The second strategy was to provide ITNs for sale in communities at subsidized prices by CHWs and encourage their use. ITNs were also provided to all health facilities. The third strategy was to support the training and supervision of health workers in malaria diagnostic and treatment protocols, both as a vertical program and as part of IMCI. Provision of fuel so district staff could supervise health workers formed part of this strategy as well. Finally, in eight pilot communities, CHWs were trained to clinically diagnose and treat malaria with chloroquine and refer to health services if no improvement was seen, and were supplied with chloroquine to use in the community.

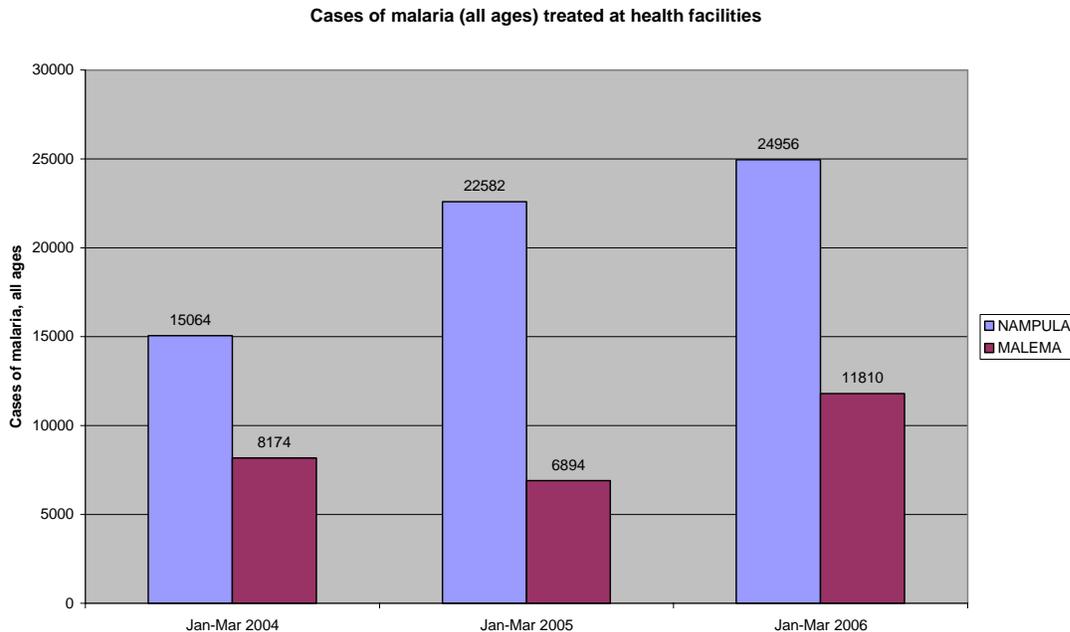
i). Results baseline to final

Increasing demand through BCC/IEC and referrals

At baseline, 42% of mothers sought help at a health facility or a CHW for a child with fever within the first 48 hours of the fever. This rose to 50% at the final, not achieving the project's goal of 65%. A further 24% of mothers sought care after 48 hours. There were no significant differences between districts.

CHWs made a total of 972 referrals from January to June 2003, compared to 1,353 in the same period in 2006. Of these, 39% were referred for malaria. A sample of HMIS data from the districts reveals that the number of cases of malaria treated in health facilities rose in each district, from a total of 23,238 from January to March 2003 to 36,766 in the same period of 2006, an increase of 58%. It is unlikely that this increase was due to more malaria, but rather, increased demand for treatment. It is also interesting to compare this result with the *lack* of increase in antenatal care consults during the life of the project. The difference is likely attributable to the already high coverage for antenatal care at the outset, whereas demand for malaria treatment actually rose as communities gained understanding of the need for prompt treatment and service quality improved (see section below on strengthening of services).

This is supported by KPC data shows an increase in mothers who knew two or more danger signs indicating the need to seek care (55% baseline, 94% final). Also, the percentage of mothers who knew that mosquito bite is the cause of malaria increased dramatically from 17% at baseline to 75%. Clearly, messages were learned as a result of the project. Of all home visits by CHWs reported in the first half of 2006, a total of 25% were for malaria, and 32% for educational talks by CHWs for malaria.



Insecticide Treated Nets

At baseline, almost no children slept under treated nets (0.4%). This rose to 26% coverage by the end of the project, not meeting the project goal of 50%, and not reaching the critical level of 85% where a community-wide preventive effect can be expected. A further 11% of children slept under untreated nets (42% of children slept under any net, treated or not). A total of 7,800 nets were sold in communities during the life of the project (3,518 in Malema and 4,282 in Nampula), the vast majority of these during the last year of the project. Only 715 were sold prior to the mid-term evaluation, and another 1,692 had been sold by September 2005. The nets in the first batch were ordinary square white nets that required treatment, which the team supervised. Later, round LLITNs were available through PSI and were distributed. No retreatment of early nets was done.

On the final KPC survey, 42% of households reported having at least one net, and 31% had at least one treated net. Among those families who had nets, 81% reported that the child age 0-23 months slept under the net the night before. Among all families, almost the same proportion of mothers reported sleeping under a net (treated or not treated) the night before (32%) as children age 0-23 months (34%). All health facilities that were visited had mosquito nets in in-patient wards that were in use. These had been donated by the project.

Strengthening of malaria diagnosis and treatment services

The MOH changed its policy on first-line malaria treatment from chloroquine to artemisinin combination therapy (ACT) using artesunate plus sulfadoxine pyrimethamine (SP) during the middle of the project, and was in the process of introducing IPT with SP in pregnancy during the final evaluation. The project did not provide specific training in malaria protocols, but the new protocols were included in the IMCI training supported by the project.

The final KPC survey reports that among children with fever in the previous two weeks, 74% received medicine. Of these, they were most commonly given chloroquine (58%) and SP (42%).

There were no significant differences between the districts. Only 19% reported receiving amodiaquine, and only one child received Co-artem (a new ACT). It is not known how the 26% of children with fever that were not treated with antimalarials were treated, or why. Curiously, the KPC found that only 9% of mothers reported taking an antimalarial prophylaxis during pregnancy. This is difficult to explain, but neither was it investigated during the evaluation, as the new IPT protocols were being implemented at that time, so everything would be changing from that point forward.

Visits to health facilities revealed that health workers were generally knowledgeable about malaria treatment protocols in both adults and children, and stocks of ACTs for malaria treatment were generally adequate. Likewise, in focus groups, community members and CHWs reported that they received adequate treatment for malaria when they visited health facilities. They generally reported improvements in the availability of treatment, with emergency treatment available every day around-the-clock. Laboratory diagnosis is available only in health centers, and in these, is only used in select cases. In the Rapale health center, for example, only about 20% of cases diagnosed as malaria had laboratory confirmation. The rest are diagnosed clinically. This implies that there is still much over-diagnosis and treatment of malaria in health facilities and will be an obstacle to cost-effective use of Co-Artem.

Pilot activities: community-based treatment and bicycle ambulances

CARE provided CHWs in eight remote communities with additional training in diagnosis and treatment of malaria with chloroquine and anti-pyretics. CARE then reimbursed the MOH for stocks of chloroquine, paracetamol, ORS, and mebendazole from the districts, who supplied these to CHWs. This practice is in accordance with the MOH policy of establishing “first-aid” stations in remote communities and was fully supported by the DDS.

The third annual report shows that 1362 patients received community-based treatment for malaria in Nampula, and 4,223 in Malema (against only 92 for diarrhea and 150 for other diseases). This represents about 5% of all malaria cases treated that year in health facilities. The few CHWs that were questioned about malaria protocols during the evaluation were knowledgeable. Community members in the communities where malaria treatment had been available universally praised the program and called for its continuation. However, the Provincial and District Directors were less enthusiastic and were not in favor of its continuation due to concerns about resistance and future unavailability of chloroquine after the changes in treatment protocols.

The specific effect of the 29 bicycle ambulances on prompt treatment of severe malaria could not be specifically assessed during the final evaluation. A general discussion of the bicycle ambulances can be found in the section on community mobilization below.

ii). **Factors affecting achievement of program objectives**

As stated in the earlier section, malaria received a high priority among BCC/IEC themes, both for home visits and educational talks, and a high percentage of referrals to health facilities were for malaria. During focus group discussions, community leaders frequently mentioned malaria prevention among their activities. This is all appropriate, given that malaria is the number one cause of death in the area, and that the project was designed with a 45% level of effort for malaria.

It is worth noting that the achieved coverage of 26% ITN use in young children is very close to the number of nets sold divided by the estimated total number of families. If there are 5.5 people per family on average and 136,635 direct beneficiaries in the target communities, it is estimated that coverage of nets sold would reach 7,800 nets / 24,842 families, or 31%. This agrees closely with the information gathered during focus groups. Although all communities know where nets can be purchased commercially, there are almost no *accessible* alternative sources of nets in communities, either due to distance or price.

The price of the nets sold by CARE was also almost universally cited as acceptable (Mt30 = \$1.15), and the quality of the LLITNs was thought to be good. In interviews, CHWs stated that allowing them to keep a small amount of the sale price as an incentive encouraged them to promote the nets more aggressively. Prioritizing sale of nets to families with pregnant women and young children likely led to most nets being used by young children. Demand for nets was uniformly high in all communities visited. This is a direct result of the project's successful BCC/IEC activities, as demonstrated by the large increase in knowledge about mosquito bites as the cause of malaria. Community members complained about the lack of availability of nets once this project ends.

The involvement of community leaders, especially through the formation of CLCs, was deemed as an important contributor to the success of the intervention. In almost all focus groups with leaders, they mentioned some activity to reduce malaria by cleaning up the community. Whereas CARE recognizes that environmental measures are generally not considered a proven priority intervention for malaria, this activity engaged the communities and their leaders in the problem. In addition, general cleanup probably has secondary benefits with respect to hygiene, reduction of diarrheal disease and community pride.

iii). **Contributing factors for objectives not fully achieved (constraints)**

CARE purchased too few nets for sale to reach the 50% project coverage target, or the 85% ITN coverage needed to achieve a community wide reduction in malaria prevalence. The project overestimated the availability of alternative accessible sources of mosquito nets. This has also led to a problem with sustainability of the activity. Demand is high, but cannot be satisfied.

Another effect of the inadequate availability of nets is that families rarely have more than one ITN. A new baby often means that the next older child (2-5 years of age) is "kicked out" of the net and thus unprotected. In future projects targets should aim for 85% coverage, and at least two nets per family.

In the mid-term evaluation, it is mentioned that some families may have a net but not use it during the dry season, believing that malaria risk is low. This was not directly investigated during the final evaluation, but many of the external interviewers reported that this was the case in their own families. It would be wise to investigate this phenomenon further in future projects, and create messages to counter it in the case that it proves to be a common misconception.

There was no provision made for retreatment of the ordinary nets distributed early in the project. As these are a minority of the nets, it would probably be cheaper to replace them with LLITNs when these become available rather than mount a retreatment effort.

iv). Successes and Lessons Learned

A number of lessons learned and recommendations have already been discussed in the previous sections. Perhaps the most important lesson learned was that highly subsidized (or free) LLITNs will be necessary to achieve high coverage rates in rural areas like Nampula. Allowing CHWs to keep a portion of the sales cost is a highly effective way to stimulate sales.

As Mozambique is to be a President's Malaria Initiative country, more funds will soon be available for malaria. Authorities in Nampula, together with CARE Mozambique, should make certain that Nampula receives adequate attention and funding, especially for LLITNs. Now that strong demand for nets has been created, all that is needed to achieve high ITN coverage is money.

In focus groups, people greatly preferred the colored nets sold later to the earlier white nets. The reasons cited were hygiene (the white nets soil quickly) and the traditional association between the color white and evil spirits. This should be taken into account in the future.

The lack of access to prompt malaria treatment in remote communities presents a difficult problem. Community-based treatment with chloroquine is no longer a viable option. Moreover, given the high rate of malaria resistance reported in Mozambique, first line treatment with chloroquine may be detrimental, as it may delay seeking effective treatment. The most viable immediate option for these communities is to give them very high priority for preventive measures. Future programs should aim for very high LLITN coverage (2 nets per family, 85% coverage), prioritize these communities for residual spraying, give high priority to IPT in pregnancy through mobile teams performing antenatal care, and continue to educate communities and encourage prompt care-seeking, particularly for high-risk cases (pregnant women and young children).

v). Special outcomes and unexpected successes

These have been adequately discussed in preceding sections.

vi). Potential for scaling up or expanding

As discussed in the previous nutrition section, scale-up of BCC/IEC activities requires the active involvement and support from the DDS. Scale-up of nets requires further funding, perhaps through the PMI.

d. IMCI

The IMCI intervention was a limited success, as the program has not yet been fully implemented in any health facility. Early in the project, the MOH supported a Training of Trainers in IMCI, originally training five trainers in the two districts. Today, there is one IMCI trainer in Malema and two in Nampula. IMCI had not been implemented in any health facility by the mid-term evaluation. In April 2004, CARE supported the Provincial Health Department in carrying out a 10-day “simplified” IMCI course for 26 health professionals from Malema and Nampula districts. It is of note that neither District Health Director (DDS) has IMCI training, though the MCH nurse in Nampula participated in the training. Whereas the CARE project manager was a physician versed in IMCI through CARE and USAID child survival trainings and materials, only two health assistants among CARE’s permanent district teams received IMCI training.

After the training, the CARE project manager and Provincial IMCI supervisors performed three rounds of standardized supervision using national IMCI observation checklists. Performance was reportedly satisfactory (anecdotal—no records were available for examination during the evaluation). District supervisory personnel did not continue IMCI supervision after Provincial staff was finished.

i). Results baseline to final

IMCI has not yet been fully implemented in any health facility visited during final evaluation. In visits to health facilities, all health *centers* that were visited reported having at least one person trained in IMCI (no health posts did, however). Laminated IMCI flow-charts were present on the desk of health workers seeing sick children in almost all facilities, but no paper flow-charts were in clinical use. The laminated charts were used mostly to look up drug dosages by weight for children. No health workers had watches or chronometers, and there were no children seen receiving ORT at the time of the visits in spite of some health centers being very busy.

On a positive note, however, at all health centers that were visited, all children, whether well or sick, are first weighed (and most graphed) and then their immunization records are verified. Health workers reported that most sick children who are behind in immunizations are vaccinated at that time, though there was some confusion about the criteria for exclusion. Then, children who were ill were referred for consultation with a nurse. Health workers that were attending sick children were generally knowledgeable about diagnosis and treatment of IMCI-related illnesses (malnutrition, malaria, pneumonia, diarrhea, and skin and ear infections). However, no health workers were seen to be consistently evaluating children during consults, and almost all children being seen were fully clothed throughout the consult. When children are fully evaluated and during malaria low-transmission season, one would expect a similar number of diagnoses for malaria and lower respiratory infection in young children. However, when records were examined, a larger preponderance of malaria diagnoses and treatment was found.

As has already been discussed, essential medicines for treatment of diarrhea, malaria and pneumonia were generally available at the time of the evaluation, and stockouts are reportedly rare and short-lived. Likewise, vaccines are generally free of stockouts. Stockouts of iron and vitamin A have occurred intermittently in the past, but appear to have improved in 2006 in most facilities. Stocks of child health cards are irregular, and CARE provided supplemental cards when necessary. CARE had provided another batch of cards just before the final evaluation. All facilities observed had adequate child scales, equipment for mixing ORS, cold chain equipment and stethoscopes, but as mentioned earlier, no health workers had chronometers or watches.

In focus groups, most community members uniformly stated that attention in health facilities was of high quality, and that they would be seen for illness at any time any day. They said that critical medicines are almost always present, and that they have confidence in the quality of the care. There were isolated instances of complaints, mostly with the behavior of specific individual health workers.

Community IMCI was not implemented in a systematic way, though CARE staff report that they “used some of the principles in CHV training”. It should be noted that the MOH has no formal policy regarding Community IMCI.

ii). Factors affecting achievement of program objectives

CARE provided support for provincial training and supervision of IMCI in two additional districts, as these two districts were not included in the MOH’s initial provincial IMCI training plan. CARE provided the resources, while the Province assumed responsibility for the training, and the quality of training was reportedly up to national standards. The MOH has a policy of treatment of children free of charge. Signs are present in many health facilities stating this.

iii). Contributing factors for objectives not fully achieved (constraints)

Perhaps the most important factor in not achieving the objectives was the lack of involvement of the DDS of each district in the training and supervision for IMCI. Once the series of three CARE-supported provincial supervision visits was completed, little attention was paid to further supervision or implementation. During interviews with both DDSs, both of which began after the IMCI training, it was clear that they did not fully understand the implementation of IMCI and its implications for case management and quality of care. Frequent transfers of MOH staff also led to loss of some health professionals with IMCI training to other districts, as well as replacement of DDSs after the IMCI training.

In large health centers, high patient loads, sometimes in excess of 100-150 children per morning, would prohibit full implementation of IMCI until more staff were hired. Smaller rural health centers and health posts with lower patient loads could implement IMCI easily.

Finally, as has also been mentioned, physical access to health facilities was cited as a barrier for many isolated communities. Some of these lie 30-50 km from the nearest facility, and so seeking care can involve an overnight commitment of time. This problem can only be solved only

through community-based diagnosis and treatment and general development of transportation networks.

iv). Successes, lessons learned, special outcomes/successes, and potential for scaling up or expanding

Successes and lessons learned were adequately discussed above, and no special outcomes were noted for this intervention. As IMCI is a stated MOH policy, expansion and scaling up are possible, though full implementation in busy health centers will continue to be a problem until staffing shortages are addressed. In addition, this would require a concerted effort to have a District level IMCI supervisor available, and resources for regular standardized supervision.

e. Immunization

Improving immunization coverage was not an explicit intervention according to project objectives, but is described in the DIP. Nevertheless, it was included among the program activities, and falls under the objectives related to health system strengthening and IMCI. CARE sought to improve coverage through training of health personnel in immunization and maintenance of cold chain equipment as well as IMCI. The project also provided child health cards when they were in short supply. CARE contributed monthly in each district 50 liters of kerosene for cold chain refrigerators, and 100 liters of gasoline and 200 liters of diesel for mobile immunization clinics and community outreach. Finally, the project provided support to national immunization days with vehicles and manpower.

At the same time, CHWs and community leaders reportedly provided education about childhood immunization in the communities (though the education aspect was not confirmed explicitly during focus groups). The project sought to strengthen coordination between health facilities and communities through monthly planning meetings between health facilities and CHWs and leaders. CHWs and community leaders coordinated community mobilization for mobile brigades. CHWs also received training in the interpretation of the child health card and the immunization schedule as well as in the administration of oral polio vaccine.

i). Results baseline to final

The proportion of children age 12-23 months with an immunization card rose from 65% at baseline to 88% at final. The modest increase in full immunization coverage before 12 months of age from 55% to 65% is not impressive. However, the more detailed analysis that follows yields much more interesting conclusions. Immunization coverage by 12 months of age is summarized in the following table:

Table 7: % immunized by 12 months of age by Districts in Children Age 12 – 23 months with filled cards (n=97)

Vaccination	Total		Malema		Nampula	
	#	%	#	%	#	%
BCG						
Yes	92	94,8	46	93,9	46	95,8
No	5	5,2	3	6,1	2	4,2
Total	97	100,0	49	100,0	48	100,0
Polio 3 doses						
Yes	77	79,4	32	65,3	45	93,8
No	20	20,5	17	34,6	3	6,3
Total	97	100,0	49	100,0	48	100,0
DTP/HepB						
Yes	74	76,3	29	59,2	45	93,8
No	23	23,7	20	40,8	3	6,3
Total	97	100,0	49	100,0	48	100,0
Measles						
Yes	69	71,1	24	49,0	45	93,8
No	28	28,9	25	51,0	3	6,3
Total	97	100,0	49	100,0	48	100,0
Minimum international standards for complete immunization						
Yes	63	64,9	21	42,9	42	87,5
No	34	35,1	28	57,1	6	12,5
Total	97	100,0	49	100,0	48	100,0

Source: Final KPC report

What is most striking from this table are the differences in coverage between districts. Coverage of minimum standards for complete immunization is quite high in Nampula (88%), far surpassing the project's target. Full immunization is only 43% in Malema, however. The vaccine with the greatest disparity is measles vaccine, with coverage of 94% in Nampula compared with only 49% in Malema. There are similar but less striking differences in DTP/HepB3 and OPV3, but almost no difference in BCG coverage.

Several conclusions can be inferred from these data.

- According to interviews with community members and health staff, the performance of the health system in Malema improved during 2006 after the new DDS began. There was an increased frequency of mobile community outreach. However, as these data reflect children age 12-23 months immunized before 12 months of age, the results reflect the efforts of the health system one year before the survey was done. The full impact of improvements would not be perceived until one year after they began.
- The difference between the two districts reflects access to services. A child has a full year to receive BCG vaccine in a single contact with health services. For DTP and OPV, however, the child must have three contacts during one year. Even more difficult is measles, which requires that the child have a contact with the health system within the 3 month period between 9 months and 12 months of age. Communities relying only on national immunization campaigns would necessarily have low coverage.

- As there are no large differences between districts in coverage for antenatal care or care-seeking for children with fever, differences in demand alone are unlikely to fully explain the disparity in immunization coverage between the districts. The difference is almost exclusively a difference in outreach coverage.

The data reflect the poorer performance of the Malema health district with regard to outreach. CARE project staff cite long periods during which there was no outreach in Malema (the mid-term evaluation cites an entire year without mobile outreach), despite continuation of fuel donations. This problem in Malema continues. During the final evaluation, one community stated that there had been no mobile teams since May 2006, and two others said that mobile brigades visit only once per year (probably during national immunization campaigns). In one community, a spot-check of available Child Health Cards showed no children having received measles immunization, pointing to the potential for an outbreak.

Secondly, whereas the Nampula district reported planning frequent outreach sessions several times each week, Malema reported planning weekly or monthly outings. The service package during mobile brigades varies from one district to the other, with Malema performing only immunization and child weighing, but Nampula also performing antenatal care consults in the communities. Communities in Malema are also more distant from their health facilities, and communication and transportation infrastructure are worse than in Nampula.

Cold chain infrastructure and vaccine supplies were reported to be adequate in both districts. No significant stockouts were reported. In two health facilities, BCG vaccination was not occurring daily, as health workers were reluctant to open the large vials for few children. One facility reported applying BCG only on Fridays. Another would only open the vial if there were at least 20 children needing BCG present. Several children over 6 months of age were seen to be up-to-date with DTP and OPV, but still had not received BCG. Although this is not ideal, it apparently did not cause a measurable reduction in coverage by 12 months of age (94% and 96% in Malema and Nampula, respectively).

