Final Evaluation Report

Yallando Kleya **Child Survival Project – Diffa Region, NIGER**

Submitted to the Child Survival Health Grant Program

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Acronyms and Special Terms

ANC	Antenatal Consultations
BC	Behavior Change
BFSG	Breastfeeding Support Groups
CBGP	Community-based Growth Promotion (same as PCAC)
CHW	Community Health Worker—a MoH employee who works in health posts and within the communities
CS	Child Survival
CSHGP	Child Survival And Health Grants Program
CTC	Community Therapeutic Care
DBC	Designing for Behavior Change
DRSP	Regional Public Health Directorate
ECD	District Public Health Directorate
ENA	Essential Nutrition Actions
FFM	Food Frequency Method
FAF	Iron-Folic Acid supplement
HDT	Health District Team
HDMC	Health District Management Committee
HKI	Helen Keller International
IFA	Iron-Folic Acid supplement
IHC	Integrated Health Center
IMCI	Integrated Management of Childhood Illness
IPT	Intermittent Presumptive Treatment
ITN	Insecticide Treated (mosquito) Nets
KAP	Knowledge, Attitudes and Practices Survey
KPC	Knowledge, Practices and Coverage
LOE	Level of Effort
MI	Micronutrient Initiative
M&E	Monitoring and Evaluation
MoH	Ministry of Public Health and Disease Control
MN	Micronutrient
MOU	Memorandum of Understanding
NGO	Non-governmental organization
NHIS :	National Health Information System
NIDs / NMDS	National immunization Days / National Micronutrient Days
OFDA	Office of Foreign Disaster Assistance USA
ORT	Oral Rehydratation Therapy
QA	Quality Assurance
SO	Strategic Objective
SP	Sulfadoxin - Pyrimethamine
TBA	Traditional Birth Attendants
TOT	Training of Trainers
URC	University Research Corporation
VAS	Vitamin A supplementation

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Chapter One - Executive Summary

Brief Project Description

Helen Keller International's (HKI) child survival project in Diffa, Niger was implemented from October 2004 – September 2009. The objective of this ambitious project was to improve the nutritional status of children, pregnant and lactating women in more than 100 villages in three departments of the most isolated and distant region of Niger. The project sought to serve approximately 155,621 persons out of a total estimated population of 346,595, including 79,068 women of reproductive age and 76,553 children under the age of five (based on the last population census of 2001).

The project implemented activities in the areas of nutrition (20% LOE), vitamin A (20% LOE), micronutrients (20% LOE), breast feeding (10% LOE), control of diarrheal diseases (20% LOE) and malaria (10% LOE) seeking to achieve the following objectives:

(1) Improve the nutritional status of children 0-59 months old and pregnant and lactating women;
(2) Improve breastfeeding and complementary feeding practices in infants and young children, 0-23 months;
(3) Improve control of diarrhea-related diseases in infants and young children, 0-23 months;
(4) Reduce anemia in infants, young children, pregnant and lactating women
(5) To prevent malaria during pregnancy and among pre-school children [as a component of an integrated anemia control strategy];
(6) Enhance partner's capacity to plan, implement, monitor and evaluate the project activities.

Main Accomplishments

1. Improved Nutritional Status of Infants and Young Children and Pregnant and Lactating Women

The HKI/Child Survival Project in Diffa succeeded in attaining 13 out of 21 (technical) targets it set for itself as shown in Table 2. This suggests that the nutritional status, particularly with regard to micronutrient consumption, breastfeeding etc., has significantly improved in the target area.

2. Zinc Protocol

HKI advocated among MOH authorities at the national level for the recognition of zinc in the prevention and treatment of diarrhea. As a result, the protocols for the treatment of diarrhea have been amended to include zinc supplementation and low-osmolarity oral rehydration salts in accordance with WHO-UNICEF recommendations, and zinc has been added to the MOH list of essential medicines. A national protocol and guidelines for zinc use were developed with HKI assistance. HKI supported training for 33 health care providers in the Region of Diffa on the proper use of zinc. In 2006, HKI secured a supply of zinc for the Region of Diffa.

3. Insecticide Treated Bed Net (ITN) Use

As part of its community-based intensive awareness raising and behavior change program HKI has assured not only the acquisition of ITNs through the promotion of attendance of women at prenatal consultations and National Vaccination Days where ITNs were distributed, but the

community program has successfully promoted ITN use by pregnant women, mothers and young children. The final KPC survey results show that 82% of children 0-23 months slept under and ITN the previous night compared to 24% at baseline.

4. Essentials Nutrition Actions (ENA)

HKI has introduced a strategy called the Essential Nutrition Actions (ENA) for improving the nutritional status of pregnant women and young children in Niger that not only focuses on raising awareness, but uses formative research to define messages, and teaches community members to use negotiation skills to promote behavior change at the household level. Twenty-two (22) master trainers in ENA were trained including 3 Regional MOH Officers, 13 from the district level, three HKI staff and one person from FEWSNET. Three-hundred and sixty (360) men and women in 60 villages in the three departments of Diffa have been trained in ENA along with trainers in other regions and at the national level.

5. Increased Access to Information on Maternal and Child Nutrition

The HKI/ Child Survival Project in Diffa significantly increased access to nutrition education and services to more than 10,000 men, woman and children living in 60 emphasis villages of Diffa, Maine, and N'Guigmi. This community-level impact was achieved through the creation, training and support of 29 PCAC teams, 60 ENA committees and 60 Breastfeeding Support Groups who promoted attendance at Antenatal Consultations and National Vaccination Days where services for the pregnant women and children are provided.

Table 1. Summary of Major Project Accomplishments

Objective #1: Improve nutritional status of children 0-59 months and of pregnant/ lactating women			
Inputs	Activities	Outputs	Outcome
• HKI staff • Training curricula • Means of transport • Visual aids • Data collection and reporting tools • Vitamin A capsules • Financial support	• Training of DRSP, ECD, and Health Providers in Essential Nutrition Actions (ENA) • Creation, training, support and data collection among 3 types of community-based committees/groups • Provision of visual aids to ENA groups • HKI Animator's awareness raising in communities • Support for National Immunization Days • Procurement and distribution of Vitamin A • Training of MOH Health Providers in IMCI • Radio Spots	• Increased access to nutrition information; health services and commodities	Increased % of children 6 – 59 mos. who received VAC in past 6 months (56% to 85%) Increased % postpartum women who received a VAC in early (40 days PP) postpartum period (50% to 60%) Increased % pregnant women in the project area who took Iron Folate Acid supplement in the previous 24 hours (60% to 80%) Decreased % underweight among children 0-23 months in the project area (weight-for-age < -2 z-scores) (34% to 20%)

Objective #2: Improve breastfeeding and complementary feeding practices in infants and young children (0-23 months)			
Inputs	Activities	Outputs	Outcome
• Same as above minus Vit. A	• Same as above	• Increased access to nutrition information and health services	Increased % infants 0-5 months who were exclusively breastfed in the previous 24 hours (5.7% to 25%) % children 6-9 months who received breast milk in addition to complementary foods in the previous 24 hours (40% to 80%)
Objective #3: To prevent malaria during pregnancy and among pre-school children [as a component of integrated anemia control strategy]			
Inputs	Activities	Outputs	Outcome
• Same as above plus ITNs	• Same as above plus • distribution of ITNs • Support to National Immunization Day where some ITN distribution took place.	• Same as above plus access to ITNs	Increased % children 0-23 months who slept under insecticide treated net (ITN) in the previous night (24 % to 50%) Increased % pregnant women attending IHCs and health posts receiving IPT with sulfadoxine-pyrimethamine (SP) (n/a to 100%)
Objective #4: To reduce anemia in infants and young children (0-23 months) and pregnant/lactating women.			
Inputs	Activities	Outputs	Outcome
• Same as above plus Iron Tablets	• Same as above	• Same as above	Increased % children 6-23 months attending health services at IHCs and health posts screened for anemia and receive appropriate care (in accordance with IMCI algorithms) (41% to 50%) Decreased Anemia prevalence among children 6-23 months reduced (73% to 40%) Reduced anemia prevalence among pregnant women in the project area reduced (62% to 30%)

Objective #5: To improve the control of diarrheal diseases in infants and young children (0-23 months)			
Inputs	Activities	Outputs	Outcome
• Same as above plus Zinc tablets	• Same as above; plus: • Advocacy efforts related to zinc use for prevention and treatment of diarrhea • Assistance to MOH on zinc use protocol • Training of MOH providers regarding zinc use • Procurement and distribution of zinc to health facilities • Hand washing promotion by community groups • Training of women's groups in the production of soap • Training of MOH Health Providers in IMCI • Radio spots on hand washing	• Increased access to personal hygiene information • Increased access to zinc • Increased access to soap	Increased % mothers of children 0-23 months who know at least two signs of childhood illness that indicate the need for treatment (63% to 75%) Increased % mothers of children 0-23 months who report that they wash their hands with soap before food preparation, before feeding children, after defecation, and after attending to a child who has defecated (<1% to 20%) Increased % children presenting at health facilities with diarrhea receive zinc supplementation and oral rehydration solution (x% to 80%)
Objective # 6: To reinforce the capacity of the health system and communities			
Inputs	Activities	Outputs	Outcome
• HKI staff • Training curricula • Financial resources	Training of MOH Health care providers in IMCI Training of MOH Health care providers in zinc protocol Training of MOH Health care providers in Quality Assurance protocols and ENA	Increased access to standard health care services Improved quality of care	- Integrate new guidelines for zinc supplementation as adjunct therapy for diarrhea management in health facility and home based treatment % IHCs and health posts reporting stock shortages of IFA, VACs, SP, ORT and deworming medications during the last trimester (n/A to <10%)

Main Conclusions and Recommendations

1. Finding: In the DIP, HKI proposes to work in 115 villages in the three departments of the Region of Diffa (Maine, Diffa and N'Guigmi). This was a very ambitious plan given the distances separating the departments and villages and the proposed size of the project staff. Up until 2007 very little community-based behavior change activities had been undertaken, primarily because project staff was preoccupied supporting the MoH's management of the food crisis. Midway through the project, the decision was taken to reduce the target communities for the community-level activities to 60 villages in the three departments of Diffa, Maine and N'Guigmi.

Conclusion: While impact at the community level was felt through the project's support at the health facility level, 55 communities did not receive the intensive community-level activities implemented in the 60 selected communities. Nevertheless, the final KPC suggests the ENA messages effectively reached the entire intended target population.
Recommendation: In a future project, HKI should consider a phased approach; starting in half the villages during the first years of the project and then moving to the second. Alternatively budgeting for additional staff would also address the issue.

2. Finding: The project used a number of approaches to promote healthy behaviors at the community level including CBGP/PCAC, ENA, Breastfeeding Support Groups, and Women's Associations. There is much overlap in messaging and tasks among these groups and confusion among the MOH Community Health Workers regarding their specific tasks.
Conclusion: The overlap of these community committees is inefficient and created needless work for the HKI Animators. It will be difficult for the MOH CHWs to supervise multiple community groups following the project. It is difficult to determine which approaches were most responsible for the results shown in the KPC survey.
Recommendation: In the future HKI should consider using one community approach that consolidates the tasks of these committees. Efforts to consolidate the community groups before the end of the project should be taken.

3. Finding: Although the CBGP/PCAC team is comprised of 4 people, only 1 or 2 usually have rudimentary literacy skills. The CBGP/PCAC strategy requires the team to complete very complicated sets of forms and registers. The evaluation team found errors in the paper work and even HKI staff had difficulty identifying the errors being made. There is no instruction sheet to accompany the CBGP/PCAC forms, registers etc. WFP supplies imported food rations to be distributed to the moderately malnourished children.
Conclusion: The paper work associated with this work is too complicated for the level of education one typically finds at the village level, resulting in many errors and weak implementation of the strategy. In addition, the PCAC approach encourages dependence on outside food sources. Even with the PCAC, the results of some surveys seem to indicate that the levels of malnutrition in Diffa have increased in the last year.
Recommendation – In a future project, HKI should use the PD/Hearth approach to help villagers learn to use local foods to manage moderately malnourished children at the community level.

3. Finding: Community committee members identify the HKI Animators as their supervisors. The MOH CHWs are not responsible for supporting or supervising the community committees. There wasn't a procedure to make the CHWs responsible for community committees.
Conclusion: It is not clear who will continue to support and supervise the community committee when the project ends.
Recommendation: HKI should meet with the three District Health Teams to plan and implement a transfer of responsibility from HKI to MOH Health Agents in the 60 target villages. This transfer should take place practically and clearly at the village level and involve the CHWs in question. If at all possible, HKI should provide documentation to the MOH Health Agents that explains the roles and responsibilities of each committee and a supervision guide to help them oversee and support the work of the committees.

4. Findings: HKI introduced the Essential Nutrition Actions framework, which should include a phase of formative research at the community level and training in the techniques of negotiated behavior change. Because the approach was introduced mid-way through the project, the formative research and negotiated behavior change aspects were abbreviated.
Conclusions: The ENA messages of the project were not informed by the results of formative research conducted in Diffa. ENA committee members are not using the negotiated behavior change approach to promote behavior change. Additional formative research may have informed more messages specifically addressing the constraints faced by mothers in Diffa. At the lower levels of the training cascade the BCC modules were less effectively understood and delivered.
Recommendation: In a future project, HKI should make sure to emphasize the necessity of the formative research and employ a stronger training and supervision strategy that ensures mastery of the techniques of negotiated behavior change.

5. Findings: Despite HKI's work to make zinc an official product in the prevention and treatment of diarrhea, the MOH has not yet been able to ensure the availability of zinc at the health facility level in the Department of Diffa.
Conclusion: Access to zinc for the management of diarrhea is very limited in the Department of Diffa. Children with diarrhea are not benefiting from the use of zinc in the management of this illness.
Recommendation: The MOH needs to take steps to ensure the effective distribution of zinc to the remote regions including Diffa.

Chapter Two - Project Overview:

Helen Keller International's (HKI) child survival project in Diffa, Niger was implemented from October 2004 – September 2009. This ambitious project sought to improve the nutritional status of children, pregnant and lactating women in 115 villages in three departments (Diffa, Maine, and N'Guigmi) of the most isolated and distance region of Niger. The project sought to serve a population of approximately 155,621, including 76,552 women of reproductive age, 69,724 children under the age of five, 13,981children 12 – 23 months and 15,131 children less than 12 months. This population was reached primarily through support at the health facility level (commodity provision, support of National Immunization Days, training of providers) and mass media (radio emissions). Sixty (60) villages with a population of about 36,000 including 7,902 WRA and 2,910 children < 23 months received intensive community level support (creation and support of several types of community volunteer groups) during the second half of the project.

The project implemented activities in the areas of nutrition (20% LOE), vitamin A (20% LOE), micronutrients (20% LOE), breast feeding (10% LOE) , control of diarrheal diseases (20%LOE) and malaria (10% LOE) seeking to achieve the following objectives:

1. Improve the nutritional status of children 0-59 months old and pregnant and lactating women;
2. Improve breastfeeding and complementary feeding practices in infants and young children, 0-23 months;
3. Improve control of diarrhea-related diseases in infants and young children, 0-23 months;
4. Reduce anemia in infants, young children, pregnant and lactating women;
5. To prevent malaria during pregnancy and among pre-school children [as a component of integrated anemia control strategy];
6. Enhance partners' capacities to plan, implement, monitor and evaluate the project activities.

HKI sought to achieve these objectives by strengthening the provision of health care at the facility level – particularly the introduction of zinc, and the provision of Vitamin A and iron - and by increasing demand for services and adoption of healthy behaviors at the community level (especially in the 62 target villages). The community level strategies included the creation and support of several types of community groups including: Community-based Growth Promotion Committees in 29 villages (4-person teams; called PCAC in French); The Essential Nutritional Actions Groups (6 people each in 62 villages); the Breastfeeding Support Group (up to 12 people in each of 62 villages) and Women's Associations. These community-level initiatives were not anticipated in the DIP and only began mid-way through the project in 2007. It should also be noted that in 2005, shortly after the project began, Niger was struck by a national food crisis during which the HKI Child Survival Diffa Project staff were engaged in OFDA-funded community therapeutic care program activities. This crisis consumed the attention of the region's health sector and the child survival team and delayed some project activities, as noted in the mid term evaluation report.

The Ministry of Health was the primary partner of the CS project. HKI worked closely with the MoH at the regional, district and health facility levels providing training on various topics and working to improve the quality of care. The HKI CS Diffa project supported the following three strategic objectives of the USAID Office in Niger: SO2: Increased use of key maternal health

and nutrition interventions; SO3: Increased use of key child health and nutrition interventions; SO5: Increased use of effective interventions to reduce the threat of infectious disease of major public health importance.

In Annex 4 please find a table highlighting the changes to the project since the DIP

Chapter Three - Data Quality: Strengths and Limitations

The HKI child survival project in Diffa as originally designed had a total of 27 indicators as shown in Table 2 (shown in Chapter Four). Out of these 27 indicators, 21 correspond to the five technical objectives which relate to nutrition, breastfeeding, diarrheal disease control, malaria prevention and anemia. The last three indicators associated with Objective 6 - capacity building and sustainability - should have been eliminated at mid term since conditions beyond the control of the project made them irrelevant. Among the 21 technical indicators 13 of the final targets were reached. This is an impressive result for two reasons in particular. Community level activities really only got underway in earnest during the third year of the project (2007) due to the food crisis of 2005-2006. Furthermore, the KPC survey was conducted from a sample of the original 115 villages, not just the 60 villages where the intensive community-level work was conducted. The sample for the final KPC survey included only 10 of the 60 target villages, of which 4 were PCAC villages.

HKI experienced some difficulty implementing their baseline survey (the original survey only covered 5 of the required 13 Rapid CATCH indicators and the wording of some questions needed to be corrected) and was asked to redo the survey in September 2005 to include all of the Rapid Catch indicators. The fact that two surveys were conducted has caused some confusion during the life of the project. Both the baseline and final KPC surveys were conducted in the same months (March – April) to control for seasonal differences.

The project's monitoring system was based on project implementation plans (annual, quarterly and monthly) and focused primarily on collecting information regarding project activities. This included numbers of people trained, numbers of health education sessions conducted, numbers of children weighed etc. Additional information regarding antenatal consultations, Vitamin A and iron distribution, for example, was collected through the MoH's National Health Information System (NHIS; or SNIS in French) or data collected during NIDs. For some indicators, the denominator is the number of people *who sought health services*; NOT the entire population to be served as stated in the indicators. Such numbers can be misleading if no attempt is made to ascertain the total population and to calculate a percentage during project implementation.

At the community level, the project did not establish a means to track progress toward outcomes (behavior change) – ITN use, exclusive breastfeeding, iron tablet consumption etc – which would have supported the KPC results. Without additional evidence of behavior change, the KPC results which depend on mother's reporting can only provide evidence that the messages were very clearly communicated to the target mothers and the respondents were able to repeat them. While this is a very important first step in the behavior change process, it does not always assure the adoption and maintenance of the behavior, especially if there are serious barriers to behavior change. In a future project, HKI should establish a community-level monitoring system which tracks adoption of new behaviors.

As discussed above, the project used the MoH NHIS to track progress toward such things as VAS coverage, iron supplementation and ITN distribution. HKI did influence the NHIS, in particular, the collection of data regarding the incidence of malnutrition which, at the suggestion of HKI, is now collected every two weeks and submitted to the regional health office along with

other data related to communicable diseases. The collection of these data – if analyzed – will help forewarn the MOH of an impending food crisis.

Recommendation: In a future project, HKI should establish a community-level monitoring system which tracks adoption of new behaviors.

Key Accomplishment: In response to advocacy by HKI, data regarding the incidence of malnutrition is now collected every two weeks and submitted to the regional health office by all health facilities along with other data related to communicable diseases. The collection of this data – if analyzed – will help forewarn the MOH of an impending food crisis.

Chapter Four - Presentation of Project Results

A. Presentation of Progress toward Objectives

Table 2. Summary of Quantitative Results

Objectives	Indicators	Data Source	Baseline Value %	Final Value %	Final Target %
SO1: To improve the nutritional status of children 0-59 months and of pregnant and lactating women	1. % children 6-59 months in the three districts receive VAS every six months [six months preceding survey]	KPC MoPH records	56.3	96.6	85
	2. % postpartum women in the project area[1] who receive a VAC in early (40 days PP) postpartum period	KPC MoPH records	50	80.4	60
	3. % pregnant women in the project area who took iron/folic acid supplement in the previous 24 hours	KPC	60	87	80
	4. % children 0-36 mos. who participated in at least one growth monitoring and promotion (GMP) activity in the previous two months	KPC	N/A	52.7	50
	5. % underweight among children 0-23 months in the project area (weight-for-age < -2 z-scores)	KPC	33.6	59.6[2]	20
	6. Mean (total) HKI VA Food Frequency score among children 12-59 months increased		4.0	9.5	5.5
SO2: To improve breastfeeding and complementary feeding practices in infants and young children (0-23 months)	7. % infants 0-5 months who were exclusively breastfed in the previous 24 hours[3]	KPC	5.7 (26 KAP)	72.4	25
	8. % children 6-9 months who received breast milk in addition to complementary foods in the previous 24 hours	KPC	40	71.9	80

[1] The KPC report presents indicators 2 & 3 for mothers of children 0-23 months

[2] The end line survey measured only infants 6-24 months, thus these figures are not fully comparable.

[3] In addition, the timely initiation of breastfeeding (within one hour of birth) increased from 55 at baseline to 84.5% at endline and prelacteal feeding fell from 90% at baseline to 51% at endline.

Objectives	Indicators	Data Source	Baseline Value %	Final Value %	Final Target %
SO3: To improve control of diarrhea diseases in infants and young children (0-23 months)	9. % children age 0-23 months who received increased fluids and continued feeding during an illness in the past two weeks	KPC National Nutrition Survey increased fluids Diffa	22.6	40.4	40
	10. % mothers of children 0-23 months who know at least two signs of childhood illness that indicate the need for treatment	KPC	63.3	79.9	75
	11. % mothers of children 0-23 months who report that they wash their hands with soap before food preparation, before feeding children, after defecation, and after attending to a child who has defecated	KPC	<1	58.4	20
	12. New guidelines for zinc supplementation as adjunct therapy for diarrhea management integrated in health facility and home based treatment	MoPH documents HFA		National protocol approved	
	13. % children presenting at health facilities with diarrhea receive zinc supplementation and oral rehydration solution	Health facilities assessment [DRSP reports zinc shortages]		50	80
	14. % children receiving in-home diarrhea care that includes zinc supplementation and rehydration by the end of the project	KPC		0 Zinc not yet available 75.9 [ORS only]	50

Objectives	Indicators	Data Source	Baseline Value %	Final Value %	Final Target %
SO4 : To prevent malaria during pregnancy and among pre-school children as a component of an integrated anemia control strategy	15. % children 0-23 months who slept under insecticide treated net (ITN) in the previous night	KCP	24.3	45.5	50
	16. % pregnant women attending IHCs and health posts receiving IPT with sulfadoxine-pyrimethamine (SP) as a component of malaria control package	KPC HFA	N/A	82.2 81.3	100
SO5: To reduce anemia in infants and young children (0-23 months) and pregnant/lactating women	17. % children 6-23 months attending health services at IHCs and health posts screened for anemia and receive appropriate care (in accordance with IMCI algorithms)	HFA Source: supervision data 1st Q project yr 5	40.9 Screened for anemia 9.1 treated by IMCI algorithm	35	50
	18. Anemia prevalence among children 6-23 months reduced	KPC	72.8	50.5	40
	19. % women in postpartum taking IFA in previous 24 hours	KPC		84.9	50
	20. % women in the 2nd and 3rd trimester attending IHC and health posts will receive all components of the anemia control package	HFA MoPH records	0	68	50
	21. Anemia prevalence among pregnant women in the project area reduced	KPC	62	7.4	30

Objectives	Indicators	Data Source	Baseline Value %	Final Value %	Final Target %
SO6: To enhance capacity of partners to plan, implement, monitor and sustain project interventions	22. % trained health workers perform routine care and counseling in accordance with MoPH standards[4] for diarrhea and anemia.	MoPH records Health Facility Assessment (HFA)		35 Anemia treatment 57 Diarrhea treatment	90
	23. Integrate new guidelines for zinc supplementation as adjunct therapy for diarrhea management in health facility and home based treatment	MoPH records HFA		National Protocol approved	
	24. % IHCs and health posts reporting stock shortages of IFA, VACs, SP, ORT and deworming medications during the last trimester	DRSP report 3rd Q 2008 HFA		Iron = 14 VA = 33 SP= N/A ORS = 14 Meb = 33	<10%
	25. % IHCs and health posts with active committees (at least three meetings in last trimester with a quorum of members)			Regulations governing suspended during project	90
	26. % health workers in health posts are paid regularly by the community			N/A Government assumes costs	90
	27. Communes cover at least 20% of costs of Child Health Weeks	Commune records		In-kind contributions to NIDS and VAS campaigns high	100

Recommendation: To avoid having an over ambitious monitoring system in future projects, HKI should select 2-3 indicators for each of the objectives. Indicators at this level should be outcome indicators – not output or input indicators. Objectives such as SO 6 should be monitored at the output level only since it contributes to achievement of SOs 1-5.