It should be noted that there was a written schedule of outreach activities in all but two health facilities that were visited during the evaluation, and both of the latter reported having at least weekly outreach activities for immunization and weighing.

ii). Factors affecting achievement of program objectives

Regular vaccine supplies and a concerted effort to reach distant communities was the key factor in the excellent immunization coverage achieved in Nampula. The provision of fuel by the project guaranteed that these activities would be carried out if there was a will to do so. Communities in Nampula district have much better access to health facilities than Malema. However, immunization coverage depends more on outreach than other services, and differences in immunization coverage were much greater than for antenatal care or care-seeking for illness.

iii). Contributing factors for objectives not fully achieved (constraints)

Communities in Malema are farther from health facilities than in Nampula, and roads are worse. The Malema District also has fewer vehicles to transport staff, and marginally fewer staff than in Nampula. Both districts suffered from frequent transfers of their DDS (four in each district during the life of the project). However, project staff as well as Provincial health staff reported long periods of time in Malema during which there was no outreach scheduled, even among nearby communities.

iv). Successes, lessons learned, special outcomes/successes, and potential for scaling up or expanding

Lessons learned have been discussed adequately above, and there were no special outcomes except for demonstrating that the project strategy was very successful in Nampula. As with other interventions, the potential for scaling up would depend on the adequacy of resources for transportation in Malema and other districts once the project is finished. Both districts report that they receive a fuel allotment from the MOH, and that mobile teams will continue to function without reduction in frequency after the end of the project. Malema District cited that beginning next month the Provincial EPI program will deliver vaccines to the district rather than the district having to retrieve it, though this is not likely to improve the situation significantly as vaccine supply to the district has not been a constraint during the life of the project. The excellent immunization coverage achieved in Nampula district demonstrates the potential for achieving similar results in other districts using the existing strategies.

f. New tools or approaches, operations research

The mid-term evaluation report describes a training needs assessment of MOH staff; internal review of monitoring information on referrals, and a survey of client satisfaction with local health services. No new studies were performed after the MTE. The MTE mentioned that a positive deviance study to determine factors leading to good child nutrition in the area would be interesting as a way to refine nutrition messages, but such a formal study was not carried out.

3. Cross-cutting approaches

The discussions that follow will attempt not to repeat points already made in the technical discussions above.

a. Community mobilization and improving access to services

The community mobilization strategy consisted of organizing communities to encourage desirable behaviors through training and supervision, while strengthening the linkages between communities and health facilities. The principal strategies included:

- Training Community Health Workers (CHWs) in key intervention messages and adult education techniques, providing IEC materials and monitoring community education talks and home visits (see next section for more information).
- Establishment of Community Leadership Committees with effective planning and programs

- Assisting communities to establish an active census
 - Establishment of women's groups* ["model mothers" were the key strategy in the DIP; these became the "Nutrition Counselor Mothers" in the project]
 - Regular coordination meetings between health facilities and community leaders and volunteers
 - Establishment of regular ties between CHWs and health facilities through a schedule of CHWs volunteering services in health facilities*
 - Referral / counter-referral system between communities and local health services
 - Donation of 29 bicycle ambulances*
 - Community-based growth monitoring in pilot communities (already discussed)
- *not included in original project design and DIP

CHWs received small incentives, including per diems to cover the cost of food and transportation when they traveled to health facilities to volunteer or attend coordination meetings. Each received a bicycle, and t-shirts, registration books, pencils and erasers, and a small return on the sale of mosquito nets. The bicycles are the property of the CHWs who must maintain them. The per diems were discontinued in early 2006, but meetings and volunteer activities by CHWs at health facilities have continued in most cases.

i). Effectiveness

Overall, the evaluation team found that the community mobilization strategy was successful. Those communities that were visited all had active CHWs, women's groups, and leaders (most with CLCs). Community members enthusiastically described their health-related activities. Likewise, in key-informant interviews, health facilities cited improved community participation, especially citing coordination meetings for planning and executing community-based outreach activities. CHWs were seen performing growth monitoring in all but one of the health centers visited, and in one of two health posts visited.

ii). Were the objectives met?

The specific objectives for mobilization were only partially met. However, this is at least partly attributed to the difficulty in developing measurable indicators for such a subjective area, as well as the difficulty in predicting in advance the exact form that successful community mobilization will take as a project evolves.

The community mobilization indicators included:

- % of community groups conducting effective meetings. (All reported meetings. Effectiveness varied between communities.)
- % of communities with maps and census (all have a census, not all maintain).
- % of CHWs using counseling and participatory education to transmit health messages (Note: this is probably a better measure of quality of BCC/IEC than mobilization. This was not directly assessed, but quality of education varies. The results as measured by changes of behavior in the KPC were generally good.)

- % CHWs implementing growth monitoring sessions in 100% of pilot communities (8 pilots, all have growth monitoring)

Community Leadership Councils (CLCs)

The key factor in the success of community mobilization was the formation of 55 Community Leadership Councils. Members include traditional leaders as well as others, and include men and some women. CARE provided training to members in key health messages as well as planning and evaluation. The DIP discussed the formation of community *health* committees. The CLCs proved to be a better strategy, as they form part of the decentralization plan of the Mozambican government. CLCs can be registered with the District government and are, therefore, formally recognized. CLCs have a wider mandate than health, but in the case of the project, health provided the impetus to their establishment.

There was wide variation in their level of activity. Some CLCs had written quarterly plans, formal written performance evaluation and revision of plans. One CLC provided the evaluation team with a written report of its annual activities and achievements. Other CLCs were less formally active. All reported meeting regularly with CHWs and Nutrition Counselor Mothers, as well as monthly meetings with the health facility.

The activities and responsibilities of the CLCs that were mentioned during the evaluation included the following:

- Performing and maintaining the census
- Planning health related activities, such as clean-ups and others, and mobilizing the community
- Managing the maintenance fund for (29) bicycle ambulances and supervision of maintenance
- Monthly coordination meetings with health facilities, and mobilization of the community for activities such as mobile brigades and immunization days
- Disseminate key messages in the community. Specially cited was the need for CLC members to intervene in cases where families were intransigent and would not heed the counseling of the CHWs and Nutrition Counselor Mothers.

Aside from mobilization for health facility outreach, CLCs often cited other activities such as organization of road clearing, and building a community center.

Referral and counter-referral system

The referral system objective is cited in the logical framework under health system strengthening. However, it formed an important aspect of community mobilization as well as increasing demand for health care services. The growth in the number of referrals has already been described. CHWs and community members cited the effect in both stimulating otherwise reluctant families to seek services, and, in some cases, improving access on arrival at the health facility.

Table 8: The reasons for the 1,353 referrals registered from January to June 2006 included (in order of frequency)

Reason	%	Reason	%
Antenatal care	26%	Family planning	8%
Diarrhea	25%	Nutrition	2%
Other	21%	Sexually transmitted diseases	1%
Malaria	17%		

Source: CHV reports collated by CARE project staff

In focus groups, health workers generally agreed that the quality of the referrals was good, though there were some dissenting views. Most communities stated the referral form resulted in reduced wait time, while some communities had stopped using the referrals as they didn't provide any privileged access to services at the facility. Project monitoring of records from the referral system became a focal point of quarterly planning and data-sharing meetings with district and provincial personnel.

The counter-referral system was less successful, mostly because of a lack of participation from health workers. The evaluation team felt that further training and reinforcement (and monitoring) with health workers of the counter-referral system would be needed. It was not possible to assess the percentage of referrals that had counter-referrals during the final evaluation.

CHWs volunteering in health facilities

This strategy to strengthening the link between health facilities and community health workers was proving successful at the time of the evaluation. As has been mentioned, all but two of the health facilities visited during the evaluation had CHWs participating. All CHWs interviewed during focus groups described their rotating schedule of service at their health facility as weekly in most instances. This is even more remarkable for CHWs in those communities that are more than 20km from the health facility.

CHWs assist with growth monitoring and perform educational talks for waiting mothers. This participation provides an excellent opportunity for coordination and communication of upcoming outreach activities. In addition, it provides an opportunity for the continuing education of the CHWs and for work under the supervision of trained health workers. In the future, this could provide the basis for expansion of community-based growth monitoring should the MOH adopt this as a policy.

Until early 2006, the project was providing incentives in the form of per diems when CHWs traveled to health facilities. Although these incentives were withdrawn in the second quarter of 2006, CHWs have continued to fulfill their schedule. Project managers mentioned that many CHWs are motivated by the hope that they will be hired as maintenance and cleaning staff in health facilities. The Malema DDS cited the value of the CHWs continued participation, and mentioned that he is looking for a way to provide the CHWs with a meal on days when they volunteer.

Census and mapping

The “active census” was not discussed in detail during the final evaluation. They were present in all communities visited, and CARE staff confirmed that 100% of communities have a census. While the census formed part of the training of the CLCs and provided a more accurate measure of the direct beneficiaries of the project, there was less consensus about its ongoing usefulness. They were cited as useful in determining the limits of each community, as well as mapping its resources.

Bicycle ambulances

The donation of 14 bicycle ambulances in Malema and 15 in Nampula was an unqualified success. Communities were chosen according to eligibility criteria set by the project. More distant communities were favored, and each must have a maintenance fund established in advance. The two-wheeled ambulance-trailers were locally manufactured. The exact cost was not ascertained during the evaluation, but project managers thought it was around US\$250 each. The price was 6,800,000.00 Metical = \$270.50. The bicycle ambulances were highly praised by community members, leaders, health workers at facilities and both DDSs. The DDS in Nampula said “Those bicycle ambulances are *spectacular!*” There have reportedly been minor maintenance problems, as well as minor administrative problems (the individual keeping the bicycle ambulance detaching it and using the bicycle for personal use, for example). CARE staff said that these problems have been largely overcome, and they were not mentioned during focus groups.

In focus groups and interviews, the ambulances were said to have been used from twice each week to twice each month, but all are used regularly. The type of patient varies. Several communities described incidents of mothers in labor who delivered en route due to transportation time. In some cases, the ambulances are used to get a patient to a facility with communication from which a car ambulance can be called from the district capital. Communities and health facilities also described their usefulness in transporting patients discharged from hospitals back home, and transporting cadavers for burial.

iii). Lessons learned

An important lesson learned cited by the evaluation team was to form CLCs at the outset of the project at the same time that CHWs are being trained. In the case of the CS project, they were only established during the second-to-last year.

Another is the great value of the bicycle ambulances. The strategy of requiring a maintenance fund as a pre-requisite for the donation proved to be important. This program should be expanded if possible. No system to monitor the use of the bicycle ambulances was put in place. The evaluation team thought that this would have been useful.

The evaluation team cited the need to give more emphasis to training health personnel in the use of the referral and counter-referral system. The evaluator would like to add that counter-referral is weak in almost all such systems, even in developed countries. Doctors don’t like to spend the time filling out counter-referral forms, as they don’t understand their importance.

The community census has not been actively used on an ongoing basis, and is not being kept current. The mapping exercise and census were useful in motivating CLCs for planning of activities just after they were trained.

iv). Demand for continued activities

In focus groups, all communities were confident that all community-based activities would continue after CARE ceased to provide ongoing support. It is heartening to see that activities have continued in most areas for 4-5 months after financial incentives (per diems) were discontinued. Demand for mosquito nets remains strong, and demand for health services will not wane after the project ends.

v). Plans for sustainability

As all workers are volunteers, they may continue working as before. CLCs are registered with the local administration, and so receive official recognition. It is not known whether CLCs and CHWs will continue to meet regularly with health facilities in the absence of incentives (per diems), but in focus groups enthusiasm remains high.

The evaluation team suggested that CARE should concentrate on provision of a last lot of referral forms, CHW activity registration books, and educational material before project closeout as a means to increase sustainability. This would seem reasonable if funds were available, but would sustain activities for only a few more months.

The sustainability of the behavior changes is unknown, but continued reinforcement during antenatal care consults, community outreach activities, and growth monitoring could be of great benefit. Unfortunately, little work was done to improve health workers' counseling skills or their access to quality IEC materials. Perhaps the OKUMI project could address this weakness.

The evaluation team concurred with CARE staff's view that community leaders do not have the motivation or capacity to continue to maintain their census actively. This activity has required ongoing support from CARE Community Assistants.

b. Communication for behavior change

The principal strategies for BCC/IEC were the following:

- Community volunteers who performed home visits, educational talks, and demonstrations
 - Community health workers
 - Mothers' groups and Nutrition Counselor Mothers
 - Community leaders and CLCs
- Development and dissemination of IEC materials for use in the community
- Theater—professional and amateur
- Radio spots
- Education by health workers during consults

The DIP discusses the need for formative research to determine audience, barriers to key behaviors, etc. Use of the BEHAVE framework is also discussed, as is the development of new BCC/IEC materials for use in the project. In fact, no formal formative research was undertaken. The BCC/IEC strategy was not formally or deliberately designed according to the detail that specialists in the field would deem adequate. Almost no new BCC/IEC materials were developed, though the project did identify and reproduce relevant materials already in use by other CARE projects, the MOH, and a local NGO (*Salama*).

Nevertheless, it is undeniable that the project achieved impressive positive changes in key behaviors related to project objectives, especially regarding exclusive breastfeeding and complementary feeding, demand for mosquito nets, and care-seeking for ill children. The BCC/IEC approach, however informal, was largely successful.

i). **Effectiveness of approach**

The evaluation team attempted to assess the relative coverage, effectiveness and relative overall contribution of the various BCC/IEC strategies to the behavior changes that were achieved.

Each community received a set of laminated cards for use by CHWs, Nutrition Counselor Mothers and leaders. The following table illustrates the project's key messages, whether there was at least one corresponding laminated card, and what is known or suspected about the degree of behavior changes achieved.

Table 9: IEC messages and materials

Key project message	IEC materials?	Improvement in behaviors?
Exclusive breastfeeding to 6 months	Yes	Very good
Seek antenatal care; take prophylactic iron; (take prophylactic antimalarial?)	Yes (partial)	Not known
Add foods rich in vitamin A and oil to child's food	Yes (partial)	Very good
Continue breastfeeding until 2 years of age	No	No improvement (from medium baseline)
Give the child food 5 times per day	Yes	No improvement (from very low baseline)
Give the child food beginning at 6 months	Yes	Very good
Give the child vitamin A every six months	No	Good
A pregnant woman should eat 3 times per day and eat fruit between meals	Yes	Unknown, probably moderate improvement
A pregnant woman should rest, reduce workload, sleep	Yes	Unknown, perhaps some improvement
A mother and child should eat a varied (balanced) diet	Yes	Very good (anecdotal for mother, KPC for child)
Take a child with fever for care at a	No	Good

Key project message	IEC materials?	Improvement in behaviors?
health facility immediately		
Take a child for regular immunization and growth monitoring	Yes	Very good
A post-partum woman should take vitamin A	No	Knowledge unknown, probably poor (anecdotal)
Breastfeed within the first hour after birth	No	No improvement (worsened)
Treated mosquito net	Yes (2)	Very good
Environmental means to prevent malaria	Yes	Yes (anecdotal from focus groups)

There appears to be a reasonably good correlation between IEC materials and key messages. The greatest mismatch were three cards describing house or community clean-up as a means to reduce malaria. This is not to say that hygiene is not desirable, but rather, it is not a proven intervention to reduce malaria incidence. Giving children food five times per day did not improve in spite of a specific card, and care-seeking for fever did improve despite the absence of a card. There was at least one card for 11 of 16 key messages. The mid-term evaluation stated that CHWs appeared to be adequately skilled at using the cards to reinforce their messages.

The evaluation team attempted to assess the relative coverage and effectiveness of the various key means of transmitting messages in order to judge which were most effective. The following table outlines the results of that analysis:

Table 10: BCC/IEC media

Medium	Estimated coverage	Estimated effectiveness in changing behavior
Educational talks by CHWs	Estimated 470,000 people reported reached per year during last year. Total direct beneficiary population 136,000, of which about 68,000 are adults. <u>Each adult attended an average of 7.5 educational talks per year.</u>	Medium to low ability to change behavior. Better for increasing knowledge.
Home visits by CHWs	Estimated 34,580 visits reported in the final year. 24,727 direct beneficiary families= <u>1.4 visits per family per year.</u> CHWs state that they targeted visits to high-risk families: young children, pregnant women	High, as intervention is one-on-one, and can address specific need.
Mothers' groups	Est. 2 groups per community, 11 mothers in an average group = 1,892 mothers total. There are about 30,000 women of childbearing age among direct beneficiaries = <u>6% of mothers participate.</u>	Very high, as there is a peer pressure effect. In focus groups, non-participant mothers reported multiplier effect.

Medium	Estimated coverage	Estimated effectiveness in changing behavior
CLC and leaders	General support to activities of others and case-by-case problem-solving	When individualized, very effective
Radio and theater	Focus groups estimate poor coverage for either, and poor comprehension of radio messages as an IEC method.	Poor. Though good for highlighting a single topic for later discussion.
Education during consults	High coverage. Focus groups, the final survey and HMIS data all suggest that most families report <u>several contacts with health system each year</u> . ANC coverage is especially high.	Potentially very high, due to credibility of health worker. However, counseling during consults not being done effectively.

Source of data: DDS HMIS, KPC and focus groups during evaluation.

Educational talks received a great deal of attention during the project. CHWs performed an average of four educational talks reaching 164 people each month from January to June of 2006.

Topics covered January to June 2006 in order of frequency are as follows:

Table 11: Topics in educational talks

Subject	Talks (n=5,776 talks)	People reached (n=235,047)
Diarrhea	37%	30%
Malaria	21%	32%
Prenatal care	12%	9%
Nutrition	11%	14%
Family planning	9%	7%
Sexually transmitted infections	6%	6%
Other topics	2%	2%

Source: CHW reports tabulated by CARE project staff

The above table illustrates that each talk reached an average of 20 people, and that each CHW or Nutrition Counselor Mother performed an average of just over four talks per month. Home visits were similar, with a total of 17,290 performed in the period January to June 2006. By topic they were distributed as follows: malaria 25%, diarrhea 23%, antenatal care 16%, and 10% each for nutrition, family planning and other topics. This comes to an average of 21 home visits per CHW per month (not counting Nutrition Counselor Mothers).

The project hired one professional theater group to perform periodically during the life of the project. In addition, three mothers' groups and one group of CHWs formed theater groups. The CARE team described one of the mothers' groups as especially skilled. Nevertheless, the results of the focus groups demonstrate that relatively few people saw the performances, and that they thought they had little influence on their own behaviors. The project also participated in a weekly radio program, however, during the focus groups, few people in the rural areas said they had radios, and even fewer had heard the program. Songs were reportedly used as a tool for transmitting messages, but their influence was not directly assessed, as singing was not

mentioned frequently during the focus groups. It was clear in the focus groups that the CHWs' activities consisted primarily of educational talks and home visits.

What is clear from the above tables and discussion is that the combination of intensive community-based work using home visits with frequent educational talks was likely responsible for the large changes in some key behavior that were achieved. Radio and theater played only a very small role.

The relative impact of the CLCs and leaders is difficult to assess. In focus groups, they reported that they were often called to intervene when families were intransigent, such as families with malnourished children, ill children whose families were reluctant to take them for treatment, or pregnant women reluctant to attend antenatal care. In these cases, their intervention could be highly effective. This level of targeting was made possible by regular home visits by CHWs.

The case of mothers' groups is interesting. Coverage was estimated to be low, with only about one in sixteen mothers participating in a group. However, their activities achieved high visibility in the communities, including cooking demonstrations and "cook-offs", culinary competitions based on nutrition as well as taste. In focus groups, non-participant mothers reported learning nutrition messages from their neighbors and relatives who did participate.

CARE field staff provided weekly supervision visits to communities. In addition, CHWs filed monthly activity reports. CARE field staff monitored the number of educational talks, number of people reached, number of home visits performed and the number of patient referrals. This aided in targeting supervision.

The potentially strong influence of education during contacts with health facilities received little attention in the project. This is unfortunate, as coverage for many key MCH programs is relatively high, and in focus groups families reported frequent contacts with health facilities. Health workers have the potential to have a relatively large influence on behaviors due to their credibility.

Patient education at health facilities was not a strong component of the project design from the outset. Whereas CARE did include "interpersonal communication and human relations" as a topic during health worker training, little further attention was paid to improving patient education. Health workers and health facilities had few educational materials available. The most-frequently observed educational material observed in antenatal care examining rooms during the evaluation was a large flip-chart on "Syphilis in Pregnancy", which was not a key CS message. Moreover, patient loads are high in many health centers, so time for education is limited. What patient education is provided is often in the form of a poorly-delivered talk to a large crowd of impatient mothers. Finally, little attention was given to the quality of patient education during supervision visits. In future projects, the potential power of this means of behavior change should receive greater attention, as the cost of improving it is relatively low.

ii). Objectives met

The behavior change objectives were largely met for the most critical indicators: exclusive breastfeeding, improved complementary feeding, and creating demand for ITNs. Improving care-seeking for sick children improved, but did not meet the target. Increasing frequency of child feeding and colostrum in the first hour did not improve. There are some indications from focus groups that key behaviors in pregnant women improved at least somewhat, but this could not be confirmed using survey-based data. Antenatal care coverage seems to be high.

iii). Lessons learned

Concentrating on a small set of well-defined messages was important to the success of the behavior changes achieved. This project did not attempt to include diarrhea, ARI, family planning, and others, but rather, concentrated on a limited set of interventions. This was key to achieving success.

Achieving high coverage by several different means of communication was important to achieving behavior changes. Using CHWs, women's groups, and community leaders together as agents for behavior change was important. Intensive weekly supervision of communities by CARE staff increased the effectiveness of the work done by community health workers and maintained their enthusiasm.

One interesting lesson learned is that large improvements in behavior can be achieved without systematic application of elaborate BCC methods and techniques. It is not known whether a more systematic sophisticated approach could have achieved more.

The project did not take advantage of the frequent contact families have with the health care system. Improving the quality of education and counseling during consults and well-child visits was a missed opportunity. This could have been done inexpensively through provision of better IEC materials, training, and supervision of health care workers.

Nutrition Counselor Mothers requested pots and pans during evaluation; more educational materials would increase their sustainability and effectiveness.

iv). How will behaviors be sustained

All community workers are volunteers, and therefore there is some hope that they may continue their activities after the end of the project. Nutrition Counselor Mothers use local food-stuffs contributed by the participant mothers for their demonstrations, and so do not rely on outside inputs. Links between the CHWs and leaders and the health facilities have been strengthened, and therefore, they will continue to receive some support for their activities in the future.