Key Achievements: Thirteen (13) of the first 23 indicators – related to technical intervention areas nutrition, breastfeeding, diarrheal disease control, malaria and anemia prevention - were achieved or surpassed the end-of-project targets.

[4] At some point this was modified to specify following the IMCI protocol for the treatment of anemia and diarrhea.

Chapter Five - Discussion of the Results

A. Contribution toward Objectives

Objective 1. To improve the nutritional status of children 0-59 months and of pregnant and lactating women

As shown in Table 2, there are 6 indicators associated with objective 1; two relate to Vitamin A supplementation, 2 relate to iron supplementation, and 2 relate to child growth. The fourth indicator related to growth monitoring is actually an output indicator and does not belong in an outcomes results table. Five out of the six indicators were achieved according to the final KPC survey. The indicator related to percent of underweight children 0-23 months (weight-for-age < -2z scores) seems actually to have increased from 33.6% at the outset of the project to 55% in April 2009, although the age groups differed in the two surveys (the endline measured only children 6-23 months, which will tend to increase the rate) and we cannot know if rates would have been even higher without the project.

HKI undertook several initiatives to achieve this objective. To increase Vitamin A supplementation for children and postpartum mothers and iron supplementation for pregnant women, the project helped plan and provided vehicles and fuel for National Immunization Days (NID) which, in the project area, included Vitamin A supplementation for children and postpartum women and mebendazole once a year to children 12-59 months of age. In 2009 the campaign also included and iron tablet distribution to pregnant and post-partum women. HKI also procured a supply of iron for the region. It should be noted that NIDs were held four times per year in Diffa during the life of the project – not just annually or bi-annually as in many countries.

Awareness was also raised by using the radio to broadcast messages regarding proper nutrition during childhood and pregnancy. HKI CS staff conducted a workshop in October 2006 for 13 radio announcers so they could produce and disseminate nutrition messages on exclusive breastfeeding, ORS preparation, complementary feeding, Vitamin A supplementation, and nutrition during pregnancy, signs of malnutrition; as well as messages related to malaria prevention and diarrheal disease control. The broadcasts were made over 1 public, 1 private and 11 community radio stations in five local languages. Inquiries made during the final evaluation found that over 85% of mothers interviewed (N=133) have access to a radio; 59% had listened during the prior week and 84% had heard some health messages at some time. While the use of this channel of communication was very effective, even greater impact might have been possible had the project organized listening groups and then conducted simple listening surveys to assess the effects of the radio messages.

While the activities which focused on the health facilities were clearly described in the DIP, the strategies to promote behavior change (BC) and create demand for services at the community level were much less clearly defined. To clarify the community BC approach, in January 2007, HKI hired a consultant to train 24 project staff and MoH personnel in Designing for Behavior Change (DBC). As part of this training, four Barrier Analysis (BA) surveys were conducted on

the key messages of the project and some BC strategies were identified. These included the creation of Breastfeeding Support Groups (BFSG) and soap making related to hand washing (see discussion of Objective 3 below). A few months after the DBC training however, HKI headquarters staff visited the project and determined that the Essential Nutrition Actions (ENA) framework would provide the needed definition to the community level strategy and recommended the project form, train and support ENA committees in 60 target villages. With the initiation of the ENA approach it took over a year for the project to establish the BFSG and provide the soap making training.

In the third year of the project (2007), HKI initiated many community level activities in 60 of the 115 target communities. The project rolled out the Essential Nutrition Action/ Behavior Change Communication (ENA/BCC) initiative which included training a total of 186 MoH staff at the national, regional, department and health facility levels as well as 360 ENA committee members at the community level. This training, which included a five-day health worker module and a four-day community volunteer module, was developed by a consultant with over 15 years experience in Niger and long experience with the Linkages Project. The ENA/BCC courses were conducted using the cascade method where senior level MoH trainers are trained as master trainers by ENA 'experts' (in this case trainers from the former Linkages Project in Madagascar), who then trained lower levels of health care providers, who subsequently trained MoH Community Health Workers (CHW) and then ENA committee members. The Malagasy trainer's input was limited to conducting the master trainer course for Regional Level participants and oversight of the master trainer's implementation of the IHC Chief training. Upon reflection the evaluation team wondered if the cascade approach allowed for enough quality control as the training was rolled out.

The ENA framework promotes key messages relating to 7 proven interventions for improving the nutritional status of children during the critical period of gestation through the first two years of life[5], two of which relate to Vitamin A and iron supplementation. The strategic objective of the ENA approach is to saturate the target audience with the key messages through multiple channels of communication. In the case of the HKI CS/Diffa project, these included health care providers, radios and community-level volunteers. Trained community-based ENA committee members promoted attendance at antenatal, post natal and well-baby consultations, as well as National Immunization Days so that children, pregnant women and postpartum mothers would receive their micronutrient supplementations. In addition, ENA committee members promoted the consumption of Vitamin A and iron rich foods through cooking demonstrations, and with a small private fund the project established a few demonstration school gardens in the Diffa Department. ENA committees also promoted exclusive breastfeeding and improved complementary feeding of infants.

According to HKI, the ENA approach is supposed to include formative research and negotiated behavior change elements. Formative research should be conducted first so that very specific messages can be developed for each setting that more effectively promote the desired behavior. Such a message for mothers in the Diffa Region, who typically leave their children at home during the planting, growing and harvest periods, might be: *Mothers! Prevent your child from*

[5] The 7 ENA key messages cover: Immediate and exclusive breastfeeding; complementary feeding; feeding a sick child; nutrition during pregnancy; the integrated control of anemia; and iodine, vitamin A supplementation.

getting diarrhea and make him grow well! Take your infants with you to the fields so you can continue to breastfeed and provide complementary foods. Unfortunately in an effort to quickly roll out the ENA approach, formative research conducted in other parts of Niger were used to develop messages appropriate for the country as a whole. Furthermore, trainees at the community level effectively were not taught the negotiated behavior change skills that are key to moving from message memorization to adoption of the idea behavior. The omission of these two elements made the ENA approach at the community level similar to the typical health education strategy employed by health educators for decades.

There are several strategies HKI employed that helped increase the effectiveness of its health education strategy. First was the saturation of the target area with the key messages, through radio, health workers and community volunteers. Because such a large number (546) of health care providers and community volunteers were trained in the nutrition messages, assuming that the health workers followed their training, most women would have heard them repeatedly at the Integrated Health Center (IHC) and Health Post (HP) during antenatal and well-baby consultations as well as in the communities from ENA committee members, Community-Based Growth Promotion (CBGP) and Breastfeeding Support (BFS) Group members. The fact that the HKI CS Diffa Animators visited the 60 target communities very frequently (2+ times per month) during the later half of the project and conducted health education activities themselves, undoubtedly increased knowledge of the messages as well. And finally, the dramatic increase in the number of health facilities by the government of Niger – 34 Integrated Health Clinics (IHC) increased to 44 IHC and 44 Health Posts (HP) increased to 135 HP – increased exposure to the nutrition messages as well.

This said, the work of the community volunteers was not organized as well as it could have been. Neither the ENA committee nor BFSG had clearly defined tasks or objectives aside from knowing they should conduct health education sessions each month. Committee members could have been given designated target groups for whom they were responsible and provided tools to track and document behavior change. Had the latter been done, evidence would have been available to support the assertion that knowledge of the behaviors was transformed into behavior change. Without this, we are only certain that community members have a very good understanding of the key messages.

To improve the nutritional status of children at risk of malnutrition the project also trained and supported Community-Based Growth Promotion (CBGP; PCAC in French) teams in 29 of the more remote and under served (no health facility) villages in the target area. CBGP/PCAC is a nation-wide UNICEF-supported initiative which was introduced after the 2005-2007 food crisis[6] to shift the burden of care from the health facility to the community. The CBGP/PCAC committee is made up of 4 people (including at least one man) who are trained to: weigh all children < 36 months each month; identify the malnourished children; refer severely malnourished children to the IHC for care; and distribute food rations provided by the World

[6] During the food crisis period (2005-2007) HKI CS staff helped the MoH provide care to the thousands of malnourished children in the Diffa Region. Through a grant from OFDA, HKI trained 267 health care providers in the National Protocol for the Care of Acutely Malnourished Children and partnered with WFP to ensure the supply of food rations and Plumpy nut to MoH health facilities and with UNICEF to ensure the supply of therapeutic foods and related medications.

Food Program to the moderately malnourished children. Food rations are distributed on a bi-weekly basis.

Although the HKI CSP Animators supervise the work of the CBGP/PCAC teams, few of the registers examined as part of the final evaluation were without significant errors, raising serious questions about the abilities of the mostly illiterate community members to effectively manage the program. The evaluation team also found that in several villages where the CBGP/PCAC was initially established due to the isolation of the community, there is now a staffed health post in the village. In many of these health posts the Community Health Worker (CHW) is not involved in the CBGP/PCAC activities at all despite his health training and literacy skills.

From a programmatic perspective, there are many concerns with the WFP food ration program. These include the difficulties in managing and measuring the different food commodities; the likelihood that the ration is being shared with family members or sold in the market; and the concern that use of imported food rations encourages dependence and undermines attempts to promote self-reliance in non-famine years. The KPC final survey findings and the unofficial results of the Niger National Nutrition Survey suggest that the WFP distribution of food rations is not having the desire effect, since levels of malnutrition appear to have increased from 2008 to 2009. To address these issues, the evaluation team recommends that HKI CS/Diffa, take immediate steps to give the MoH CHWs in villages with a health post a leading role, working in collaboration with village volunteers to carry out the CBGP/PCAC activities. Furthermore, in designing future projects (and outside of famine years) the ration distribution component of the CBGP/PCAC program should be replaced by the Positive Deviance/Hearth approach, which reinforces positive feeding behaviors using local commodities and encourages self-reliance. The PD/Hearth has a long success rate in many parts of Niger including in an HKI project being implemented in the Zinder Region.

In addition to forming, training and supporting ENA, CBGP and BFS groups in the 60 target villages, the project also trained 36 Traditional Birth Attendants (TBA). The purpose of this training was to create another resource person in the community to promote the key messages of the project. The reason given for not having trained at least one in each of the 60 target villages was that funds to purchase the birthing kits – provided to each TBA after the training - were insufficient. This suggests that the training focused primarily on birthing skills, not nutrition and was perhaps not the best strategy for achieving project objectives. To address this issue, the evaluation team suggests that in a future project, the TBAs be trained as part of the ENA Committee and not as a separate group.

In August 2008, the project also trained 12 TBAs from Diffa Department in PD/Hearth. This was supposed to be a pilot project but it appears that nothing has been done after this training to roll out the approach and study its effectiveness.

As this discussion illustrates, the HKI CS/Diffa project was designed without a well defined community-based behavior change component and as a result the implementation of the BC approach was only initiated mid-way through the project and in a rather disjointed manner. Due to the late start, the BC initiatives were only implemented in 60 of the 115 target villages. Furthermore, many different strategies, some of which overlapped and were not followed-up,

were utilized to achieve objective 1. The overlap of the strategies makes it difficult to ascertain which one, or combination, most contributed to the favorable results shown by the KPC final survey. Furthermore in the search of the optimal approach, it appears that at least some resources were not used as efficiently as possible, and the ENA initiative was not implemented as designed. In future projects, HKI should judiciously consider which BC strategy would be the most effective in the context of the project and implement this approach consistent with its design from the outset of the project.

In June 2006, for the control of anemia, malaria, diarrheal diseases as well as malnutrition, HKI CS/Diffa supported the training of all 34 IHC Chief Clinicians in the Integrated Management of Childhood Illness (IMCI). Due to the unforeseen expense of IMCI training, which required trainees to be sent to the Zinder Region (there is no pediatrician in Diffa, nor a hospital with an adequate number of patients for trainee practicums), the project had to limit the participants to the chief clinician in each of the existing 34 IHCs. Six other district and regional level staff were also able to participate in the training. In December 2007, HKI supported the training of 40 trainers in what is called Community–IMCI (C-IMCI). These trainers subsequently trained 86 MoH Community Health Workers in November 2008 with CS project support. It is important to note, however that what the MoH of Niger calls C-IMCI is different from the WHO definition. C-IMCI in this case refers to MoH-paid CHWs working in Health Posts following the IMCI protocol. It is not the typical village-based approach intended to create demand for services and promote healthy behaviors in the household. Since so many new health posts (there are now nearly 135, vs. 81 at baseline) have been created and staffed since the training was provided, there are many CHWs who have yet to be trained in IMCI. The IMCI approach supports Objectives 1, 2, 3, 4 and 5.

The one target that was not achieved under this objective relates to the incidence of malnutrition, the rate for which appears to have actually increased. There are a number of possible explanations for this. Diffa is a pastoral region, and inadequate rains the past year translated into poor forage and loss of animals and consequent food insecurity. In addition, it takes time for the behaviors of mothers to translate into measurable impacts (weight gain and reduced malnutrition). Since the community-level activities have only been underway for 2 years, this might not have been enough time to see results in terms of reduced malnutrition. Nevertheless, preliminary data from the 2009 national nutrition survey indicate that the difference in rates of malnutrition between children 6-35 months (universally the most vulnerable) and those 36-59 months is smaller in Diffa than for the country as whole. One possible explanation for this difference is an improvement in feeding behaviors. It is possible, however, that while the KPC results suggest behavior change, in fact mothers have learned the messages but have not changed their feeding habits enough to make a difference in the malnutrition rate. And finally, the effectiveness of food ration distribution has been questioned since there is some anecdotal evidence that rations are shared at home with other family members and/or sold in the market.

Objective 2: To improve breastfeeding and complementary feeding practices in infants and young children (0-23 months)

Objective 2 is measured by two indicators: one, regarding exclusive breastfeeding for infants < 6 months of age and the second pertaining to complementary feeding among infants 6 – 9 months of age. Both were achieved according to the final KPC survey[7].

During the DBC training conducted in February 2007, HKI staff identified the need to establish Breastfeeding Support Groups (BFSG) - including men - as a strategy to promote immediate and exclusive breastfeeding. It is not clear if these groups were established first or after the Essential Nutrition Action Committees were formed, since no formal training was provided to them; nevertheless, both groups promote exclusive breastfeeding at the community level.

The project formed Breastfeeding Support Groups (BFSG) in the 60 focus communities. The BFSGs consist of up to 12 men and women who support exclusive breastfeeding and are willing to promote the practice. Though purportedly formed 'around' a mother who is exclusively breastfeeding her infant, the role of this model mother is not clear. The inclusion of men in the group reflects a finding on the barrier analysis survey conducted in February 2007 that men were one of the influencing groups. No formal training was provided to BFSG members, and the BFSGs seem to have a less formal function than the ENA Committees.

While the project's creation of the BFSG was meant to focus additional attention on this particular behavior, the way the BFSG were originally designed in Niger was different from the HKI approach. The BFSG strategy was introduced in Niger as part of a prior CS project implemented by CARE (Sanu Yara: 1994 – 2002). The BFSGs consisted of several mothers who are exclusively breastfeeding their infants and include others who support the behavior. The idea was to support the practice by group members, not just to spread the message. The fact that there are already two groups (three, if you include trained traditional birth attendants- see below) in the Diffa CS project who promote immediate and exclusive breastfeeding in the community makes the BFSG as designed by HKI somewhat redundant. Had the BFSG been constituted of breastfeeding mothers, the groups would have provided further evidence of the practice to support the results of the KPC survey that behavior change did occur.

There is quite a bit of overlap between the strategies used to achieve Objective 1 and those used to achieve Objective 2, since the first two key messages in the ENA approach are immediate and exclusive breastfeeding and complementary feeding. Exclusive breastfeeding was promoted by the 186 trained health care providers and by the 360 ENA committee members as described for Objective 1. A review of the ENA Committee logs where the health education topics covered are registered, shows that breastfeeding is one of the most frequently discussed topics. Because the project did not pair ENA committee members with new mothers, however, an opportunity was missed to more effectively promote and support exclusive breastfeeding amongst individual mothers.

[7] While the wording of the exclusive breastfeeding question was the same in the KAP baseline and the endline, the question did not use the current recommended wording, and instead used an earlier, less reliable wording. Although the data are comparable, the wording likely inflates the rate of exclusive breastfeeding at both time points. The wording used was, "In the last 24 hours, did you give your infant anything besides breast milk? If so, what?"

The HKI Animators and 360 ENA Committee members were the primary behavior change agents associated with teaching complementary feeding (CF). In addition to training health care providers and ENA Committee members on CF as part of the 4-day ENA training, in April 2008, 10 HKI CS/Diffa Animators were trained in complementary feeding recipes, so they could then show the ENA Committee members these same recipes. A review of the topics covered by ENA Committees suggests that far fewer cooking demonstrations were conducted than sessions on breastfeeding, and the chapter in the ENA training manual on complementary feeding is not as comprehensive as it could be.

Complementary feeding is a difficult practice to promote effectively because it requires intensive work with individual mothers over a time period in which the recommended feeding frequency and content changes. The many messages associated with complementary feeding – quantity, consistency, content, frequency, manner of feeding – all need to be communicated repeatedly to individual mothers, and opportunities to practice preparing and feeding the infant also need to be arranged. The ENA groups formed and trained by HKI were not organized to provide this type of orientation to individual mothers. Rather, group food demonstrations attended by many mothers with different age children were conducted, usually no more often than once per month per village. In a future project, ENA committee members should be assigned specific mothers and babies to follow; and when it comes time to introduce complementary foods, the ENA member's task should be to visit the mother at least once per week to show her how to prepare complementary food effectively and how to actively feed her child. This will probably require some retraining of the ENA Committee members.

Objective 3: To improve control of diarrheal diseases in infants and young children (0-23 months)

This objective is measured by six indicators; three of which relate to the use of zinc, which is a new adjunct therapy for diarrhea management in Niger. One of the indicators relates to hand washing and the other two focus on the mother's management of a sick child. Four out of the six indicators were achieved by the project as shown in Table 2 and described below.

At the facility and community levels, once again the people trained in the Essential Nutrition Actions (ENA) were responsible for teaching mothers about the care of a sick child. Other than the records kept by ENA committee members regarding the topics of their health education sessions each month, there is no way to know how often this message was delivered and to how many people. In a future project, HKI should consider developing a monitoring system that allows project staff to track *and analyze* the topics of health education sessions conducted in each village. The current system tracks topics by village but does not allow for easy analysis and decision-making.

The training provided to MoH health care providers in IMCI described under Objective 1 above also contributed to achievement of Objective 3.

Hand washing was a message promoted by ENA committee members at the village level and in March 2008 received additional attention when the project offered a course on local soap making

to 56 Women's Association members in the three departments. This initiative was taken based on results from the barrier analysis conducted in early 2007, which indicated that access to soap is a barrier to hand washing. This constraint was addressed in 2008 after the ENA/BCC training was rolled out. The trained women went on to train other women, although the project did not track how many additional women had been trained. HKI should consider establishing such a tracking system in a future project. Sixty-nine percent (69%) of mothers interviewed (N=133) as part of the final evaluation were able to name the four times when hand washing was necessary and 95% claimed to have soap available at home. If women are able to continue to produce their own soap this will be a major achievement of the project.

In the area of diarrheal disease control, the project's greatest effort and success was in the area of zinc supplementation. With support from HKI, zinc is now officially recognized as an appropriate adjunct therapy for diarrheal disease and zinc has been added to the official list of essential medicines. To further ensure the appropriate use of zinc, the HKI CS Project supported the development of national guidelines for the use of zinc supplementation and trained 7 master trainers (6 from the MoH at the district level and one HKI staff) who trained 33 health care providers in the Diffa Region in the proper use of zinc in the treatment of diarrhea. Because it has taken time to get the system in place and functioning to ensure importation and availability of zinc, in 2007, HKI staff purchased a supply of zinc in Burkina Faso using matching funds. At the time of the final evaluation when the Health Facility Assessment was conducted, only 40% of health facilities had sufficient supplies of zinc in the previous three months and only 39% of children presenting with diarrhea received both ORS and zinc. The lack of availability of zinc has also hindered achievement of indicator #14 – in-home use of zinc supplementation for children with diarrhea. To achieve the full impact of the progress made so far regarding zinc, the MoH needs to: 1) incorporate the use of zinc in pre-service training of all health care providers; 2) provide in-service training to all current health care providers; 3) amend the IMCI protocols to include zinc; and 4) take the necessary steps to ensure an adequate supply of zinc at all health facilities in Diffa and throughout the country.

Objective 4: To prevent malaria during pregnancy and among pre-school children [as a component of an integrated anemia control strategy]

This objective is measured by two indicators: 1) percent of children (0-23 months) who slept under an ITN; and 2) percent of pregnant women who received Intermittent Presumptive Treatment (IPT) for malaria with sulfadoxine-pyrimethamine (SP). The first indicator was not achieved, as shown in Table 2; and the second was not achieved but showed very impressive progress (0% - 81%) toward an overly ambitious target (100%).

Niger is a focus country for the U.S. President's Malaria Initiative (PMI) and as such the HKI CS/Diffa Project lent considerable support to Niger's National Malaria Prevention Program. ENA-trained health care providers and committee members promoted attendance at antenatal clinics and NIDs where ITNs were periodically distributed and where pregnant women received IPT with SP. HKI supported the NIDs logistically by transporting and distributing ITNs from the second year of the project. All 133 mothers interviewed during the final evaluation claim to have an ITN and most say they have more than one. Seventy-three percent (73%) received an

ITN in the last 6 months, but 25% have had an ITN for more than a year. Equal numbers (60%[8]) said they obtained their ITN at antenatal clinics and NIDs. Ninety-five percent (95%) claim to have slept under the ITN during pregnancy and nearly 100% said they and their baby had slept under the net the previous night – thereby corroborating the positive results of the KPC.

The IMCI training provided to MoH health care providers described under Objective 1 above, also contributed to achievement of Objective 4.

Objective 5: To reduce anemia in infants and young children (0-23 months) and pregnant/lactating women

This objective was measured by five indicators as shown in Table 2. Most notable among the achievements is the reduction in anemia from 62% to 7.4% among pregnant women.

To achieve this objective HKI/CS Diffa implemented many activities, one of which was the training of health care providers in IMCI. The IMCI training included the diagnosis of iron-deficiency anemia among children 6-59 months using Palmar Pallor or pressure on fingertips and the prescription of appropriate iron supplementation. The shortage of the liquid form of IFA suitable for small children may be one of the reasons why the project did not fully attain its target regarding prevalence of anemia in children. This could also be linked to the rate of malnutrition in children as noted under objective 1. Nevertheless, a significant reduction (from 73% to 51%) was achieved.

The availability of iron tablets for women was also a problem for the project. This was due to the end of a UNICEF agreement to make Iron Folic Acid (IFA) available free of charge and the reluctance of pharmacies to purchase this product and risk losses in the event of renewed subsidies. As UNICEF reportedly has no plans to resume this support, HKI, among other partners, has been urging the MoH to address this supply gap. As an initial step to address this issue, in 2006, HKI purchased a supply of IFA with matching funds and made this available to the MoH for distribution in the Diffa Region. Following this, the HKI CS Diffa Project supported the training of 17 drug managers and pharmacists in the Region, which encouraged the pharmacy owners to place orders for IFA, among other essential supplies, to stimulate demand at the central supply office.

As with the other components, the ENA initiative helped to raise awareness regarding the dangers of anemia in children and pregnant woman, and promoted attendance at services where IFA was made available.

Objective 6: To enhance capacity of partners to plan, implement, monitor and sustain project interventions

This objective is actually an output, since it is a step on the way toward achieving the outcomes and not an end in itself. In the DIP it is included under capacity building and sustainability. At the outset of the project seven indicators were set to measure this objective/output; but by midterm three (# 25, #26, #27) of these indicators had been deemed irrelevant due to changes

[8] This is possible since most women have more than one ITN.

made by the MoH beyond the control of the project. These should have been deleted at the time of the mid term, but neither the external consultant nor HKI understood that making such a modification was allowed by CSHGP.

The first indicator under Objective 6 refers to health workers performing routine care and counseling "in accordance with MoH standards," which is quite general. It should have been written or amended to read "according to IMCI protocols". Although the IMCI strategy was implemented as a means to achieve the technical objectives, it is also a means to improve the overall provision of health care. As mentioned previously, the HKI/CS Diffa Project trained 34 IHC chief clinicians in IMCI; and subsequently trained 40 Trainers of Trainers and 86 CHWs in (C) IMCI. The Health Facility Assessment (HFA) conducted as part of the final evaluation shows that 35% of the health care providers are effectively following the IMCI protocols for the treatment of anemia and 57% are correctly diagnosing and treating cases of diarrhea. The third indicator under this objective relates to supply stock outs. In this regard, the HFA showed that 40% of IHCs had had stock outs of essential medications in the prior trimester. Since zinc was considered among the essential medications and the MoH has not put into place an adequate supply system for this, this is likely one of the main causes for not attaining the target of < 10%.

The development of the National Protocol for the Use of Zinc (indicator 2 under this objective) allowed HKI to provide an orientation of health care providers regarding the zinc protocols (see objective #3). This effort can also be included under this capacity building objective since it contributes to improved service delivery skills.

HKI/CS Diffa committed the project to improving the quality of care through the Quality Assurance (QA) approach used by the QA Project implemented in Niger by University Research Corporation (URC). In partnership with URC, HKI CS/Diffa supported the training of 17 trainers in QA in November 2006. Thereafter, in February and March 2007, 34 IHC chief clinicians were trained in the approach. (URC took responsibility for the QA approach in the Diffa Regional Hospital.) There are 10 steps in the QA process, but only 2 of the 34 IHCs trained have completed all 10 steps. This is partly because at least one of the steps requires that there be at least two staff in the facility, and many IHCs only have one provider. Even though the MOH may have planned to increase staff at the IHCs, since the lack of staff in the IHCs was a known constraint, and clearly outside the control of the project, it is not clear why HKI decided to use this QA approach in particular at the IHC level. Use of the Partnership Defined Quality (PDQ) approach may have been a better choice in hindsight since it has no staffing requirements. Apart from counting the steps in the QA process, HKI CS/Diffa did not have another mechanism to monitor improvements in the quality of care. The MoH used IMCI supervision and adherence to the Anemia Treatment protocol to measure quality of care.

B. Contextual Factors

This project was influenced enormously by the food crisis that struck the country during the first half (2004 – 2006) of the project. During this time, the entire health system and the CS Diffa project staff worked primarily on the famine relief effort funded by OFDA and community-level activities were delayed, as reported in the midterm evaluation. This, in turn, contributed to the

decision to reduce the number of target villages from 115 to 60, thereby reducing the size of the target population for the community-based activities.

The UNICEF-supported CBGP/PCAC approach implemented by the project also in collaboration with the World Food project was implemented as a result of the food crisis. Had the crisis not happened it is not likely this approach – which was not anticipated in the original DIP - would have been adopted by the project.

While working in Diffa, the most distant and isolated region of Niger, presents inherent challenges, the distance to and around the project area were known factors that the project design should have taken into consideration. The large number of languages spoken in Diffa, in particular Kanouri, the predominant local language, however, proved an additional challenge that may have had a negative impact on the project. Only 4 of the 10 Animators are native Kanouri speakers. Thus in some cases the Animators had to work through interpreters found among community members – which had to have hampered the village level mentoring of the volunteers. Communications with Niamey and HQ were also extremely constrained until HKI installed a VSAT system in early 2007.

The project's work on the malaria objective was vastly supported by the National Malaria Program's (NMP) distribution of ITNs in the Diffa region. Though HKI also transported and distributed ITNs during the first half of the project, the NMP's ITN distribution efforts made sure that almost all pregnant women and young children in the project area received a net.

The partnership between HKI and URC on the Quality Assurance initiative is also an example of positive collaboration between two USAID-funded grantees. Without assistance from URC is it doubtful that HKI on its own could have implemented the QA initiative.

The initiative of the MoH to increase the number of health facilities (Integrated Health Centers and Health Posts) in the Diffa Region also had an effect on the project. While on the positive side it helped increase access to health services, it also increased the number of people to be trained, the number of facilities to include in the QA component and it altered the CBGP/PCAC initiative which was developed to serve only villages without a health facility. At the time of the final evaluation many of those villages had a health post and those new CHWs need to be oriented to the CBGP/PCAC approach. The presence of so many new CHWs also increases the chance that the community activities started under the project would be supported by MoH personnel afterward. HKI now needs to develop a strategy for this and implement it in the remaining weeks of the project.

C. Role of Key Partners

Partner	Role in Project	Result of Collaboration
Ministry of Health	Primary recipient of training, logistical and commodity support;	Improved capacity as trainers, improved capacity as health care providers, increased service provision (NID); increased access to essential medicines.
URC	Trained trainers in Quality Assurance	Introduced 34 MoH clinicians to QA principles
UNICEF/WFP	Provided CBGP/PCAC strategy (UNICEF) and tools; WFP provided food commodities	Malnourished children in 29 communities receiving food rations

D. Overall Design Factors that Influenced Results

Ambitious Scope/Simultaneous Approach

The HKI/CS Diffa project was very ambitious in scope. It attempted to work in 115 villages in three vast and difficult departments in a very isolated part of the country. Even though the primary focus of the project was initially at the facility level, a more effective approach for achieving the coverage objective with such a limited budget and staff might have been to phase in areas over the course of the project. A variation on the phased approach that could also have been considered would have been to work in all of the health facilities simultaneously but phase in the community approaches. This would have required more staff, however.

Community Behavior Change Strategies

The Detailed Implementation Plan's description of the community level behavior change and mobilization strategies is vague, and little guidance was provided by HKI/HQ during the first half of the project to help clarify this. As a result, the project found itself struggling to decide which approach to use. In the end it introduced/implemented the ENA framework reinforced by many community approaches, including the CBGP/PCAC, ENA, Breastfeeding Support Groups, TBA training and PD/Hearth. This multiple approach reinforced the delivery of messages but did not incorporate a strong component for supporting behavior change and it also makes it difficult to determine attribution.

Training Method

The project used the cascade method for most of its training activities. This was particularly the case for the series of courses on Essential Nutrition Actions (ENA). While this method purportedly strengthens the MoH's abilities to replicate the training courses into the future, it is difficult to maintain the quality of training the further down the line the training goes. To ensure quality, the project should have developed some quality improvement and verification checklists (QIVC) to monitor the quality of training down to the community level. Had this been done, it's possible that the element on negotiation would not have been lost.

E. Program Recommendations/Lessons Learned

In the future:

HKI should structure the work of the community level committees such that each member is responsible for a specific number of women/mothers & babies; these committee members' primary task should be to promote behavior change among their target audience, not just pass messages about the behavior.

Thus, with regard to complementary feeding, ENA committee members should be assigned specific mothers and babies to follow; and when it comes time to introduce complementary foods, the ENA member's task should be to visit the mother at least once per week to show her how to prepare the correct quality and quantity of complementary foods according to the child's age and also how to actively feed her child. A monitoring system to track these home visits would provide data to support the KPC indicator on CF. The modules on complementary feeding in the ENA training manual should be reviewed with a more expanded consideration of

the many messages associated with CF. The training methodology should also be reviewed since supporting optimal CF requires a set of specific skills.

The TBAs should be trained as part of the ENA Committee and not as a separate group.

HKI should establish a community-level monitoring system which tracks adoption of new behaviors not just the delivery of health education sessions.

When using the radio as a means to raise awareness, HKI should consider the feasibility of maximizing the effect by organizing listening and discussion clubs that meet at the times of the radio emissions. Also consider conducting simple listening surveys to assess the effectiveness of the messages and their impact on behavior change.

HKI should consider developing a monitoring system that allows them to track *and analyze* the topics of health education sessions conducted in each village.

HKI should consider a phased approach; starting in half the villages during the first years of the project and then moving to the second. Alternatively, plan to do all of the facility-based work simultaneously and then phase in the community-level work. A third alternative, to budget for additional staff, would also address the issue. This would permit the project to cover the anticipated population.

During the project design phase, HKI should judiciously consider which BC strategy would be the most effective for the specific project context, and implement this approach consistent with its design from the outset of the project. HKI should consider using one community approach that consolidates the tasks of these committees. In Diffa, efforts to consolidate the community groups before the end of the project should be taken.

During non famine periods, HKI/Niger should replace the ration distribution component of the CBGP/PCAC program with the Positive Deviance/Hearth approach, which reinforces positive feeding behaviors and encourages self-reliance among community members.

As part of the ENA, HKI should make sure to emphasize the necessity of the formative research and the process of negotiated behavior change.

To achieve the full impact of the progress made so far regarding zinc, the MoH needs to:
1) incorporate the use of zinc in pre-service training of all health care providers; 2) provide in-service training to all current health care providers; 3) amend the IMCI protocols to include zinc; and 4) take the necessary steps to ensure an adequate supply of zinc at all health facilities in Diffa and throughout the country.

When conditions are not favorable for the implementation of the Quality Assurance approach, HKI should consider using the Partnership Defined Quality strategy.

To monitor and improve/maintain the quality of project implementation, HKI should develop and use quality improvement and verification checklists. These could have been used to monitor the quality of training and the quality of the work carried out by community volunteers.

Before the end of this project:

HKI should meet with the District Health Team to plan and implement a transfer of responsibility from HKI to MoH Health Agents in the 60 target villages. This transfer should take place practically and clearly at the village level as well and involve the CHWs in question. If at all possible HKI should provide documentation to the MOH Health Agents that explain the roles and responsibilities of each committee and a supervision guide to help them oversee and support the work of the committees

Chapter Six - Discussion of Potential for Sustained Outcomes, Contribution to Scale, Equity, Community Health Worker Models, and Global Learning

1. Progress Toward Sustained Outcomes

The largest contribution to a sustained outcome was HKI's contribution to making zinc an official adjunct therapy in the treatment of diarrheal disease in Niger. With zinc now included on the essential medications list and with the development and dissemination of the National Protocol for the use of zinc, once the MoH takes steps to ensure the supply system, zinc will become an added product in health clinics for the treatment of diarrheal disease.

HKI was also instrumental in introducing the Essential Nutrition Actions Framework to Niger. The project's inclusion of national trainers in the master trainer course has increased the chances that the ENA approach will be used in other regions in the country. In addition, HKI supported AED's Africa 2010 project in the organization in 2007-2008 of two regional ENA training courses for government, UNICEF and HKI participants from eight Francophone countries, including Niger, intended to develop national training modules and plans for rolling out the ENA/BCC approach on a national scale. In Niger both the government and UNICEF have supported replication in a number of other regions of the country, and HKI has been a key implementing agent; further reason for addressing some of the current challenges of the "Diffa Model."

HKI CS/Diffa understood the need to engage MoH providers in supporting and sustaining the community-level activities after the end of the project. Although HKI animators stated they regularly informed the health workers of their presence in the community, there was no specific strategy for progressively turning over responsibility for overseeing the community activities to them. As a result, it is questionable whether or not the MoH workers – especially those newly appointed – will be able or willing to take over from the HKI Animators.

This type of omission could have been avoided had the training provided by a local consultant in the Child Survival Sustainabilty Assessment been more timely and practical. As it was, the training was only conducted in April 2007 and was too theoretical. The staff was never able to figure out how to apply it effectively to their own initiatives and develop sustainability objectives and strategies. The CSSA would be far more practical if it was applied to individual project components rather than to the entire project.

The HKI CS/Diffa DIP anticipated that the Quality Assurance (QA) approach would be the key to sustained quality provision of care. The approach was supposed to provide an opportunity for community members to participate in the definition of quality care and different QA committees were to monitor the process. The final evaluation team did not find any evidence that the community was involved in any meaningful way and it appears that the project did not develop a defined strategy for continuously monitoring quality of care.

2. Contribution to replication or scale up

See section 1 above for reference to scale up. As noted, the "Diffa model" has potential for scale-up as an effective community-based approach if the recommendations of this report are adopted.

3. Attention to Equity

The primary equity issue the project addressed was related to geographic equity. HKI is one of only two (the other is CRS as part of the malaria initiative) I-NGOs operational in the Region of Diffa working in health. As mentioned earlier, Diffa is the most far-flung and isolated region, whose many ethnic groups, languages and customs (15% of the population is nomadic) makes working in the area a serious challenge. The Regional Health office considers HKI its primary partner and is counting on HKI to continue its work in the region.

Gender equity, both male and female, was also a focus of the project. The project made extraordinary efforts to increase the capacity of women, both within the MoH and at the community level, and tracked the number of women who participated in each training course they supported/conducted. In addition to this, the project understood the importance of male participation in community-level health activities and made sure that men were included on the CBGP/PCAC and Breastfeeding Support Groups.

The project also made sure that radio broadcasts would reach all of the 5 major ethnic groups in the region by creating radio programs in all of the local languages.

4. Role of Community Health Workers

The term Community Health Worker (CHW) in Niger refers to MoH employees who receive six months of formal training and provide basic first aid and some preventive services out of a MoH-equipped and supervised Health Post (these agents are supervised by the closest IHC as well as by the district health team). They are an official part of the MoH system.

The definition of CHW used by the CSHGP generally refers to the different community volunteers that in this project HKI formed into committees and groups in the 60 villages identified mid way through the project. The community volunteers trained by HKI include: the CBGP/PCAC 4–person team (in 29 villages originally with no health facility), the 60 ENA committees, and the 60 breastfeeding support groups. These groups received a significant amount of support from the HKI Animators during the last half of the project, but as mentioned previously the ENA committees' activities in the community were not as structured as they could have been and therefore were much less effective. Furthermore because the MoH has not been integrated into the community activities, much effort will need to be made in the remaining weeks of the project – or through another project – to ensure continued support and supervision of these community volunteers. Indeed, a new project will likely be needed to carry on and consolidate the achievements of the CSP.

5. Contribution to Global Learning

Promising Practices

This project demonstrated the positive impact that an I-NGO can have on policy adoption at the national level. HKI's participation at the national level in helping the MoH to adopt zinc as the adjunct therapy for diarrheal disease is an excellent example of collaboration on policy implementation. This component of the project could be replicated related to other policy issues. To do so, however, HKI should more clearly document the advocacy approach they used.

Lessons Learned

This project experienced many challenges during the first half of the project and many lessons have been learned as a result. One of the lessons is the need for strong technical support during the start up phase (first 9 months) when the KPC is done and the DIP is developed. Regardless of the experience of the field staff, outside technical support is almost always required. This was particularly important in the case of the HKI CS/Diffa project where the means of communication were so difficult at the outset.

Having a means of stable communication (phone and internet) between the field office, country office and headquarters is also critical to the success of the project. With budgets limiting the number of field visits from HQ staff, being able to provide technical support via phone and internet becomes a reasonable substitute for face-to-face encounters.

Projects implemented in the Sahel that experience periods of severe food insecurity and famine on a regular basis should have a mechanism in place to decide how best to harmonize a non-emergency project with an emergency response program in times of crisis. In the case of HKI CS/Diffa this would have meant determining how best to pursue the CS project objectives while at the same time addressing the famine with additional funding.

Child Survival projects conduct baseline and end line KPC surveys to measure the effectiveness of their work. CS projects also need to have a monitoring system in place that not only tracks the timely provision and quality of inputs and outputs, but to the extent possible, also measures progress toward the outcome indicators (behavior change). This can be a simple community-based system easily managed by community volunteers. The monitoring system should not only track behavior change at the community level, but if the project includes an MOH capacity building component, a mechanism to measure improvements in the quality of care also needs to be developed. A monitoring system allows project implementers to gauge progress and make programmatic decisions throughout the life of the project. This type of monitoring system also informs the final KPC results.

Child Survival project implementers need to consider the benefits and weaknesses of the cascade approach to training. Typically when the cascade method of training is used the quality of training is the best during the first two stages of training; but when it finally reaches the community level the quality of training has decreased significantly. Developing extremely detailed training manuals is one way of addressing this issue; another is close supervision of all levels by project staff. Project staff could also decide to train community volunteers themselves.

And finally, monitoring the quality of training (by trainers) and extent of learning (by participants) is also important for CS projects, which primarily achieve their objectives through capacity building. Checklists which monitor the quality of course implementation should be a feature of each CS project; as should the practice of using pre and post tests for each and every course. Individual oral pre/post tests can be administered to low or illiterate participants

Chapter Seven - Conclusions and Recommendations

Successes

1. Improved Nutritional Status of Infants and Young Children and Pregnant and Lactating Women

The HKI/Child Survival Project in Diffa succeeded in attaining 12 out of 21 (technical) targets it set for itself as shown in Table 2. This suggests that the nutritional status, particularly with regard to micronutrient consumption, breastfeeding etc has significantly improved in the target area.

2. Zinc Protocol

HKI advocated among MOH authorities at the national level for the recognition of zinc in the prevention and treatment of diarrhea. As a result, the protocols for the treatment of diarrhea have been amended to include zinc supplementation and low-osmolarity oral rehydration salts in accordance with WHO-UNICEF recommendations, and zinc has been added to the MOH list of essential medicines. A national protocol and guidelines for zinc use were developed with HKI assistance. HKI supported training for 33 health care providers in the Region of Diffa on the proper use of zinc. In 2006, HKI secured a supply of zinc for the Region of Diffa.

3. Insecticide Treated Bed Net (ITN) Use

As part of its community-based intensive awareness raising and behavior change program HKI has assured not only the acquisition of ITNs through the promotion of attendance of women at prenatal consultations and National Vaccination Days where ITNs were distributed, but the community program has successfully promoted ITN use by pregnant women, mothers and young children. The final KPC survey results show that 45% of children 0-23 months slept under and ITN the previous night compared to 48% at baseline.

6. Essentials Nutrition Actions (ENA)

HKI has introduced a strategy called the Essential Nutrition Actions (ENA) for improving the nutritional status of pregnant women and young children in Niger that not only focuses on raising awareness, but uses formative research to define messages, and teaches community members to use negotiation skills to promote behavior change at the household level. Twenty-two (22) master trainers in ENA were trained including 3 Regional MOH Officers, 13 from the district level, three HKI staff and one person from FEWSNET. Three-hundred and sixty (360) men and women in 60 villages in the three departments of Diffa have been trained in ENA along with trainers in other regions and at the national level.

7. Increased Access to Information on Maternal and Child Nutrition

The HKI/ Child Survival Project in Diffa significantly increased access to nutrition education and services to more than 10,000 men, woman and children living in 60 emphasis villages of Diffa, Maine, and N'Guigmi. This community-level impact was achieved through the creation, training and support of 29 PCAC teams, 60 ENA committees and 60 Breastfeeding Support Groups who promoted attendance at Antenatal Consultations and National Vaccination Days where services for the pregnant women and children are provided.

Findings, Conclusions and Recommendations

1. Finding: In the DIP, HKI proposes to work in 115 villages in the three departments of the Region of Diffa (Maine, Diffa and N'Guigmi). This was a very ambitious plan given the distances separating the departments and villages and the proposed size of the project staff. While the training of health workers, support to NIDs including VAS and deworming, and the mass media strategy reached the entire region, up until 2007, very little community-based behavior change activities had been undertaken, primarily because project staff was preoccupied supporting the MoH's management of the food crisis. Midway through the project, the decision was taken to reduce the target communities to 60 – 29 in Diffa Department; 24 in Maine and 19 in N'Guigmi.
Conclusion: While some impact at the community level was felt through the project's support at the health facility level, 55 communities did not benefit from the intensive community-level activities implemented in the 60 selected communities.
Recommendation: In a future project, HKI should consider a phased approach for community-level activities; starting in half the villages during the first years of the project and then moving to the second. Alternatively budgeting for additional staff would also address the issue.

2. Finding: The project used a number of approaches to promote healthy behaviors at the community level including CBGP, ENA, Breastfeeding Support Groups, TBAs, and Women's Associations. There is much overlap in messaging and tasks among these groups and confusion among the MOH Community Health Workers regarding their specific tasks.
Conclusion: The overlap of these community committees is inefficient and created needless work for the HKI Animators. It will be difficult for the MOH CHWs to supervise the multiple committees following the project.
Recommendation: In the future HKI should consider using one community approach that consolidates the tasks of these committees. Efforts to consolidate the community groups before the end of the project should be taken.

3. Findings: The CBGP/PCAC team is comprised of 4 people, only 1 or 2 usually have rudimentary literacy skills. The CBGP/PCAC strategy requires the team to complete very complicated sets of forms and registers. The evaluation team found many errors in the paper work and even HKI staff seemed to have difficulty identifying the errors being made. There is no instruction sheet to accompany the government's forms, registers etc. WFP supplies imported food rations to be distributed to the moderately malnourished children at the community level.
Conclusion: The paper work associated with this work is too complicated for the level of education one typically finds at the village level, resulting in many errors, and consequent mismanagement of the strategy. The PCAC approach encourages dependence on outside food sources. Despite the PCAC, the results of some surveys seem to indicate that the levels of malnutrition in Diffa have increased in the last year.
Recommendation – In a future project, HKI should consider using the PD/Hearth approach to help villagers learn how to manage moderately malnourished children at the community level.

4. Finding: Community committee members identify the HKI Animators as their supervisors. The MOH CHWs are not responsible for supporting or supervising the community committees. There wasn't a procedure to make the CHWs responsible for community committees

Conclusion: It is not clear who will continue to support and supervise the community committee when the project ends.
Recommendation: HKI should meet with the District Health Team to plan and implement a transfer of responsibility from HKI to MOH Health Agents in the 60 target villages. This transfer should take place practically and clearly at the village level as well and involve the CHWs in question. If at all possible HKI should provide documentation to the MOH Health Agents that explain the roles and responsibilities of each committee and a supervision guide to help them oversee and support the work of the committees.

5. Findings: HKI introduced the Essential Nutrition Actions which ideally includes a phase of formative research and, at the community level, the use of negotiated behavior change. Because the approach was introduced mid-way through the project the formative research and negotiated behavior change aspects were not conducted.
Conclusions: The ENA messages of the project were not informed by the results of Diffa-specific formative research. ENA committee members are not using the negotiated behavior change approach to promote behavior change. This omission significantly reduces the effectiveness of the approach.
Recommendation: In a future project, HKI should make sure to emphasize the necessity of the formative research and the process of negotiated behavior change.

6. Findings: Despite HKI's work to make zinc an official product in the prevention and treatment of diarrhea, the MOH has not been able to ensure the availability of zinc at the health facility level in the Department of Diffa.
Conclusion: Access to zinc for the management of diarrhea is very limited in the Department of Diffa. Children with diarrhea are not benefiting from the use of zinc in the management of this illness.
Recommendation: The MoH needs to: 1) incorporate the use of zinc in pre-service training of all health care providers; 2) provide in-service training to all current health care providers; 3) amend the IMCI protocols to include zinc; and, 4) take the necessary steps to ensure an adequate supply of zinc at all health facilities in Diffa and throughout the country.

Annexes

Annex 1: Results Highlight – Integrating the Prevention and Treatment of Malnutrition within Local Structures

The landmark *Lancet Series on Maternal and Child Undernutrition* published in early 2008 identifies effective, targeted interventions to prevent undernutrition in women and children which, if implemented at scale during the window of opportunity (conception and up to 24 months of age), could reduce nutrition-related mortality and disease burden by 25 percent[1]. The Essential Nutrition Actions framework[2] unites most of the interventions highlighted by that series. The community-based management of acute malnutrition (CMAM) pioneered by Valid International in the early 2000s has been shown to greatly reduce the cost and expand the reach of treatment and to permit more timely identification of need[3].

In response to the surge in cases of acute malnutrition in Diffa, Niger in 2005, HKI received funds from USAID's Office of Foreign Disaster Assistance (OFDA) to integrate a CMAM component into the child survival grant begun the year before to promote the ENA framework. The **integration of the treatment of acute malnutrition into a larger preventive framework** has become the model for HKI and distinguishes our approach from that of other organizations working in the Sahel. Another distinguishing feature of HKI's approach is to **build local public sector and community capacity to manage, plan, deliver and monitor CMAM and ENA services through existing health care and community structures** rather than delivering them directly through a parallel system.

The model developed in Niger and subsequently expanded to Mali and Burkina Faso has included support for the development and ratification of a **national CMAM protocol** followed by **training programs** for managers and frontline health workers coupled with the development and dissemination of supportive **job aids and educational materials** to establish the government capacity to identify and treat acute malnutrition. Prevention capacity is reinforced in tandem through training for managers, health workers and community workers that covers, at varying levels of complexity, the technical contents of ENA together with behavior change communications methods. HKI also works with other partners to strengthen **logistics and supply networks** provide necessary screening instruments, therapeutic and supplementary foods, medications, micronutrients and other supplies. The approach includes **mobilizing and sensitizing communities** to understand the key ENA messages as well as to know the signs of malnutrition and the availability of treatment. The program includes building **health information systems** for supervising, monitoring and evaluating the quality and delivery of services. Finally, new projects provide an opportunity to build in a **research** design to advance the evidence for the effectiveness of the approach.