The sustainability of the behavior changes at the family level is difficult to assess. At the time of the evaluation, most communities appeared to have absorbed the desired behaviors as their own. This may be attributed to the engagement of different community groups: CHWs, mothers and leaders.

c. Capacity-building approach

i). CARE USA headquarters

CARE USA headquarters backstop for this project provided an annual opportunity for continued education for the Project Manager through an Annual CARE Child Survival Workshop which was held in various countries during the life of this project and provided CS updates, sharing of experiences and opportunities to visit other CARE CS projects in the field. The Project Manager attended each of the five years (in the past two years, the new OKUMI Project Manager also attended). CARE HQ has regularly sent CS materials to the field. This project also benefited from CARE HQ arrangement of a consultancy for an experienced MCH specialist, formerly of CARE Honduras, to assist the project team in implementing the DIP after its preparation and submission. Due to language limitations, no project staff was able to benefit from regional external trainings available through CORE Group or other USAID technical specialists.

ii). Local partner organizations

There were no significant local NGO or other partners that were included in the project design. The MOH and communities were the only significant partners that the project aimed to strengthen. The project collaborated with the local NGO *Salama* periodically, but this relationship was not formalized as a partnership.

iii). Health facilities

Many aspects of health facility strengthening have already been discussed under the individual interventions above, especially IMCI. The primary strategies used for health facility strengthening were the purchase of needed equipment and supplies for health facilities (the equipment was already described in the mid-term evaluation). The purchases also included child health card supplements, fuel for cold chain and outreach, already discussed above), training of health workers, joint supervision of health workers together with provincial and district staff, and strengthening the link between facilities and communities. The link between facilities and communities was discussed under community mobilization.

The principal facility-related objectives in the DIP are:

- Pilot post-partum Vitamin A administration, baby friendly units, IMCI as models for national level (no target)
- Health facilities with fewer stocks outs of cotrimoxizol, chloroquine, iron, and Vitamin A (target: majority)
- Referrals receive counter-referral (no target)

The project did little to contribute to the provincial MOH's own plans regarding the first of these three objectives, which may have been overly ambitious from the start. This objective was not achieved. The second of these objectives has been discussed above and was also achieved more through better drug management by the MOH than through project interventions. The third of these objectives was discussed above with the referral system. It was partially achieved.

CARE performed a health training needs assessment of health facility staff during the first half of the project that led to an initial training plan. No formal health facility assessment post-training was undertaken.

Both District Directors stated during the evaluation that continuing outreach and supervision activities without the fuel subsidies would not pose a problem. Child health cards may be more of a problem, as stockouts are frequent and there are no alternative sources. The districts have suggested using photocopies until hard cards become available.

iv). Health worker performance and training of health workers

Health worker performance objectives stated in the DIP are as follows:

- District personnel having one supervision visit DDS in past quarter (target 50%)
- District personnel following IMCI protocols for pediatric cases (80%)

Health worker supervision is occurring every two months in Nampula and every three months in Malema. CARE field staff accompanied almost all supervision visits to health facilities. In Nampula, the DDS has recently begun using a detailed supervision checklist designed by Doctors of the World. Prior to this in Nampula, and in Malema, supervision was done through narrative observations. Health workers in both districts reported that supervision included direct observation of activities and a subsequent critique with continuing education. The quality of the supervision reports was not assessed during the evaluation. Supervision should be sustained after the end of the project, as it is a routine activity in both health districts and is official MOH policy.

The objective for IMCI was discussed under that section. The 80% target was not achieved, and IMCI was not fully implanted in any health facility. However, the IMCI training almost certainly improved the quality of child care in many ways.

Health worker training was discussed in the mid-term evaluation report. Although the DIP mentions performing a formal health worker performance assessment that would form the basis of a training and supervision plan, a training needs assessment was done instead. With the exception of the three standardized IMCI joint provincial/CARE supervision visits, health worker performance was not assessed using standardized instruments.

CARE supported an eleven-day training session in counseling and interpersonal relations, reproductive health and obstetrical emergencies for 35 participants in September 2004. The topics covered were based on discussions of training needs with the districts. Evidence for impact of these training sessions was not assessed during the evaluation, but health workers that were interviewed were enthusiastic about the training they received. The MOH also sponsored continuing education and training for health workers. For example, the new malaria IPT protocols for pregnant women were implemented by the MOH without CARE input. In addition, some health centers were observed to have continuing education schedules posted. It is clear that health worker training will be ongoing.

v). **Training**

Training of health personnel has already been adequately discussed. Training of additional community health workers continued during the second half of the project. CARE trained 64 new CHWs in both Malema and Nampula in late 2004 and early 2005, as well as 131 new CLC members (between October 2004 and April 2005), and 61 Nutrition Counselor Mothers (April and May 2005). All CHWs received refresher training in the new nutrition package between November 2004 and the end of 2005.

New CHW training was given for four consecutive days, Nutrition Counselor Mothers for five days, and CLCs four days. In focus groups, almost all said the training was participatory and useful. CHWs appeared to be knowledgeable about project messages, and CLCs had a grasp of their roles and responsibilities. A rapid review of some CHW reporting books showed them to be completed correctly and up-to-date. Methods used in community worker training were discussed adequately in the mid-term evaluation. The same methods were used in subsequent training sessions.

The manual used to train CHWs was adapted from the CARE reproductive health project. The sections on the role of the CHW, adult education and community mobilization were all appropriate. However, there was no information in the manuals on breastfeeding and child nutrition. According to CARE staff, these topics were covered by using other materials (not reviewed during the evaluation). The strategy was apparently effective, as CHWs, CLCs and Nutrition Counselor Mothers understood their roles and the messages.

CHWs are receiving continuing education through regular monthly meetings with health facilities. Whether these monthly coordination meetings will continue will depend on the will of both health facilities and community workers.

d. **Sustainability strategy**

The sustainability objectives as stated in the DIP are:

- DDSs have and implement a supervision plan for staff of health centers and posts.

There are supervision plans in both districts which are implemented according to the following schedule: Nampula every 2 months, Malema every 3 months. Both DDSs stated that regular supervision will continue even after CARE ceases to provide the monthly fuel subsidy.

- DDS staff following IMCI protocols for 80% of all cases of children under 5 years.

Not achieved (already discussed in IMCI and health worker strengthening sections above)

- 80% of DDS staff follow protocols for malaria, diarrhea and pneumonia case management.

Protocols are present in all health facilities and health workers are adequately trained. However, protocols are not always followed. Reasons are the same as for IMCI: lack of equipment

(chronometers for measuring respiratory rate), high patient load, and lack of systematic supervision. This objective was not achieved.

- Sweet potato cultivars available and affordable in district markets for 80% of participating communities.

This objective was not achieved as there was little collaboration between CARE's agriculture and nutrition project and the CS project for provision of cultivars. The Child Survival project did benefit from input provided by the nutritionist from the VIDA project. The synergy between the Agricultural and the Health project was most beneficial in working together to improve the weaning diet using locally available foods, especially sources of foods rich in beta-carotene and local sources of oil.

- Mosquito bed nets available and affordable in district markets for 80% of participating communities.

This objective was not achieved as CARE did not have its own strategy for establishing market sources of bed nets. Rather, direct distribution and subsidized sale through CHWs was the strategy adopted. Adequate net coverage will only be achieved through future strategies for distribution of subsidized nets. Demand for nets is high, and the beginning of the PMI project in Mozambique may provide sufficient funding to provide these nets, in coordination with the OKUMI Project and other PSI-related activities.

- 75% of CHWs implementing at least 4 health promotion activities per year.

This objective was greatly surpassed. CHWs are implementing an average of just over 4 health talks per month, in addition to home visits. This is in addition to activities organized by Nutrition Counselor Mothers and CLCs.

- All health posts have contact at least quarterly with the CHWs in their area.

All CHWs are providing volunteer services at their respective health facilities weekly. In addition, they have monthly coordination meetings with their facilities. This objective was greatly surpassed.

- 50% of DDS and communities maintain the active census.

All communities have a census. However, not all are maintaining them. The Districts are not integrating or updating their information. This is due in part to lack of materials. In addition, communities do not clearly understand the benefit of maintaining the census, which requires a considerable effort on the part of community workers. CARE staff stated that the census will not be sustained, as communities lack the skills to do so on their own.

- Referral/counter-referral system functioning for 80% of CHWs and their corresponding DDS health staff.

All but a few communities have a working referral system, and all health facilities recognize the referrals. Not all referrals receive a counter-referral, and records of counter-referrals are not being kept.

CARE is planning a formal project handover to the MOH at project closeout. The frequency of CARE supervision visits to communities has also been reduced, and after the project manager left CARE, he was not replaced. There were no plans for financial sustainability, as there were no direct subsidies being paid except for the subsidized mosquito nets (which will not be sustained), per diems for community health workers (already discontinued), and fuel subsidies (already discussed).

The presence of the joint Save the Children/CARE USAID Mission funded CS project (*OKUMI*) in Nampula Province provides an unexpected opportunity for both sustainability and applying lessons learned from the CS project. The OKUMI project is operating in 14 of the 21 districts of Nampula, including Malema and Nampula-Rapale, although in only a subset of communities. Most of these are not the same communities in which this CS project has been implemented. However, support to the DDS will continue. The OKUMI project has funding for another two years. CARE will also continue in Nampula with other development projects, including agriculture and micro-credit.

Demand for services will continue through continued home visits and education by CHWs, Nutrition Counselor Mothers and CLCs. Bicycle ambulances in the 29 target communities will also continue to be used. Demand for mosquito nets will continue, though only if they are available at affordable (subsidized) prices. In addition, community outreach brigades will continue to offer services to more distant communities.

An important aspect of sustainability that has already been mentioned is the fact that CLCs are registered with the local District Government offices. This provides them with official recognition. Although there is no direct financial support, the CLCs, have ongoing regular contact with the District Governor's office in each district. In focus groups, CLCs maintain that they will continue with their regular monthly coordination meetings with their respective health facilities.

C. Program Management

1. Planning

The process used in planning the DIP was discussed adequately in the mid-term evaluation report. CARE Mozambique elaborated detailed annual workplans for project implementation and shared them with DDS and the Province in their regular meetings. The project manager met at least quarterly with the DDS of each district to plan for the upcoming period, especially as regards outreach, campaign and health worker training.

Some sections could be said to be “over-engineered” in the sense that the document cites a number of “technical methods” to be introduced during the life of the project, such as the HEARTH nutrition recuperation model, the BEHAVE BCC framework, and “Total Quality

Assurance management tools”. However, the activities required for providing (external) technical assistance and training of staff for implementation of each of these is not included in the workplan or budget, and in the end, they were not introduced. This is a common failing in CS DIPs, and in part stems from pressure to use “best practices” in the DIPs. In future projects, if these tools are to be introduced, they should be included in the activity plan and budget.

CARE made a conscious (and appropriate) decision not to use HEARTH in this project. It is impossible to foresee the evolution of a five-year project on the ground, and the CARE team proved that it was flexible in introducing new, unplanned program elements, such as Nutrition Counselor Mothers, CLCs, bicycle ambulances and growth monitoring when it appeared that they may be appropriate.

2. Staff training

All staff stated that they received initial orientation to CARE’s policies and procedures, and then received initial training in the baseline survey, adult education, all technical topics (nutrition, malaria, etc.), the logical framework, community development, interpersonal communication, monitoring and evaluation, and how to train community leaders. Two staff members were trained in IMCI. Staff all felt that they received most of the training that they needed to perform their duties. They felt that training in computers would have been helpful.

Team training support was enhanced by the fact that the project manager was a Mozambican public health physician with both technical knowledge and knowledge of the health system. This was important as most CARE field team staff were not health professionals.

The most important lesson learned was that if the team is properly supported through training and supervision, community health activities can be successful without the need for health professionals.

3. Supervision of Program Staff

Supervision of MOH health workers and community health workers has already been discussed in the sections above. Regular supervision of MOH workers will continue, but individualized field-based supervision of community health workers by MOH staff is not feasible due to staffing and transportation limitations. Some “group” supervision of their skills is possible during their volunteer time at health facilities and during outreach.

Program managers visited field staff and accompanied them during their field activities each month (the assistant program manager about 10 days per month, the program manager about 2-4 days per month). CARE field staff stated that they received more formal supervisory visits by the program manager using a standardized instrument about quarterly. There were some complaints by field staff that the results of these supervisory visits were seldom discussed in detail, and that the supervision style was less supportive than it could have been. Supervision of management staff was not discussed during the evaluation. The only significant weakness in staff supervision was poor documentation, already noted in the mid-term evaluation report.

4. Human Resources and Staff Management

The only significant partner was the MOH, and personnel policies are in place. The policy of frequently transferring MOH personnel among facilities hinders sustainability and institutional memory, and increases the requirement for constant retraining. These constraints are largely beyond the capacity of CARE to influence unless an agreement on MOH staff stability was negotiated at the outset as a condition of the project.

Issues regarding staff turnover were described in the mid-term evaluation. Similar problems continued during the second half of the project, especially among management level staff. The field staff teams had the least turnover, with one field staff member in Nampula being hired and leaving during a single year. She was not replaced. The Deputy Project Manager was hired during the second year of the project, and ended his contact with CS XVII for the Apple project a year before CS ended and was not replaced. The second Project Manager, hired in mid-2002, resigned his contract with CARE Mozambique in April 2006 and was not replaced.

Staff turnover in the MOH presented a greater problem. Each of the two districts had four different District Directors of Health during the life of the project. Likewise, the Provincial Director also changed several times. There were also numerous transfers among health facility staff. All this hindered lasting institutional strengthening.

Staffing at the field level was generally considered to be of sufficient quantity and quality to adequately carry out the activities that were planned. The two CARE field teams reported high staff morale throughout the life of the project, except for the final months when the project manager resigned and was not replaced. During this final period, the acting project manager was overburdened, so supervision and staff meetings became infrequent, and the efficiency of logistics suffered. In addition, field staff complained that as of the time of the evaluation they had not yet received any personal attention regarding their severance aside from termination letters issued in July 2006, and that none had received indication whether they will be kept on or definitively laid off. Project management states that this will be remedied in the coming weeks.

5. Financial Management

Financial management mechanisms were discussed adequately in the mid-term evaluation. Aside from the incident with the project manager described in the previous section, no significant financial management issues were raised during the evaluation. CARE reduced the size of the match early in the project, but remained well within the minimum required. The July 31, 2006 summary financial report that was reviewed during the evaluation showed that only 28% of personnel costs for the fiscal year had been spent, only 49% of all direct costs, 62% of indirect costs, and 50% of total budget. The budget for equipment and supplies were overspent by 400% and 60% respectively, but together these represent only 5% of the total budget for the year, so this amounted to very little money. Project managers assured us that these imbalances would be adjusted before the end of the project. There are no issues related to financial sustainability of this project, as there were no plans for cost-recovery.

6. Logistics Management

The team did not cite any serious logistical shortfalls that hindered project implementation. The team in Nampula mentioned only some initial difficulties in finding permanent office space. Transportation and supplies were generally described as adequate to implement project activities, although as the project has drawn to a close, the field teams complained that the logistics systems had become significantly less responsive than before.

7. Information Management

There was no regular system in place to “measure progress toward the program’s objectives”, as the majority of the project indicators were outcome indicators that would require survey-based measurement. The only reasonable option to regularly monitor these indicators would have been regular rapid small sample surveys, or regular qualitative measurement, though this was not planned as part of the project. During a five-year project, a rapid survey at the time of the mid-term evaluation may have provided useful guidance for program implementation at that time.

The community health workers recorded their activities in registers. The samples that were reviewed during the evaluation were properly completed. These were summarized each month and reported to CARE field staff. CARE managers monitored the number and distribution of health workers trained, as well as their outputs (home visits, educational talks and topics covered, for example). CARE also tracked the number of patient referrals and reported this to the Districts. It is not likely that MOH staff will continue to support this reporting system after the end of the project.

At the time of the departure of the Project Manager, the Health Coordinator assumed custody of the project monitoring of computer files. However, as she was unable to be present during the final evaluation, the evaluation team had some difficulty in locating and organizing project monitoring data. During the project, the Project Manager met quarterly with the DDS of each district to review data, both data from CARE monitoring and key health facility indicators. While the field teams were aware of community-worker outputs, their knowledge of health facility performance indicators was much less complete. Recommendations found in the mid-term evaluation, including hiring administrative assistants for field offices and computer training for field staff were not implemented, however there was no strong evidence that this hindered project monitoring.

No special assessments or research were supported by the project. The effect of the project on the MOH’s collection and use of data for management could not be assessed during the evaluation, as both DDSs were new and the former Project Manager was not present. Key District staff was present during the presentation of the evaluation results and demonstrated a clear understanding of the project’s impact.

8. Technical and Administrative Support

The mid-term evaluation discusses the technical support received during the first half of the project. Phoebe Kilele, the CARE Health Advisor based in Maputo, spent about 30% of her time in Nampula, and provided considerable technical support to project managers. She joined CARE Mozambique in September 2005 and therefore provided support during the project's final year. She provided technical support and leadership on project implementation and on planning and guiding the execution of the final evaluation, including securing the approval of the Ministry of Health Bio-ethics Committee for the final KPC and final evaluation qualitative data collection. Project staff agreed that support from CARE headquarters and from Maputo was sufficient to meet their needs. Aside from the MOH support to IMCI training, no specific external technical assistance was used by the project aside from the consultants that performed the mid-term and final evaluations.

The mid-term evaluation suggests that CARE consider contracting in-country TA to support areas like adult education and formative investigation. Although this seems reasonable, in retrospect it is not clear what effect this would have had on project outcomes, as the major weaknesses identified in the final evaluation were not in the community component, but rather, District MOH management.

9. Mission Support

Mission support was not assessed in depth during the evaluation. CARE Nampula received regular visits from USAID Maputo in the context of the mission-funded OKUMI CS project. During these visits, USAID Maputo reportedly also took advantage to discuss the CS XVII project with CARE management and make occasional field visits. The lessons learned in the CS XVII project are constantly being incorporated into the OKUMI project, as they are similar. Both USAID Maputo and Save the Children, (the primary grant recipients of the OKUMI project grant), actively participated in the CS XVII final evaluation debriefing and discussion.

10. Management Lessons Learned

CARE's experience in managing projects of this nature was evident in the lack of serious management problems, the sensible project design and consequent positive results. CARE staff carefully planned and implemented the project, but remained flexible, modifying the program design and interventions to respond to newly identified needs and opportunities. Clear management policies and procedures in all areas and adequate staff training and supervision allowed CARE to effectively manage a project originating in the US and extending to Maputo, to Nampula, and finally to two District field sites.

D. Other Issues Identified

None that were not discussed previously

E. Conclusions and Recommendations

The main conclusions and recommendations for each section have been discussed and incorporated above as appropriate. This section will simply restate what has already been said above.

Results from the final KPC survey showed that the project reached or exceeded targets for three of seven indicators with specified targets, and showed sizeable improvement in three others. The principal achievements were a surprisingly large increase in exclusive breastfeeding, and significant improvements in the variety and quality of complementary feeding. In addition, there is a greater awareness of the danger of malaria, when parents should seek care for their children when they are ill, and how to prevent malaria by sleeping under a bed net. There were significant gains in care-seeking for fever and demand for bed nets as well as their use. The most important constraint to further increases in ITN coverage was the insufficient supply of subsidized nets, not a lack of awareness or demand. Gains for maternal nutrition were not as easy to quantify, as there were no questions on the final survey to measure them, but there is qualitative evidence that mothers better understand the need to eat and rest more during pregnancy, and antenatal care coverage appears to be high (though unchanged during the project). Communities are more engaged with the health system than before, including regular meetings with health facility managers, improved coordination for health facility outreach to communities, and community health workers volunteering in health facilities.

Strengthening of the health system through IMCI training and outreach was less successful. IMCI was only partially implemented, though the quality of health services is generally reasonably good. Stockouts of essential medicines and supplies have been reduced, though not directly the result of the project. Immunization coverage was excellent in Nampula, but was poor in Malema due to weaknesses in management and poor outreach. This was in part attributable to the frequent turnover of District Directors.

The gains at the community level will probably be sustained, as communities have adopted the key child feeding messages as their own.

The principal conclusions, recommendations and lessons learned that emerged from the evaluation include the following:

BCC/IEC strategy

- More attention should be given to training and supervision of health workers to improve counseling and education during consults. They should be provided with educational materials to support key messages.
- More formative research and technical assistance may have improved the quality of BCC/IEC messages and their delivery.

Malaria

- In the future, ITN coverage targets should be set higher (85% net use, 2 nets per family) and more attention given to supply of subsidized nets in adequate quantities.

- Patterns of net usage should be investigated in the future, especially whether they are used during both the rainy and dry seasons.
- There was no provision made for retreatment of the ordinary nets distributed early in the project. As these are a minority of the nets, it would probably be cheaper to replace them with LLITNs when these become available rather than mount a retreatment effort.
- As Mozambique is to be a President's Malaria Initiative country, more funds will soon be available for malaria. Authorities in Nampula, together with CARE Mozambique, should make certain that Nampula receives adequate attention and funding, especially for LLITNs. Now that strong demand for nets has been created, all that is needed to achieve high ITN coverage is money.
- The lack of access to prompt malaria treatment in remote communities presents a challenge. The most viable immediate option for these communities is to give them the highest priority when instituting preventive measures. Future programs should aim for very high ITN coverage (2 nets per family, 85% coverage), prioritize these communities for residual spraying, give high priority to IPT in pregnancy through mobile teams performing antenatal care, and continuing to encourage prompt care-seeking for high-risk cases (pregnant women and young children).

Growth monitoring

- CHVs assist with growth monitoring and perform educational talks for waiting mothers. This participation provides an excellent opportunity for coordination and communication of upcoming outreach activities. In addition, it provides an opportunity for their own continuing education and to work under the supervision of trained health workers. In the future, this could provide the basis for expansion of community-based growth monitoring should the MOH adopt this as a policy.

IMCI

- District Health Directors must be directly involved in the implementation of IMCI in their districts, as it requires constant monitoring and supervision to be successful.

Community mobilization

- An important lesson learned cited by the evaluation team was to form CLCs at the outset of the project at the same time that CHWs are being trained, as these two cadres of workers reinforce each other.
- Bicycle ambulances are a successful strategy to improve access to health services.

Monitoring and Evaluation

- During a five-year project, a rapid survey at the time of the mid-term evaluation may provide useful guidance for program implementation at that time.
- USAID may be of assistance in introducing new rapid survey techniques, including LQAS sampling and others.

F. Results Highlight

Bicycle ambulances

The success of the 29 bicycle ambulances donated to communities proved to be one of the most unexpected successes of the project, and highlights the need for flexibility and innovation in Child Survival projects. Communities were chosen according to eligibility criteria set by the project. More distant communities were favored, and each must have a maintenance fund established in advance. The two-wheeled ambulance-trailers were locally manufactured and cost about \$270 each.