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[1] Bhutta ZA et. al. 2008. *What works? Interventions for maternal and child undernutrition and survival.* Lancet;371:417-40

[2] Optimal breastfeeding; optimal complementary feeding; nutritional care for the sick and malnourished child; maternal nutrition; the integrated control of anemia; and prevention of vitamin A and iodine deficiency.

[3] Valid International. Community Therapeutic Care: A Field Manual. Oxford: 2006. Available from www.validinternational.org.

Annex 2: List of Publications and Presentations Related to the Project

Presentation at 2007 Micronutrient Forum:

1) A. MamadoulTaïbou[1], Dr N. Zagré[2], Dr M. Agbendech[1] , S. K. Baker[1] ,Dr P.Adou[1],Issoufou Lamissi[3] Dr H.Yacouba[3], Dr B.Bamouni[4]. *Reaching infants with vitamin A supplementation at six months: A strategic partnership with the immunization program in Niger*

Abstract:

Background: With one of the highest under-5 mortality rates in the world, child survival interventions are a national priority in Niger. Niger has been a leader in vitamin A supplementation (VAS) in Africa and has successfully maintained twice-yearly VAS for children 6-59 months above 80% since 1999. Since the beginning of national-scale VAS, there has been a strong partnership with the national Expanded Program of Immunizations (EPI), and its partners. This partnership is formalized in the Core Group, and includes VAS partners. While twice-yearly VAS has been very successful, it is recognized that infants are not systematically getting VAS as soon as they reach 6 months, leaving a window of vulnerability in the otherwise high-level of VAS protection. In order to address this, VAS partners have worked with EPI to establish a 6 month contact in the immunization schedule. **Aim**: To describe the steps taken to implement a strategy to reach infants with VAS at 6 months and provide coverage results. **Framework:** This initiative coincided with a commitment to revitalization of EPI in Niger using the Reach Every District (RED) approach, which started in early 2005. The main steps taken to integrate VAS at 6 months into EPI were: revision and dissemination of national guidelines to include VAS at 6 months, integration of vitamin A capsules into the EPI supply chain, revision of EPI calendar, registers and cards to reflect the 6 month VAS contact, integration of VAS into EPI training and supervision, and development and implementation of an intensive communication strategy targeting mothers and communities. The strong national coordination of EPI and VAS partners through the Core Group was critical. **Outcomes**: The RED strategy has greatly increased EPI coverage in Niger. The collaboration with EPI has also greatly enhanced VAS. Baseline information from EPI reports in 2004 show 16% of children receiving VAS at 9 months (with measles immunization). EPI reports from the second half of 2005 show that 63% of infants are receiving VAS at 6 months – after only 6 months of implementation of the new strategy. **Conclusions:** Complementing the highly successfully twice-yearly VAS strategy with an ongoing strategy to reach infants as soon as they reach 6 months has been very successful in Niger. The strategic partnership with EPI has been the key to success. Next steps include analyzing what other interventions should be offered at the 6 month contact, and deciding if VAS coverage at 6 months has reached levels that justify excluding children 6-11 months from the twice-yearly VAS rounds.

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Annex 3: Project Management Evaluation

Planning

At the proposal development stage, one HKI regional staff working with a team of six from HKI-Niger and one person from the Direction of Nutrition, MoH, participated in the development of the document. The present project manager feels that this was sufficient given that greater regional MoH participation was obtained in the development of the Detailed Implementation Plan.

Three representatives from the central Ministry of Health, 16 participants representing regional and district offices of health, social development, community development and women's affairs, and 3 associations of traditional leaders were involved in the development of the Detailed Implementation Plan (DIP). The process used to develop the DIP was deficient in that no one with prior experience in developing such a detailed implementation plan for USAID's Child Survival Health Grants Program was present. The initial document was judged by CSHGP to be too general and had to be rewritten. This could have been avoided had HKI's headquarters technical backstop person been able to participate in DIP development (she was unable to travel) or if HKI had hired an outside consultant to help guide the process. Even the final DIP has insufficient detail about the community-based strategy intended. The behavior change activities written in the work plan are more like strategy statements than activities, and consequently the project staff – few of whom participated in the first draft of the DIP – had a difficult time interpreting the document. Guidance on the level of detail required, and how to describe activities would have helped this team.

Supervision of Project Staff

The supervision of project field staff was weak. Although the Deputy Program Coordinator for Training and BCC was supposed to supervise the 10 Animators in the field each month, she was not able to adhere to this schedule. Although they had job descriptions, there were no supervision guides or check lists to guide the supervision process. Had supervision been more regular and structured, many gaps in project implementation could have been identified. These include errors in the CBGP/PCAC forms, the need to structure committees' activities and the need to better integrate the MoH's CHWs (health post staff) into the program.

The M&E Officer and the Deputy Coordinator were supervised by the Project Coordinator. Although the protocol requires quarterly supervision visits, the child survival staff reported being supervised by Niamey staff no more than bi-annually. This was partly due to considerable personnel changes in Niamey; however, there were also no supervision guidelines or protocols defining this aspect of project oversight.

Human Resources and Staff Management

The morale of the project staff has been consistently high throughout the project and staff turn over has been relatively low considering the location and difficult working conditions. This speaks to the considerable dedication of the core project staff.

In February 2006, the present Project Coordinator was promoted to this position from the M&E Officer role. There was a long delay in naming him Project Coordinator and hiring

another M&E officer (more than a year) which required one person to fulfill two roles: Project Coordinator and M&E Officer.

The Deputy Coordinator for Training and BCC was transferred to another project in March 2009, and over the life of the project there were 3 different accountants. This position was never vacant however.

The number of project animators has varied over the life of the project. During the first year of the OFDA-funded project (2005 – 2006) there were six, and while their focus was community-based management of acute malnutrition, they also supported the health center staff in the counseling of mothers on optimal feeding practices and the organization of feeding demonstrations. Two of these officers were replaced in 2007 and then, with supplementary funding from UNICEF, the team was increased to 10 during the roll out of the ENA/BCC strategy (2007 – 2009). Two of the ten Animators were let go in May 2009 when UNICEF funding ended, and two more had to be let go in July due to funding constraints, leaving four animators to close out the project.

Financial Management

Throughout its life this project has been plagued by financial problems brought on by a major devaluation of the U.S. dollar in relation to the CFA franc. At the outset of the project the exchange rate was 700 CFA to $1.00 and during the first year of the project it began to descend, eventually reaching 410 CFA to $1.00. This essentially reduced the already tight budget significantly and forced HKI to be creative about programming. OFDA funding was secured to address the food crisis, but instead of using those funds (significantly greater than the CS grant funds) to support the CS project, CS staff supported the OFDA project and CS activities were delayed. Some OFDA resources, such as vehicles, did support CS activities, such as NIDs and supervision. The project also received financial support from UNICEF for the implementation of the CBGP/PCAC project, including motorcycles for use by the animators. HKI sought and received private funds to purchase zinc, iron and mebendezole, but did not have funds to train all TBAs using the approach initiated in the first half of the project, because this government program included birthing kits which were beyond the means of the project. For lack of project funds, staff were let go as early as May 2009. HKI will likely need to seek additional funding to address the recommendations in this report.

Logistics

At numerous points during implementation, project activities were hindered for lack of such medications as iron, zinc, and mebendazole. Fortunately HKI was able to use private funds to purchase these supplies so that project activities could continue. HKI also was able to provide a vehicle for project use which was supplemented by UNICEF's provision of 4 motorcycles for project use.

HKI CS Diffa has tried to address the drug supply issue by training pharmacists in better stock management. The supply of Vitamin A is guaranteed by UNICEF and supplies of ITNs are strong due to the Global Fund and other sources. The government's cost recovery system, in which the government reimburses health facilities for services they are mandated to provide free of charge, often leaves facilities with gaps in resources and supplies, including IFA. In order for the MoH to respect its protocol on zinc use, it will

need to strengthen the distribution system to ensure a consistent supply to the region of Diffa.

Information Management

As described in Chapter Three the project's monitoring system focuses primarily on activity execution and the collection of data related to outputs (health services and products used), which are supplied by the MoH national health information system. Since HIS data is service based (# of antenatal consultations, numbers of children who received Vitamin A, numbers of ITNs distributed, numbers of children with diarrhea treated with zinc, numbers of malnourished children seen) and not population based it's difficult for the project to track coverage of some interventions. Had the project set up a community-based system to track behavior change, this would have added a different dimension to the monitoring system and added credence to the KPC survey results.

Apart from the baseline and final KPC surveys and Health Facility Assessments, the project only conducted one set of special assessments. These were done as part of the DBC training conducted in February 2007 where trainees learned how to conduct barrier analysis (BA) surveys. The results of the BA were used to identify the need for BFSG and soap making.

On a bi-weekly basic the MoH collects from each health facility what it calls Mandatory Illness Declarations. HKI advocated for the inclusion of malnutrition in the MID and now these data are collected along with the other data. Since, if analyzed, this data would serve as a forewarning of another food crisis, this is a major contribution by the project.

The project staff has tended to assume that if community members can name the behaviors, they are practicing them. Despite their training in DBC and ENA/BCC it is hard for them to accept that even very deep knowledge does not always translate into behavior change. It is perhaps because of this misunderstanding that they did not develop more structured roles for the community volunteers that would promote BC in specific individuals and to develop a system to monitor this.

Technical and Administrative Support

During the first half of the project, HKI had difficulties providing adequate technical assistance to the project. The HQ technical backstop officer was unable to travel to the project site. Staff report that no visits from HQ were made during the first 2.5 years of the project. Given this, additional technical assistance from an outside consultant would have been useful, especially as the baseline survey was being implemented and the DIP written. Two visits from the technical team in HKI's regional office Dakar were made during the project.

In December 2006, a qualified technical backstop officer was hired. She visited the project two times and remained in regular contact with the field staff by phone and email. The staff appreciates this support. A visit from HKI's Senior Vice President and the new technical backstop in March of 2007 resulted in the ENA/BCC strategy being adopted as the primary community BC approach.

Outside consultants were hired to conduct the DBC training, to facilitate the ENA training, to conduct the MTE, to facilitate the sustainability training, and to lead the final evaluation. At the time of the MTE some changes to the list of indicators should have been made based on the findings, but HKI did not realize (and the consultant did not advise them) that it was possible to amend some aspects of the project at this time. Unfortunately, at the time of the MTE the ENA strategy had just been initiated, so there was little at the community level for the evaluation team to assess. This was due to the delay in project implementation related to the food crisis and the poor definition of the BC strategy in the DIP.

As mentioned earlier, the training regarding sustainability was provided by a local consultant who was not able to bring the CSSA down to a practical level and so the training had little impact on the project's sustainability plan. In all fairness though, the CSSA addressed sustainability on a project-wide basis, an approach that is not practicable. One expects to sustain some elements of some components of a project – not an entire project – so the training would have had to be re-worked to make sense to the project staff. Apparently this was beyond the capabilities of the consultant – or outside his scope of work.

Management Lessons Learned

1. Many of the 'activities' written in the HKI CS/Diffa DIP are vague strategy statements. This made it extremely difficult for project staff to interpret and implement the project. CSHGP guidance on DIP preparation should be clear about what an activity is (a specific action) so that grantees are forced to be specific about what they plan to do.
2. HKI should make sure that they provide assistance to CS project staff in implementing the KPC and writing the DIP.
3. Child Survival projects are very demanding and project staff requires significant support, especially in the first year of the project. When HKI realized that the technical backstop person could not visit the project at critical moments, they should have developed an alternative means to support the project.
4. Projects can experience major financial challenges when the exchange rate drops. HKI did a good job in identifying and using alternative resources to support different aspects of the project but its use of OFDA funds could have benefited the project more than they seem to have. For example, rather than using CS project staff to implement OFDA activities, OFDA funds should have been used to hire additional staff.
5. Projects need to resist the temptation to allow the project to be pulled in a particular direction (PCAC) simply because a donor is willing to fund the activity. Alternatively, a negotiation should be entered into to modify the activity so it best fits the objectives of the project.
6. Before hiring a consultant HKI needs to make sure they are clear about what they intend to get from the consultant and how the work of the consultant will support the project. Scopes of work should very clearly and precisely describe what the project wants to get from the consultancy.

Annex 4: Work plan Table and Changes since the DIP

Main Activities[1]	Objectives Met	Activity Status	Changes since DIP/Further explanation
Objective 1: To improve nutritional status of children 0-59 months and of pregnant/lactating women	5 out of 6 indicator targets met		
1.Training of Trainers in IMCI		completed	
2. Child Health Week			Omitted since MoH continued with NID strategy
3. Integration of post partum Vitamin A into CBD package		completed	
4. The routine VAC supplementation of children 0-59 months and post-partum women during consultations		completed	
5. Reinforcement of the stock management and appropriation system		completed	Training provided to pharmacists on stock management
6. Integration of Vitamin A into the BCC activity packet		Completed	VAS coverage during NIDs is virtually universal and Vitamin A is also one of the Essential Nutrition Actions; however only 60 villages are included in the community BCC
7. Integration and promotion of fortified food and iodized salt consumption		completed	As part of ENA but only in 60 villages at the community level
8. Train CA for VB Child Growth Monitoring		Partially completed	Through CBGP/PCAC approach which was not mentioned in the DIP – only in 29 villages
9. Train Village Female Leadership/Female Elders		Partially completed	Through ENA/BCC training in 60 emphasis villages
8. Supervise activities at all levels		Partially completed	Some supervision was weak

[1] Many of these are not stated as activities, but rather as strategies

Main Activities[1]	Objectives Met	Activity Status	Changes since DIP/Further explanation
Objective 2: To improve breastfeeding and complementary feeding practices in infants (0-23 months)	1 of 2 targets met		
1. Training of project partners (local officials, community partners) in the promotion of child health/nutrition pregnant and lactating women's health		completed	Through the ENA approach and IMCI
2. Train health workers on importance of correct breastfeeding practices		completed	Through ENA approach
3. Train TBAs and CAs improved breastfeeding practices		Partially completed	36 TBAs received training in safe delivery and EBF;
3. Education of mothers on importance of correct breastfeeding		Partially completed	ENA groups in 60 villages – education also takes place at health facilities in the 3 departments
4. Integrate breastfeeding promotion activities into the Child Health Week program.		Not completed; no longer applicable	The Child Health Week strategy was dropped early in the project due to the continuation of NIDs. Some health education is done during NIDs
5. Supervise activities at all levels		Partially completed	Supervision is not very strong

[1] Many of these are not stated as activities, but rather as strategies

Main Activities[1]	Objectives Met	Activity Status	Changes since DIP/Further explanation
Obj. 3 To improve control of diarrheal diseases in infants (0-23 months)	4 of the 6 targets met		
1. Training of health workers in diarrhea control		Completed	As part of IMCI, training in zinc use and ENA (care of sick child). Inadequate supplies of zinc have hampered application as has appointment of additional health care providers.
2. Reinforcement of BCC approaches to include diarrheal disease awareness		Completed	
3. Training of all health workers in IMCI		Partially completed	Only the chief clinicians were trained (34) and many more IHC and HP were opened during the life of the project.
4. Supervise activities at all levels		Partially completed	Weak supervision – IMCI was not systematically supervised.
Obj. 4 To reduce anemia in infants and young children (0-23 months) and pregnant and lactating women.	2 of 5 targets met		
1. Develop and adopt integrated anemia control package		Partially completed	Package completed and largely implemented for pregnant women and partially for children
2. Implement anemia package at health district level		Partially completed	See above
3. Creation, Implementation of BCC for anemia control awareness		Partially completed	One of the ENAs is the integrated control of anemia
4. Supervision of activities at all levels		Partially completed	Frequent visits but weak supervision of ENA activities
Obj. 5. To prevent malaria during pregnancy and among pre-school children [as a component of anemia control strategy]	1 of the 2 indicator targets was met; but significant progress was made		
Purchase and distribute ITNs		completed	
Promote ITN Use among pregnant women, mothers and children		completed	
Promote SP use among pregnant women		completed	

Main Activities[1]	Objectives Met	Activity Status	Changes since DIP/Further explanation
Obj. 6 To enhance capacity of partners to plan, implement, monitor and sustain project interventions	Many of the indicators are no longer applicable; 1 of 3 relevant indicators achieved		
1. Train all non-health sector partners on project interventions, design, monitoring and evaluation		Partially completed.	CSST training given to 37 government participants More theoretical than with practical application to Diffa project
2. Training on communication techniques		Completed for staff only -	
3. Train health workers in QA		completed	
4.Train health workers in supervision techniques		Partially completed	Only 6 people were trained
5. Integrate QA into IHC activities		Partially completed	Little support for this activity following the training
6. Training of Trainers in Supervision and QA		Partially completed	see #4 above
7. Train Regional and District Pharmacists		Partially completed	Only trained 17 out of 38 proposed
8. Train Traditional and Religious Leaders		Partially completed	ENA/BCC training included traditional leaders in 60 emphasis villages
9. Advocate project with local councilors		Partially completed	
10. Re-Start VHC activities.		Not done	The government suspended the legislation governing health committees during most of the project life.
11. National School of Public Health (ENSP) Collaboration		Not done	
12. Supervise activities at all levels		Partially completed	Supervision was weak

[1] Many of these are not stated as activities, but rather as strategies

Annex 5: RAPID CATCH Indicators

	Baseline			Endline		
Indicator	%	Numerator	Denominator	%	Numerator	Denominator
Percentage of children age 0-23 months who are underweight (-2 SD from the median Weight-for-age, according to the WHO/NCHS reference population)	33.6	100	298	59.8***[4]	285	478
Percentage of children age 0-23 months who were born at least 24 months after the previous surviving child	67.9	127	187	56.5**	244	432
Percentage of children age 0-23 months whose births were attended by skilled health personnel	28	84	300	25.6[NS]	236	867
Percentage of mothers with children age 0-23 months who received at least two tetanus toxoid injections before the birth of their youngest child	51	153	300	85.0***	703	827
Percentage of children age 0-5 months who were exclusively breastfed during the last 24 Hours	5.7 26.2 CAP[5]	5 52	88 198	72.4***	110	152
Percentage of children age 6-9 months who received breast milk and complementary foods during the last 24 hours	40	22	55	71.9***	64	89
Percentage of children age 12-23 months who are fully vaccinated (against the five vaccine-preventable diseases) before the first birthday	59	46	78	63.7 [NS]	132	207

[4] Shows the p value of the ChiSquare comparison between the baseline and endline values, as follows : ***<.001 ; **<.01 ; *<05, NS= non-significant

[5] This survey used the same wording as the final survey

	Baseline			Endline		
Indicator	%	Numerator	Indicator	%	Numerator	Indicator
Percentage of children age 12-23 months who received a measles vaccine	50	66	132	78.3***	162	207
Percentage of children age 0-23 months who slept under an insecticide-treated net the previous night	24.3	73	300	45.5***	274	602
Percentage of mothers of children age 0-23 months who know at least two signs of childhood illness that indicate the need for treatment	63.3	190	300	79.9***	480	601
Percentage of sick children age 6-23[6] months who received increased fluids and continued feeding during an illness in the past two weeks	22.6	50	221	29.7 NS	103	347
Percentage of mothers with children age 0-23 months who cite at least two known ways of reducing the risk of HIV infection	53	159	300	71.3***	429	601
Percentage of mothers with children age 0-23 months who report that they wash their hands with soap/ash before food preparation, before feeding children, after defecation, and after attending to a child who has defecated	0.3	1	300	58.4***	351	601

[6] Because it is not recommended to feed children <6 months we have restated this indicator as 6-23 rather than 0-23 months.

Annex 6: Final KPC Report

Final KPC Report

***Yallando Kleya* Child Survival Project – Diffa Region, NIGER**

October 1, 2004 – September 30, 2009

Submitted to the Child Survival Health Grant Program

December, 2009

Survey Director
Boubakar Idrissa Kountché
Statistician and Consultant

HKI HQ Backstop
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A. Executive Summary

The USAID-funded child survival project of Helen Keller International (HKI) covering the region of Diffa, Niger was implemented from October 2004 – September 2009 and aimed to improve the nutritional status of children, pregnant and lactating women resident in 115 of the approximately 728 villages in all three districts (Diffa, Maine, and N'Guigmi). The strategy employed was to strengthen health care service provision, particularly nutrition services, and to promote the preventive Essential Nutrition Actions (ENA) framework using behavior change communications (BCC) techniques at health facilities and through community groups. These seven "actions" include optimal breastfeeding and complementary feeding of children 0-24 months of age; appropriate nutritional care of the sick child; optimal women's nutrition; the integrated control of anemia (including control of malaria and intestinal helminthes); and the prevention of vitamin A and iodine deficiency. Concomitant funding from USAID's Office of Foreign Disaster Assistance (OFDA) supported training in the community-based management of acute malnutrition (CMAM) and supplied supplementary and therapeutic foods and medicines for the program.

Two baseline surveys were conducted in 2005: a detailed knowledge, attitudes and practices survey together with anthropometric and hemoglobin measures of children 0-59 months of age and their mothers covering 900 households in the region (in March); and a brief questionnaire covering the Rapid Catch questions in a sample of 300 households in the region (in September). The final survey combined these two questionnaires and was conducted in March of 2009 with 900 households (but captured 1,266 children in these households for anthropometric measures). All three surveys used the same cluster randomized sampling methodology.

The findings of the final survey suggest significant improvements in a range of targeted behaviors. Given the plausibility design (pre- and post-intervention surveys in the intervention areas alone) it is not possible to causally attribute observed changes to the project. However, given that HKI was the only non-governmental organization intervening in child survival in the region, the findings are encouraging.

In **breastfeeding**, increases were apparent in the timely initiation of breastfeeding (within one hour of birth: from **55 to 85%**); and reductions were apparent in the use of prelacteal feeds (substances other than breastmilk given at birth: reduced from **90 to 51%**) comparing the endline data to those of the baseline KAP survey of March 2005. In addition, mothers' reports of giving only breastmilk in the previous 24 hour period increased from **26 to 72%** although these values may be inflated (see footnote 2). Nevertheless, the same wording was used at baseline and endline suggesting comparability between these two measures.

In **complementary feeding**, considerable increases appear to have occurred in the feeding of children 6-9 months; the proportion fed complementary foods in addition to breast milk increased from **40% at baseline to 72% at endline**. The scores for the vitamin A food frequency questionnaire among children 12-59 months also improved substantially (the mean score for the region increasing from **4.0 to 9.2**, exceeding the target of 5.5). The endline mean scores for both Diffa and Maine exceed the cut-off for community risk of vitamin A deficiency. The final survey also found **97%** of mothers reporting their child had received vitamin A supplementation (VAS) in the previous six months (compared to **56% at baseline**) and **83%** of women of children 0-23 months reporting having received VAS during the 40 days following their last pregnancy (compared to **17% at baseline**).

Mothers also reported more frequently **feeding of children 6-23 months during episodes of diarrhea** according to recommended practices. The proportion of mothers who reported giving **increased fluids** to their sick children increased from the **baseline level of 24% to 55% at endline**, also exceeding the target

(increasing to 40%) for that indicator. In addition, important improvements in the quantity of food and fluids given and the frequency of breastfeeding were seen compared to baseline. Reported hand washing behaviors were also markedly improved. Whereas at **baseline fewer than 1%** of mothers reported washing their hands with soap or ash at all four key occasions (before preparing food, before feeding child, after defecation and after cleaning the child's defecation), at **endline 55%** reported doing so. It should be noted, however, that the prevalence of diarrhea reported at endline was unchanged from that reported at baseline (around 35%). The reported prevalence of fever was also similar.

In **women's nutrition**, the reported use of iron-folic acid (IFA) during and after pregnancy was considerably higher at endline compared to baseline. Of pregnant women queried at endline (n=99) **85%** stated they had taken a tablet in the previous 24 hours (compared to **8% at baseline**). Among non-pregnant women reporting on their previous pregnancy (that would have occurred during the life of the project) 84% reported receiving IFA and 59% reported having taken at least 90 tablets (the recommended dose) during that pregnancy while 70% reported receiving IFA in the post partum period (compared to 10% at baseline)

Participation in growth monitoring and promotion reached a reported **60%** for children 0-36 months; the baseline figure is not known but it is presumed to be very low because there were no village growth monitoring committees and very few health centers were conducting these assessments at that time.