The bicycle ambulances were highly praised by community members, leaders, health workers at facilities and both District Health Directors (DDSs). The DDS in Nampula said “Those bicycle ambulances are *spectacular!*” In spite of some minor maintenance and administrative problems, all the bicycle ambulances donated by CARE were still in use over a year later.

In focus groups and interviews, the ambulances were said to have been used from twice each week to twice each month, but all are used regularly. The type of patient using the ambulances vary, from accident victims to women in labor. Several communities described incidents of mothers in labor who delivered en route due to transportation time. In some cases, the ambulances are used to get a patient to a facility which has a means of communication, so a car ambulance can be called to fetch the patient. Communities and health facilities also described their usefulness in transporting patients discharged from hospitals back home, and transporting cadavers for burial.



Attachment A: Team members and their titles

Donald Whitson	Consultant, external evaluator
Joan Jennings	CARE USA Headquarters; Senior Technical Advisor Child Health
CARE Mozambique Child Survival Team	
Lotta Arnesson	Acting Project Manager
António Lachereque	ex-Deputy Project Manager and Acting Deputy Manager
Bernardo Augusto	Supervisor, Project Team Malema
Lourdes Luis Gonzaga	Assistant, Malema
Lobato Daniel	Assistant, Malema
Jorge Belém Pelele	Assistant, Malema
Edite Maria Rupela	Supervisor, Project Team Nampula-Rapale
Momade Mariano	Assistant Nampula
Zita da Conceição Jaime	Assistant Nampula
Albano Fernando	Driver CS XVII Project
Miguel Artur	Project OKUMI – Malema, translator Malema
António Pissereque	Project OKUMI - driver (for evaluation) and translator
Momade Anifo Mamugy	Driver, CS XVII Project
External Interviewers	
Sádia César	Interviewer
Luisa Maria	Interviewer
Estêvão Américo	Interviewer
Sandra Rosa Carneiro	Interviewer
Miguel Gonçalves	Interviewer
Agira Guilherme	Interviewer
Issa Mariano	Interviewer
Amir Ali	Interviewer

Attachment B: Assessment methodology

The final evaluation was carried out in three stages. The detailed evaluation schedule is available at the end of this attachment. CARE carried out a final KPC survey in June 2006 with the assistance of a local consultant. The final report of that survey is available as a separate document.

During the second phase of the evaluation, CARE formed an evaluation team consisting of the final evaluation consultant, Joan Jennings, CARE headquarters senior technical advisor for child health, the seven members of the two project field teams, and eight external interviewers hired for data collection. The interviewers were hired locally, but all had experience in collection of quantitative survey data, and most had some prior experience with qualitative data collection. In addition, the previous CARE CS Deputy Project Manager was asked to participate throughout the evaluation process, and the CARE Interim Health Project Coordinator participated during the first week of the evaluation. There was no participation of MOH personnel during the data-collection phase of the evaluation except as key-informants (with the exception of one day when the Malema DDS accompanied the consultant on visits to health facilities).

The entire team together reviewed the project objectives and strategies, as well as the results of the baseline and final KPC surveys. The consultant elaborated focus-group discussion guides for various key stakeholder groups (mothers, CHWs, community leaders, and health facility workers), and provided two days of training in their application for the interviewers.

Over the next six days, the interviewers in teams of three visited 10 of 48 communities in Malema District and 8 of 38 communities in Nampula-Rapale District. Communities were selected to be broadly representative: some new, some older, some functioning well and others with problems, some accessible to health facilities, some with poor access. In each community, the interviewers used the interview guides to perform focus group interviews with a mothers group, mothers who do not participate in a mother's group, CHWs, and community leaders.

Meanwhile, the consultant and the CARE headquarters representative visited health facilities and interviewed health staff, observed activities and examined equipment and stocks of supplies using a standard instrument. They also interviewed key District and Provincial health staff. These included the Nampula provincial DPS, head of MCH and head of nutrition, as well as the Directors from both districts and their respective heads of MCH and immunization. The consultant also interviewed the CARE project team and the headquarters representative about management issues. The full list of communities and health facilities visited and persons interviewed is included in the annex "Interviews, Contacts and Participants".

During this period, some of the CARE project team tabulated sample data from key indicators from the project MIS and from the respective district HMIS for use during the evaluation.

The final stage of the evaluation was participatory. The interviewers and CARE field staff formed three groups. They used discussion guides based on the questions in the USAID CS final evaluation guide to analyze and draw conclusions and recommendations based on all the data. The results of each group work were then presented to the full working group for discussion.

A final two-hour long presentation and discussion was held with the participation of the entire evaluation team, key representatives of both of the District health teams (including both DDS), a representative of the Save the Children OKUMI project, and a representative of USAID Maputo.

Some key CARE staff were not available to participate in the evaluation. The Interim Project Coordinator was available only during the first week and so was not present during the analysis phase. In addition, the absence of the Project Manager (who resigned just months before the end of the project) made it difficult to locate much of the project monitoring data. His absence also was felt during the analysis phase of the evaluation. While the previous Deputy Project Manager was present throughout, he had incomplete knowledge of activities during the last year of the project. Finally, senior CARE technical support staff from Maputo could also not be present.

The absence of these key people did not likely alter the overall conclusions and recommendations of the evaluation. Their key input would have been in analysis and perspective regarding the motives for changes in strategie, and with regard to management issues. However, their active participation would likely have led to greater ownership of the results and greater institutionalization of lessons learned.

EVALUATION SCHEDULE AND ACTIVITIES

Date	Activity
Fri 11 Aug 2006	Consultant arrival Maputo
Sat 12 Aug	Consultant travel to Nampula, meeting with Lotta Arnesson and António Lachereque, CARE Moçambique.
Sun 13 Aug	AM: document review; PM: meeting with CARE CS teams from Nampula and Malema. Joan Jennings (CARE HQ) arrival in Nampula
Mon 14 Aug	AM: Joint meeting CARE and interviewers to brief overall project and results of final KPC survey; PM: meeting for design of qualitative survey instruments
Tue 15 Aug	AM: review instruments. Train interviewers PM: train interviewers. CARE team tabulates data from project MIS
Wed 16 Aug	AM: meeting DPS. Train interviewers. PM: train interviewers. CARE team completes project MIS data tabulation. Planning for field activities
Thur 17 Aug	Travel to Malema (6 hours). Interview with District Permanent Secretary. Interview with District Health Director, heads of MCH and Immunization. Evening team planning meeting. In Nampula, CARE Nampula team tabulates Nampula District HIS data.
Fri 18 Aug	Malema field visits to communities: Namitata, Nataleia, Mulicana and Canhunha. Visits to health facilities: Mutuali, Nacata, Nataleia and Malema. 18:00 team planning meeting. In Nampula, CARE Nampula team tabulates Nampula District HIS data.
Sat 19 Aug	Malema field visits to communities: Zomba B, Mucuassula, Ntacasse, Luahe A, Nicoropale, Nampuro. 18:00 team analysis meeting.
Sun 20 Aug	AM: team analysis meeting. PM: travel back to Nampula. (6 hours)
Mon 21 Aug	Nampula field visits to: DDS Nampula-Rapale, Administration, Nampula-Rapale Health Center and Communities of Muavano, Muterua, Malatho,

Date	Activity
	Mahetha, Passala. In Malema, CARE Malema team tabulates Malema District HIS data.
Tue 22 Aug	AM: Nampula field visits to: Achilo Health Center, Namaita Health Center; communities of Nampaco, Namixoxo, and Nacuahu A. PM: team analysis meeting. In Malema, CARE Malema team tabulates Malema District HIS data.
Wed 23 Aug	Analysis meeting. Malema team travels to Nampula.
Thur 24 Aug	Analysis meeting with full team.
Fri 25 Aug	AM: preparation debrief. PM: debriefing presentation with team, partners and USAID.
Sat 26 Aug	AM: consultant and Joan Jennings travel to Maputo; debrief for CARE Maputo staff.
Sun 27 Aug	Consultant and Joan Jennings leave Maputo

Attachment C: List of persons interviewed and contacted

INTERVIEWS, CONTACTS AND PARTICIPANTS

Nampula Provincial Health Department	
Flávio Wate	Provincial Health Director
Fernando Massaza	Head of Nutrition
Maria Amisse Rico	Head of Maternal Child Health
Malema District Health Department	
Jaime Brás Saide	District Permanent Secretary
Alves Machanguia	District Health Director
Ana de Conceição	Head Maternal and Child Health
António Waracula	Head Immunization
Nampula-Rapale District Health Department	
Nelson Jorge Nhamahango	District Health Director
Minakumari Pratapsinh	District Chief Maternal Child Health
Felisberto Mateca	District Chief of Immunization
Flora Meque	District Permanent Secretary

Malema District

Health Facilities

- Malema Health Center: 3 staff (DDS and heads of EPI and Maternal/Child Health)
- Mutuali Health Center: 4 of 10 staff (nurse midwife, MCH, medical assistant, EPI)
- Nataleia Health Post: 1 of 1 staff
- Nacala Health Center: 3 of 5 staff (nurse midwife, medical assistant, MCH)

Communities

- Namitata
- Nataleia
- Mulicana
- Canhunha
- Zomba B: 1 mothers group (with counselors), 3 volunteers, leaders committee, 1 group of non-participant mothers
- Mucuassula
- Ntacasse
- Luahe A: 1 mothers group (with counselors), 3 volunteers, leaders committee, 1 group of non-participant mothers

- Nicoropale
- Nampuro

Nampula-Rapale District

Health Facilities

- Nampula-Rapale Health Center: 4 of 13 staff (DDS, heads of EPI, MCH, and laboratory)
- Anchilo Health Center: 9 of 23 technical staff (including pediatrics, prenatal care, maternity and pharmacy)
- Namaita Health Center 3 of 15 technical staff

Communities

- Muavano
- Mutera
- Malatho
- Mahetha: 1 mothers group (with counselors), 1 of 3 volunteers, leaders committee
- Passala
- Nampaco
- Namixoxo
- Nacuahu A

RESULTS PRESENTATION

NAMPULA

August 25, 2006

Nampula

Flora Meque	Permanent Secretary
Nelson Namahuhgo	District Health Director
Minakumary Pratapsinh	Maternal Child Health
Fernando Massass	Nutrition
António Aquino	Immunization

Malema

Alves Machanguia	District Health Director
Jaime Saide	Permanent Secretary
Felisberto Mateca	Immunization

CARE

Joan Jennings	Senior Technical Advisor Child Health, Headquarters
Fernando José	Nampula, Project Manager, PMTCT - Columbia Univ.
António Lachereque	Nampula acting deputy manager CS XVII
Afonsina Pondenale	Nampula Office Director
Adriano Bernardo	Nampula CARE Financial Officer
Lobato Miguel	Malema CS VXII
Lurdes Gonzaga	Malema CS XVII
Jorge Pelehe	Malema CS XVII
Edite Maria Rupela	Nampula CS XVII

Bernardo Augusto	Malema CS XVII
Momade Mariano	Nampula Child Survival
Armando Pissereque	Nampula Okumi
Miguel Artur	Malema OKUMI
Armando Macuacua	Nampula
Joaquim N'chumali	Nampula, Project manager TB/HIV
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Attachment D: Detailed Implementation Plan (DIP)

**DETAILED IMPLEMENTATION PLAN
CHILD SURVIVAL XVII**

**CARE / MOZAMBIQUE
OCTOBER 1, 2001-SEPTEMBER 30, 2006
COOPERATIVE AGREEMENT NO.
HFP-A-00-01-00038-00**

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ACRONYMS AND TRANSLATIONS

AIDS	Acquired Immunodeficiency Syndrome
APE	A community health worker trained by the MOH and supplied with limited medicines and supplies (<i>Agente Polivalente Elementar</i>)
Bairro	Portuguese term for a neighborhood or population group within a city, town or village
CARE	Cooperative for Assistance and Relief Everywhere
CHV	Community Health Volunteer
DDS	District Health Department (<i>Direcção Distrital de Saúde</i>)
DHS	Demographic and Health Survey
DIP	Detailed Implementation Plan
DPS	Provincial Health Department (<i>Direcção Provincial de Saúde</i>)
DPT	Diphtheria, Pertussis, Tetanus
EPI	Expanded Program of Immunization
HIV	Human Immunodeficiency Virus
HKI	Helen Keller International
HSC	Health Sector Coordinator
IEC	Information, Education and Communication
IFA	Iron Folic Acid
ITN	Insecticide Treated Nets
IMCI	Integrated Management of Childhood Illness
LAM	Lactational Amenorrhea Method
MOH	Ministry of Health
NGO	Non-governmental Organization
OPV	Oral Polio Vaccine
ORT	Oral Rehydration Therapy
PSI	Population Services International
PVO	Private Voluntary Organization
STI	Sexually Transmitted Infection
TT	Tetanus Toxoid
VIDA	Viable Initiatives in the Development of Agriculture, CARE's agriculture project in Nampula
WHO	World Health Organization
WRA	Women in Reproductive Age

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G. SECTION I: PROGRAM DESCRIPTION

1. A. Executive Summary

This Child Survival XVII Project will be implemented in two districts located in the western part of Nampula Province in northern Mozambique. Nampula Province is a high priority for the government of Mozambique, USAID and many donors due to its exceedingly poor health statistics and high levels of poverty, yet with a great potential for economic growth and development. CARE currently implements projects in agriculture, micro-finance and reproductive health. This new CS XVII project will build on CARE's wide programming experience in Nampula and strengthen its household livelihood security approach to development.

The total population of the two districts is approximately 259,000 inhabitants, with about 49,000 children under five years of age, and 63,000 women of reproductive age.¹ With a crude birth rate of 55.1 per 1,000 inhabitants in rural Nampula, it can be estimated that about 74,500 births will occur during the life of the project. Target beneficiaries of this Child Survival project are 44,999 children under 5 years of age and 60,087 women of reproductive age.

After 17 years of civil war, the government has been rebuilding and expanding the health services network that was almost completely destroyed. In Nampula Province, health services remain seriously inadequate, often with long distances between health facilities, minimal and under-trained staff and only basic equipment and supplies. In spite of donor inputs, the MOH spending per capita in Nampula Province is only US\$0.70.

Mozambique suffers some of the worst maternal and child morbidity and mortality indicators in the world. Infant mortality in Nampula Province is 216 per 1000, under-5 mortality 319,² and maternal mortality 1100 per 100,000 live births.³

The goal of the project is to empower families and health care providers to improve the health and nutritional status of children under five and women of reproductive age through targeted interventions that improve maternal and child nutrition and the access to treatment and preventive measures for malaria.

There are five program objectives:

1. Improve infant and young child nutritional status through improved feeding practices, including exclusive breastfeeding for at least 6 months.
2. Improve maternal nutritional status through dietary changes, iron supplementation (pregnant women), and vitamin A supplementation (post-partum women).

¹ General Census of the Population and Habitation, National Institute of Statistics, Republic of Mozambique, 1997.

² Demographic and Health Survey, National Institute of Statistics and Macro International, 1997.

³ The State of the World's Children 2001, UNICEF.

3. Improve access to malaria treatment for both women and children.
4. Increase demand for and use of bed nets for malaria prevention.
5. Improve Ministry of Health capacity to provide quality services using the IMCI algorithms and support EPI campaigns.

CARE will use a two-pronged approach in implementing this project. One major strategy will be to improve the quality, access to and use of MOH services. The primary areas of focus will be on improved services by increasing knowledge and improving technical skills in malaria case management, nutrition and breastfeeding counseling, and vitamin supplementation of children under five and post-partum women. As the MOH has only recently begun introducing IMCI in 7 of the 21 districts of the province, CARE will aid in accelerating this process in the two target districts.

The second major strategy will be to empower communities to improve selected health practices. Focus will be on improving selected nutritional and malaria prevention practices amongst children under 5 years of age and pregnant women. In addition to improving practices, the project will increase health promotion at the community level via community health volunteers, including “model mothers”.

CARE’s local partners in the project will be the District Health Departments (DDS) in Malema and Nampula Districts. During the first 2 years, the project will be implemented in coordination with 7 health centers and 1 health post, to expand to 8 additional health posts during Year 3 of the project. HKI will provide technical support for the nutrition interventions, particularly micronutrient supplementation.

CARE will collaborate with three PVOs currently working in Mozambique—with Save the Children and World Relief to share lessons learned and effective interventions, and with PSI in the social marketing of insecticide treated bednets.

Malaria prevention and case management will require 45% of the project’s efforts. Nutritional improvement for women and children will require another 45%, broken down with 15% devoted to breastfeeding, 15% to complementary feeding, and 15% to maternal nutrition. The remaining 10% will be devoted to supporting MOH systems.

The CS XVII project for CARE Mozambique began October 1, 2001 and will end September 30, 2006. The budget for the project is \$2,044,446 with \$1,300,000 coming from USAID and \$744,446 to be provided by CARE’s match funds. The main authors of this document were Judith Lane, MPH, Nampula Health Sector Coordinator for CARE Mozambique and Dr. Elena McEwan, Technical Specialist for behavior Change Communication at CARE HQ. Dr. McEwan is also the main contact at CARE HQ for this project.

2. B. CS GP Data Form

3. C. Description of DIP Preparation Process

To begin involving potential project staff from the onset, the 10 candidates who had been short-listed as field staff were contracted to act as enumerators in the baseline survey. At the completion of the fieldwork for the survey, the six people who were chosen as project field staff were also invited to participate in the stakeholders' meeting.

The Project Manager, Deputy Project Manager, Nampula Health Sector Coordinator and CARE HQ's backstop, the Technical Specialist for Behavior Change Communication, prepared the agenda for a three-day stakeholders' meeting and invited partners from the appropriate provincial health programs (malaria, nutrition and IMCI) and the health directors from the two collaborating districts. In addition to Ministry of Health partners, the team invited staff from CARE's Reproductive Health in Nampula and VIDA agriculture projects, and the managers of the child survival projects of Save the Children and World Relief. All invitees attended with the exception of Save the Children and World Relief.

During the stakeholders' meeting, the Project Manager made a presentation of the proposal, describing the project's goal, objectives, interventions, locale and human resources. The Sector Coordinator made a brief presentation of the baseline results, and MOH representatives described the current situation in the province, as well as policies regarding the various programs. In two small groups, the participants selected activities, target groups, qualitative research needs, strategies and general timelines for malaria and nutrition. The larger group did the same for IMCI and immunization. The meeting ended with setting objectives and discussing sustainability issues.

Following the stakeholders' meeting, the Nampula Health Sector Coordinator and CARE Atlanta's Technical Specialist spent five full days researching further issues, collecting more information and writing the DIP. Members of the Children's Health team at CARE Headquarters completed the final writing of the DIP and the DIP review. Once approved and final revisions made, project staff and MOH partners will present baseline results and the DIP to participating communities, district level health staff and appropriate NGOs and PVOs in Mozambique.

4. D. Program Site Analysis

At the suggestion of the then Provincial Health Director, CARE chose two districts, Malema and Nampula-Rapale, in Western Nampula Province for the proposed project. The health indicators of both districts demonstrated a strong need for a focussed child survival project in the area. CARE's Reproductive Health Project has been implementing activities in Malema District since 1998, and its agriculture projects in both districts since 1997.

The total population of the two districts is approximately 259,000, with about 49,000 of this total children under five years of age, and 63,000 women of reproductive age.⁴ Of the children currently under 5 years old, approximately 10,780 are less than 12 months of age, 10,290 are 12-23 months of age, and 27,930 are 24-59 months of age. With a crude birth rate

⁴ General Census of the Population and Habitation, National Institute of Statistics, Republic of Mozambique, 1997. (These figures are based on annual population growth rate of 2.2%.)

of 55.1 per 1,000 inhabitants in rural Nampula, it can be estimated that about 74,500 births will occur during the life of the project.⁵

During the first year of the project, activities will be implemented in seven localities with health centers and one with a health post (four facilities in each district), that will reach approximately 67% of the population in Malema District in 30 communities, and 55% in Nampula-Rapale District, also in 30 communities. During the third year, activities will be expanded to include all localities with health posts in the two districts, totaling approximately 120 communities.

Most of the population in Nampula Province (90%) is of the Macua ethnic group. In Mozambique, approximately 55% of the population are Christian, 17% Moslem and 20% do not practice a formal religion. However, in Nampula Province, the proportion of Moslems nearly equals that of Christians. Many people also maintain animist beliefs alongside one of the modern religions. The majority of the population—87.7% according to one socioeconomic overview of Nampula Province—engages in farming as its principal source of income and sustenance.⁶ The average annual per capita income for Maputo, the capital city of Mozambique, is \$1,189, while in rural Nampula it is only \$51.

Overall, Mozambique has been developing rapidly since the end of its 17-year civil in 1992, with a double-digit economic growth rate (estimated at 14% for 2001). This high rate is expected to continue over the coming decade. Although over 80% of Mozambicans are involved in agriculture, crop yields are about one-third of those of neighboring countries. The lack of education and poor health prevents most of the rural population from participating in the fast growing economy.

Socio-economically, women are at a clear disadvantage. For example, only 28% of rural women in Nampula Province have completed primary school and 0.2% have completed secondary school as opposed to 48% and 1.1% of men, respectively. Overall illiteracy rates are 92% for rural women and 65% for rural men in Nampula.⁷ In rural Mozambique, 28% of households are headed by women.⁸

Mozambique suffers some of the worst maternal and child morbidity and mortality indicators in the world. According to the DHS, infant mortality in Nampula Province is 216 per 1000 live births, under-5 mortality is 319,⁹ and maternal mortality is 1100 per 100,000.¹⁰

The DPS does not disaggregate morbidity data, but reports that the leading causes for seeking care for children are malaria, pneumonia, anemia, malnutrition and diarrhea. Malnutrition, while listed as the fourth cause, is, of course, an underlying factor of the other causes.¹¹ In fact, the DHS estimates that malnutrition is related to 44% of all under-five deaths.¹¹ CARE's VIDA project conducted a baseline survey of nutritional status in 1997 using the Nutripox Model which showed that among children aged 2 to 5 years, 29.5% exhibited severe stunting (< 2 SD), and 24.6% exhibited moderate stunting (> 3 SD and < 2 SD). The VIDA

⁵ Ibid.

⁶ Pontara, N, *The Province of Nampula: A Socio-economic Overview*, 2000.

⁷ Demographic and Health Survey, National Institute of Statistics and Macro International, 1997.

⁸ Ibid.

⁹ Ibid.

¹⁰ *The State of the World's Children 2001*, UNICEF.

¹¹ INE and MACRO Demographic and Health Survey, 1997

project will be conducting an updated survey of this information this year. The new data will be used as part of the CS project baseline on anthropometric measures and will be reported in the first annual report.

Micronutrient assessments have not been carried out in Nampula Province, but a study conducted by the MOH, Helen Keller International, and UNICEF found high levels of anemia and very low intake of Vitamin A in the four provinces studied. In fact, 73.6% of all children and 52.8% of non-pregnant women were found to be anemic. The consumption of sources of Vitamin A or beta-carotene was also very inadequate.

Although many of the breastfeeding practices are good, such as immediate breastfeeding, giving colostrum and prolonged feeding, exclusive breastfeeding is practically nonexistent. In the recent KPC 2000+ survey conducted by the project, only 2% of children 0 to 5 months of age were exclusively breastfed in the past 24-hour period. Almost all mothers give water to their infants from the time of birth, introduce weaning foods at an early age, and give a limited number of daily feedings.

Women in Nampula begin sexual activity at a much younger age than men (14.7 years versus 19.9), presumably because first sex generally occurs with an older man. Many begin childbearing during adolescence—39.8% of women 15 to 19 years old already have had at least one child. Total fertility rate for rural women is 7.4. Only 2% of women in the province use a modern method of family planning.¹² (The contraceptive prevalence rate is 14.6% in the localities of the 3 districts where CARE has been implementing its reproductive health project since 1998.¹³) In the target districts, only 33.8% of births take place in health facilities (40% in Nampula and 28% in Malema Districts).¹⁴ In Nampula the average health facility serves more than 19,000 inhabitants, and there is one health care provider per approximately 2,000 inhabitants. The average distance to a health facility is about 12 km (7 miles).

Malema District has 3 health centers with maternity, 25 beds and 2 laboratory facilities that can diagnose for malaria, anemia, urinary infections, parasites and STIs, including HIV. These health centers are staffed by trained health care providers, at least of a medium level nurse and elementary midwife. Please see Appendix H for a detailed description of the educational profile of health personnel. In addition to the 3 health centers, there are 5 health posts staffed by an elementary nurse, and without beds, maternity or laboratory facilities. There is currently no doctor in the district, nor capacity for obstetric or other emergencies.

Type	#	Nurse/ Med Tech	Nurse Midwife	Auxiliary Nurse	Auxiliary Midwife	Auxiliary Pharmacist
Health center (Malema)	1	6	1	2	5	1
Health center (Mutuali)	1	3	-	1	4	-
Health center (Nacata)	1	1	-	-	1	-
Health post (Chihulu)	1	1	-	-	1	-
Health post (Cunvar, Morripa)	2	1	-	-	-	-
Health post (Moralelo e Nataleia)	2	-	-	1	-	-

¹² Ibid.

¹³ KPC 2000 Baseline Survey, CARE Child Survival XVII Project, 2002

¹⁴ Ibid.

In Nampula District, there are 4 health centers, one of which has the support of missionaries and is well-staffed, well-maintained and has a laboratory. In addition to the health centers, there are 6 health posts, 5 staffed by auxiliary nurses, and one by a basic nurse.

Type	#	Nurse/ Med Tech	Nurse Midwife	Auxiliary Nurse	Auxiliary Midwife	Auxiliary Pharmacist
Health center (Anchilo)	1	5	2	2	4	1
Health center (Rapale)	1	2	2	3	4	2
Health center (Namaita)	1	1	1	-	4	1
Health center (Maratane)	1	1	-	1	1	-
Health post (Namachilo)	1	1	-	1	-	-
Health post (Mutolo)	1	1	-	-	-	-
Health post*	7	-	-	1	-	-

* Namicohna, Saa-Saa, Muleheia, Namucaua, Natos, Caramaja, Mucova

Many people use traditional healers or informal vendors of medicines before they seek health care from the formal system. Ironically the in-kind costs of traditional healers are often higher than those of the formal system, especially as maternal and child health services are free in Mozambique.

In Nampula District, public transportation is widely available and affordable and most people have no difficulty with mobility. Malema town is located 160 miles from Nampula City and there are very few vehicles that travel to the district. However there is a daily train to and from the district that is fairly reliable and extensively used.

There are few changes from the proposal. The primary change is that the project will work in fewer communities in the first two years, and eventually expand to include more communities. Furthermore, as IMCI has not yet been introduced in the target districts, the project will train personnel from health centers in year one, and later from health posts in year two. This will allow sufficient time for health center staff to become accustomed to the approach before training and supervising others. Some activities described in the proposal (such as community-based growth monitoring and distribution of chloroquine) will be piloted in only a few communities because the Provincial Health Department would prefer to evaluate for acceptability and effectiveness before implementing on a wide scale.

Additionally, the project will focus its capacity-building efforts with the MOH on auxiliary nurses rather than APEs (multi-purpose community health agents)—at least in Years 1 to 3—because this was decided by Provincial Health Department participants during the DIP preparation meeting with stakeholders. Lastly, changes were made to the budget originally submitted with the proposal due to a delay in acquiring match funding through the CARE-CDC Health Initiative (CCHI). Please see the revised budget included in Appendix A.

5. E. Summary of Baseline and Other Assessments

Up until the writing of this DIP, only the KPC 2000+ baseline survey, including the questions from the Rapid CATCH, was conducted by the project. To select communities, a list was compiled of all of the communities in each of the four districts, with their respective populations, using the most recent census lists. Then within each district, a sampling was done with the probability proportional to size technique to select 10 clusters of 10 in Ribáuè and Mecuburi, and 15 clusters of 10 in Nampula and Malema Districts. The survey team conducted 150 household interviews with women with children less than 24 months of age in

each of the two project districts of Malema and Nampula-Rapale, and 100 interviews in each of two control districts, Ribáuè and Mecuburi. The questionnaires were written in Macua, and the interviews conducted in that language unless a woman preferred to be interviewed in Portuguese.

The project plans to conduct a situation analysis study and training needs assessment to evaluate knowledge, and diagnosis and treatment abilities according to protocols. The situation analysis will also include a material need assessment in essential equipment and supplies. This study will be used to design training and supervision strategies, content, and materials for health care personnel, as well as to ensure the minimal material needs and to address supply issues and client satisfaction.

Furthermore, focus group discussions will be conducted with women, men and other influential family members to understand the roles they play in the health care of their children. CARE's Reproductive Health Project in Nampula placed a huge importance on the man's role in reproductive health. In this child survival project, CARE intends to emphasize the role that both parents have in the health of their children rather than making it a "woman's" project. The Reproductive Health Project focuses on positive messages, such as "A man has the right to be involved in his child's health and education", rather than "A man has the responsibility to be involved in his child's health and education." In doing so, CARE acknowledges the man as an equal partner who can enjoy his children and not just be responsible for their economic needs. CARE intends to use this approach in this CSXVII project. Messages will be developed for various groups, including men and mothers-in-law.

The KPC 2000+ survey did not include an anthropometric assessment because CARE's VIDA Project will conduct this study in 14 districts in Nampula Province in April of this year. Overall, the baseline results were either highly positive or abysmally negative. However, CARE believes that building on the many healthy behaviors that the target population already practice can result in dramatic changes in the undesirable behaviors.

Since one of the objectives of the KPC survey was to monitor progress in CARE's Reproductive Health Project, 30% of the costs were contributed by that project, as well as five staff members for a period of three weeks.

Maternal Health

In Nampula District, 58.7% of women reported having received two or more anti-tetanus vaccinations during the last pregnancy, but only 49.0% in Malema District. The results of women who received professional assistance during the delivery of her child also show great differences between Nampula and Malema Districts, 40.4% in Nampula vs. 27.3% in Malema District. These great disparities are undoubtedly due to the closer accessibility, more public transportation and availability of more maternal and child health personnel in Nampula District; whereas Malema is a large district that is very rural with little transportation available.

EPI

In Nampula District, 80.8% of the mothers interviewed had a vaccination card for the child in question, but 5.5% of these cards were not filled in. Of the children 12 to 23 months of age with cards, 62.3% had received 3 DPT and 3 polio vaccines, and 64.2% measles. In Malema,

on the other hand, 62.6% had cards, but 15.3% were not filled in. Of those children 12 to 23 months of age with cards, 42.9% were vaccinated with 3 polio and DPT, and 61.9% against measles. Of the 209 children aged 12 to 23 months who had begun vaccination, 34% of them did not complete all of the vaccinations—DPT /polio 3, and measles.

Nutrition and breastfeeding

60.3% of the mothers began breastfeeding their youngest child within the first hour after birth, and 96% within the first three days. However, only 33.5% gave exclusive breast milk during the first three days; 64.9% gave breast milk and plain water. Only 2.0% of the children 0 to 5 months of age were given exclusive breast milk during the 24-hour period preceding the interview. One encouraging result was that 58.4% of children 20 to 23 months of age had received breast milk in the last 24 hours, indicating prolonged breastfeeding practices.

88.3% of children 6 to 9 months of age had received complementary feeds. Of the children 6 to 23 months of age, 42.7% had received foods rich in beta-carotene (6.1% pumpkin or orange sweet potatoes and 38.3% dark green leafy vegetables); 31.6% received protein-rich foods (meat, poultry, fish or eggs); 25.4% beans or peanuts; but only 14.6% oil or fats in their food. However, the number of feeds given daily was astonishingly low: 21% of mothers fed the child only once, 54.7% twice, and 19.5% three times. Only 1.4% of the children older than 6 months received 5 or more feeds in the past day.

Childhood Illnesses

55.4% of the mothers interviewed were able to spontaneously name at least two signs in their child that would cause them to seek care—85.5% mentioned high fevers, but only 3.6% difficulty in breathing. Some mentioned malaise (43.5%), lethargy (5.6%) lack of appetite (24.6%) or vomiting (11.7%). After fever and malaise, the most often mentioned signs were diarrhea and crying.

Malaria

Nearly half (46%) of the mothers said that the child in question had malaria in the past two weeks. Of these, 67.7% first sought treatment in a health facility, but only 41.7% within 48 hours of the onset of the fever. Of these, 67.8% of the children took chloroquine, but only 25% within 48 hours after the onset of the fever.

The results of the KPC regarding knowledge of the causes of malaria and means of prevention were disturbing. Only 17.3% of the women interviewed associated mosquitoes as the cause of malaria. Approximately two-thirds (65.7%) said they did not know the cause, and others attributed it to wind (6%), rain (8.5%) and others, most of who said leftover food (10%).

Only 4.4% have a mosquito net at home, and 4% of the children in question slept under a net the night prior to the interview—indicating that where there is a bednet, the youngest child almost always sleeps under it. Almost all of the nets were found in Malema District where the previous Child Survival XII project began encouraging the sale of bednets amongst local shopkeepers at the end of the project in 2000.

As presumptive treatment of malaria during pregnancy is not a part of the antenatal protocol in Mozambique, the baseline did not expect to find many women who had experienced this treatment. However, 0.4% of women said they had received antimalarial drugs during their pregnancy even when they had no symptoms of malaria.

A situation analysis study and training needs assessment are planned to evaluate knowledge, and diagnosis and treatment abilities according to protocols. The situation analysis will also include a material needs in essential equipment and supplies. This study will be used in designing training and supervision strategies, content and materials for health care personnel, as well as to ensure the minimal material needs and to address supply issues and client satisfaction.

6. F. Program Approach

The goal of the Child Survival Project is to empower families and health care providers to improve the health and nutritional status of children under five and women of reproductive age through targeted interventions that improve maternal and child nutrition and the access to treatment and preventive measures for malaria.

There are five program objectives:

6. Improve infant and young child nutritional status through improved feeding practices, including exclusive breastfeeding until 6 months of age.
7. Improve maternal nutritional status through dietary changes, iron supplementation (pregnant women), and Vitamin A supplementation (post-partum women).
8. Improve access to malaria treatment for both women and children.
9. Increase demand for and use of bed nets for malaria prevention.
10. Improve MOH capacity to provide quality services using the IMCI algorithms and support EPI campaigns.

CARE will use a two-pronged approach in implementing this project. One major strategy will be to improve the quality, access and utilization of MOH services. The primary areas of focus will be on improved services by increasing knowledge and improving technical skills in malaria case management, nutrition, and breastfeeding counseling, Vitamin A supplementation of children under five and postpartum women. In addition to improving services, the project aims to improve processes via supportive supervision, in-service training, technical updates, “active” census, using data for decision-making, and a referral and counter-referral system.

The second major strategy will be to empower communities to improve selected health practices. Focus will be on improving practices through behavior change communication about IFA consumption amongst pregnant women, exclusive breastfeeding, improved complementary feeding, increased consumption of Vitamin A- and beta carotene-rich foods, and timely care-seeking. In addition to focusing on improving household level practices, the project will improve care seeking at the community level via community health volunteers (including “model mothers”), a referral and counter-referral system, “active census”, mothers’ groups and involvement of men. CARE will train and supervise Community Health Volunteers (CHV) to conduct IEC activities regarding malaria, promote community

environmental prevention activities, and sell ITNs. It currently appears that the DPS will allow some communities to pilot the sale of chloroquine.

As the effectiveness, benefits, and mechanics of community growth monitoring are worked out, only two communities per district will be selected to pilot the activity and evaluate its worth before deciding to implement in all of the communities.

Mozambique began the introduction of the IMCI approach only last year. In Nampula Province, there are currently 27 people trained in 7 districts (not including Malema or Nampula-Rapale), 8 of those who are trained to be trainers. IMCI has been introduced only in health centers staffed with higher level health care personnel. There does exist a shortened community level IMCI manual that will be used to train APEs, but the MOH is still far from introducing IMCI at the health post or community level.

CARE's local partners in the project will be the District Health Departments (DDS) of the MOH in Malema and Nampula Districts. During the first 2 years, the project will be implemented in coordination with 7 health centers and 1 health post, to expand to 8 additional health posts during Year 3 of the project. HKI will provide technical support for the nutrition interventions, particularly micronutrient supplementation. CARE's VIDA project has a collaborative relationship with the National Institute for Agricultural Research and will provide sweet potato cultivars. Save the Children and World Relief have agreed to share lessons learned in child survival in general, and on the Hearth Model in particular. World Relief has agreed to host a team of the DDSs and CARE staff to visit their CS project in Gaza Province.

CARE's reproductive health project already has an agreement with PSI in the implementation of its "clinic pack" for partner notification. To expand the agreement to include the social marketing of bednets will be one step further in strengthening this existing partnership. Bayer furnishes PSI with bednets via UNICEF and has agreed to give technical assistance to CARE in training, marketing, and supplying nets.

CARE Nampula currently has a reproductive health project in Malema District and agriculture projects in both Malema and Nampula Districts. The reproductive health community volunteers have achieved great success in increasing knowledge and behavioral change. CARE will take advantage of the trust and confidence these volunteers have already gained and suggest that their communities allow them to add the child survival activities to their existing responsibilities. They have already expressed an interest in selling bednets and chloroquine. As each volunteer is already responsible for the reproductive health for a given number of families, they could easily include the malaria activities in their work—BCC, home visits, referrals for children with fever, and promotion and sale of ITNs. As they are already accustomed to organizing large community events, they are well prepared to organize community clean-up days and/or bednet re-treatment days with community leaders.

The second phase of CARE's VIDA project has a stronger nutrition component than the first phase. One of the main activities is the introduction of orange sweet potato runners to women. The CSXVII project will collaborate with VIDA in the distribution of the runners and VIDA extensionists will teach women how to cultivate the potatoes and multiply the runners. One activity of CSXVII will be to teach the model mothers how to prepare various recipes using the potatoes and possibly establish income generation schemes for them.

CARE Mozambique has no one who represents health at the national level in Maputo (except for in HIV/AIDS). Therefore, CARE will probably not play an important role in national planning and policy development in child survival interventions, but will advocate at the provincial level to pilot various activities. For example, the head of the provincial malaria program has agreed to pilot the sale of chloroquine by trained CHVs. The Reproductive Health Project has had good success in effecting changes in policies at the provincial level. When the project began, nurses would not prescribe hormonal contraceptives to women with no children, and would prescribe Depo Provera only to women with 4 or more children. After training, updating health care workers' knowledge and sharing the latest protocols of the WHO, they now provide informed choice to women who choose them. CARE's agricultural projects do have representation in Maputo, and so the CSXVII project will benefit from VIDA's efforts in introducing orange sweet potatoes with the National Institute for Agricultural Research.

As many of the interventions proposed have not yet been tried in Mozambique, CARE will have to move ahead carefully and methodically. For example, as mentioned above, the Provincial Malaria Program has agreed to pilot the community-based sale of chloroquine via volunteers, but only in a few communities. Therefore the CSXVII project, in collaboration with its district health department partners will have to supervise and monitor closely this activity. Another activity that CARE was hoping to pilot is the presumptive treatment of malaria in pregnant women. However, the Provincial Health Department is not yet ready to try this as presumptive treatment is unknown here and is confused with regular prophylaxis.

7. G. Organizational Development

Strengthening the PVO

At CARE headquarters, the Child Health Sector has recently revised its long-term strategy. It is doing so to build upon more than 15 years of lessons learned in child health and survival programming. The strategy calls for the development of innovative approaches and targeting of those countries such as Mozambique with the very highest levels of infant and child mortality. It also calls for documenting, disseminating and scaling up successful models such as this new project. This is a weakness, which requires particular attention through prioritization, reorganization of workload as well as investment of CARE's own funds.

CSXVII will provide CARE an opportunity to create linkages and synergies between projects based in different non-health sectors such as agriculture and micro-finance. CARE is one of the few PVOs with capacities and ongoing projects (in Mozambique and elsewhere) in such a wide number of sectors and domains. CARE's two agriculture projects, VIDA and Passana, have organized groups of women to cultivate various crops, including orange sweet potatoes. The CS XVII project will provide an opportunity for CARE to expand upon its multidisciplinary approach to programming by introducing the use of produce in weaning foods. Furthermore, it may be able to build in income-generation activities for the community health volunteers by selling products made from newly introduced produce, as well as the sale of mosquito bednets.

One of CARE Mozambique's long-term strategic objectives (2002 – 2006) is the empowerment of national staff and reducing the country office's dependence on expatriate staff. Some of the activities identified to achieve these objectives are training in managerial

skills and CARE's vision, mission and values. The health program in Nampula recently added a position of sector coordinator, of whom 30% of his or her time is to be devoted to senior staff development. The health program in Nampula is now composed of two national project managers and one international sector coordinator to oversee the health program. It was with the funding of this CS XVII project that allowed CARE to make this step forward in its promotion of national staff.

Strengthening the Local Partner(s)

The objective for building capacity of the DDS staff—and to a lesser extent DPS staff—is to provide quality care in selected interventions. CARE's training activities will increase DDS staff capacity in clinical skills, training of trainers, supervision and management.

Furthermore, the Provincial Health Department has many human resources not being used to the maximum because of limitations in other resources. For example, there exists a team of trainers in IMCI without resources to train others to expand to a province-wide approach. There is also a theatre troupe that cannot do health education activities because of lack of transportation, lodging and food. CARE field staff will assist the partner district health departments in conducting a SWOT analysis to identify opportunities and strengths that they may not be aware of and to form strategies to overcome internal weaknesses and external threats in order to maximize their use of human resources.

Community Capacity/Other Community Organizations

CARE's capacity building of participating communities is designed to enable their CHVs to analyze problems, choose feasible solutions, mobilize resources, plan, implement and evaluate actions, communicate health information in an effective way and operate through democratic group processes. CARE will work at the community level to empower them to identify and find solutions to the most common childhood and maternal health problems. Each community will decide how many and what type of CHVs they need in order to reach children and mothers living in high-risk conditions and encourage them to participate in CS activities. CARE will guide communities in their selection of CHVs by describing the responsibilities and time commitments, and each community will select these volunteers as they deem appropriate.

The CHVs will serve as the principal liaison between MOH and families, and will be trained in community organization and mobilization, use of participatory techniques to disseminate health messages, counseling, and planning and evaluation of activities. They will establish a simple surveillance system to record main events that occur in the community such as births, deaths, illnesses, vaccinations, referrals, patient follow-up, and child census that will be used for elaborating plans with the district level MOH.

The CHVs from each community will decide how they are going to divide their community by sectors. Designating a limited number of households for each CHV will facilitate their conducting activities such as surveillance, home visits and counseling with neighboring mothers. It is expected that they will already have an established relationship with their neighbors and will be comfortable sharing their children's or own health experiences and doubts. If appropriate and feasible in Nampula, CARE may duplicate World Relief's model of having one mother be responsible for about 10 other mothers in her neighborhood.

The CHVs will facilitate women's group sessions and give educational messages in breast feeding, nutritional practices and malaria prevention and treatment. These group sessions will be important to facilitate mutual support amongst the women, and offer a forum to share ideas, doubts and experiences regarding child and maternal care. The CHVs will also be responsible for planning activities in coordination with the health post personnel, such as weighing sessions, National Vaccination Campaign Days, home visits and community clean-up days.

Training

The approach that the project will adopt is to encourage MOH to seek continuous improvement in child health care. The District Health Directors will choose two people from each district to be trained as facilitators—preferably the head of maternal and child health and the head of pediatric consultations. This first cohort will be trained in adult learning theory, behavioral change communication, and technical and administrative norms based on pre-established quality assurance standards. Technical areas include malaria, nutrition, and breastfeeding to improve the quality of MOH personnel performance. Management training includes teambuilding, leadership, negotiation and conflict resolution, and quality assurance. The quality assurance activities consist of quality of care assessments, exit interviews, logistics inventory, training needs assessment, use of data for decision-making, planning, monitoring and evaluation, and supervision techniques.

This core group of trainers will take the lead in designing and implementing the training plan for the life of the project in coordination with the provincial head of the nutrition program. A training needs assessment will be conducted early in the life of the project with MOH personnel responsible for delivering child care at all health units in the target districts. The core group will use the findings to develop training curricula in areas where the health care providers are weakest. The trainers will begin training other health care personnel working in pediatrics and maternal health in the first quarter of the second year.

Included in the TOT will be the design of a monitoring and evaluation system. Tools will be developed and used during monthly supervision visits to peripheral units to monitor the performance of health workers and to improve the quality of care by conducting in-service training in areas where they are weak. Beyond improving childcare at health units, MOH personnel will be taught how to train CHVs in using participatory techniques. Training curricula for CHVs will be done using adult learning techniques and materials to ensure that while they are learning new approaches of childcare, they are also learning how to disseminate educational messages and how to communicate effectively with mothers and other caretakers.

Training materials will be developed using images that transmit messages visually, so that even non-readers will be able to understand them. Some materials will have messages written in the local language of Macua, and others in Portuguese, based on the audience. These materials will be distributed to health workers and CHVs to be used in educational activities in the community and at health units.