The findings for insecticide-treated net (**ITN**) **use** are less encouraging. While 85% of households reported having a bed net, only 66% of those households reported using it and, of those, 82% were treated. Within that subset, 95% of households reported the child and mother slept under the net; however, the proportion for all children under two would be approximately **46%** (there may have been some missing responses). This compares to a reported **48%** at baseline. It should be noted that there was a large-scale distribution of ITNs the month following the final survey, thus rates of ownership of treated nets should be higher now.

The **prevalence of anemia** among pregnant women at endline was **7% compared to baseline levels of 40%,** while among **children the rate was 51% at endline compared to 73% at baseline**. The project thus surpassed the target for women of 30% but did not reach the target for children (40%); nevertheless, important reductions among children were evident.

Anthropometric status among children 6-24 months showed no improvement and possibly deterioration since endline. The prevalence of **wasting was 24% (3.5% severe)**, the prevalence of **stunting was 47% (19% severe)**, and the prevalence of **underweight was 60% (15% severe)**. Wasting fell slightly while stunting and underweight appear to be higher than the reported **baseline for children 0-23 months (26%, 25% and 36%, respectively;** NB age cohorts differed). However these baseline levels are somewhat suspect as they were considerably lower than measures of most other surveys. Nevertheless, it may be that it is too early to register impact on child growth given the relatively recent introduction of the nutrition education and behavior change elements, high levels of infections, apparently low consumption of animal source foods, and the continuing food insecurity throughout the region. The prevalence of underweight among **women of reproductive age** was recorded as considerably lower at endline; however, a difference of this magnitude is more likely an artifact.

The final evaluator questioned whether behavior change as suggested by the quantitative surveys had actually occurred in Diffa. Indeed, behavioral theory suggests that change is often a gradual and prolonged process, and further, that changing community norms helps support individuals to change. Given that the practice of optimal behaviors was so low (for example, exclusive breastfeeding was estimated at about 6%), it is probably reasonable to have modest expectations. Applying the theoretical concept of the

Transtheoretical, or Stages of Change model[1], early stages of change involve consciousness-raising and increase in knowledge. At the very least the findings indicate that awareness of optimal nutrition practices is now widespread, and suggest that a majority of mothers has likely moved from Precontemplation to Contemplation to Preparation. Project staff believe that many have moved to Action. The project saturated the target areas with the ENA messages, which explain in simple terms why the recommended practices such as exclusive breastfeeding and richer porridge for young children will be good for the children and their mothers. It is conceivable that the information was pervasive enough to begin to challenge community norms. Moreover, the messages were delivered in the context of a strengthened capacity of the health services to provide effective treatment for acutely malnourished children, greatly enhancing their credibility in these communities. Anecdotal evidence at least suggests that the community perception changed from distrust or rejection of health services to respect and appreciation. It is plausible that this led them to be more open to the counsel of these same agents.

It is possible that answers to survey questions reflected women's awareness of the "correct" answer rather than actual behavior change, but with continued support this awareness of the promoted practices could progress to their adoption. Even if it is not possible to determine what degree of actual behavior change has occurred, HKI believes a strong foundation has been built. Given the continuing critical need for external assistance to this extremely deprived region, HKI remains committed to maintaining its support for the prevention and treatment of malnutrition in Diffa. This includes the need to address chronic food insecurity.

In summary, overall the comparison of levels on a range of indicators at baseline and endline suggest that the USAID-funded child survival project in Diffa made a significant contribution to improving infant and young child feeding practices, the nutrition of women of reproductive age, the nutrition knowledge of mothers, communities and health care providers. During this time the government appreciably expanded the health infrastructure and project training reached all health agents on a variety of health and nutrition modules. The staff of the child survival project also showed dedication and perseverance in the face of serious logistical challenges in reaching the many remote villages of the expansive Diffa region.

B. Background

Helen Keller International's (HKI) child survival project in Diffa, Niger was implemented from October 2004 – September 2009. The project was designed to improve the nutritional status of children, pregnant and lactating women resident in 115 of the approximately 728 villages in three districts (Diffa, Maine, and N'Guigmi) of the Diffa region, or villages with access to a functioning health facility (Integrated Health Center or Health Post). The target population at baseline encompassed approximately 155,621 persons, including 76,552 women of reproductive age (WRA) and 69,724 children under the age of five of whom 15,131 were less than 12 months and 13,981were 12 – 23 months. The project strategy was to strengthen nutrition services at the health facilities (through the training of health providers, provision of micronutrients and nutrition education on the Essential Nutrition Actions); provide support for bi-annual campaigns (Local Immunization Days including vitamin A supplementation and de-worming), form and train community groups in 60 villages to promote the same package of Essential Nutrition Actions using behavior change communications techniques; and disseminate key messages through mass media (radio emissions).

[1] Prochaska JO, DiClemente CC. 1982. Trans-theoretical therapy - toward a more integrative model of change. *Psychotherapy: Theory, Research and Practice.* 19(3):276-288.

The project implemented activities in the areas of nutrition (20% level of effort), vitamin A (20% LOE), micronutrients (20% LOE), breast feeding (10% LOE) , control of diarrheal diseases (20% LOE) and malaria (10% LOE) seeking to achieve the following objectives:

1. Improve the nutritional status of children 0-59 months old and pregnant and lactating women;
2. Improve breastfeeding and complementary feeding practices in infants and young children, 0-23 months;
3. Improve control of diarrhea-related diseases in infants and young children, 0-23 months;
4. Reduce anemia in infants, young children, pregnant and lactating women;
5. Prevent malaria during pregnancy and among pre-school children [as a component of integrated anemia control strategy];
6. Enhance partners' capacities to plan, implement, monitor and evaluate the project activities.

Activities at the facility level included the introduction of zinc for the treatment of acute diarrhea, the provision of vitamin A and iron, and efforts to increase demand for services and adoption of healthy infant and young child feeding behaviors and maternal nutrition at the community level (especially in the 60 target villages). Essential Nutritional Actions Groups in the 60 emphasis villages consisted of 6 people each. In addition, Breastfeeding Support Group (up to 12 people in each of the 60 villages), Growth Monitoring and Promotion Groups, and Women's Associations were trained to promote healthy behaviors and identify and refer cases of acute malnutrition. In 2005, shortly after the project began, Niger was struck by a national food crisis, prompting HKI to apply for complementary funding from USAID's Office of Foreign Disaster Assistance (OFDA) to organize a response in collaboration with the same Ministry of Health (MOH) partners using the community-based management of acute malnutrition framework. This support for the treatment of malnutrition using the community-based management of acute malnutrition (CMAM) approach continued for the life of the child survival project.

HKI worked closely with the MOH at the regional, district and health facility levels to provide training on various topics and to improve the quality of care.

C. Methods

The survey team was instructed to use the same sample size as that used for the baseline KAP survey; that is, 900 households with children 0-59 months. The sampling frame for endline survey also was limited to the same list of 115 villages included in the selection pool for the baseline survey. A two tier selection methodology was followed: first 30 clusters were randomly selected; and then in each cluster, 30 households were randomly selected.

For the first random selection the team divided the sampling frame into the three districts with the decision to select 10 clusters from each district. In each district the full list of possible survey villages was created and each village was assigned a number. Then in each district 10 numbers (villages) were randomly selected with probability of selection proportionate to size. The list of surveyed villages in included as **Appendix 1**.

For the selection of households, upon arrival at the village a complete numbering of households was carried out. Then a random selection of numbers was made to determine the households to invite to participate in the survey. A new number was randomly selected until a total of 30 households meeting the inclusion requirements and agreeing to participate was obtained.

In each household surveyed, a complete listing was made of all children in the household starting with the

youngest child and proceeding in order of age. The youngest child in each household was the subject of the questions relating to the practices of concern.
For anthropometric measures, however, all children in the selected households between the ages of 6-59 months were measured (n=1266). Weight was measured to the nearest 100 g with electronic SECA Uniscale machines loaned by UNICEF. The scales were recalibrated each morning. Children who could not stand were weighed in the arms of the mother, whose weight was then subtracted. Height was measured to the nearest 0.1 cm using length/height boards also supplied by UNICEF. The surveyors also examined children for the presence of bilateral edema using thumb pressure on the top of the foot and observing if the depression remained after three seconds.

The child's age was determined first by requesting an official document such as a health card or birth certificate. In the absence of these documents, age was estimated with the help of a calendar of local events given to each survey team, including seasons, harvest, and religious holidays. Other socioeconomic data and nutrition practices were collected using the questionnaire; it is included as **Appendix 2**.

The household questionnaire included the following sections:

- HH identifier
- Selection of child as subject of interview
- Care of mother during most recent pregnancy and of newborn
- Breastfeeding and nutritional care of child 0-23 months
- Vitamin A Food Frequency Questionnaire for child 12-59 months
- Micronutrient supplementation of woman
- Vaccination record of child less than 5 years
- Illness and diarrhea episodes and treatment of child 6-23 months
- Hygiene and sanitation practices
- Knowledge of HIV
- Test of HH salt for iodine
- Growth monitoring and promotion of child 0-36 months
- Malaria (use of insecticide-treated bed nets; maternal presumptive treatment during last pregnancy; treatment of children 0-59 months
- Anthropometric measures of all children in the household 0-59 months and of women (weight and height of both; edema exam of child)
- Hemoglobin measures of capillary blood (children 6-23 months and pregnant women) using Hemocue© system

The 9 surveyors (data collectors) were all locally recruited in Diffa and had prior experience collecting data for the Niger National Nutrition and Child Survival Survey organized annually by the National Institute of Statistics, UNICEF and other technical partners. Three team leaders were recruited from the regional Epidemiology Surveillance Center. One member of each team was a lab technician who collected and tested the hemoglobin samples. The names of the surveyors are included as **Appendix 3**.

Training of the 12 personnel was over a five-day period, from April 4-8, 2009 and was led by five trainers with expertise in public health and nutrition. Training covered the objectives of the survey, the methodology of household selection and questionnaire administration, the protocol for calculating child age, correct recording of answers on data forms, data entry using the SMART data software, and data analysis. The training program is included as **Appendix 4.** Participants were divided into groups of six and

rotated through the different topics; this allowed all participants hands on practice and active learning. Supervisors were also trained in the NutriSurvey (ENA) data analysis software.

The anthropometrists were given a theoretical background and then practiced taking measures for two days at a nearby health center; a visit to a hospital allowed participants a hands on experience to detect edema. The objective of the training was to assure that each surveyor was both precise (repeat measures were equivalent) and reliable (generated similar measures to the trainers'). These intra-rater and inter-rater reliability measures were tested until satisfactory results were obtained.

The questionnaires were field tested and the procedure for household selection was practiced in the village of Gueskerou; a final day was devoted to reviewing the questionnaires and making revisions to the instructions to ensure consistency and comprehension.

Each supervisor was given a laptop computer loaded with the NutriSurvey-ENA software (March 2009 version) and a USB stick. The supervisors reviewed questionnaires and data accuracy at the completion of each cluster using the NutriSurvey-ENA flagging system; for each error identified the supervisor determined if it was an error of collection or recording. Collection errors required surveyors to return to households and repeat the suspect collection. At HKI/Diffa a team reviewed the questionnaires again to confirm that all clusters had been reached and that 30 HH surveys per cluster were completed and that the data were complete.

The anthropometric data were analyzed and converted to weight-for-height/length, weight-for-age and height/length-for-weight Z-scores using the NCHS 1977 reference to assure comparability to the baseline data. Low weight for height or length (wasting or acute malnutrition) was defined as <-2 standard deviations (SD) from the NCHS norms for moderate and <-3 SD for severe. The same cut-offs were used to define moderate and severe stunting (chronic malnutrition or low length/height for age) and moderate and severe underweight. NutriSurvey was used for these conversions. Further data analysis was then conducted using SPSS release 15.0 and Stata release 8.2.

While the sample size of 900 households permits an analysis representative at the regional level rather than the district level, calculations for many indicators are also presented by district.

D. Results

1. Sample

The final sample included 900 households, but the surveyors collected some data, including anthropometric measures, on all available children in all surveyed households, thus 1,266 usable measures were obtained of children 6-59 months (n= 5 were excluded because of missing age data or biologically implausible measures). Table 1 presents the breakdown by age of the youngest child in each household; the one about whom most of the questions were asked.

Table 1: Distribution of sample children by age category and district

	District				
Age	Diffa (n=)	Mainé (n=)	N'guigmi (n=)	Total (n=)	Total %
0-5 mos.	49	40	60	149	16.6
6-8.9 mos.	25	35	23	83	9.2
9-11.9 mos.	25	28	28	81	9.0
12-23.9 mos.	104	106	79	289	32.1
0-23.9 mos.	203	209	190	602	66.9
24-36 mos.	63	61	76	200	22.2
0-36 mos.	266	270	266	802	89.1
36.1-59 mos.	34	30	34	98	10.9
Total	300	300	300	900	100

Table 2: Distribution of sample pregnant and non-pregnant women

	Pregnant Women (n=113)				Non-pregnant Women (n=781)			
Age	Diffa	Mainé	N'guigmi	Total	Diffa	Mainé	N'guigmi	Total
12 - 19 yrs.	6	2	5	13	24	39	46	109
20 - 24 yrs.	10	12	6	28	63	71	53	187
25 - 29 yrs.	16	10	10	36	70	58	72	200
30 - 34 yrs.	14	5	5	24	51	39	33	123
35 - 39 yrs.	5	3	1	9	18	27	32	77
40 - 44 yrs.	1	1	1	3	10	19	17	45
45 - 49 yrs.	0	0	0	0	6	6	15	27
≥50 yrs.	0	0	0	0	5	7	1	13
Total	52	33	28	113	247	266	268	781

The characteristics of the women are presented in Table 3. The large majority is married, while about 26% live in polygamous households. Nevertheless among the children for whom some measures were taken, 97% are biologically related to the woman surveyed. The predominant sources of livelihood were agriculture (54%) and animal husbandry (23%). Animal husbandry is far more common in N'Guigmi than in Diffa or Maine. The level of education is quite low: about one third have no education (32%) and 47% have only religious education.

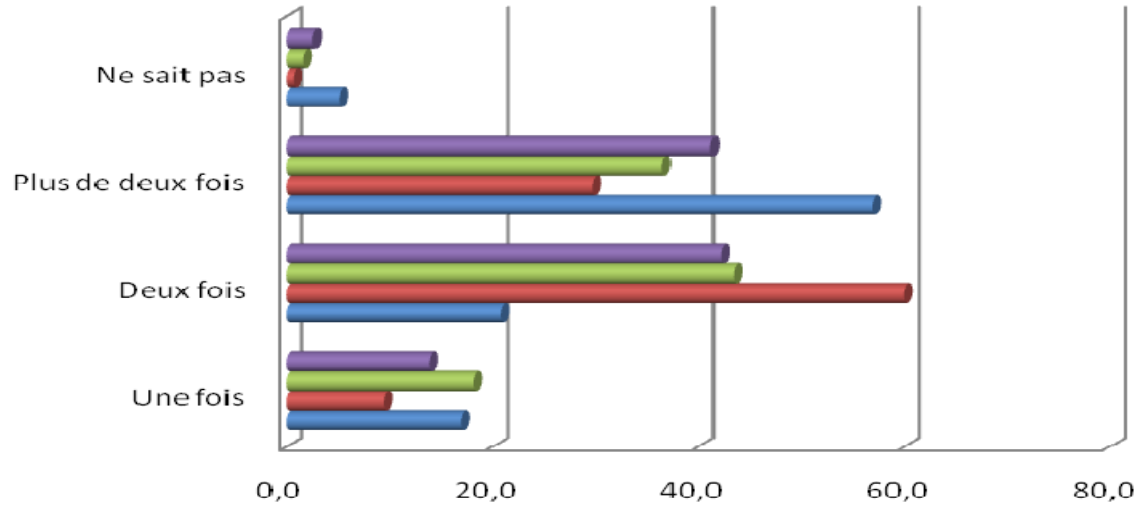
Table 3: Selected Characteristics of Women in Sample

	Diffa	Mainé	N'Guigmi	**Total**
Characteristic	n=299	n=299	n=296	n=894
Marital Status				
Married, monogamous	69.5	64.4	86.2	70.3
Married, polygamous	28.3	30.9	8.1	25.7
Divorced	2.2	2.5	0.7	2.1
Widowed		0.8	2.2	0.8
Single		1.4	2.8	1.2
Husband's Profession				
Agriculture	72.5	48.5	30.7	54.2
Animal Husbandry	8.6	26.3	45.4	23.2
Small business	4.3	6.6	0.5	4.6
Artisan	1.2	0.3	1.0	0.8
Hunting/Fishing	0.1	2.9	-	1.3
Butcher	0.2	0.2	-	0.2
Administration	3.5	5.0	13.4	6.0
Trader/Businessman	1.0	1.2	4.2	1.7
Other	8.5	9.0	5.0	8.1
Woman's Educational Status				
None	24.7	28.2	55.2	32.0
Koranic	57.6	50.7	16.1	46.8
Literate	6.1	8.0	8.3	7.3
Primary	8.5	9.7	13.8	10.1
Secondary	2.9	3.2	6.5	3.7
Post-secondary	0.2	0.1	-	0.1
Birth History				
Date of last birth (average number of months)	18.1	17.7	19.5	18.2
Biological children in HH	99.2	94.9	96.4	97.0
Living children among all births	97.7	98.4	98.8	98.2

2. Care of the Mother and Newborn

Approximately 85% of mothers of children 0-23 months received two or more tetanus vaccinations in their most recent pregnancy; the dose considered to be protective, compared to 51% at the baseline Rapid Catch survey. The figure below presents data for the full sample, where 83.4 reported two or more vaccinations.

Figure 1 (n=602)



	Une fois	Deux fois	Plus de deux fois	Ne sait pas
Région	13,9	42,2	41,2	2,6
N'Guigmi	18,2	43,5	36,5	1,7
Mainé	9,5	60,0	29,7	0,7
Diffa	17,0	20,8	57,0	5,2

In our sample 74% of women delivered their last child at home and 26% delivered at a health facility (i.e., by skilled health personnel). Other persons assisting with delivery were traditional birth attendants (66%) and family members (8%).

3. Breastfeeding and Complementary Feeding of Children 0-23 Months

The questions concerning breastfeeding and complementary feeding were asked only of mothers of children 0-24 months of age (n=604). The endline findings suggest considerable improvement in breastfeeding practices from baseline: 85% of mother reported having breastfed their infant within the first hour of birth compared to 55.3% at baseline; and only 3.2% waited more than eight hours to initiate breastfeeding (Table 4). Prelacteal feeds also appear to have fallen considerably: 90% of mothers of children under two reported giving only breastmilk at birth compared to only 51% at baseline (Table 5).

The question on exclusive breastfeeding was somewhat leading, and may have skewed mothers' answers somewhat; nevertheless, the same question was asked at baseline and endline and suggested that in the past 24 hour period 72% of mothers of infants less than six months of age fed the infant only breastmilk compared to 26% at baseline.[2] See Table 4.

[2] The wording of the question was, "In the last day and night (past 24 hours) did [name] consume anything other than breast milk. If yes, which of the following: plain water; (y/n) sugar water (y/n); fruit juice (y/n); puree (y/n); mashed foods (y/n); other (y/n)" The recommended wording is, "I would like to ask you about the types of liquids and foods that [name] consumed yesterday during the day or at night. Did [name] have: breastmilk (y/n); plain water (y/n); other liquids (y/n); mashed, pureed, solid or semi-solid foods (y/n); anything else (specify)"

Table 4: Timely Initiation of Breastfeeding by Mothers of Children 0-23 months

Timing of Initiation	District			Total Endline	Total Baseline
	Diffa	Mainé	N'Guigmi		
Within 1 hour of birth	90,2	79.3	85.2	84.8	55.3
1-8 hours after delivery	4.6	18.8	11.5	11.7	14.2
8- 24 hours after delivery	2.8	1.2	1.5	1.9	17.0
> 24 hours after delivery	2.4	0.5	0.0	1.3	13.3
Not known	0.0	0.2	1.9	0.3	0.2
N=	203	212	189	604	577

Table 5: Prelacteal Feeding by Mothers of Children 0-23 months

	District			Total Endline	Total Baseline
	Diffa	Mainé-	N'Guigmi		
Given Other than Breast Milk					
Yes	9.8	11.7	4.8	9.9	48.6
No	90.2	88.3	95.2	90.1	51.4
Type of Prelacteal Feed Given					
Goat milk	15.0	12.0	0.0	12.7	44.3
Sugar Water	0.0	5.6	0.0	2.7	5.9
Honey	0.0	2.1	0.0	1.0	-
Lemon juice	8.7	2.9	0.0	5.4	16.8
Blessed water	32.8	77.4	0.0	52.6	-
Other	43.5	0.0	100.0	25.6	20.5
Infant Currently Breastfed					
Yes	98.4	71.1	91.5	84.0	90.8
No	1.6	28.9	8.5	16.0	0.2
N=	203	212	189	106	577

Table 6: Feeding of Infants <6 mos.

Food given in previous 24 hours	District			Total Endline	Total Baseline
	Diffa	Mainé	N'Guigmi		
Only breastmilk	73.8	67.0	82.3	72.4	26.2
Breastmilk & water	14.3	12.5	6.6	10.7	NA
Breastmilk & other foods	11.9	20.5	11.1	20.2	NA
N=	49	40	60	149	205

Concerning complementary feeding of the child 6-23 months, the most common foods given are milk (79%), grains (84%) and porridge (86%) (Table 7). When the data are disaggregated for children 6-9 months, the age when complementary feeding should begin, it appears that 72% (64/89) were given complementary foods in addition to breastmilk. This is a marked increase from the baseline value of 40% (22/55).

Table 7: Feeding of Infants 6-23 mos. in previous 24 hours

	District			Total Endline
	Diffa	Mainé-Soroa	N'Guigmi	
Given anything other than breast milk				
Yes	84.2	95.1	90.9	89.7
No	15.8	4.9	9.1	10.3
Types of foods given				
Plain water	98.9	99.5	100.0	99.3
Sugar water	2.2	0.0	1.4	1.1
Fruit juice	6.0	16.0	11.4	11.3
Milk (animal)	87.4	83.4	44.3	79.3
Purée	0.1	5.1	52.2	10.0
Mashed foods	27.4	36.2	53.3	35.1
Grains	82.8	85.2	85.0	84.2
Beanst/Niébé/vouanzou	30.4	2.9	59.9	22.3
Pasta	16.9	21.0	52.8	24.0
Porridge	88.0	82.1	95.2	86.4
Commercial complementary food	1.9	0.0	6.7	1.7
Boule (yam, cassava, potato)	18.1	29.4	34.4	25.6
Tubers	3.8	19.1	9.2	11.5
Other	87.0	82.0	12.2	73.8
N=	154	169	130	453

4. Consumption of Vitamin A-rich Food among Children 12-59 Months

The project design team also included the HKI Food Frequency Method to assess risk of vitamin A deficiency[3]. The methodology was developed and validated for children ages 12-72 months, thus the baseline survey (and consequently the endline survey) administered the questions to children 12-59 months. The questionnaire adapted for Diffa reviews a list of 31 available foods and asks the number of times each was fed to the subject child during the last seven days. A score is then constructed for each child by assigning one point for each single serving of animal sources of VA and one point for every six servings of plant sources of VA. The animal and total (animal + plant) scores for individual children are then combined to an overall average to indicate if there is a dietary risk of vitamin A deficiency in the community. A score of <=4 for animal sources or a score of <=6 for combined sources suggest community risk for VA deficiency.

Again, the endline findings suggest significant improvements in the consumption of vitamin A rich foods among children 12-59 months. The project target was to increase the total score for the region to 5.5 from a baseline score of 4.0; the actual final score was 9.5. At endline 64% of children surveyed had combined scores >6 compared to only 17% at baseline.

[3] Rosen DS, Haselow NJ and Sloan NL. 1993. How to Use the HKI Food Frequency Method to Assess Community Risk of Vitamin A Deficiency. New York: Helen Keller International.