The Nampula Provincial Health Department began implementing IMCI in 7 pilot districts (not including Nampula or Malema), and has accepted to allow CARE to implement IMCI in the two districts. The National IMCI Program already has a set of 7 modules for higher levels of health care provider, and a simplified module for community IMCI. Furthermore,

tools have already been developed and will be used to monitor how health personnel are using the IMCI knowledge and skills in their daily work. CARE will collaborate in Years 1 and 2 with 7 health centers and 1 health post where there are appropriate levels of personnel for the full IMCI training program, and then expand in Year 3 to include 8 health posts with auxiliary nurses, using the simplified version of the training program.

8. H. Sustainability

CARE defines sustainability on three inter-related levels: lasting behavior changes, institutions with capabilities necessary to continue or replicate activities, and enduring financial support. Behavior changes must occur at the individual, household, community and institutional levels and be maintained over a period of time to be considered sustainable. This applies equally to a mother's child-feeding practice as it does to MOH staff keeping quality case registers.

At the end of the project, CARE expects that the MOH and communities will be able to carry on the following activities without CARE's assistance.

Indicators for sustainability:

1. DDSs have and implement a supervision plan for staff of health centers and posts.
2. DDS staff following IMCI protocols for 80% of all cases of children under 5 years.
3. 80% of DDS staff follow protocols for malaria, diarrhea and pneumonia case management.
4. Sweet potato cultivars available and affordable in district markets for 80% of participating communities.
5. Mosquito bednets available and affordable in district markets for 80% of participating communities.
6. 75% of CHVs implementing at least 4 health promotion activities per year.
7. All health posts have contact at least quarterly with the CHVs in their area.
8. 50% of DDS and communities maintain the active census.
9. Referral/counter-referral system functioning for 80% of CHVs and their corresponding DDS health staff.

CARE will evaluate the capacity of partners, both the MOH and communities, using the sustainability indicators listed above, assessing quality as well as quantity. Project staff will appraise progress towards achieving these objectives on a semi-annual basis using project HIS data and summaries of supervision reports.

CARE's reproductive health project has been very successful in linking the community with health services, and will replicate its strategies in the child survival project. First, CARE involves health facility staff in the training of any community volunteers and stresses that the volunteers are tied to the district health care system and not to CARE. Then a referral/counter-referral system is established between the community and health facility. Women often feel empowered to seek health care when they have a signed referral slip from a respected member of the community. Furthermore, health care personnel appreciate the educational work that the volunteers do to prevent illness and know when to seek health care. In the reproductive health project, the volunteers greatly reduced the client load in family

planning clinics because they re-supply oral contraceptives in the communities. In the child survival project, the CHVs will be able to reduce the client load for cases of malaria where they are allowed to distribute chloroquine.

Since the start of the project, CARE has been working towards lasting and sustainable behavior changes at the individual, community, and MOH level. Financial sustainability is less likely to be achieved, because MOH does not have a policy to charge for consultation. The MOH management system lacks process, structures, and skills to initiate a cost recovery plan for introducing community level health workers such as CHVs, TBAs, and APes? On the other hand, female MOH clients often lack economic resources to pay fees for consultation or medicines.

At the individual level, the CS project plans to leave improved knowledge and behavior for child care by mothers and caretakers. At the community level, the CS project will leave community structures defined by community members who will lead prevention and promotion activities in coordination with the health post. Skills gained by CHVs will be used in daily work to provide malaria treatment, nutritional care, and breastfeeding promotion. Recognition and cooperation from community members and MOH personnel will be a good incentive for continuing activities beyond the life of the project.

At the MOH, the project will leave management structures, logistics surveillance, the plan-do-check-act cycle for everyday activities, and the use of seven steps of TQM for problem solving. At the same time, MOH personnel will gain technical skills in nutrition, breastfeeding, malaria diagnosis, counseling and treatment to utilize in everyday work as appropriate.

The strategy that CARE will use to ensure lasting and sustainable behaviors at these three levels is to become a process facilitator to ensure that the MOH carries out project activities. It has been planned that the DIP will be included in the MOH annual plan. The MOH also has agreed to start strengthening coordination with CHVs. This coordination will be ensured through planning and scheduling meetings that will be held on a quarterly basis to evaluate the impact and quality of implementation. The peripheral health posts will meet with CHVs on a monthly basis to report on and schedule joint activities.

The MOH's project appropriation began with the Detailed Implementation Plan elaboration for the MOH representatives. Including the MOH inputs into the DIP was with the objective to adapt the proposal to MOH's needs, to define roles and responsibilities in project implementation, and to get project ownership by the MOH personnel. The three-day workshop with MOH authorities was very successful. On the final day, the Director from the Nampula District said "Now I know that I have the project in my hands." That comment from the District Director showed him the opportunity he had to plan according to his needs by prioritizing health units, selecting personnel to be trained, deciding on appropriate activities, selecting communities to work with, and approving pilot projects.

9. 1. Behavior Change Strategies

The project will utilize an approach for planning and implementing a comprehensive, strategic set of interventions and activities that focus on changing behaviors at the MOH, community, and individual level to achieve project objectives. To design a behavioral

change strategy, the project will address four key issues recommended in the Technical Reference Materials, and use it as a guide to design a qualitative assessment with mothers and with other stakeholders who influence mothers in child care.

The objective of the qualitative assessment will be to do behavior analysis:

- 1) Whose behavior needs to change? (mothers, grandmothers, in-laws, husbands, neighbors?)
- 2) Who will be the audience? (to identify which target group the project has to focus on)
- 3) What do they have to do? Is it feasible? Is it effective? (to prioritize the behaviors to start working with)
- 4) Why aren't they doing it now? Identify barriers and ways to best influence and support those behaviors. Identify positive deviants and search for why they are currently doing a particular behavior. What makes the difference?
- 5) What activities have to be planned to address the most influential factors in changing the behavior? What kind of materials will be needed to support those activities?
- 6) What other activities could be done out of the community to reinforce desired behaviors? (to ensure that the most influential factors are being addressed from different levels)

The following table shows how the project has proposed refocusing its objectives in behavioral terms:

Effect Objective	Behavioral terms
1. Improve infant and young child nutritional status through improved feeding practices, including exclusive breastfeeding for six months.	<ul style="list-style-type: none"> ▪ Initiate breastfeeding within one hour of birth ▪ Breastfeed exclusively for the first six months ▪ Practice frequent, on-demand breastfeeding, including night feeds. ▪ Children older than one year are offered food five times a day. ▪ Children older than six months being fed with sweet potatoes 3 time a week. ▪ Children's food is enriched with oil.
2. Improve maternal nutritional status through dietary changes and iron and vitamin A supplementation	<ul style="list-style-type: none"> ▪ Pregnant women receive iron supplementation ▪ Post partum woman receive vitamin A ▪ Women use family planning methods ▪ Family members help pregnant woman with work at home ▪ Pregnant women eat a larger quantity of food
3. Improve access to malaria treatment for women and children and increased demand for and use of bednets for malaria prevention	<ul style="list-style-type: none"> ▪ CHVs trained to distribute chloroquine to persons with symptoms. ▪ Health units with stocks of chloroquine and Fansidar. ▪ Clean-up campaigns being implemented by community. ▪ Referral system functioning
4. Increased demand for and use of bednets for malaria prevention	<ul style="list-style-type: none"> ▪ Communities with access to treated mosquito bednets (access to ITN points at the community)

Effect Objective	Behavioral terms
	<ul style="list-style-type: none"> ▪ Families using ITNs to protect their children every night.
<p>5. Improve MOH capacity to provide quality services using IMCI algorithm and support EPI campaigns</p>	<ul style="list-style-type: none"> ▪ Health personnel in all health units use IMCI algorithm to treat child illness ▪ Supervision team using IMCI tools to evaluate quality care ▪ Logistic plan assuring stocks of essential treatment (ORT, AB, malaria, iron, Vitamin A, vaccines, supplies, transportation, cold-chain) ▪ MOH implementing a strategy to decrease missed opportunities ▪ Calendar for community outreach activities ▪ All children at health units receive vaccines as needed. ▪ Mothers bring their children when they are sick, or for growth monitoring and vaccination. ▪ Exit interviews with clients indicate customer satisfaction with health services

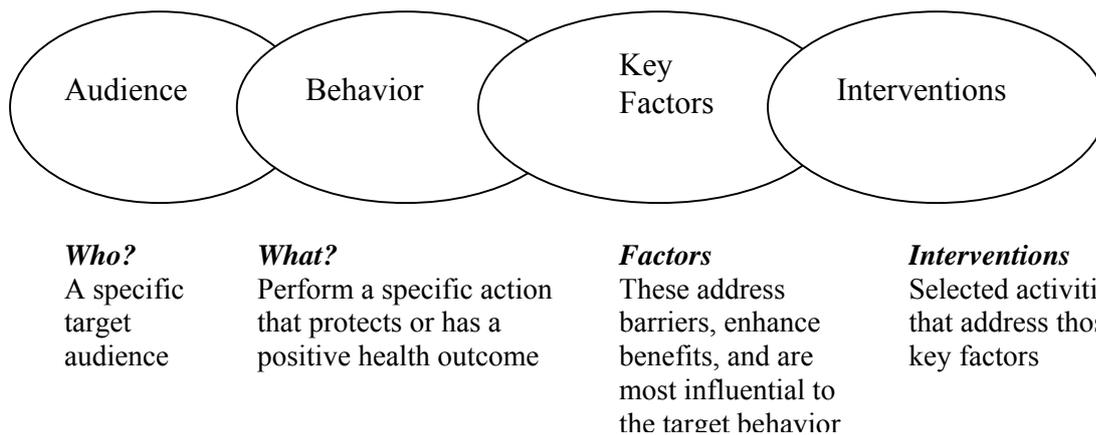
A standardized, step-by-step process is used to assess current behaviors and underlying factors. This model has been used with success in other CARE Child Survival Projects to design implementation plans and training curricula for different audiences: MOH, CHVs and families. The project has planned to carry out the first formative research during the last quarter of the first year.

Formative research will focus on the malaria and nutrition components to better understand the dynamic that takes place at the family level in these two interventions. Its use will be to prioritize audiences, identify feasible and effective behaviors to promote, to identify which factors influence behaviors to know preferred channels of communication, and at what levels to focus the program activities-individual, community, or health system.

Results from the formative research will be used to design and implement a behavior change communication strategy. This kind of qualitative assessment will be used on a regular basis to monitor changes and to provide feedback in order to update the BCC plan if necessary.

CARE will use the BEHAVE framework for program planning in this new project. The way CARE has analyzed this framework is as a chain where each segment is linked to the next one. This way of analysis has been very successful in trainings of trainers.

The BEHAVE framework, also called the Behavioral Change Chain is used to analyze behaviors to be addressed and to identify key messages that will address the behaviors that the project wants to change.



10. J. Quality Assurance

Quality is defined as client satisfaction of his/her reasonable needs. It is a way to ensure client satisfaction through getting all employees involved in a learning process of how to produce and deliver quality goods and services. A client can be internal or external and is a person who receives a service. Most of the time organizations are focused on external client satisfaction, but to ensure quality it is necessary to focus on internal clients as well, since they are providing the services.

Internal client satisfaction is related with shared leadership and team building. Effective teams have a sense of solidarity, affection, trust and cooperation. They also have developed effective communication and feedback skills. Internal client satisfaction depends also on defining roles and processes while staying focused on results.

CARE's Child Survival Project will initiate the interventions with the MOH carrying out a quality of care assessment in each unit where the project will work. Standards will be defined using national norms or protocols to evaluate the MOH's application of technical and management norms in malaria treatment and childcare related to nutrition, vaccination, and growth monitoring. In addition, it will also be evaluated on how the MOH has established coordination with CHVs and with other organizations working in health.

Quality assurance will be used as a baseline to know the current situation and as an evaluating tool to measure progress. Members of the training team will be trained in how to perform quality assurance using different approaches: observation during childcare (vaccination, growth monitoring, pediatric consultations), supplies inventory, and exit interviews with health care users.

Results from QA will be presented to MOH personnel, and a working session will be organized to analyze results. Using Total Quality Management tools, MOH participants and CARE will go through the seven-step process of: Reason for Improvement, Current Situation, Analysis, Countermeasures, Results, Standardization and Future Plans. An action plan will be developed from this process and will be evaluated in six months, applying new QA in

health units that are implementing the plan. Results will be compared to the baseline. Once the problem has been solved, a standardization process will take place for all units, and a new problem will be addressed.

H. SECTION II: PROGRAM MANAGEMENT

1. A. Management Approach

The project will be managed by a Mozambican physician, who will be directly supervised by an expatriate health sector coordinator. Under the project manager will be a deputy project manager—a medical technician—who will supervise the field activities. The three field staff in each district will report to the Deputy Project Manager, who will be responsible to submit monthly statistics to the manager. The project manager will be responsible for submitting a quarterly Project Implementation Report to the health sector coordinator. The project manager has authority over staffing decisions, Annual Operating Plans, and the monitoring and evaluation strategy. The management style of the project will be democratic and participatory. The local reproductive health project has an annual retreat during which a SWOT analysis is conducted, progress against objectives is reviewed, and a work plan for the following year is made. All members of the project and collaborating MOH partners participate in the retreat. The CSXVII project will adopt this annual retreat for reflection on progress and future planning.

All project staff have already been hired, and they have been very involved in starting project activities, such as the baseline and negotiating with the MOH at the district level to prioritize the health units and communities with whom to start working. In each district, one nurse from CARE's staff will work closely with the participating health facilities in the district in training and supervision. Two other CARE staff will work with the communities.

A new health sector coordinator will be hired soon, since the current one has put her in resignation for the end of April this year. The HSC will be contributing 50% of her/his time to this project. Before her departure, the current HSC will assure project start up, train the CS team in planning, monitoring and evaluation and in adult education techniques. Another function is to coach CS field staff to become facilitators and train them in services to improve their performance.

For the first two years of the project, the Health Sector Coordinator will devote a great deal of support to the project manager to strengthen his management skills. She/he will lead Annual Operating Plans, budget elaboration and follow up, designing and implementing the monitoring and evaluation system, and team development. She/he will put the project manager in contact with key personnel from different institutions working in health (i.e. PVOs and NGOs working in health.)

The CS project will be backstopped from Headquarters by the Technical Specialist for Behavior Change based in Atlanta. She will provide technical support and pay visits twice a year to monitor the Annual Operating Plan, assist with the needs assessment, and suggest potential consultants for trainings and evaluations. The Technical Specialist led the process of the DIP preparation. During this visit to Mozambique, she started teaching national staff how to design annual operating plans, develop the M&E system, and design of different tools to collect the information. This first technical visit was also to share information regarding field experience with other CARE country offices that are implementing new initiatives in child survival, such as the baby friendly initiative. At the community level,

several country offices are involved in integral childcare, community organization, growth monitoring sessions and support groups.

The five-year work plan was already reviewed by the CS team, and they spoke regarding potential candidates with expertise in the training themes that have been planned. The Health Sector Coordinator and Project Manager will identify an internal consultant for specialized topics to conduct the trainings. Other sources that the project will look into will be the UNICEF (baby friendly initiative) and the Roll Back Malaria programs. For IMCI training, the project has already initiated coordination with the MOH at the national level to schedule trainings and use their curriculum and the nationally trained TOT team.

2. B. Human Resources

The following are the CARE staff who will implement the Child Survival XVII project in Nampula.

Title	Recruitment status	Paid or Volunteer	Main duties	% time devoted to CS
Nampula Health Sector Coordinator	To be recruited (potentially an expatriate)	Paid	Oversee all care health projects in Nampula, senior staff development, submit donor reports	50%
Project Manager	Hired	Paid	Oversee all planning, management, M & E, budgets, finances, staffing and reports	100%
Deputy Project Manager	Hired	Paid	Supervise all field activities	100%
Training & IEC Officer	Hired	Paid	Organize training events, participate in training & IEC materials and methods development	50%
Nurse trainers (2)	Identified, currently in training	Paid	Train and supervise health staff, including regular on-the-job training	100%
Community assistants (4)	Identified, currently in training	Paid	Work with community leaders to identify CHVs, including model mothers, train and supervise CHVs, assist communities to organize IEC events	100%
Community health volunteers (1 per ≈ 50 households)	To be recruited	Volunteer	Make household visits to encourage use of ITNs, refer children with fevers, treat for malaria (in some pilot communities),	8 – 10 hours / week

Title	Recruitment status	Paid or Volunteer	Main duties	% time devoted to CS
			community mobilization for EPI campaigns	
Model mothers (1 per ≈ 10 mothers)	To be recruited	Volunteer	Work with neighbors to improve breastfeeding, weaning and feeding practices; teach recipes with orange sweet potatoes	4 – 6 hours / week

In each district, CARE will collaborate with 4 health facilities. The principal personnel involved will be the two District Health Directors, 8 clinicians who do pediatric consultations and 29 staff who work in maternal and child health wards. CARE will also collaborate closely with the provincial heads of the malaria, nutrition, IMCI and EPI programs, especially in training, monitoring and evaluation, and IEC materials and methods development.

Additional crucial stakeholders to implement the project are CHVs. The CS project will propose to communities that in order to ensure a good relationship with mothers, each CHV will attend to 10 mothers. This number comes if we take into consideration that they will divide the community in sectors, and each CHV will carry on prevention and promotion activities with neighboring mothers.

Each group of CHVs will work with their nearest health unit. The MOH person responsible for the health unit will work with them to design a biannual plan to include all prevention and promotion activities. On a monthly basis, a meeting will be held for all CHVs to come to the health unit to give a report of their activities and to analyze their work in terms of successes and challenges. This will be a forum to share experience in lessons learned and best practices amongst the CHVs and also to receive feedback and in service training from MOH personnel. A CS field personnel will facilitate the first meeting until MOH staff attain skills for these kinds of meetings. In terms of community outreach, the MOH will get in contact with CHVs and monitor how they are performing in educational sessions, malaria diagnosis, and growth monitoring sessions.

The CS project will use in-depth interviews and focus groups at the community level to identify those people who are influential decision makers for maternal and child health. Decision makers that influence mothers to change a behavior will be included in educational sessions using mass media such as radio, theatres, puppet shows, and fairs. During growth monitoring sessions with children identified as underweight, health care workers will identify community members who influence mothers' behaviors and invite those decision makers to future growth monitoring sessions or visit them at home to raise awareness regarding child health status.

HQ technical assistance will come from a multi-disciplinary team formed by two Pediatricians with more than of twelve years of field experience in child survival and maternal health and management, and one Nutritionist with more that twenty years of field experience in breastfeeding. Qualifications of the CARE HQ CS backstop staff are as follows:

Individual	Title	Areas of expertise
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Sanjay Sinho, MD	Senior Technical Advisor, Children's Health	IMCI, training, neonatal survival, community participation
Elena McEwan, MD	Technical Specialist, Behavior Change Communication	Behavior change, health management and sector reform
Judy Canahuati, MPhil	Senior Technical Advisor, Nutrition	Nutrition, breastfeeding

3. C. Contingency and Security Plan

a. Potential dangers in CS program area

The Potential types of dangers CARE Mozambique faces are floods in the south and central regions of the country, drought in the south and in some districts of the central region and along the coast, and cyclones in the coastal zone. Other non-natural potential dangers are war (as a result of the presidential election dispute), and political instability in neighbouring countries.

b. CARE's overall Security Framework

CARE Mozambique's Security Policy works to reduce the risk of security incidents for CARE program staff and partner communities by establishing a security framework that is built on a positive security profile (acceptance strategy), and supplemented with protection and deterrence measures. As a result, CARE USA has developed the following international security principles that CARE Mozambique adheres to:

- 1) The safety of CARE's personnel and partner communities takes precedence over all administration, program and logistics activity.
- 2) As a priority, CARE staff analyze potential security level implications, and benefits and harms of project activities before implementation. CARE regularly undertakes benefit/harms assessments to weigh the expected and potential effects of CARE programs. During the benefit/harms analysis, CARE considers five categories: (1) Social, Attitudinal and Cultural Impacts, (2) Political Impact, (3) Impact on Personal Security and Freedom, (4) Impact on Institutional Capacity, and (5) Impact on Household Livelihood Securities.
- 3) Security considerations are imbedded in the Country Offices' program planning cycle using the following guiding principles:

Acceptance. CARE actively pursues a positive security presence by:

- Maintaining a 'low profile'
- Providing limited and highly targeted inputs
- Ensuring a high level of monitoring of all material inputs
- Emphasizing training and local capacity building
- Implementing projects in collaboration with local NGO and government partners
- Focusing on rights based, flexible, culturally appropriate and representational (gender, ethnic and age balanced) responses
- Maintaining transparent and clear communications with partner communities and agencies
- Establishing strong community-based relationships
- Communicating a clear rationale for geographic and group targeting

Protection. CARE works to maintain and improve protection for staff and projects by adhering to the following guidelines:

- Maintain situational awareness and information through close contact with operational agencies, local authorities and partner communities
- Establish and maintain clear chains of internal (in-country) and external (HQ level) communication and information system management
- Adhere to standards of established codes of conduct (the CARE International Code of Conduct and ‘informal’ interagency codes) and security guidelines

i). *c. Ensuring Security for Staff*

CARE Mozambique has just recently formed an Emergency Response Unit and is currently developing a contingency and security plan. CARE Mozambique’s Country Director is responsible for the development, review and update of the CARE Mozambique Country Office Security Plan. This Security Plan has recently been updated. CARE's CS Program area has constant access to telephone, radio (voice and data) and email communications to the Country Office in Maputo. The Nampula office is in daily contact with the office in Maputo and if an emergency occurs, the CARE Country Office will coordinate with local authorities and the UN Security Office if necessary to determine the severity of the situation. The decision to evacuate project staff rests with the Country Director, in consultation with the Emergency Coordinator. If required, CS program staff will evacuate either by road or air transport, whichever is determined safest, to Malawi. If there were an acute and high alert emergency that required cross border evacuation by air, evacuation would be arranged by CARE Maputo to Johannesburg.

ii). *d. Plans to maintain CS Program Continuity*

The CS program will be managed and carried out by Mozambican nationals, both from the CARE staff and partners. Therefore, even if the security situation deteriorates in the area of operation, national staff would not be evacuated and unless there is a threat to their personal safety, the project should be able to continue. Most of the distance support provided by technical personnel in Mozambique will be from national staff as well. Because CARE will work in close partnership with local organizations, i.e. the MOH, they will likely be able to continue the training, community organization and other CS Program activities with CARE's long distance support without interruption.

4. D. Technical Assistance Plan

The technical assistance plan will respond to the training needs assessment conducted by the Technical Specialist for BCC during her visit for the DIP preparation. HQ will be responsible for identifying and sending to the field useful technical resources to improve the CS team’s technical and management skills.