Table 8: HKI Vitamin A Food Frequency Scores

	District			Total Endline	Total Baseline
	Diffa	Maine	N'Guigmi		
Plant Score (mean)	1.8	1.9	1.6	1.8	1.0
Animal Score (mean)	10.9	5.8	3.3	7.7	3.0
Animal + Plant Score (mean)	12.7	7.7	4.9	9.5	4.0
Children consuming any animal source (%)	94.8	81.8	85.4	88.1	53.4
Children with animal score > 4 (%)	78.9	58.2	21.0	62.0	26.7
Children with combined score > 6 (%)	78.6	61.2	29.4	64.3	16.7
Children with no animal source (%)	5.2	18.2	14.6	11.9	38.9
Children with no plant source (%)	7.5	8.6	14.7	9.0	18.7
Children with no food source (%)	1.1	2.2	2.7	1.8	12.1
N=	201	197	189	587	610

Table 9 presents the proportions of children by district and region consuming key food sources of vitamin A and the average number of days these foods were consumed. The findings indicate that for animal sources, 61% of children consumed liver, 61% consumed butter, 54% consumed small fish and 40% consumed egg yolk. Among vegetable sources 99% of children consumed dark green leafy vegetables (DGLV), 70% consumed orange-fleshed sweet potatoes (OFSP), 68% consumed mango and 58% consumed orange squash.

The districts varied only slightly in the major food sources of VA. In Diffa the most frequently consumed foods were DGLV (virtually 100%), small fish (82%), mango (81%), butter (78%), liver (67%) OFSP (62%) and orange squash (53%). Mangos and butter were more frequently consumed in Diffa than the other districts

In Maine the most frequently consumed foods were DGLV (99%), OFSP (80%), squash (60%), mango (59%), butter (52%) and liver (51%). OFSP and cheese were more frequently consumed in Maine compared to the other districts.

In N'Guigmi the most frequently consumed sources of VA were DGLV (98%), liver (68%), egg yolk (67%), squash (67%) and mango (55%). Egg yolks were more frequently consumed in N'Guigmi than in other districts.

5. Home Gardening

The final survey found that 16% of households in Diffa have a home garden compared to 35% in Maine and only 2% in N'Guigmi; for the region the proportion was 22%. The most commonly cultivated vegetables were sorrel, onion, cabbage, squash, sweet potato and pepper.

Table 9: Distribution of consumption of VA-source foods by children 12-59 mos.

	District			Total
	Diffa	Mainé	N'Guigmi	Endline
Children consuming selected foods (%)				
Dark green leafy vegetables	99.5	99.3	98.4	99.3
Carrots	33.5	19.1	41.6	28.8
Mango	80.0	59.4	55.0	67.9
Orange or dark yellow squash	52.8	59.9	66.5	57.7
Papaya	4.5	19.3	2.6	10.2
Egg yolks	42.9	26.4	66.7	39.7
Small fish (whole)	81.5	39.6	7.7	53.9
Orange-fleshed sweetpotatoes	62.3	80.4	67.2	70.4
Liver	66.9	51.2	68.0	60.7
Butter	77.9	52.1	31.5	60.6
Palm Oil	2.8	1.2	0.0	1.7
Cheese	8.0	26.2	16.8	16.7
Bitamin[4]	4.2	17.4	0.6	9.0
VA-fortified margarine	5.2	9.9	6.0	7.2
Average number of days of consumption				
Dark green leafy vegetables	6.02	5.98	5.34	5.90
Carrots	0.58	0.34	0.53	0.47
Mango	1.79	1.42	0.94	1.51
Orange or dark yellow squash	1.34	1.76	2.60	1.69
Papaya	0.05	0.36	0.05	0.18
Egg yolks	1.18	0.36	1.14	0.84
Small fish (whole)	3.48	0.91	0.13	1.95
Orange-fleshed sweetpotatoes	1.48	2.63	1.77	1.99
Liver	1.25	0.78	0.93	1.01
Butter	4.88	2.96	0.91	3.52
Palm Oil	0.12	0.02	0.00	0.06
Cheese	0.12	0.31	0.36	0.23
Bitamin[3]	0.06	0.50	0.01	0.23
VA-fortified margarine	0.15	0.17	0.08	0.15

6. Micronutrient Supplementation among children 6-59 months and their mothers

Among children 6-59 months of age, **97%** had received a vitamin A supplement in the six months preceding the survey compared to **56%** at baseline. Among mothers of children 0-23 months, **83%** reported having received vitamin A after their last pregnancy compared to only **17%** at baseline. Among the pregnant women surveyed, 87% reported having taken an iron folic acid tablet in the previous 24 hours (Table 10). The test of iodization levels in salt found that virtually all households (99.6%) had adequately iodized salt; a similar proportion was found at baseline.

[4] An enriched porridge made from millet, peanuts, black-eyed peas and the fruit of the baobab. It was developed by CARITAS

7. Child Vaccination (12-23 months)

Among the children 12-23 months of age with a vaccination card available for inspection (n=207), 64% were fully vaccinated and 78% had received a measles vaccine (Table 11). At baseline the levels were 59% and 50%, respectively.

Table 10: Iron-Folic Acid (IFA) supplementation among women

	Distrrict			Total
	Diffa	Maine	N'Guigmi	
Currently pregnant ; received IFA (n= 116)				
Yes	71.3	80.1	92.7	77.9
No	28.7	19.9	7.3	22.1
Currently pregnant ; took IFA in previous 24 hours (n= 96)				
Yes	76.8	94.5	100.0	87.0
No	23.2	5.5	0.0	13.0
Not pregnant ; received IFA during last pregnancy (n= 702)				
Yes	81.5	81.3	92.3	83.4
No	18.6	18.8	7.7	16.6
Not pregnant ; took all IFA given during last pregnancy (n= 652)				
Yes	86.8	82.4	94.2	86.3
No	13.2	17.7	5.8	13.7

Table 11: Vaccination history of children 12-23 months with health card documentation

District	N=	BCG	DPT			Polio			Measles	Yellow Fever	Fully vaccinated
			1	2	3	1	2	3			
Diffa	78	97.4	96.2	89.3	86.6	97.4	92.3	82.1	73.1	70.5	59.7
Mainé	89	95.5	97.8	95.4	98.8	95.5	93.3	91.0	86.5	83.1	68.6
N'Guigmi	40	95.0	95.0	97.4	91.9	90.0	87.5	80.0	70.0	70.0	58.1
Total	207	96.1	96.6	93.5	93.0	95.2	91.8	85.5	78.3	75.8	63.7

8. Diarrhea and Hygiene Practices with children 6-23 months

The endline survey found that 35% of children 6-23 months suffered from an episode of diarrhea in the two weeks preceding the survey and that 76% received oral rehydration solution and 23% received the homemade solution (Table 12). In addition, 46% were breastfed more frequently during the episode, 65% were given more fluids and 29% were fed more than usual to support recuperation. While the prevalence of diarrhea was unchanged from baseline, these findings suggest improvements in appropriate treatment from those derived from the KAP (Table 13)[5]. However, while one of the project objectives was to promote the use of zinc supplementation for the treatment of acute diarrhea, insufficient supplies were available at either the health facility or community level to achieve the targets (80% at the health facility and 50% at the household levels).

[5] It should be noted that the baseline Rapid Catch survey found that 23% of children were given increased fluids and continued feeding.

Table 12: Diarrhea prevalence and treatment among children 6-24 months (n=166)

	District			Total Endline	Total Baseline
	Diffa	Mainé	N'Guigmi		
Diarrhea episode in previous 2 weeks					
Children 6-23 months	40.2	27.7	44.0	35.4	34.7
				Treatment	
Oral Rehydration solution	74.7	77.9	75.4	75.9	12.0
Home sugar-salt solution	20.8	8.3	74.8	22.9	2.9
Water from cooked millet	6.1	3.6	0.0	4.2	N/A
Medication	40.9	60.0	76.2	53.3	34.9
Nothing	1.3	4.9	2.8	2.8	40.0
Other	17.3	0.8	2.0	9.2	1.1
Not known	3.8	0.0	0.0	1.9	--

Table 13: Feeding of the child 6-24 months of age during episode of diarrhea (n=166)

	District			Total Endline	Total Baseline
	Diffa	Mainé	N'Guigmi		
Quantity of liquid given					
Less than usual	10.3	22.8	5.2	13.6	43.8
Same quantity	22.6	44.8	31.9	31.6	35.9
More than usual	67.0	32.4	62.9	54.8	5.2
Quantity of food given					
Less than usual	38.6	44.2	6.3	34.7	42.9
Same quantity	25.3	53.3	35.7	36.0	34.9
More than usual	36.1	2.5	58.1	29.3	3.2
Frequency of breastfeeding					
Less than usual	10.8	23.3	1.8	13.5	49.4
Same frequency	22.7	74.1	21.1	40.6	49.3
More than usual	66.5	2.6	77.1	45.9	1.3
Frequency of liquids given					
Less than usual	5.4	21.2	4.4	10.8	N/A
Same frequency	21.5	35.8	7.8	24.2	N/A
More than usual	73.1	43.0	87.8	65.0	N/A

Regarding appropriate hygiene behaviors, about 55% of mothers reported washing their hands at all four key occasions (before preparing food, before feeding child, after defecation and after cleaning a child's defecation) a significant improvement from the baseline KPC of less than 1% (Table 14). Also at baseline 67% of mothers reported using only water for hand washing. At endline 66% of households in which leftover foods were observed used a clean container.

Table 14: Hand washing practices (with soap or ash) n=898

	District			Total Endline	Total Baseline
	Diffa	Mainé	N'Guigmi		
Before preparing food	95.3	48.7	91.9	73.9	N/A
Before feeding child	95.5	96.7	94.0	95.8	N/A
After defecation	94.3	71.7	92.6	83.9	N/A
After cleaning child's defecation	89.5	55.8	90.5	74.7	N/A
Other occasions	4.2	45.4	10.0	23.4	N/A
Never	0.6	0.7	1.5	0.8	N/A
All four key occasions	85.3	14.4	75.0	54.5	0.3

9. Integrated Control of Anemia among Women and Children

The project strategy to combat anemia among pregnant women included the promotion of iron-folic acid (IFA) supplementation during pregnancy and 40 days postpartum; use of insecticide-treated bed nets (ITNs); intermittent presumptive treatment of malaria and de-worming during pregnancy; and improved dietary intake. Among children the strategy included use of ITNs, de-worming (for ages 12-59 months); and improved dietary intake.

Among currently pregnant women (n=113), 76% reported they had received IFA tablets from the health center. Among these women 85% reported having taken a tablet in the previous 24 hour period; however responses of 14 women were missing. Among non-pregnant women 84% reported receiving IFA during their previous pregnancy and 59% reported taking at least 90 tablets. Seventy percent of non-pregnant women recalled receiving IFA postpartum (Table 16). All indicators suggest an important improvement over baseline. Project experience suggests the supply has also improved, due at least partially to advocacy by HKI.

With regard to the treatment of malaria among pregnant women and children, 81% of women were given presumptive treatment, and among these the great majority was given Sulfadoxin Pyrithamine. This is an important improvement over baseline, when only about half of women received treatment (Table 15).

Table 15: Anemia Control among Women

	District			Total Endline	Total Baseline
	Diffa	Maine	N'Guigmi		
Received IFA, currently pregnant (n= 113)					
Yes	71.4	73.0	88.9	76.1	37.2
No	28.6	27.0	11.1	23.9	68.2
Took IFA during previous 24 hrs, currently pregnant (n= 99)					
Yes	77.3	84.4	100	84.9	8.0
No	22.7	15.6	0	15.1	92.0
Received IFA last pregnancy (n= 834)					
Yes	79.9	81.7	90.9	84.1	N/A
No	20.1	18.2	9.1	15.8	N/A
Received IFA post partum last pregnancy (n=887)					
Yes	59.7	70.3	80.4	70.1	10
No	39.7*	29.7	19.6	29.8	90
Took medicine to prevent malaria during last pregnancy (n=896)					
Yes	81.0	77.2	91.7	81.3	50.9
No	15.5	19.4	6.6	15.5	49.1
Not known	3.0	0.5	0.9	1.5	
Medication taken (n=740)					
Sulfadoxin Pyrethamine	98.4	89.2	99.1	94.7	N/A
Other	0.4	9.5	0.6	4.2	N/A
Not known	1.2	1.4	0.4	1.1	N/A

*Two women said they did not know

The final survey found that of 900 households, 765 or 85% had a bed net. Of those with a net 54% were using it (410 of 755) and of those, 82% were treated with insecticide (338 of 410); the way the question was asked it is not possible to determine the proportion of all nets that were treated. Among the families with a child under 24 months *that were using their ITNs*, 95% had the child and mother sleeping under it (274/288). However, while there appear to be a number of households who did not respond to the question, the true estimation of use may be closer to 274/602 or 46% (Table 16). The baseline questionnaire indicates that a larger proportion of households possessed and used a bed net but a much smaller proportion were treated.

Among children with fever a considerably higher proportion sought treatment (Table 17). Among those who went to the health center 62% were counseled to ensure the child slept under a bed net.

Table 16: Use of mosquito nets in Diffa Region

Question	N=	%	Baseline
ITN in household (n=900)			
Yes	765	85	89.7
No	135	15	10.3
ITN used (n=755)			
Yes	410	54.3	66.1
No	345	45.7	33.9
Net treated (n=410)			
Yes	338	82.4	18.3
No	67	16.3	81.7
Not known	5	1.2	
HH uses ITN and child <24 months slept under (n=288)			
Yes	274	95.1	48.5
No	14	4.9	51.5
All children <24 months (n=602)	274	45.5	N/A

Table 17: Treatment of Fever in Children

	District			Total Endline	Total Baseline
	Diffa	Maine	N'Guigmi		
Did child have fever in previous two weeks (n=888)					
Yes	34.0	20.6	21.2	25.3	22.8
No	66.0	79.4	78.8	74.7	77.2
Did you seek treatment for fever (n=225)					
Yes	95.0	92.2	88.2	92.3	61.3
No	5.90	7.8	11.8	7.7	38.7
Who in household made decision (n=224)					
Mother	55.7	61.2	84.1	63.2	N/A
Father	41.2	37.8	13.4	34.4	N/A
Father's parents	0.8	-	-	0.4	N/A
Mother's parents	1.5	1.0	2.4	1.5	N/A
Other	0.9	-	-	0.4	N/A
Where was treatment sought (n=222)					
Integrated Health Center	45.0	61.1	77.4	56.3	N/A
Health Post	43.9	31.7	14.0	34.3	N/A
Community agent	4.3	4.6	7.3	5.0	N/A
Hospital	1.7	-	1.3	1.1	N/A
Traditional Healer	1.5	-	-	0.7	N/A
Marabout	2.9	-	-	1.4	N/A
Village leader	0.8	2.7	-	1.2	N/A
Other	4.3	4.6	7.3	5.0	N/A

10. Growth Monitoring of Children 0-36 months

The final survey found that 60% of mothers of children 0-36 months reported their child was weighed at birth and 53% had brought their child for growth monitoring in the previous two months (Table 18). Although this was not measured at baseline it is believed that growth monitoring was very rare at that time.

Table 18: Growth monitoring of children 0-36 months

	Weighed at birth (%)	Weighed previous 2 months (%)	Place of growth monitoring				Weighed monthly (%)
			IHC[6]	Health Post	Village GMP	Other	
Diffa (n=264)	71.3	49.9	64.8	25.8	7.3	2.1	53.3
Mainé (n=277)	68.3	55.4	76.7	23.7	-	-	76.8
N'Guigmi (n=270)	43.4	54.4	82.1	16.0	1.9	-	88.5
Total	60 .3	52 .7	73.4	23.0	2.9	0.7	68.2

11. Anthropometry and Hemoglobin Measures

Among children, the prevalence of all three indicators of undernutrition remains very high among all age groups (Table 19). There is little change in global acute malnutrition (wasting) from baseline, which was estimated as 25.6% among children 0-23 months and possibly deterioration in length for height for which the prevalence was estimated at (25.4%)[7]. The economic and food security situation have both remained precarious in Diffa for reasons beyond the control of the project. On the other hand, the prevalence of underweight among non-pregnant women was 38% at baseline and 20% at endline, while severe underweight was 17% and 3%, respectively (Table 20).

[6] Integrated Health Center

[7] This appears to be an underestimation, as the 2006 DHS reported the prevalence in Diffa as 47%. Note also that this refers to 0-23 months whereas the baseline is 6-23 months. The prevalence is likely to be higher in the 6-23 month age group.

Table 19: Undernutrition among children 6-59 months

	Wasting (low weight for length/height)		Stunting (low length/height for age)		Underweight (low weight for age)		
	Moderate (<=-2 SD)	Severe (-3 SD)	Moderate (<=-2 SD)	Severe (-3 SD)	Moderate (<=-2 SD)	Severe (-3 SD)	N=
Age of child in months							
6-11 mos.	8.6	2.1	33.9	9.6	43.3	9.5	168
12-23 mos.	26.6	4.1	52.5	24.1	68.5	17.8	310
6-23 mos.	23.6	3.5	46.7	19.1	59.6	14.9	478
24-35 mos.	14.2	0.8	38.6	13.6	46.6	17.9	316
6-36 mos.	20.0	2.4	43.5	16.9	54.5	16.1	794
36-47 mos.	12.3	0.3	36.8	14.8	40.5	7.5	291
48-59 mos.	10.7	0.9	36.3	13.5	32.0	6 .7	191
Sex of child							
Girls	13.8	1.2	40.5	13.9	46.0	13.9	627
Boys	17.3	2.2	40.9	17.8	50.1	17.8	639
District							
Diffa	13.0	0.9	45.1	17.0	46.6	12.4	519
Mainé Soroa	18.2	1.6	39.3	17.7	53.6	14.0	418
N'Guigmi	16.2	3.9	32.4	8.8	38.9	11.1	319
Total	15.6	1.7	40.7	15.9	48.1	12.8	1266
Baseline							
0-23 mos.	25.6	6.8	25.4	10.0	33.6	N/A	441*

*Underweight data came from Rapid Catch survey conducted in Sept. 2005 (n=298)

Table 20: Nutritional status of non-pregnant women (n=811)

	Height			Body Mass Index (kg/m^2)				
	Mean height in cm.	< 145 cm (%)	N=	Mean BMI	18.5-24.9 (normal)	< 18.5 (under weight)	< 17 (severely under weight)	≥ 25 (obese)
District								
Diffa	160.5	1.1	252	20.6	70.3	18.8	3.8	7.1
Mainé	159.9	2.0	283	20.1	68.9	21.1	3.2	6.8
N'Guigmi	159.9	3.0	276	21.3	63.6	20.5	1.9	14.0
Age								
15-19 yrs.	158.9	2.2	112	20.0	67.3	22.0	5.3	5.5
20-24 yrs.	159.7	1.3	204	20.1	75.2	18.2	2.1	4.5
25-29 yrs.	160.9	3.2	208	21.0	65.9	17.0	3.6	13.5
30-34 yrs.	160.4	0.7	130	20.9	66.9	21.0	3.5	8.7
35-39 yrs.	160.7	0.7	82	20.6	66.8	20.7	1.8	10.7
40-44 yrs.	161.0	-	48	20.2	64.3	26.8	3.1	5.8
45-49 yrs.	157.6	4.2	27	20.2	47.8	37.3	1.4	13.4
Total	160.1	1.9	811	20.5	68.3	20.2	3.1	8.3

The prevalence of anemia appears to have improved from baseline: among pregnant women falling from 40% to 7% and among children from 73% to 51%. The target for women (reducing prevalence to 30%) was surpassed although the target for children (reducing prevalence to 40%) was not reached.

Table 21: Anemia Prevalence

	District			Total Endline	Total Baseline
	Diffa	Mainé	N'Guigmi		
Pregnant Women (n=112)					
Overall prevalence of anemia (< 11mg/dl)	10.7	6.3	3.9	7,4	40.2
Proportion severe (<7.0mg/dl)	2.5	-	-	1.3	N/A
Proportion moderate (7.0-9.9 mg/dl)	33.6	42.4	21.6	34.8	N/A
Proportion mild (10.0-10.9 mg/dl)	23.6	13.4	16.5	19.0	N/A
Children 6 to 23 mos. (n=471)					
Overall prevalence of anemia (< 11mg/dl)	49.4	55.7	40.3	50.5	72.8
Proportion severe (<7.0mg/dl)	1.7	3.4	5.5	3.0	N/A
Proportion moderate (7.0-9.9 mg/dl)	48.3	58.0	50.4	52.6	N/A
Proportion mild (10.0-10.9 mg/dl)	29.4	28.1	19.8	27.5	N/A

12. Additional Rapid Catch Variable: HIV and Recognition of Danger Signs

Eighty percent of mothers of children 0-23 months of age (482/601) recognized at least two known methods for reducing the risk of contracting HIV. And of these same mothers (480/601) recognized at least two signs of childhood illness that indicate the need for treatment.

E. Discussion

The findings of the final survey suggest some significant improvements in a range of targeted behaviors. Although it is not possible to determine the extent to which answers given reflected true behavior change or just improved knowledge of the correct response, the outcomes are nevertheless very encouraging. Given that no other non-governmental organizations were providing support for prevention and treatment of malnutrition in Diffa, it is plausible that the USAID-funded Child Survival Project contributed to these changes. The project strategies employed included the comprehensive and repeated training of the staff of all health facilities in the region (in the Integrated Management of Childhood Illnesses, the appropriate use of zinc supplementation for the treatment of diarrhea, and the Essential Nutrition Actions framework and behavior change communications techniques). In addition to strengthening health agents' knowledge of and capacity to deliver essential nutrition services (such as vitamin A supplementation for children 6-59 months and post-partum women; iron-folic acid supplementation and presumptive treatment for malaria and intestinal helminths among pregnant women and de-worming for children 12-59 months), the training increased the frequency and relevance of nutrition education sessions delivered at the health centers. Concommitant grants from USAID's Office of Foreign Disaster Assistance (OFDA) supported training of all these staff in the community-based management of acute malnutrition (CMAM) and the supply of supplementary and therapeutic foods and medicines for that program. In addition, community groups were formed in 60 villages (more than half of the total of 115 targeted by the project) and trained in ENA and BCC as well as in growth monitoring and promotion. These groups also organized frequent nutrition education discussions with the help of HKI field agents that helped reinforce awareness and, presumably, acceptance of optimal nutrition practices.

In breastfeeding, improvements were shown in the timely initiation of breastfeeding (within one hour of birth: from 55 to 85%); in the use of prelacteal feeds (substances other than breastmilk given at birth: reduced from 90 to 51%); and in reports of giving only breastmilk in the previous 24 hour period (increased from 26 to 72%) comparing the endline data to those of the baseline KAP survey of March 2005. It should

be noted that the wording of the exclusive breastfeeding question was somewhat leading; rather than asking what the child was given in the previous 24 hours the mother was asked if the child was given anything other than breastmilk (see footnote 2). However, the same wording was used at baseline and endline.

In complementary feeding, considerable increases appear to have occurred in the feeding of children 6-9 months; the proportion increased from 40% at baseline to 72% at endline (see Evaluation Report Annex 5: Rapid Catch Table). The scores for the vitamin A food frequency questionnaire among children 12-59 months also appeared to make substantial improvements (the mean score for the region increasing from 4.0 to 9.2, exceeding the target of 5.5). The endline mean scores for both Diffa and Maine exceed the cut-off for community risk of vitamin A deficiency. In addition the project helped revitalize campaigns to delivery vitamin A supplementation twice each year to children 6-59 months and de-worming one each year to children 12-59 months, with records suggesting nearly all children were reached each round. The final survey found 97% of mothers reporting their child had received VAS in the previous six months (compared to 56% at baseline) and 83% of women of children 0-23 months reporting having received VAS during the 40 days following their last pregnancy (compared to 17% at baseline).

Feeding of children 6-23 months during diarrhea was also significantly improved. The proportion of mothers of children with an episode of diarrhea in the past two weeks who reported giving increased fluids to their children increased from the baseline level of 24% to 55% at endline, also exceeding the target (increasing to 40%) for that indicator. In addition, important improvements in the quantity of food and fluids given and the frequency of breastfeeding were seen compared to baseline. Reported hand washing behaviors were also dramatically improved. Whereas at baseline less than 1% of mothers reported washing their hands with soap or ash at all four key occasions (before preparing food, before feeding child, after defecation and after cleaning the child's defecation), at endline 55% were reporting doing so. Disappointingly, the prevalence of diarrhea reported at endline was unchanged from that reported at baseline. The reported prevalence of fever was also similar. It may be that unmeasured environmental factors kept the exposure to infectious agents high; it could also be that mothers actual hygiene behaviors were different from their self-reports.

In women's nutrition, the use of IFA during and after pregnancy was considerably higher at endline compared to baseline. Of pregnant women queried (n=99) 85% stated they had taken a tablet in the previous 24 hours (compared to 8% at baseline). Among non-pregnant women reporting on their previous pregnancy 84% reported receiving IFA and 59% reported having taken at least 90 tablets (the recommended dose) during that pregnancy while 70% reported receiving IFA in the post partum period (compared to 10% at baseline)

Participation in growth monitoring and promotion reached a reported 60% for children 0-36 months; the baseline figure is not known but it is presumed to be very low because there were no village growth monitoring committees and very few health centers were conducting these assessments.