Different strategies will be used to provide information for field staff. One is the participation of two CS team members in the Annual Child Survival Workshop, which will be held in Kenya in this first year to improve their knowledge and skills in Behavior Change strategies.

These two people will train other CS staff and MOH trainers on the skills gained during the Child Survival workshop.

Also, the CS team and MOH from the District level will visit successful CS projects, such as World Relief in Gaza Province and the CARE CS project in Kenya to see community organization and best practices in child survival interventions. Bi-annual visits from the Technical Specialist for Behavior Change are also scheduled. During these field visits, communities and health centers will be visited to observe CS team performance, give feedback and provide training.

Table with technical assistance and calendar for key activities during the life of project:

a. Theme	b. Technical assistance	c. Date
In depth interviews, focus groups	Health Sector Coordinator (HSC) External consultant	First year
Quality assurance	Technical Specialist for Behavior Change Communication (TSBCC), HSC and External consultant	First year
Community organization	TSBCC, other CARE country offices	First year
Behavior change communication	HQ: Annual CS workshop	First year and continuous
Annual Plan	HSC	Annually
Budget preparation and monitoring	HSC Finance Manager	Annually and quarterly
Supervision system	TSBCC HSC	First year and quarterly
Monitoring and Evaluation System	TSBCC HSC	First year and continuous
Mid term evaluation	TSBCC HSC External consultant	Year three
Final Evaluation	TSBCC HSC External consultant	Year five

5. E. Information Management

Field offices and HQ communicate frequently by e-mail, telephone and faxes. The same occurs between Maputo and Nampula offices. The Nampula office is already connected to the internet and fax, and they also have an internal web to communicate with administration area and among themselves.

The role of HQ is to identify necessary information to update the country office in technical matters. Till date, the Technical Specialist for Behavior Change Communication has sent protocols and M&E tools developed by other CS projects to allow the Mozambique team to adapt according to their setting.

Quarterly reports will be sent to the Health Sector Coordinator to include the main activities being carried out and to record lessons learned and best practices. These will be used to prepare the annual reports to be sent to HQ and USAID.

6. F. Financial Management

The Project Manager has the authority to approve spending of up to \$5000 for project activities. Field officers send monthly financial reports to Project Managers who use it to monitor and compare project expenditures with project implementation to avoid under or over expenditures and allocate budget items as needed. HQ also receives the financial information from country offices on a quarterly basis, and then send it back to country offices through quarterly pipeline reports highlighting any over or under expenditures and budget burn rates.

7. G. Logistical Management

Workplan activities will be the guide to designing an annual purchase plan where the Project Manager will include purchasing of vehicles, equipment and supplies. This annual plan will be updated on a quarterly and monthly basis, depending on project needs. The CS team and administrative personnel from Nampula's office have to review the annual plan and prioritize which items are needed to be purchased first to ensure program activities. Advance planning will be key in order to avoid purchase delays. Additionally, the Project Manager will track the purchase status to ensure receipt of supplies on time.

8. H. Monitoring and evaluation

Program Goals and Objectives:

The Child Survival Project goal is to empower families and health providers to improve the health and nutritional status of children under five and women of reproductive age through targeted interventions that improve maternal and child nutrition and the access to treatment and preventive measures for malaria.

The project has selected five objectives:

1. Improve infant and young child nutritional status through improved feeding practices, including exclusively breastfeeding for six months.
2. Improve maternal nutritional status through dietary changes, iron supplementation (pregnant women), and vitamin A supplementation (post-partum women).
3. Improve access to malaria treatment for both women and children
4. Increase demand for and use of bednets for malaria prevention.

5. Improve MOH capacity to provide quality services using the IMCI algorithm and supporting the EPI campaign.

To achieve the objectives listed above , CARE will use two strategies:

- 1) To improve the quality of MOH services, through institutional strengthening the project will support the MOH to use protocols and norms to treat malaria and malnutrition using IMCI guidelines, and also using management tools that the MOH will design and implement to ensure access and supplies for proper child care.
- 2) To empower communities to participate in their health activities, and seek for quality care at MOH units.

The CS program will ensure the project activities through a monitoring and evaluation system that will be developed with the MOH and CHVs, so it can satisfy MOH and community need.

The monitoring and evaluation system will be divided in three sections: community information system, health information system and management information system. The community information system will record and monitor all CHVs' activities. A simple mechanism will be developed with CHVs where they can record their activities. The project will give them notebooks and pencils and show them how to register information such as census (children under five, pregnant woman, growth monitoring sessions, families using mosquito bed nets, women practicing exclusive breastfeeding, and post-partum women and children who received Vitamin A. They will also have a record of the number cleaning day activities and referrals made.

At the health units, they will use the health information system that the MOH has already developed. The project will review their tools to ensure that the information from the CHVs is included. If this information from the CHVs is not being included, then adaptations will be made to the tools to include the data in the MOH health information system.

The project's management information system was developed to record project activities, and use the information for program decision making. It began with the Detailed Implementation Plan design, where all strategic activities have been included to achieve project goals. The project has also identified the process indicators to monitor project activities, which will be monitored on a monthly basis. CARE field personnel will be responsible to get the data while at the field using different tools already designed by project staff. This data will be tabulated in a process indicators matrix that includes all activities for the life of project. The use of this matrix is to compare planned versus achieved activities on a quarterly basis. This management tool will be used for CARE, MOH, and CHVs to analyze context, barriers and decide new approaches and strategies that will be planned for the next quarter. Please see Appendix B for the process indicators matrix.

Activities described in Appendix C will be monitored using the process indicator matrix that will be fed by community information system, health information system, and the project information system. In order to get project results, it will be important for all stakeholders to play an active role. For example, to improve the quality of health services, the MOH has to play a role at several levels, such as training personnel, supervising the use of protocols, and ensuring supplies. But in order to get families to utilize these services, CHVs have an important role to play in encouraging mothers to take their children to receive preventive health services and train mothers to recognize danger signs of illness and know where to seek

help. Additionally, families have to ensure health practices and demand quality services from the MOH and CHVs.

Appendix D includes all effect indicators defined by these three levels that the project has focused on: MOH, communities, and families. Those will be measured at the beginning of the project to have a picture of the current situation, at the midterm of DIP implementation to evaluate if approaches are on track and to make necessary adjustments, and at the end of project to evaluate project achievement.

Another strategy that the project has defined is to use a situation analysis for the MOH and community baseline. The project will select an initial cohort of health units and communities and then move on to a second cohort. The situation analysis will be done at health units and communities and will be measured at the same three stages of project start-up, midterm, and final. At the time of writing the DIP, the baseline to identify knowledge, practices, and health coverage has been completed. Next steps will include designing and implementing a situational analysis at health units, which will focus on a training needs assessment and a quality care assessment. At the community level, qualitative research will be carried out using in-depth interviews and focus group discussions to understand the family dynamic with regard to child care.

The following is a table describing the monitoring and evaluation activity, the level at which it is to be conducted, useful tools, and the frequency at which the activity will occur.

Activity	Level	Tools	Frequency
Baseline/ Final Evaluation	Project	KPC Survey, Quality of child care checklist, Exit interviews, Logistic checklist.	Project start and end, Rolling baselines for QA at MOH facilities before activities start.
Midterm evaluation	Project MOH	Guidelines for: Interview with MOH, Interview with CHVs, Interview with APes, Focus group discussions with mothers, Group interviews with staff.	During third year
Process indicators: Community information system	Project District MOH	Tools for: Census- children under five and pregnant women CHV reports describing- Vitamin A, chloroquine, iron, and de-worming distribution; referrals, cleaning day campaigns, educational sessions, support groups organized.	Monthly Quarterly
Health information system	Provincial and District MOH Project	Tools for: Training event- theme, number of trainees, pre-and post test results, Checklist for child care	Monthly

		Services, Productivity report, Vital status report, Referral format.	
Project information system	Project	Tools for: Annual, quarterly, monthly and weekly plan activities. Monthly and quarterly report format. Performance evaluation.	Monthly Quarterly and annual

9. I. Budget

Please note that the budget was changed from the initial proposal amount. The match amount was reduced from \$1,245,413 to \$744,446. A large portion of the match was to come from a pending project of the CARE-CDC Health Initiative (CCHI), which was to provide complementary malaria activities. The CCHI project did not begin as planned, and, therefore, adjustments were made to the budget before the start of the Child Survival project. Please see Appendix A for the revised project budgets.

10. J. Work Plan

Detailed work plans are in Appendix E, and the logic used to define them has been divided into four sections:

1) Project management: This includes all management activities that will be carried out to ensure meeting project goals. These activities include planning, organizing, designing, implementing, monitoring and evaluation of project activities to ensure programmatic coherency.

2) MOH activities: Activities to ensure quality and access to health services have been planned for the life of project with MOH personnel from the provincial and district level. These are divided into diagnosis, action plan, design, implementing activities, monitoring and evaluation.

At the MOH level, the project will start the intervention with a situation analysis study of quality assurance by observing MOH personnel during child care consultations, inventory of existing supplies and equipment at health units, exit interviews with mothers, and training needs assessment for MOH personnel. Results will be used to design and schedule a training plan, purchase supplies and equipment for child care consultations, and adapt the health services organization to patients needs (e.g. distribution of human resources, improvement of ward areas, patient flow analyses, etc).

The MOH training plan is described in Section III. However, the project may also include management themes such as team development, negotiation between health care providers between health care providers and child caretakers of behavior changes that will be tried, and problem solving into the MOH training curriculum.

The MOH has also agreed to implement pilot activities starting with a designated number of health units and communities, monitor the progress, and then scale up to other health facilities and communities. Pilot activities will begin at the end of the first year and will include postpartum vitamin A distribution in Anchilo and Malema health facilities, introducing the Baby Friendly Initiative in one facility each in Malema and Rapale Districts, installing mosquito bednets for pediatric wards in three units in Malema and five in Nampula, and introducing IMCI in two other health units in each district.

Community outreach activities will be planned with communities and CHVs, in collaboration with appropriate health care personnel. Some key activities are National Vaccination Day Campaigns, supervision of growth monitoring sessions, and malaria treatment (chloroquine) distribution by CHVs.

3) Community Activities: At the community level, the project will also initiate the interventions with a community organization component. A presentation of the project to communities will be vital to get the approval and engagement to work in the project's activities. Selection of the CHVs will comprise another major activity by the communities. CARE will first facilitate brainstorming with the communities on the qualities that a good CHV should have. Once the participants have listed the qualities, they will name people in the community who have those qualities and suggest candidates with the final approval of project personnel, as oftentimes candidates are selected because of a close relationship with a village leader, believing that the person will gain materially by the appointment.

After CHVs have been identified, a training needs assessment will be carried out to prioritize themes in the CHV training plan. At the same time qualitative research will be done to get needed information to design the project's behavior change strategy and select the behaviors and key factors to design health messages.

The CHVs will participate initially in various activities including qualitative assessments, mapping, recording preventive activities, growth monitoring sessions, calling and organizing mothers for National Vaccination Campaign Days, and conducting educational sessions using different approaches such as support groups, home visits, fairs, puppet shows, and community theatre. If APEs are selected to be CHVs, they will continue with their curative activities such as distribution of chloroquine and referrals to health units. The MOH has also agreed to include iron tablets in the package that CHVs can offer. They will be also be responsible for the marketing of mosquito bednets to families with children under five and pregnant women, as well as other families who wish to purchase bednets.

4) Inter institutional activities: The project will also facilitate the institutional coordination between PVOs/NGOs and the MOH. One activity planned for the life of project is to act as a coordinating body to identify those institutions working in child health, present the project and establish fora or other means to coordinate meetings to plan and share lessons learned and best practices that could be useful to improve MOH service provision. A workshop is scheduled for the third year to share the experiences of pilot activities in malaria and nutrition.

I. SECTION III: DETAILED PLANS BY INTERVENTIONS

1. IMMUNIZATION

a. 1. Current status/Coverage/Prevalence

Surveillance reports from the MOH show that in Nampula Province, the number of measles cases has increased from 3092 in 1996 to 4118 in 2001, with a large increase occurring in the last two years. Fatal casualties though have been decreasing in the last four years. There is no report of flaccid paralysis, however, it is included in the surveillance system that is used in all health units.

A report from 2001 indicates that measles coverage in children under one year in Nampula Province was 100%; similar figures are reported for Nampula District, and Malema District reported 98% measles coverage. DPT3 coverage at the provincial level was reported at 87%, in Nampula District at 99%, but in Malema District, the coverage was only 35%. Dropout from DPT1/DPT3 in Malema District was 41% and in Nampula 23%. Third OPV doses in Nampula Province were reported at 63%, in Nampula District 102%, and in Malema District 21%. BCG vaccine for Nampula Province was 98%, in Nampula District 108%, and in Malema District 50%. These very low immunization rates in polio, DPT and BCG in Malema District may be due to the fact that there was no District Health Director during an 11-month period of 2001 and the EPI program was not functioning to capacity. The registration of children in the census is also a problem to be considered in Nampula Province and in its 21 districts.

Regarding TT vaccines for women of reproductive age, the MOH records have the number of women vaccinated. Even though, comparing first and third doses applied, the number of WRA who received one dose of TT were 37,017, and the number who received three doses drops to almost half (19,176.) [in the baseline, we asked about 2 TT vaccinations. Should we discuss that instead?]

Findings from the CS baseline show that only 61.5% of mothers could show their child's vaccination card. Of those, the percentage of children between 12 and 24 months who were fully immunized reached only 51%, and the ones who received a measles vaccine were 67.6%. Regarding TT immunization, only 58% of women interviewed reported having received two or more doses of anti-tetanus vaccine. There are three possible explanations for these low statistics for childhood immunization. In some cases mothers had lost their cards, and in nearly 10% of the cases, the cards were not filled in. Alternatively, a lack of access to immunization services may keep rates low. Amongst the children 12 to 23 months old who began vaccination, 34% of them did not complete the program. It must be mentioned that there occurred a national 2-month stock-out of OPV in 2001.

b. 2. Cause, current beliefs, knowledge and practices and care-seeking behavior

In-depth interviews and focus group discussions will be held with mothers and caretakers to better understand which key factors are influencing mothers' and caretakers' behaviors regarding immunization. Some areas of knowledge that need to be improved are that vaccines are medicines that do not cure, but prevent, illness. Other messages are that if a child receives a vaccine, he does not need to receive more, and that the best vaccines are the ones given by injections. They often know that vaccines prevent some illnesses, but do not know which ones.

c. 3. MOH Policy/strategies and case management policies/current services

MOH immunization policy is to vaccinate all children before completing one year of age, and services are available in all health centers every day from 7 a.m. to 1 p.m. The immunization schedule for children is shown in the following table:

Vaccine	0 month	3 months	4 months	5 months	9 months
B.C.G	1 dose				
Anti-Polio	0 st dose	1 st dose	2 nd dose	3 rd dose	
D.P.T		1 st dose	2 nd dose	3 rd dose	
Hepatitis B		1 st dose	2 nd dose	3 rd dose	
Measles					1 dose

d. 4. Intervention specific approach (cross-reference with program approach section)

The CARE Child Survival Project will play a facilitator role in working with the strengthening of the MOH's management and technical skills to provide an immunization program that satisfies children under five and mothers' needs in having access to vaccines, given at a proper time and with required quality.

To increase access, CARE and the MOH will design and implement a plan to carry out outreach services. Needs assessments will be carried out at peripheral health units to identify supplies and resources needed to ensure program goals. Limitations already identified by the MOH are transport, cold-chain equipment maintenance and fuel for refrigerators and vehicles. To overcome those limitations, CARE will assist with transportation for the National Vaccination Day Campaigns to communities that will be prioritized based on low vaccination rates. The project also will provide gas for refrigerators to ensure cold chain protocols. These latter two activities will be on an interim basis until vaccinations rates are at an acceptable level. At mid-term, CARE with the MOH will have to make a plan for the MOH to be able to implement PAV without this exterior assistance. This is also an opportunity for CARE to get the local MOH involved in advocating with the MOH national level for more budget and resources to ensure a more sustainable EPI program.

Outreach visits will be part of the annual plan that the project and MOH at the District level will develop to include promotion and prevention activities. These will be done simultaneously to be more effective and to establish a holistic approach for children and mothers to decrease missed opportunities.

Another area that the project will focus on is training health unit personnel at the district level in technical and administrative norms, such as the vaccination calendar, signs and symptoms of vaccine preventable diseases, immunization safety, organization of fixed outreach activities, and counseling techniques. This will help MOH personnel to decrease misinformation or myths that parents and caretakers may have. It will also facilitate educational sessions to discuss why it is so important to give the vaccines every time the child has contact with the health unit, even when he is not sick, and the implications of missed opportunities on a child's health. Communication and behavior change strategies will be designed and implemented to raise awareness of immunization importance and create better communication with parents or caretakers to reduce drop out rates.

The MOH already has a surveillance system that functions in each health unit to report vaccine-preventable and other preventable diseases; but the information is not being used for decision-making and planning at the district or local level. The project will train MOH personnel so they can perform simple data analysis and display their results for use by the community and the health units for decision-making. For example establishing the surveillance system and tracking coverage by community will help them to prioritize which communities should be included in their outreach plan.

CHVs will be key stakeholders in this effort to increase child immunization coverage. They will establish community-held registers that list children under five and mothers, and use them to record each child's immunization status, track vaccine defaulters, and identify infants who are not immunized, and either refer them to the health unit or invite them for the next National Vaccination Day Campaigns. As no such records are kept by the MOH, this activity will greatly aid the health facilities in improving their vaccination rates. During monthly meetings that will take place at the health facility that serves their communities, CHVs will inform the MOH of the current child immunization status. The information will help them to design a joint action plan where both stakeholders will define their roles and responsibilities. CARE's Reproductive Health Project furnished bicycles to its volunteers with the expectation that they be used for attending monthly meetings, making home visits, and collecting supplies at the the health facility.

e. 5. Behavior change communication

Messages will be targeted to health care workers as to the importance of filling in vaccination cards with each contact, about the importance of avoiding missed opportunities (e.g. when an ill child is brought to a facility for care, to always check his/her vaccination card and vaccinating if necessary), and encouraging them to do health education talks with post partum women on the EPI. In Mozambique, annual prizes are given to districts with the best records in various programs. It could be an incentive to health care workers to know that when they vaccinate but do not record their work, their statistics are lower, therefore decreasing their statistics.

Furthermore, they will receive training in the importance of patient education in explaining that many illnesses are preventable only through vaccination. They will also learn the importance of explaining the mild and temporary side effects of some vaccines, but the long-term benefits to a child.

Men will be encouraged to ensure their children's complete vaccination through the organization of activities appealing to men. For example, soccer games could be organized with brief health talks explaining the importance of vaccination and encouraging men to ensure that their children are fully vaccinated.

Women will be educated to know which diseases can be prevented by vaccination, but also their negative short-term side effects so that they are not alarmed by them. Because of the political history of Mozambique, there have occurred many cases of people believing that the predominant political party is trying to kill off members of an opposing party when they do not understand that there can occur unpleasant side effects from some drugs and vaccines. It will be stressed that it is important for women to keep their children's health records in a safe place to facilitate health personnel's work, and to not have to duplicate vaccinations.

f. 6. Quality assurance

A quality of care assessment of vaccination services will be done to monitor MOH performance in using protocols to give vaccines to children and women of reproductive age. Proposed standards that will be included in the checklist will be verifying vaccine quality (refrigerator temperature) and stocks of supplies. Quality of care during procedures will be measured by evaluating technical skills to give shots or oral drops, counseling on what illnesses are vaccine preventable, potential side effects, and when to come back for the next vaccine. Finally, quality of care will be evaluated based on the presence and currency of records of vaccination status of children under five.

Results from the quality of care assessments will be presented to MOH personnel, and a working session will be organized to analyze results. Using Total Quality Management tools, MOH participants and CARE will identify a problem, analyze it for root causes and develop a plan to implement countermeasures to overcome it. On a semi-annual basis, the same study will be carried out to compare progress with the baseline. Once the problem has been solved, a standardization process will take place for all units, and a new problem will be addressed. If there is no progress, an analysis exercise will be done to find out the real root causes and develop another action plan.

g. 7. Availability of drugs, vaccines micronutrients, equipment

During the three-day stakeholders' workshop, the MOH at the provincial and district level stated that they needed a lot of support to continue carrying out immunization campaigns. They lack sufficient motor vehicles to do community outreach because many of their vehicles are not running well due to lack of maintenance and fuel. They also face a shortage of syringes and needles. In some health units, the same needle is used several times to give injections, putting children and pregnant women at high risk for transmission of hepatitis B and HIV. Ensuring the quality of vaccines is another challenge for the MOH. There is no maintenance plan for cold-chain equipment and there is not enough money budgeted to ensure sufficient fuel to keep refrigerators functioning. In addition, health care providers lack skills in applying EPI technical and logistical protocols in their daily work, e.g. keeping daily records of refrigerator temperature on a checklist to ensure the quality of vaccines.

h. 8. New, Innovative activities or strategies

Rather than focusing solely on the mother, CARE will involve men in their children's vaccination status, as well as health care workers in various quality of care issues such as patient education, careful record-keeping and taking advantage of all opportunities to vaccinate a child.

2. NUTRITION AND MICRONUTRIENTS

a. 1. Current status/coverage/prevalence

DPS data from 1998 to 2001 show little change in the nutritional of newborns and children during this 4 year period. In Malema District, an insufficient growth rate in children from 0 to 5 years of age remained at 11%, although it had dropped to 7% in 2000. However, according to the standards in Mozambique, this is an acceptable rate. In Nampula District the rate dropped from 19% in 1998 to 16% in 2001. An acceptable rate of low birth weight is less than 7%, but in Malema District this rate increased from 14.1% in 1998 to 15.4% in 2001; in Nampula District it increased from 16.9% in 1998 to 17.4% in 2001. Both districts are considered well above the "serious situation" rate of low birth weights.

During the KPC survey, the CS XVII Project did not take anthropometric measures, because the VIDA project will soon do a widespread study in nutrition practices and anthropometric measures in children under five in 14 districts, including those where CARE is implementing the Child Survival project. The survey results will be used as baseline data, and will help to choose the first cohort of communities that show the highest malnutrition rates. The results will also be included in the first annual report.

b. 2. Cause, current beliefs, knowledge and practices and care-seeking behavior

Although in-depth interviews have not yet been conducted, many beliefs are known from local staff who grew up and/or worked in rural areas. In Nampula, as in many other parts of Africa, people believe that breast milk does not contain enough water and that a baby will suffer from dehydration if water is not given. Regarding protein intake, generally in rural families the father receives the best and most meat as it is believed he needs it for strength to work in the fields. Women and children usually receive only what the man does not consume. There exist various beliefs around pregnant women eating eggs. Many people say that the child will be bald or be born with birth defects. Others believe that the woman will go into labor in an undesirable or inconvenient place rather than giving birth at home.

The lack of variety in the diet is related to two causes: lack of knowledge and poverty. The area of Nampula Province is a "bread basket" zone where an enormous variety of agricultural produce is grown. However, because selling produce, poultry and small livestock such as goats and pigs is the only means of obtaining cash, most farmers sell everything that they can and keep nothing for consumption at home. As most people do not understand that the

consumption of fruit and vegetables is important, they do not include these aliments in the daily diet.

c. 3. MOH Policy/strategies and case management policies/current services

The Nutrition Division of the MOH is divided in three different branches. The first is public health nutrition, which includes prevention and distribution of micronutrients. Until recently, vitamin A was given to children only during National Vaccination Days. Recently it has been introduced into the routine activities of health facilities that implement the EPI to decrease missed opportunities and to improve their nutritional surveillance and records. Now a child can receive vitamin A when s/he comes to receive vaccines or for a growth monitoring session. The first dose is given at 6 months of age, and then one dose every six months up to 5 doses. Low birthweight and underweight are tracked as part of their nutritional surveillance system. Data are obtained at the health units when children participate in growth monitoring sessions. Due to transportation problems, there is an irregular program of community outreach. Therefore access is limited to children who live near a health unit.

The second branch of the Nutrition Division is clinical nutrition, which focuses on rehabilitation activities for malnourished children. Cases that require hospitalization are referred by peripheral health units to nutritional rehabilitation centers, of which there are 8 in the province. The last branch is nutritional training for health workers, which has been divided into formal and informal education, with a priority to train new technicians. Currently there is only one trained nutritionist in the province based in Nampula City, therefore there are none posted in the districts.

MOH antenatal care protocols include a daily dose of iron folate during the second and third trimesters, however women are often given a supply during the first visit. In addition to IFA, presumptive treatment of worms with mebendazole is included in the MOH protocol, but it is rarely done. Children do not receive this treatment.

d. 4. Intervention specific approach (cross-reference with program approach section)

Most MOH personnel at health units lack knowledge and skills in nutritional norms. To overcome that situation, the CARE Child Survival Project and MOH will develop a training plan using national nutrition protocols. Please see Appendix G for protocols. To develop the training plan, a needs assessment will be carried out. Tools to collect the information will be identified or developed and health personnel will be selected for interviews. Based on the results, nutritional themes will be prioritized with which to start the training. An integral part of the training plan design will be a monitoring system to ensure that trainees demonstrate increased knowledge and improved performance in daily work.

A training of trainers team will be selected and trained in adult learning theory, participatory techniques, counseling and behavior change communication. They will also learn to analyze the most influential factors contributing to behaviors that need to be addressed.

MOH personnel from the district level will be trained to provide effective counseling in nutrition and breastfeeding. They will also be encouraged to counsel men on the importance of making more food available to the family, including women and children, rather than selling the entirety of their production.

The Hearth Nutrition Model will be included as part of this intervention. The goal of this approach is to not only to rehabilitate malnourished or undernourished, children but also to demonstrate the importance of good feeding practices. This will help to reduce the prevalence of childhood malnutrition in the community and motivate the mothers and community to take broader, sustained action against malnutrition and poor health.

This model will be piloted where CARE implements its agricultural projects, VIDA and Passana. The CS project will work with women already organized in “agricultural groups” based on the rationale that they have food available at home. Mothers will be taught how to prepare balanced diets using foods locally available, including those from family gardens, and the importance of feeding young children at least five times a day in a separate bowl. Since this is a relatively new approach, CARE will work with the MOH, CHVs, and mothers to ensure that all stakeholders participate actively at the community level to overcome child malnutrition problems. Positive deviance will be sought among mothers to be used as models for others in the support groups.

Growth monitoring and nutrition counseling sessions will be carried out by CHVs every month. During these sessions the CHVs will focus on explaining to mothers how the child is growing (and how the child should be growing if there are discrepancies), give counseling and negotiate with them on the type of care the child will receive at home. The next time mothers come to a growth monitoring session, they will review the agreement made with the CHVs to find out what the mothers did well and what they could not accomplish and discuss joint solutions.

De-worming and micronutrient supplementation are a part of this integral approach. In the beginning, distribution will be done only by MOH personnel. When CHVs show the capacity to perform well the first set of skills, the project will negotiate with MOH authorities to let CHVs take over these distribution activities in their own communities, with supervision by MOH. For children who fail to gain weight despite improved feeding practices, CHVs will give a referral to health facilities for rehabilitation and where the child will have access to effective medical care. When the child is discharged from the health facility, he will be counter-referred to CHVs for follow-up and re-integrated into the growth monitoring sessions.

CHVs and TBAs will be taught how to conduct counseling sessions and give individual counseling to pregnant, post-partum and lactating women to protect their nutritional status. Examples of key messages that will be given are to increase and vary food intake, reduce workload, educational sessions in foods available locally that contain micronutrients, and the importance of daily consumption of fruits and vegetables. They also will receive information on how to enrich foods by adding extra oil or mixing foods. Pregnant women and mothers will be referred to health facilities to get micronutrient supplements in the first phase of the project as mentioned above, but eventually it is hoped that the DPS will allow CHVs to distribute IFA in their communities.

As many of the breastfeeding and weaning practices are good, the project will first focus on the positive behaviors with minor alterations on how to improve them. For example, CHVs and model mothers will praise women for their immediate and prolonged breastfeeding practices, but educate them on the importance and contraceptive benefits of exclusive breastfeeding, which means no water. The project will promote exclusive breastfeeding not only to benefit the child but also to give an option for family planning through LAM. MOH staff will be trained in the LAM algorithm to use during breastfeeding counseling sessions with pregnant women. CHVs and TBAs will also be educated in key messages regarding the benefits of exclusive breastfeeding to prolong amenorrhea. They will laud mothers for their timely introduction of weaning foods, but stress the importance of variety and frequent feeds.

e. 5. Behavior change communication

Messages for men will focus on the importance of contributing some of their horticultural production to the household, as well as poultry, eggs, and other small animals, rather than selling everything. They will also be encouraged to be involved in the nutritional rehabilitation of their malnourished children through home visits and educational talks with farmers groups. Male CHVs will play an important role in communicating with their peers.

“Model mothers” will communicate with other mothers via cooking demonstrations, home visits to motivate caretakers to adopt a holistic approach to a child’s well-being and health talks.

f. 6. Quality assurance

A quality of care assessment baseline will also be done at growth monitoring sessions in the health units. Growth monitoring is supposed to be done monthly from birth to 5 years of age. Standard IMCI tools to monitor MOH performance during weighing sessions will be used.

A standardized checklist will be used to check stocks (iron, vitamin A, and de-worming tablets), evaluate technical skills such as recording weight and height of the child according to age, searching for illness in the past weeks, describing danger signs and when to seek for treatment, counseling regarding nutritional status, breastfeeding and weaning food promotion, checking vaccination cards, prescribing micronutrients as needed, and informing caretakers of the next visit. Lastly it will be verified if MOH personnel are maintaining updated records of the nutritional status of children under five.

Results from the quality of care assessment will be presented to MOH personnel, and a working session will be organized to analyze results. Using Total Quality Management tools, MOH participants and CARE will identify a problem, analyze it to get to root causes and develop a plan to implement countermeasures to overcome it. On a semi-annual basis the same study will be carried out to compare with the baseline. Once the problem has been solved, a standardization process will take place for all units, and a new problem will be addressed. If there is no progress, an analysis exercise will be done to find out the real root causes and develop another action plan.

g. 7. Availability of drugs, vaccines micronutrients, equipment

According to national prenatal care protocols, all women are to receive a daily dose of IFA during the second and third trimesters of pregnancy. However, as the supplies of IFA are severely limited, most women are lucky to receive a 30-day supply for the entire pregnancy. Furthermore, women in Nampula and Zambezia Provinces must purchase IFA, whereas it is free to women in the rest of the country. No one in the stakeholders' meeting understood the cause of this situation, and it is currently being investigated.

As vitamin A was distributed only on National Vaccination Days until very recently, there have been no problems of stock-outs. However, whether the current supplies will be sufficient now that it has been introduced into daily activities in health centers remains to be seen.

h. 8. New, innovative activities or strategies

Most of the activities that the project will implement are new approaches in the target area, but CARE will give great effort to ensure sustainability through three specific activities. Two of them will take place at the community level and will be integrated into the community empowerment approach. The third will take place at the health units and will be part of MOH institutional strengthening. The project will facilitate the implementation of the following three nutritional models:

a) Integral Care to Childhood at the community level (ICC)

This approach is also being implemented by another CARE Child Survival Project in Nicaragua with technical support from BASICS II. It has been very successful in focusing on weighing children at the community level, using counseling and negotiation techniques to influence mothers in changing behaviors in breastfeeding and the use of adequate weaning foods. This project will use the same BCC approach to establish an effective relationship between CHVs and caretakers to find the most feasible ways to improve child nutritional status.

The project will train CHVs in breastfeeding, nutrition, and weighing techniques, so they can carry out all the activities at the community level. Exclusive breastfeeding for the first six months and the preparation of balanced diets with foods rich in nutrients like Vitamin A, to older children are some of the areas of education to be conducted by CHVs. Growth monitoring sessions will be planned on a monthly basis where the CHVs will show to each mother how his/her child is growing with respect to weight-for-age. In case the child is not gaining weight, the CHV will ask if the child has suffered any illness in the last month. When the problem has been identified, the CHV will initiate a counseling session with the mother and attempt to elicit a commitment from her regarding how she will take care of the child at home.

At the next session the CHV and the mother meet again to see how much she could accomplish and why she could not do it all. If the CHV identifies that the mother is being influenced by another person (grandmother, in-laws, or husband), she will be required to bring that person to participate in the next weighing session, or have the CHV make a home visit to get an agreement from all child caretakers. This approach will focus on improving

knowledge of caretakers regarding the most common illnesses of children and how to recognize danger signs and make rapid decisions to seek help. Curricula developed in Nicaragua including training materials will be shared with CS in Mozambique and adapted for the local context.

b) Hearth Nutrition Model

This model will be piloted in communities where the VIDA and Passana Projects are currently implementing agricultural activities, including women's groups. The CS project will work with mothers already organized into groups, therefore, they have food available at home. Mothers will be taught how to prepare balanced diets using foods locally available, including those from family gardens, and the importance to feed the child 5 times a day in a separate bowl. Since it is a relatively new approach, CARE will work with the MOH, CHVs, mothers and other caretakers to ensure all stakeholders participate actively at the community level to overcome child malnutrition problems. Positive deviance will be sought among mothers to be used as models for others in the support groups.

c) Vitamin A distribution to postpartum women

Although it is the policy at the national level to distribute Vitamin A to postpartum women, people at the provincial level (even the Provincial Head of the MCH Program) remain unclear about the timing of the dose. However, during the planning workshop, personnel from the DPS and the two DDSs agreed to start a pilot project in one health center in each of the two districts--Anchilo in the district of Nampula and Malema Sede in the district of Malema. These two health centers will start the administration of vitamin A to all postpartum women who give birth in their units by setting an appointment for the mothers to return for their Vitamin A supplementation.

According to WHO protocols, women who exclusively breastfeed will receive 200,000 Ius within eight weeks, and those who do not exclusively breastfeed will receive it within six weeks after delivery. At discharge from health units, the women will receive a notification to come back to receive their supplements. They will also be encouraged to bring their babies with them if they had not been weighed and vaccinated after birth.

These two pilot activities will be incorporated into the nutritional surveillance system and will be supervised at the district and provincial level. Once it has proved to be successful, more health units will be incorporated into this new initiative. A systematization process will be developed and implemented to use the results for advocacy at the national level to establish a new protocol for all health units nationwide.

3. CONTROL OF DIARRHEAL DISEASE & PNEUMONIA CASE MANAGEMENT

They are not included as components of this project, but will be included in the IMCI strategy.

4. CONTROL OF MALARIA

a. 1. Current status/coverage/prevalence

Malaria is endemic in most parts of Nampula Province, rural as well as urban zones, and prevalence and mortality has apparently increased over the years. However this is difficult to determine as before 1998, only cases confirmed by laboratory results were recorded. In 1998, all cases diagnosed for malaria, either symptomatically or by laboratory diagnosis, are recorded in the health information system. The malaria control program is currently functioning in all health units in both districts.

Since the new surveillance system was introduced in 1998, cases and deaths were as recorded by the DPS as per the following table:

District	1999		2000		2001		Jan. 2002	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Malema	6,095	9	8,327	0	6,370	0	896	0
Nampula	3,199	0	13,491	9	20,404	1	1,073	0

It can be assumed that these numbers are under-reported as many people do not seek treatment for malaria at health facilities (32% did not seek treatment for their children under 2 years of age suspected of having had malaria in the past two weeks), but rather self-medicate or seek treatment from traditional healers. The incidence amongst the general population cannot be determined because many people are not cured by chloroquine and seek treatment a second or third time for the same case of malaria.

5. 2. Cause, current beliefs, knowledge and practices and care-seeking behavior

When a child (or anyone, for that matter) has a fever, people automatically assume that it is malaria. According to the KPC Baseline Survey, mothers erroneously believe that the cause of malaria is rain, wind or leftover food. These beliefs are understandable because the population of mosquitoes is greatest during the rainy season, and there is generally a lot of wind before a heavy rain. Many people know that it is some kind of bug that causes malaria, and leftover food attracts flies and maggots, explaining this belief. Fewer than one-fifth of women, however, know that its cause is mosquito bites.

6. 3. MOH Policy/strategies and case management policies/current services

USAID released a document in collaboration with WHO and UNICEF in February 1999 that stated, "Malaria is the country's leading cause of mortality and morbidity, and in January to October 1998 was responsible for about 44% of outpatient attendance in rural and general hospitals, nearly 60% of admissions in pediatric wards and about 29% of hospital deaths." Malaria surveillance has been functioning in all health units at the primary and secondary

level since 1998. Prior to that, surveillance was kept only on laboratory diagnosed cases which was done in only a few health facilities.. The effectiveness of the new surveillance strategy has helped to increase numbers of cases reported over the years and has helped the MOH to have better idea of the magnitude of the problem.

Currently MOH policy is that first line treatment is chloroquine, which means all primary care health units use it to treat outpatients. However the MOH is very concerned over the level of resistance that has developed and is currently considering a revision of its policy on chloroquine as first line treatment. The above mentioned USAID document estimates that “chloroquine resistance in urban and peri-urban areas is high with parasite sensitivity of 28% and therapeutic efficacy of 61%.” There are currently clinical trials going on in Southern Mozambique to study the efficacy of artesimina as a possible first line treatment, perhaps in combination with other drugs. The second and third line treatments are Fansidar and Quinina, which can only be prescribed where there is a medical doctor or medium level technician to supervise the treatment and keep close watch to control side effects in vital organs.

Preventive activities are limited to educational radio messages broadcast in Portuguese and the local language of Macua, and spraying in urban areas and within a 5 km. radius of these areas. Some of the messages focus on environmental means at the community level such as removing stagnant waters, and others focus on health-seeking behaviors such as taking a child with fever immediately to a health facility.

The current policies on community-based distribution of chloroquine are currently in flux and rather ambiguous. For example, chloroquine can be sold in a shop, but only under the license of a pharmacist. Community health volunteers cannot officially distribute chloroquine, but the Provincial Malaria Program has agreed to CARE’s piloting this activity in this project.

7. 4. Intervention specific approach (cross-reference with program approach section)

At the community level, the project will work with CHVs in increasing awareness of the malaria problem. Qualitative research will be done to understand local beliefs, myths and knowledge of the population, home treatment of the disease, and words and terms used to describe it. Results will be used to design a behavioral change communication strategy to develop messages and to conduct educational sessions; especially those related to the increased risk of malaria during pregnancy, its consequences in newborns, and ways to prevent it. It also will encourage all pregnant women to seek antenatal care during pregnancy to encourage the taking of iron, thereby reducing the deleterious effects of malaria due to severe anemia. Even though CARE does not have MOH agreement on presumptive malaria treatment to pregnant women, the CS project will continue advocating with them to develop a pilot treatment for pregnant women in the two districts. The project will also promote the use of insecticide-treated mosquito nets by all pregnant women.

CHVs will conduct diverse community activities such as educational sessions, home visits, fairs to disseminate key messages for recognition of early symptoms and danger signs, and then seek early treatment from an appropriate provider. Community Health Volunteers (CHVs) will be a link between the community and the facilities. They will assure compliance with anti-malarial drugs, and counseling to families on the recognition of illness

and care-seeking and home care.

PSI currently has a social marketing of ITNs project in neighboring Zambezia Province. PSI has agreed to do a memorandum of understanding with CARE to expand the network to Nampula Province and provide technical assistance on the marketing of ITNs. The nets are being supplied by Bayer's Zimbabwe office through UNICEF, and the prices are very accessible.

8. 5. Behavior change communication

As with the nutrition intervention, messages will be targeted at men to protect their young children and wives, especially if pregnant, against malaria. The retail price of a bednet is between 60,000 and 80,000 meticaís (US\$2.50 to \$3.33), and the cost of re-treatment is only 10,000 meticaís (US\$0.42). When men have money from the produce that they sell and purchase a bicycle, the minimum cost is about \$42. It is intended to use a strategy to motivate them to spend this minimal amount of money to improve the health of their family for something that is not a luxury but a necessity.

CHWs will work with community leaders and health care personnel to organize Malaria Days in their communities. During these events, theatre groups will perform to communicate messages on the cause of malaria and means to prevent it, particularly through the use of ITNs. CHWs will sell nets and instruct people on their use and treatment. (Later in the project when people have had their nets for more than 6 months, they can organize mass re-treatment if it is acceptable to the population.) Lastly, community mobilization will be done to organize removal of stagnant waters and other environmental measures to eliminate mosquito breeding grounds.

CARE will donate ITNs for each of the health facility beds in the two districts (5 in Nampula and 3 in Malema). The objective of this will be to facilitate patient education by health care personnel, and to communicate a non-verbal message that ITNs are a part of good health behavior.

9. 6. Quality assurance

A quality care assessment baseline will also be done regarding childcare for malaria illness. IMCI tools will be adapted to evaluate if MOH personnel correctly use malaria protocols for diagnosis and treatment, using a holistic approach to evaluating a child's health that is already included in the national IMCI protocol. The checklist that will be adapted will include all of the diseases that IMCI asks for. The time that health care providers spend with mothers before the child receives care, and the time spent in each consultation will other indicators to be measured. Additionally, stocks at health units for antibiotics and malaria treatment to satisfy patients' needs will be monitored. Results of the evaluation will be used to design the training plan for the IMCI approach, and a plan to ensure logistics for childcare regarding antibiotics and malaria and antipyretic tablets. After IMCI trainings have taken place, a new study will be carried out to measure if the MOH personnel are using training knowledge in daily work and if logistic plans are being followed up.

10. 7. Availability of drugs, vaccines micronutrients, equipments

The Child Survival project and MOH will devote 45% of project efforts to malaria because it is the number one cause of morbidity in children and adults in both Nampula and Malema Districts. Although chloroquine is generally available in health units and with APEs, it is not accessible to communities located far from these sources. CARE will provide seed money for the initial purchase of chloroquine which will be sold by CHVs for a minimal profit in order to purchase more stocks and create a revolving fund to ensure sustainability for beyond the life of project.

11. 8. New, Innovative activities or strategies

12. MATERNAL AND NEWBORN CARE, CHILD SPACING & STI/HIV/AIDS PREVENTION

These interventions will not be included in this project

13. INTEGRAL CHILD SURVIVAL PROGRAMS AND IMCI

a. 1. Current status/coverage/prevalence

This is a new initiative for the MOH in Mozambique begun in 1999. In Nampula Province, it started with pilot projects in seven districts. The MOH has already trained 27 people in IMCI in Nampula Province, of these 9 who were additionally trained to be trainers. The curriculum of 7 modules requires two weeks of training, including theory and practice at health units. A second, simplified one-week training program for lower level health care personnel has already been developed, but not implemented, as the MOH wishes to train personnel in primary and secondary health facilities before expanding the program to the tertiary level.

IMCI is a new approach that is not being applied outside the seven pilot districts in Nampula Province. The national program is basically at a standstill because of lack of funding to implement its program of expanding the initiative to more health facilities. They were very enthusiastic about the possibility of CARE sponsoring participants in future training seminars.

b. 2. Cause, current beliefs, knowledge and practices and care-seeking behavior

People do not understand the connections between poor nutrition and vulnerability to illness. Even health care personnel do not counsel caretakers of ill children and pregnant women on the poor health outcomes of a deficient diet and illness and poor pregnancy outcomes.

c. 3. MOH Policy/strategies and case management policies/current services

It is a recent priority of the MOH to introduce the IMCI approach into all national health care. However, it has been delayed in the training of health care personnel even at the primary and secondary levels of the health care system because of financial constraints and exterior support. This approach is being funded entirely by external funding, and the program is being delayed because of this. Many training seminars have been scheduled and then cancelled because of promised funding that has not come through.

d. 4. Intervention specific approach (cross-reference with program approach section)

The CS project will support establishing this approach at the health units where the project will be working by sponsoring trainees of the level to participate in the two-week course, and contributing towards the costs of trainers. CARE intends to support the costs of trainers to train personnel in the target districts, and requesting that the DPS support the expenses of other trainees from other districts. CARE has had success with this approach in its reproductive health project, where the project needed to train a fairly small number of people (for example lab technicians), but wished to maximize the costs and benefits of a seminar. It is assumed that the DPS will decide to take advantage of the opportunity to train many people at a much reduced cost.

Once the medium level of health care providers who work in child health are trained, the MOH will allow a lower level of health care provider to be trained in the one-week course. It is expected that during the first two years of the project, all medium level health care workers in child health will be trained. Then a cascade training of lower level health care workers, and finally CHVs will be trained in years 3 and 4 of the project.

The project will also work in adapting the monitoring and evaluation system developed to monitor IMCI application at health units, and eventually in the community. The results of initial monitoring visits will be used to develop in-service modules for supervision.

e. 5. New, Innovative activities or strategies

In the third year of project implementation, the MOH at Provincial and District level agreed to initiate two pilots in Anchilo and Malema health units. These two units were selected because they are the ones that have skilled human resources, supplies and equipment. A close monitoring and evaluation will be done by the MOH at the Provincial level. Depending on the success, they will start implementing the approach to other health units that meet the minimum requirements.