The findings for ITN use are a bit ambiguous. While 85% of household reported having a bed net, only 66% of those households reported using it and of those 82% were treated. Among that subset 95% of households reported the child and mother slept under the net, however the proportion for all children under two would be approximately 46% (there may have been some missing responses). Thus despite the efforts of the child survival project to promote the use of ITNs and the efforts of other programs (the US President's Malaria Initiative and the Global Fund) to distribute treated nets, the results for this indicator appear disappointing. It should be noted that there was a large-scale distribution of ITNs the month

following the final survey, thus rates of ownership of treated nets should have increased[8].
Child anthropometric status also showed no improvement and possibly deterioration since endline. Among children 6-24 months, the prevalence of wasting was 24% (3.5% severe), the prevalence of stunting was 47% (19% severe), and the prevalence of underweight was 60% (15% severe). These levels are considerably higher than the reported baseline. Data from the 2006 DHS, which was carried out between January and March of 2006, suggest that the national prevalence of underweight among 6-23 month old children was 46.9%. Another approximate baseline comparison might be the National Nutrition survey conducted in October-November 2006[9]. However, this survey was conducted at a different time of year and following the hungry season of June-October. It did, however, use the same NCHS 1977 reference data. With these caveats, the table below compares the prevalence rates for children 6-35 months from that survey and the child survival endline. The levels of acute malnutrition (wasting) are double in our survey, while the rates of stunting are lower and the rates of underweight are similar.

Survey	Wasting (6-35 mos.)		Stunting (6-35 mos.)		Underweight (6-35 mos.)	
	W/H<-2SD	W/H<-3SD	H/A<-2SD	H/A<-3SD	W/A<-2SD	W/A<-3SD
NNS, Oct. 2006	11.2	1.2	51.6	22.3	55.9	19.9
Diffa CSP, Mar. 2009	20.0	2.4	43.5	16.9	54.4	16.1

The lack of impact on anthropometric status is disappointing but not surprising. A number of interventions to improve infant and young child feeding practices have found limited impact on child growth. Two studies in India of interventions to improve the feeding of children between 0 and 18 months of age documented important improvements in practices and energy intake but limited to no impact on growth measures in intervention compared to control children[10]. A comprehensive review of such interventions found that educational strategies emphasizing animal source foods had the strongest, although still fairly modest, impact and noted that underlying conditions of poverty, poor sanitation and chronic infections may counteract the benefits of improved feeding[11]. Further research is needed using program theory frameworks to understand what project elements contribute most powerfully to improved growth and what determinants undermining it could also be modified. It is possible that the benefits of our intervention will only detected over the longer-term; possibly in the next children born to the mothers exposed to the educational intervention. HKI hopes to continue these efforts and conduct follow up studies in the future. In addition, food insecurity remains critically high throughout the region, imposing constraints on efforts to improve the nutritional status of children and their mothers.

The prevalence of underweight among women of reproductive age was recorded as considerably lower at endline, but an impact of this magnitude on women's weight is not likely due to the project interventions and may be a statistical artifact.

The prevalence of anemia was more likely influenced by the activities of the project (improved access of

[8] This distribution followed the final survey but preceded the final evaluation.
[9] Institut National de la Statistique et UNICEF. 2007. *Rapport d'Enquête Nationale : Nutrition et Survie de l'Enfant Niger, 19 Octobre – 11 Novembre 2006.*
[10] Bhandari, N., Bahl, R., Nayyar, B., Khokhar, P., Rohde, J. E. & Bhan, M. K. (2001) Food supplementation with encouragement to feed it to infants from 4 to 12 months of age has a small impact on weight gain. J. Nutr. 131: 1946–1951; and Bhandari N, Mazumder S, Bahl R, Martines J, Black RE, and Bhan MK. 2004. An Educational Intervention to Promote Appropriate Complementary Feeding Practices and Physical Growth in Infants and Young Children in Rural Haryana, India. *J. Nutr.* 134(9): 2342-2348.
[11]Dewey KD and Adu-Afarwuah S. 2008. Systematic review of the efficacy and effectiveness of complementary feeding interventions in developing countries *Maternal and Child Nutrition*. 4:24–85

women to IFA and presumptive treatment for malaria and helminthes; regular de-worming for children 12-59 months and improvements in dietary intake). Among pregnant women the rate at endline was 7% compared to baseline levels of 40%, while among children the rate was 51% at endline compared to 73% at baseline. The target for the reduction of anemia was not met, but important reductions were evident.

Overall, the comparison of levels on a range of indicators at baseline and endline suggest that the USAID-funded child survival project in Diffa made a significant contribution to improving infant and young child feeding practices, the nutrition of women of reproductive age, the nutrition knowledge of mothers, communities and health care providers, and the quality of nutrition services provided by health facilities. At the very least, a large majority of mothers has moved from Precontemplation to Contemplation to Preparation and many have likely moved to Action[12]. The project saturated the target areas with the ENA messages, which explain in simple terms why the recommended practices such as exclusive breastfeeding and richer porridge for young children will be good for the children and their mothers. It is conceivable that the information was pervasive enough to begin to challenge community norms. Moreover, the messages were delivered in the context of a strengthened capacity of the health services to provide effective treatment for acutely malnourished children, greatly enhancing their credibility in these communities. Anecdotal evidence at least suggests that the community perception changed from distrust or rejection of health services to respect and appreciation. It is plausible that this led them to be more open to the counsel of these same agents. It is possible that answers to survey questions reflected women's awareness of the "correct" answer rather than actual behavior change, but with continued support this awareness of the promoted practices could progress to their adoption.

Diffa is a remote and neglected region of Niger; by project end HKI was still the only NGO working to strengthen the health care system and the prevention and treatment of malnutrition. With modest funding levels to cover a vast stretch of territory[13] (the grant from USAID was $1.5 million and the match from HKI about $500,000), the project accomplishments are considerable. The government also made significant investments in the health infrastructure, increasing the number of health facilities from 22 when the original proposal was drafted to 34 integrated health centers (IHC) plus 44 health posts at the time of the DIP to 44 IHC plus 135 health posts by project end. The government was a dedicated partner in all the interventions supported by the project, participating actively in all training programs and recognizing the importance of adopting and rolling out new national protocols for the treatment of acute diarrhea and CMAM. The staff of the child survival project also showed dedication and perseverance in the face of serious logistical challenges. The office in Diffa is an arduous two-day drive from the capital Niamey; it had no internet and limited telephone connectivity for the first two years of implementation, and navigating the terrain of the region was difficult. Nevertheless, project staff made regular visits to most health facility and all emphasis villages to reinforce skills of health and community agents and behavior change messages.

[12] Prochaska and DiClemente, *op. cit.*

[13]The region extends over approximately 160,000 square kilometers, a territory about the size of the state of Colorado.

KPC REPORT Appendix 1: Villages included in sample

Villages in Diffa		
	Number of Households in 2001	Cluster No.
Adjiri	118	**001**
Bagara	409	**002**
Bosso	296	**003**
Chétimari	134	**004**
Djaboulam	75	**005**
Issari	179	**006**
Kollédji	134	**007**
Malam Boukardi	113	**008**
N'guel Kolo	298	**009**
Yagirguidi	101	**010**

Villages in Mainé		
	Number of Households in 2001	Cluster No.
Aboudja	195	**011**
Boudoum	197	**012**
Chéri	235	**013**
Djadjiri	276	**014**
Goudoumaria	362	**015**
Guirsilik	63	**016**
Karagou Gardji	27	**017**
Kodjiméri	79	**018**
N'Guel Beyli	51	**019**
Tam	172	**020**

Villages of N'Guigmi		
	Number of Households in 2001	Cluster No.
Ari koukouri	42	**021**
Blanikour	96	**022**
Djourey	55	**023**
Kabléwa	87	**024**
Kossotori	67	**025**
Legam	28	**026**
Mourtchatchi	32	**027**
N'Gourti	57	**028**
Oudi Kanouri	42	**029**
Yourey	42	**030**

KPC REPORT APPENDIX 3 : HH Survey Questionnaire

Helen Keller INTERNATIONAL

ENQUETE FINALE PROJET PSE HKI-DIFFA

QUESTIONNAIRE

I. IDENTIFICATION		
	REGION DE : ----------	**Code Région** |____| **2**=Diffa
	DEPARTEMENT DE : ----------	**Code Département** |____|____| Diffa = 21 Mainé = 22 N'Guigmi = 23
	DISTRICT SANITAIRE DE : ----------	
	CENTRE DE SANTE INTEGRE (CSI) DE : ----------	
	CASE DE SANTE DE : ----------	
	VILLAGE DE : ----------	|_____|_____|
	GRAPPE DE : ----------	|_____|_____|
	NUMERO DU MENAGE :	|_____|_____|
	NOM ET PRENOM DU CHEF DE MENAGE ----------	

Nom enquêteur :……..…….. Nom du superviseur de proximité :……..

Date de passage : …\|____\|____\| / \|____\|____\| / \|**_2 009_**\| Heures de début : \|____\|____\| **H** / \|____\|____\| **mn**

Observations :

II. SELECTION DE L'ENFANT A ENQUETE		
N°	**QUESTIONS**	**REPONSES**
	Nom de la femme	
	Age de la femme	|____||____| ans
	Statut matrimonial de la femme ***Aller à Q14 si non mariée***	1. Mariée monogame 2. Mariée polygame 3. Divorcée |____| 4. Veuve 5. Célibataire
	Profession du mari (si mariée)	1. Agriculture 2. Elevage 3. Petit commerce 4. Artisanat 5. Chasse/pêche |____| 6. Bûcheron 7. Administration publique/privée 8. Commerçant/entrepreneur 9. Autres à préciser……..……
	Quel est le niveau d'instruction de la femme	1. Aucun 2. Coranique 3. Alphabétisé 4. Primaire 5. Secondaire |____| 6. Supérieur
	Nombre d'enfants de moins de 5 ans vivant dans le ménage	|____|____|

Pouvez vous me citer le nom et l'âge de chaque enfant en commençant pas le moins âgé?

N°	Nom de l'enfant	Sexe 1= M 2= F	Date exacte (jj/mois/année)	Age en mois	Est-il/elle Votre enfant biologique ? 1= Oui 2 = Non
1.		|____|	|___|___||___|___||___|___|	|____|____|	|____|
2.		|____|	|___|___||___|___||___|___|	|____|____|	|____|
3.		|____|	|___|___||___|___||___|___|	|____|____|	|____|
4.		|____|	|___|___||___|___||___|___|	|____|____|	|____|
5.		|____|	|___|___||___|___||___|___|	|____|____|	|____|
6.		|____|	|___|___||___|___||___|___|	|____|____|	|____|
7.		|____|	|___|___||___|___||___|___|	|____|____|	|____|
8.		|____|	|___|___||___|___||___|___|	|____|____|	|____|
9.		|____|	|___|___||___|___||___|___|	|____|____|	|____|
10.		|____|	|___|___||___|___||___|___|	|____|____|	|____|

	Quelle est la date de votre dernier accouchement ?	|____|____| Nombre de mois
	Est-ce que l'enfant est toujours vivant ?	1. Oui 2. Non |____|

III. SOIN DE LA MERE ET DU NOURRISON		
N°	**QUESTIONS**	**REPONSES**
Q3.1	Est ce qu'avant la naissance de (Nom), vous avez été vaccinée contre le tétanos ? ***(Questions posées aux mères biologiques)***	1. Oui 2. Non |____| 3. NSP
Q3.2	Combien de fois avez-vous été vaccinée contre le tétanos ?	1. Une fois 2. Deux fois 3. Plus de deux fois |____| 4. NSP
Q3.3	Où avez-vous accouché ?	1. A domicile 2. Dans une structure sanitaire |____| 3. Autre à préciser……..
Q3.4	Est-ce que vous avez été assistée pendant l'accouchement de (Nom) ?	1. Oui 2. Non |____|
Q3.5	Si oui, vous avez été assistée par qui ?	1. Un médecin 2. Une infirmière ou une sage femme 3. Une matrône 4. Un agent de santé communautaire |____| 5. Un membre de la famille 6. Autre à préciser……..

IV. ALLAITEMENT MATERNEL ET NUTRITION CHEZ LES ENFANTS DE 0 A 23 MOIS		
N°	**QUESTIONS**	**REPONSES**
Q4.1	(Nom de l'enfant) a-t-il été mis au sein à la naissance ? **Si non, allez à la Q4.5**	1. Oui 2. Non |____|
Q4.2	Si oui, Combien de temps après sa naissance avez-vous mis (nom) à votre propre sein pour la première fois ?	1. 1ère heure 2. 1 heure à 8 heures 3. 8 heures à 24 heures |____| 4. Plus de 24 heures 5. NSP
Q4.3	Avant de donner le sein à (nom) après sa naissance, a t-il bu ou mangé quelque chose d'autre ?	1. Oui 2. Non |____| 3. NSP
Q4.4	Si oui, préciser	1. Lait de chèvre 2. Eau sucrée 3. Miel |____| 4. Jus de citron 5. Eau bénite 6. Autre à préciser…….
Q4.5	Est-ce que (nom de l'enfant) est allaité au sein actuellement ?	1. Oui 2. Non |____|
Q4.6	Depuis hier à pareil moment jusqu'à maintenant **(24 Heures)**, (nom de l'enfant) a-t-il pris autre chose en dehors du lait maternel ?	1. Oui 2. Non |____|

Q4.7 Si oui lesquels ?

Numéros	Consommés des dernières 24 heures	1= Oui 2 = Non
1.	Eau simple	|____|
2.	Eau sucrée	|____|
3.	Jus de fruits	|____|
4.	Purée	|____|
5.	Aliments mâchés	|____|
6.	Autres (à préciser)	|____|

IV. ALLAITEMENT MATERNEL ET NUTRITION CHEZ LES ENFANTS DE 0 A 23 MOIS (SUITE ET FIN)

N°	QUESTIONS	REPONSES
Q4.8	Si non à **Q4.6**, pendant combien de temps comptez vous allaiter (nom) exclusivement au sein ?	|____| (en mois)

Q4.9

Quel type d'aliment liquide que (nom de l'enfant) a bu hier pendant la journée et/ou la nuit

Type d'aliments	Consommés 1 = Oui 2 = Non	Nombre de fois *Ne sait pas= 99* *Si aliment non consommé, mettez 00*
1. Lait	|____|	|____||____|
2. Jus de fruit	|____|	|____||____|
3. Autre à préciser……	|____|	|____||____|

Q4.10 Quel type d'aliment (semi liquide, solide) que (nom de l'enfant) a mangé hier pendant la journée et/ou la nuit

Type d'aliments	Consommés 1 = Oui 2 = Non	Nombre de fois *Ne sait pas= 99* *Si aliment non consommé, mettez 00*
1. Plat de céréales (mil, maïs, sorgho, riz, blé)	|____|	|____||____|
2. Haricot/Niébé/Vouanzou	|____|	|____||____|
3. Purée	|____|	|____||____|
4. Pâtes alimentaires	|____|	|____||____|
5. Bouillie	|____|	|____||____|
6. « Costards »	|____|	|____||____|
7. Boule	|____|	|____||____|
8. Plat de tubercules	|____|	|____||____|
9. Autre à préciser……	|____|	|____||____|

Q4.11	Comment avez-vous donné ces aliments à (nom de l'enfant) hier la journée et/ou la nuit ?	1. Patiemment en l'encourageant 2. Rapidement |____| 3. En le forçant / Gavage 4. Lui donne son plat 5. Autres à préciser……...

V. CONSOMMATION DES ALIMENTS RICHES EN VITAMINE A CHEZ LES ENFANTS DE 12 à 59 MOIS

N°	QUESTIONS	REPONSES
Q5.1	Au cours de la semaine dernière c'est à dire du…… (Jour de la semaine) passée à hier nuit, pendant combien de jours est-ce que (nom de l'enfant) a mangé les aliments suivants ? (Répétez la question pour chaque aliment figurant dans le tableau).	

Nom de l'aliment	Nombre de jours dans la semaine *(si un aliment n'a pas été consommé au cours des 7 derniers jours, inscrire **0**)*
1. Pâte/Couscous (mil, maïs, riz…)	
2. Noix de kola	
3. Feuilles vert foncé	[ ]
4. Lait sauf lait en poudre	
5. Carottes	[ ]
6. Mangue mûre	[ ]
7. Courge orange ou jaune foncé	[ ]
8. Feuilles de moringa (el maka)	
9. Papaye mûre	[ ]
10. Boule (Hura)	
11. Jaune d'oeuf	( )
12. Petits poissons entiers	( )
13. Arachide	
14. Feuilles d'oseilles	
15. Patate douce à chaire orange ou jaune	[ ]
16. Pintade ou poulet	
17. Feuille d'amarante (aleyahu)	
18. Foie (toute sorte)	( )
19. Feuilles de baobab	
20. Viande rouge de chèvre ou mouton	
21. Beurre (man shanu)	( )
22. Viande rouge de bœuf	
23. Huile de palme rouge	[ ]
24. Criquets	
25. Niébé/haricot	
26. Aliments frits (abunci soyayé)	
27. Fromage	( )
28. Huile alimentaire	
29. Bitamin	( )
30. Margarine fortifiée (man burodi)	( )
31. Papaye sauvage (gwadar daji)	[ ]

[ ] Sources végétales de vitamine A ( ) Sources animales de vitamine A

Q5.2	Est-ce que (nom de l'enfant) a reçu une capsule de vitamine A pendant les 6 derniers mois **? [Montrer un exemple de capsule de vitamine A à la mère]** ***(Pour les enfants de 6 – 59 mois)***	1. Oui 2. Non |____| 3. NSP
Q5.3	Est-ce que le ménage ou quelqu'un du ménage a un jardin ?	1. Oui 2. Non |____|
Q5.4	Si oui, qu'est ce vous cultivez ?	

Cultures pratiquées	**1 = Oui 2 = Non**
1. Poivron	|____|
2. Choux	|____|
3. Oignon	|____|
4. Laitue (salade verte)	|____|
5. Moringa (Zogala)	|____|
6. Carotte	|____|
7. Osseille	|____|
8. Tomate	|____|
9. Patate douce	|____|
10. Piment	|____|
11. Melon	|____|
12. Gourge	|____|
13. Pastèque	|____|
14. Concombre	|____|
15. Gombo	|____|
16. Manioc	|____|
17. Autres à préciser……..	|____|

VI. SUPPLEMENTATION EN MICRO-NUTRIMENTS DES FEMMES		
N°	**QUESTIONS**	**REPONSES**
	FEMMES EN GROSSESSE	
Q6.1	Êtes-vous enceinte actuellement ? **Si non, passer à la question Q6.5**	1. Oui 2. Non |____|
Q6.2	Quel est l'âge de votre grossesse actuelle ? (nombre de mois)	|____|____| **10= Ne Sait Pas**
Q6.3	Au cours de votre grossesse actuelle, avez vous reçu des comprimés de fer ? **[Montrer un exemple de comprimé de fer à la femme]**	1. Oui 2. Non |____|
Q6.4	Avez-vous pris des comprimés de fer hier au cours de la journée ou de la nuit ? **[Montrer un exemple de comprimé de fer à la femme]** ***Passez directement à la Q6.6***	1. Oui 2. Non |____|
Q6.5	Au cours de votre dernière grossesse, avez vous reçu des comprimés de fer ? **[Montrer un exemple de comprimé de fer à la femme]**	1. Oui 2. Non |____|
Q6.6	**Si oui,** combien de comprimés de fer avez-vous reçu ? *(Convertir en jours)*	**Quantité reçue**……|____|____|____| 00 si NSP
Q6.7	**Avez-vous pris tous les comprimés reçus?**	1. Oui 2. Non |____|

Q6.8	**Si non combien de comprimés de fer il en restait ?**	|____|____|____| **nombre de comprimés restants**
	FEMMES EN POST-PARTUM	
Q6.9	Après votre dernier accouchement, avez vous reçu une capsule de vitamine A dans la quarantaine ? **[Montrer un exemple de capsule de vit A]**	1. Oui 2. Non |____| 3. NSP
Q6.10	Après votre dernier accouchement, avez vous reçu des comprimés de fer pendant la quarantaine ? **[Montrer un exemple de comprimé de fer/folate]**	1. Oui 2. Non |____| 3. NSP

VII. VACCINATION DE L'ENFANT (0-59 mois)

N°	QUESTIONS	REPONSES
Q7.1	(Nom) a-t-il un carnet /carte de vaccination ?	1. Oui vu par l'enquêteur/l'enquêtrice 2. Non disponible (perdu, pas à la maison), aller à la Q8.1 |____| 3. N'a jamais possédé de carnet aller à la Q8.1 4. Ne sait pas aller à la Q8.1

Q7.2 Si oui, relever les informations écrites sur le carnet/carte de vaccination.

Type de vaccins	Date de vaccination		
	Jour	Mois	Année
1. BCG			
2. Polio1			
3. Polio2			
4. Polio3			
5. DT coq1/ Penta1			
6. DT coq2 / Penta 2			
7. DT coq3/ Penta3			
8. Rougeole			
9. Fièvre jaune			
10. Vitamine A			

Ecrire '44' dans la colonne 'jour' si la carte indique qu'un vaccin a été fait mais que la date n'a pas été reportée

VIII- DIARRHEE (ENFANTS DE 6-23 MOIS)

N°	QUESTIONS	REPONSES
Q8.1	Parfois, les enfants tombent malades et doivent recevoir des soins ou un traitement pour la maladie Quels sont les signes qui t'indiquent que (Nom) doit être traité ? *(NE PAS DONNER D'INDICATION)*	**1 = Oui 2 = Ne sait pas** 1. Diarrhée |____| 2. Parait malade ou ne joue pas normalement |____| 3. Ne mange pas ou ne boit pas |____| 4. Léthargique ou difficultés d'être éveillé |____| 5. Fièvre |____| 6. Respiration rapide ou difficile |____| 7. Vomissement |____| 8. Convulsion |____| 9. Autres ---------- (à spécifier) |____|

VIII- DIARRHEE (ENFANTS DE 6-23 MOIS)		
N°	**QUESTIONS**	**REPONSES**
Q8.2	(NOM) a-t-il souffert de l'une des maladies suivantes au cours des deux dernières semaines? *(LIRE LES REPONSES ET COCHER TOUTES CELLES MENTIONNEES PAR LA REPONDANTE*) **Si l'enfant ne souffre d'aucune maladie (c'est-à-dire 2 ou 3 à toutes les questions) aller à la Q9.1**	**1 = Oui 2 = Non 3 = Ne sait pas** 1. Diarrhée |____| 2. Selles sanguinolentes |____| 3. Toux |____| 4. Respiration difficile |____| 5. Respiration rapide / courte |____| 6. Fièvre |____| 7. Paludisme |____| 8. Convulsion |____| 9. Autres (à préciser)…… |____|
Q8.3	Quand (NOM) est malade, lui donnez-vous à **boire** moins que d'habitude, à peu près la même quantité ou plus que d'habitude ?	1. Moins que d'habitude 2. Même quantité |____| 3. Plus que d'habitude
Q8.4	Quand (NOM) est malade, lui donnez-vous à **manger** moins que d'habitude, à peu près la même quantité ou plus que d'habitude ?	1. Moins que d'habitude 2. Même quantité |____| 3. Plus que d'habitude
Q8.5	Quand (nom de l'enfant) avait la diarrhée, qu'avez-vous fait pour traiter la diarrhée ? *(Laisser la répondante donner les réponses possibles)*	**1 = Oui 2 = Non** 1 Rien |____| 2 ESS (Eau Salée Sucrée) |____| 3 Sachet SRO |____| 4 Ruwan dawo |____| 5 Solution à base de mil |____| 6 Décoction |____| 7 Médicaments (Préciser) _____ |____| 8 Autres(Préciser)_____ |____| 9. NSP |____|
Q8.6	Quand (nom de l'enfant) avait la diarrhée au cours des deux semaines passées, avez-vous continué à lui donner le sein ?	1. Oui 2. Non |____| 9. Enfant déjà sevré
Q8.7	Si oui à quelle fréquence ?	1. Le même nombre de fois que d'habitude 2. Plus fréquemment que d'habitude |____| 3. Moins fréquemment que d'habitude 9. NSP
Q8.8	Quand (nom de l'enfant) avait la diarrhée, avez-vous continué à lui donner à boire (quelque soit le liquide) ?	1. Oui 2. Non (passez à la question Q**8.10**) |____|
Q8.9	Si oui à quelle fréquence ?	1. Le même nombre de fois que d'habitude 2. Plus fréquemment que d'habitude 3. Moins fréquemment que d'habitude |____| 9. NSP
Q8.10	Quand (nom de l'enfant) avait la diarrhée, avez-vous continué à lui donner à manger des aliments solides ?	1. Oui 2. Non (passez à la question **Q8.12**) |____|
Q8.11	Si oui à quelle fréquence ?	1. Le même nombre de fois que d'habitude 2. Plus fréquemment que d'habitude

VIII- DIARRHEE (ENFANTS DE 6-23 MOIS)		
N°	**QUESTIONS**	**REPONSES**
		3. Moins fréquemment que d'habitude |____| 9. NSP
Q8.12	Aviez – vous demandé des conseils sur la prise en charge de la diarrhée ou le traitement de la diarrhée auprès d'une personne extérieure au ménage ?	1. Oui 2. Non |____|
Q8.13	Si oui, où êtes-vous allées pour avoir les conseils ou pour obtenir le traitement ?	1. Agent communautaire 2. Case de santé 3. CSI |____| 4. Hôpital 5. Guérisseurs 6. Conseiller communal/chef de village 7. Marabout 8. Autres (précisez)……
Q8.14	Qui a décidé que vous devez amener (nom de l'enfant) à cet endroit pour avoir des conseils ou des soins ?	1. Moi-même 2. Mon mari 3. Beaux parents |____| 4. Conseiller communal/chef de village 5. Mes parents 6. Autres (précisez)……

IX-HYGIENE ET ASSAINISSEMENT		
N°	**QUESTIONS**	**REPONSES**
Q9.1	Quand est-ce que vous vous lavez les mains avec de l'eau et du savon / de la cendre ?	**1= Oui 2 = Non** 1. Jamais |____| 2. Avant de préparer à manger |____| 3. Avant de nourrir les enfants |____| 4. Après avoir déféqué |____| 5. Après avoir nettoyé un enfant qui a déféqué |____| 6. Autres (à préciser)……. |____|
Q9.2	Demandez à voir le reste de son repas afin d'observer l'état d'hygiène	1. Récipient propre 2. Repas protégé |____| 3. Récipient malpropre et/ou repas non protégé 4. Pas de reste de repas

X-VIH/SIDA		
N°	**QUESTIONS**	**REPONSES**
Q10.1	Avez-vous une fois entendu parler d'une maladie appelée **SIDA** ?	1. Oui 2. Non → **aller à Q11.1** |____|
Q10.2	Peut-on éviter la maladie du **SIDA** ?	1. Oui 2. Non |____| 3. Ne sait pas

Q10.3	**Si oui**, que peut-on faire pour éviter de contracter le sida ou le virus qui cause le sida ? *(Laissez l'enquêtée donner les réponses possibles)*	**1= Oui 2 = Non**	
		1. Rien	|____|
		2. S'abstenir du sexe	|____|
		3. Utiliser le condom	|____|
		4. Se limiter a un seul partenaire sexuel / rester fidèle à un seul partenaire	|____|
		5. Limiter le nombre de partenaires sexuels	|____|
		6. Eviter de faire l'amour avec des prostituées	|____|
		7. Eviter de faire l'amour avec des personnes qui ont beaucoup de partenaires	|____|
		8. Eviter de faire l'amour avec une personne du même sexe	|____|
		9. Eviter de faire l'amour avec des personnes qui s'injectent de la drogue par intraveineuse	|____|
		10. Eviter la transfusion sanguine	|____|
		11. Eviter les injections	|____|
		12. Eviter de s'embrasser	|____|
		13. Eviter les piqûres de moustiques	|____|
		14. Rechercher la protection d'un guérisseur traditionnel	|____|
		15. Eviter d'utiliser les rasoirs, les lames avec d'autres personnes	|____|
		16. Autres (à préciser)	|____|
		17. Ne sait pas	|____|

XI. TEST DU SEL DU MENAGE (SOUS RESERVE DE L'OBTENTION DU REACTIF MBI)		
N°	**QUESTIONS**	**REPONSES**
Q11.1	*Demandez à l'enquêté d'avoir un peu du sel qu'elle utilise pour la cuisine* Avez-vous utilisé ce sel pour la préparation du repas hier dans la journée ou la nuit ? *(Prenez le contenu d'une cuillère de sel et faites le test pour l'iode)*	1. Oui 2. Non |____| 3. Pas de sel dans le ménage **(Passez à la Q12.1)**
Q11.2	Quel le résultat du test ?	Iode présent : valeur en PPM |____|____| **PPM**

XII. TEST HEMOCUE (FEMMES ENCEINTES ET ENFANTS DE 6-23 MOIS)

N°	QUESTIONS	REPONSES
Q12.1	Quel est le résultat des prélèvements sanguins ?	

	Femmes en enceintes	Quantité en gramme par litre
F1.		|____|____|, |____|
F2.		|____|____|, |____|
F3.		|____|____|, |____|
F4.		|____|____|, |____|

	Enfants de 6 – 23 mois	Quantité en gramme par litre
1.		|____|____|, |____|
2.		|____|____|, |____|
3.		|____|____|, |____|
4.		|____|____|, |____|

XIII. SUIVI DE CROISSANCE (Enfants de 0 – 36 mois)

N°	QUESTIONS	REPONSES
Q13.1	Est-ce que (nom de l'enfant) a été pesé(e) à la naissance ?	1. Oui 2. Non |____| 3. Ne sait pas
Q13.2	Est-ce que (nom de l'enfant) a été pesé(e) au cours **des deux (2) derniers mois** ?	1. Oui 2. Non |____| 3. Ne sait pas
Q13.3	Si oui, où est-ce que (Nom de l'enfant) a été pesé ?	1. CSI 2. Case de santé 3. EVPCAC |____| 4. Autres à préciser…….
Q13.4	Enquêteur, vérifier à la **Q7.1 si l'enfant a un carnet de santé** *Si (nom de l'enfant) possède un carnet de santé, vérifier qu'il a été pesé(e) durant* ***les Quatre (4) derniers mois***	1. Oui 2. Non |____|
Q13.5	Si oui, cette pesée est –elle régulière ?	1. Régulière (chaque mois) 2. Irrégulière |____|
Q13.6	Est-ce que (nom de l'enfant) a-t-il reçu un antiparasitaire (mébendazole) au cours des 6 derniers mois ? **(Montrez le comprimé de mébendazole)**	1. Oui 2. Non |____|

XIV PALUDISME		
N°	**QUESTIONS**	**REPONSES**
Q14.1	Y a t il une moustiquaire dans votre ménage ? Si non allez à **Q15.1**	1. Oui 2. Non |____|
Q14.2	Puis-je voir la moustiquaire que vous avez ? (Examiner pour voir les trous ou déchirures)	1. Bon état 2. Mauvais état |____| 3. Non vue
Q14.3	La moustiquaire est-elle utilisée ?	1. Oui 2. Non |____|
Q14.4	Si oui, la moustiquaire est-elle imprégnée (La moustiquaire a t-elle jamais été imprégnée ou trempée dans un liquide pour chasser les moustiques ou insectes)?	1. Oui 2. Non 3. Ne sait pas |____|
Q14.5	Qui a dormi sous la moustiquaire la nuit dernière ?	1. Enfant (nom) 2. Moi-même |____| 3. Chef de ménage/mari 4. Mère/Enfants 5. Mère/Enfants/Père 6. Autres (Préciser)……
Q14.6	Il y a combien de temps que la moustiquaire a été achetée/obtenue ?	Nombre de mois *00 = Moins d'un mois* |____|____| *99 = Ne sait pas*
Q14.7	La moustiquaire a t-elle été retraitée ?	1. Oui 2. Non |____|
Q14.8	Il y a combien de temps que la moustiquaire a été retraitée ?	Nombre de mois *00 = Moins de 6 mois* |____|____| *99 = Ne sait pas*
Q14.9	Avez-vous ou quelqu'un de votre ménage a-t-il une fois lavé la moustiquaire ***(après le dernier traitement)*** ?	Nombre de fois 99 = Ne sait pas |____|____|

X V CHIMIOPROPHYLAXIE DURANT LA GROSSESSE		
N°	**QUESTIONS**	**REPONSES**
Q15.1	Quand vous portiez la grossesse de (nom de l'enfant) aviez-vous pris un médicament quelconque pour prévenir le paludisme ?	1. Oui 2. Non 3. Enfant non biologique |____| 4. Ne sait pas
Q15.2	**Si oui**, quel médicament aviez-vous pris ?	1. Sulfadoxine Pyri méthamine 2. Autres à préciser …….. |____| 3. Ne sait pas

XVI TRAITEMENT DU PALUDISME CHEZ LES ENFANTS (0 – 59 mois)		
N°	**QUESTIONS**	**REPONSES**
Q16.1	. Est-ce que (nom de l'enfant) a eu de la fièvre au cours **des deux (2) dernières semaines** ?	1. Oui 2. Non 3. Ne sait pas |____|
Q16.2	(Nom de l'enfant) a-t-il de la fièvre maintenant ? ***Si non à la Q16.1 et Q16.2 (enfant n'ayant eu de la fièvre au cours des deux dernières semaines et actuellement) aller à la section anthropométriques.***	1. Oui 2. Non 3. Ne sait pas |____|
Q16.3	**Si oui à la Q16.1 ou Q16.2**, avez-vous cherché des conseils ou un traitement pour la fièvre de (nom de l'enfant) ?	1. Oui 2. Non |____|
Q16.4	Qui a décidé que vous devez amener (nom de l'enfant) à cet endroit pour avoir des conseils ou des soins ?	1. Moi-même 2. Mon mari 3. Beaux parents |____| 4. Mes parents 5. Autres (précisez)……
Q16.5	Où êtes-vous allé en premier lieu pour obtenir des conseils ou le traitement ?	1. Agent communautaire 2. Case de santé 3. CSI |____| 4. Hôpital 5. Guérisseurs 6. Marabout 7. Conseiller communal / chef de village 8. Autres (précisez)……..…
Q16.6	Qu'avez-vous reçu comme conseils ?	
	Type de conseils — **1 = Oui 2 = Non** 1. Respect du traitement |____| 2. Quand revenir |____| 3. Dormir sous moustiquaire |____| 4. Autres à préciser……..…… |____|	
Q16.7	Avez-vous suivi ces conseils ?	1. Oui 2. Non |____|
Q16.8	Si Oui pourquoi ?	1. Santé de l'enfant 2. Autres à préciser……. |____|
Q16.9	Si non pourquoi ?	1. Manque de moyens 2. Manque de moustiquaire |____| 3. Autres à préciser ……..

DEMANDEZ A LA MERE LA PERMISSION DE PESER ET MESURER (Les enfants de 6 à 59 mois) ET ELLE MEME

XVII. MESURES ANTHROPOMETRIQUES

ANTHROPOMETRIE (MERE DE L'ENFANT OU TUTRICE)		
POIDS DE LA MERE	Kilogrammes (kg)…… ☐☐.☐	POIDS
TAILLE DE LA MERE	Taille (cm) ……. ☐☐☐.☐	TAILLE
RESULTAT DES MESURES	Mesuré .....1 Absent .....2 Refus .....3 Autre (*à préciser*) _____ 6	

le numero d'enregistrement de l'enfant à la Q16 ID	1=M 2=F Sex	naissance BIRTHDATE	MONTHS	WEIGHT	Position Couchée < 85 cm	Position Debout 85 cm et plus	Debout……H Couché…..L	Non ……N

Heure de fin d'entretien _____

KPC REPORT APPENDIX 3 : Data collection team

1) Lab Technicians
    - Alio Ango - N'Guigmi Health District
    - Idrissa Halidou - Diffa Health District
    - Moussa Noma - Mainé Health District
2) Surveyors for Household Survey
    - Fati Garba Sani (Surveyor)
    - Sani brah (National Institute for Statistics)
    - Aissata Hassane (Surveyor)
    - Amina Boubacar (HKI Field Agent)
    - Nafissa Manga (HKI Field Agent)
    - Aissata Hassane (Surveyor)
3) Surveyors for Health Facility Assessment
    - Fati Koudéram (Maine - Health District Supervisor)
    - Maazou Abdou (N'guigmi Health District Supervisor)
    - Makinta Yacine (Regional Directorate Health Supervisor)
    - Actha Tchigoune
    - Abdoulaye Hassane
4) Supervisors for Health Facility Assessments
    - Hamani Harouna (HKI/Niamey)
    - Nassirou Ousmane
5) Supervisors for Household Surveys
    - Hinsa Adamou (HKI/Diffa)
    - Hadi Hamani (Health District Supervisor, Diffa)
    - Ibrahim Djibo (HKI/Niamey)
    - Oumarou Elhadji. Mamane (HKI/Diffa)
    - Halima Niandou (HKI/Niamey)
    - Youssey Ibrahim
    - Boubacar Idrissa Kountché (Consultant)

KPC REPORT APPENDIX 4 : Surveyor Training Program

Time	Thursday 02/04/09	Friday 03/04/09	Saturday 04/04/09	Sunday 05/04/09	Monday 06/04/09
08 00 – 10 H 00	• Welcome; Objectives **(Elh. Omar)** • Expectations **(Adamou Hinsa)** • Administration **(Elh. Omar)**	• 8h00 à 10h 30 Anthropometry **(Consultant)** **Hinsa**	• 8h00 – 08h30 : Food Frequency Questionnaire **(Elhad. Omar)** • 8h30 – 10h00: Hemocue **(Halima)** • Software **(SMART)** **Consultant & Adamou Hinsa**	• 8h 00 à 10h 30 Hemocue (Cont.) **(Halima) jusqu'à 11 h 30** 11h30-12h30 • Software **(SMART)** **Consultant & Adamou hinsa**	• Field Test **(Superviseurs et consultant)** • Implementation Planning **(Superviseurs et consultant)**
10 H 00 – 10 H 30	**Coffee Break**				
10 H 30 – 12 H 30	• Objectives **(Adamou Hinsa)** • KAP nutrition / diarrhea **(Adamou Hinsa)**	• Malaria **(Elh. Omar)**	• Hemocue (cont) **(Halima)**	11 h 30 – 12 h 30: • Implementation Planning **(Consultant)**	• Test des différents questionnaires sur le terrain (suite)Field Testing cont. **(Superviseurs)**
12 H 30 – 14 H 30	**Lunch**				
14 H 30 – 16 H 30	• KAP nutrition / diarrhea **(Adamou Hinsa)**	• Food consumption **(Elhd.Omar)**	• Hemocue (cont) **(Halima)**	• Preprations for field test **(Team)**	• Review and revision of questionnaires **(Consultant)**

Final Survey on the quality of nutritional care provided in health facilities to children under five years of age and pregnant women in Diffa Region Conducted March 2009

USAID-funded Child Survival Project 2005-9

GOVERNMENT CONVENTION N° 104. NIGER.7-29

Harouna Hamani, Program Coordinator
Helen Keller International
Niamey, Niger

TABLE OF CONTENTS

LIST OF ACRONYMS

BASICS: Basic Support for Institutionalizing Child Survival

CMAM: Community Management of Acute Malnutrition

ENA: Essential Nutrition Actions

ENT: Ear, nose, throat

HKI: Helen Keller International

IEC: Information, Education, Communication

IMCI: Integrated Management of Childhood Illnesses

MUAC: Mid-Upper Arm Circumference

ORS: Oral Rehydration Solution

ORT: Oral Rehydration Therapy

PMTCT: Prevention of Mother-to-Child Transmission

USAID: United States Agency for International Development

Executive Summary

The health facility assessment used a methodology similar to that developed by USAID's BASICS project and adapted by HKI. The objective was to measure the quality of health care services (counseling, examinations and treatment of well children, sick children and pregnant women) at baseline (2005) and again at endline (2009) in order to assess whether the project achieved its objectives of improving the knowledge and skills of health agents particularly with regard to nutrition services. The target population for the survey was the health agents working in 42 health centers and 96 health posts as well as beneficiaries of the care provided – in particular pregnant women and the mothers/persons accompanying children from 0 to 23 months of age. Data was collected at 16 health centers and 5 health posts.

Overall there was notable progress in some areas but continued need for support for all. The mobility of health agents is high in the Diffa region, as conditions are difficult, limiting the ability of any pre- post cross-sectional survey to fully assess the impact of in-service training provided. This is evident in the reports of training received by health agents. Whereas the project provided near universal coverage in training on most topics (the Integrated Management of Childhood Illnesses; Essential Nutrition Actions; appropriate treatment for acute diarrhea), significant proportions of agents interviewed at endline had not received these trainings.

Self-reports by agents reveal what they know to be important elements of counseling and examinations. Reports of the prenatal examinations performed was similar at baseline and endline, while prenatal counseling was generally improved, particularly on some key nutrition topics. Reports of sick child examinations and nutrition counseling also registered improvement overall, with some gaps remaining. For example, knowledge of the appropriate examinations for anemia was particularly strong although questions about consumption of animal-source foods are still seldom asked. Well child exams remained fairly similar at endline compared to baseline.

Observations revealed that health agents remain weak in the plotting of growth curves, although the height was measured more frequently at endline. Counseling during well baby consultations is weak, possibly because agents assume mothers' knowledge is high. Again, examinations and counseling on child anemia showed strong improvements. The treatment of cases of diarrhea and related counseling also showed improvement. In prenatal care nutrition counseling improved and services related to the integrated control of anemia improved markedly; prenatal physical exams did not show much improvement. Counseling on infant and young child feeding did show considerable improvements compared to baseline.

For the management of acute malnutrition no baseline comparison was available as the support for these services was added after the baseline survey. Overall the performance of health agents is good for the key exams and treatment although the complexity of the protocol is clearly difficult to master and on-going support to health agents is needed.

INTRODUCTION

The Diffa Child Survival Project is part of the nutrition program Helen Keller International (HKI) executes in collaboration with the Ministry of Health in the Diffa region. The project was funded by USAID and covered the three districts of the region for a period of five years – from October 2004 to September 2009. The project had as its goal to significantly reduce malnutrition, morbidity and mortality in children from 0 to 59 months of age and in women of reproductive age in the Diffa region. The project's overall strategy is the reinforcement of the capacity of health centers, health posts and community structures to appropriately implement nutritional activities.

I. SURVEY OBJECTIVES

OVERALL OBJECTIVE:
Determine progress made in terms of quality of nutritional and health care provided to children under 5 years of age and mothers visiting health facilities in the region

SPECIFIC OBJECTIVES :

- Evaluate the health agents' level of knowledge and practices for nutritional care of children and pregnant and nursing women (post partum)
- Evaluate the degree to which solutions were implemented to address the constraints identified during the baseline study
- Evaluate clients' satisfaction with services provided

II. EXPECTED RESULTS

1. Extent to which the IMCI approach is applied for providing care in health centers to children under 5 years of age
2. Information on how pregnant women are cared for in health centers
3. Information on how well health centers and community structures function

It was in this context that baseline and endline surveys were conducted to evaluate changes in how nutritional care was provided to the target groups.

III. SURVEY SITES AND TARGET GROUPS

The target population for the survey was the health agents working in 42 health centers and 96 health posts as well as beneficiaries of the care provided – in particular pregnant women and the mothers/persons accompanying children from 0 to 23 months of age. Data was collected at 16 health centers and 5 health posts.

IV. METHODOLOGY

The methodology chosen is similar to that used by BASICS in Mali in 1996, by HKI in Niger in 2001 and then again for the baseline survey for the Child Survival Project in 2005. Data collection techniques included observations and interviews.

4.1 Sampling

4.1.1 Selection of Health Facilities

In each health district, health centers and a maximum of 2 health posts were randomly chosen to participate in the survey.

4.1.2 Selection of health agents to be interviewed or observed

- In type I health centers and health posts, all health agents who provide patient care and were present at the time of the study were interviewed.

- In type II health centers (where there are more than 4 health agents providing patient care), only one agent per professional category was interviewed.

- For observations, the health agents who were conducting prenatal consultations, well-baby consultations, and sick infant consultations during the time the team was at the health center were selected.

4.1.3 Selection of pregnant women and mothers/caregivers accompanying children to be interviewed

All those clients whose consultations were observed (two per health center) were interviewed. In addition, the same number of women whose consultations were not observed were interviewed if the opportunity arose during the 24-48 hour stay at the health facility. These women were chosen by order of arrival at the facility.

4.2 Data collection tools and techniques

The tools used were adapted from the user's guide for the qualitative evaluation of nutritional care[1] developed by Helen Keller International. In total, eight tools were used for data collection.

- Observation tool for health agents providing care for anemia in children 0-23 months of age

- Observation tool for health agents providing care for diarrhea in children 0-23 months of age

[1] Hampshire R. *Quality Assessment of Nutrition Services: A How to Guide*. Helen Keller International; 2004.

- Observation tool for health agents providing care for anemia in prenatal consultations
- Guide for interviewing health agents
- Guide for interviewing women exiting prenatal consultations
- Guide for interviewing a mother or person accompanying a child 0-23 months of age to an infant (well-baby) consultation
- Guide for interviewing a mother or person accompanying a child to a consultation for anemia or diarrhea
- Tool for evaluating the functioning of the health facility

4.3 Training of survey personnel

Three supervisors, three observers, and three female surveyors were trained by the HKI Niger program coordinator and a government doctor with training in public health. The training was conducted in three phases between March 19 and 23, 2009.

Phase 1: Explanation, discussion, and modification of data collection tools and practical aspects of data collection in the field (3 days). Three languages of the region were selected for use in the survey – Kanuri, Fulani and Hausa. A guide for the surveyors was developed, discussed, and explained.

Phase 2: Pre-test in an urban Diffa health center that was not part of the sample (1 day)

Phase 3: Debriefing of the pre-test and modification of tools

4.4 Data collection phase

Data collection was carried out by three teams with each team made up of a supervisor, an observer and a surveyor. Each team was responsible for conducting the survey at seven health facilities. The teams were supervised at least twice by a central supervision team.

In each health facility, the process was as follows:

- Explanation to the health agents by the supervisor of the research objectives and the methodology to be used
- Identification by the supervisor of the patient or client to be observed
- Interviews of beneficiaries by the surveyors
- Interviews of health agents by the supervisor
- Coordination of the administration of the tools and verification of the completed forms by the supervisor

Difficulties and constraints

The primary difficulties and constraints encountered were resolved or a solution was found to work around them during the supervision visits. The issues were primarily:

- Not knowing which health posts were operational when the sample was selected. (Some have no health agent so are not open.)
- Specific days scheduled for preventative consultations (prenatal and well-baby) at the health facilities did not always correspond to days the survey team visited
- Limited number of clients in some health facilities – due, at least in part, to the cost of services.
- Insufficient means of transport for the survey – two teams shared one vehicle, creating some scheduling issues

4.5 Data entry and analysis

After the collection and verification of the data, an HKI intern ensured the data entry. The HKI Niamey staff person responsible for monitoring and evaluation verified the data entered and conducted the analysis in collaboration with the program coordinator.

The interpretation of the data and the preparation of this report were conducted by HKI staff not involved in the project.

V. SURVEY RESULTS

5.1 Functioning of health facilities

Health center functioning was evaluated based on human and material resources and on the management system in place. The following were considered:

- The existence of places set up specifically for certain activities : oral rehydration therapy (ORT), nutrition education (IEC) and cooking demonstrations
- The availability of materials for certain acts and activities, including supplies for ORT demonstrations, cooking demonstrations, and medical supplies
- The availability of means of transport
- The existence of support materials for data collection and educational activities
- The management system – its structures, means of financing, and availability/outages of Essential Generic Medicines

5.1.1. About one quarter of the health facilities (5 out of 21) had a corner for ORT and between a quarter and a half (8 out of 21) had the supplies needed for demonstrating oral rehydration. This means that more than half of the health centers and health posts have difficulties in providing care for patients with diarrhea that need to be observed at the facility. The situation is similar to that found at the baseline survey where 7 out of 23 had a corner for ORT and 11 out of 23 had the necessary supplies for oral rehydration.

In terms of cooking demonstrations, it was found that 4 out of 21 health facilities had places set aside for this purpose and 8 had the supplies needed for the demonstrations. The situation was better at the baseline survey when 8 had places set aside and 14 had the materials needed.

The survey showed that 19 of the 21 health facilities visited had a space set aside for IEC where it was possible to conduct IEC activities in good conditions. This was an improvement when compared to the baseline when only 14 out of 23 facilities had such a space.

It was noted that two health centers and the five health posts did not have refrigerators for storing vaccines.

Three of the health centers did not have height boards for measuring children and none of the health posts had these boards. A similar situation was found for adult height boards – three health centers did not have them and none of the health posts had them. Four health facilities were missing scales for weighing children and three were missing scales for adults.

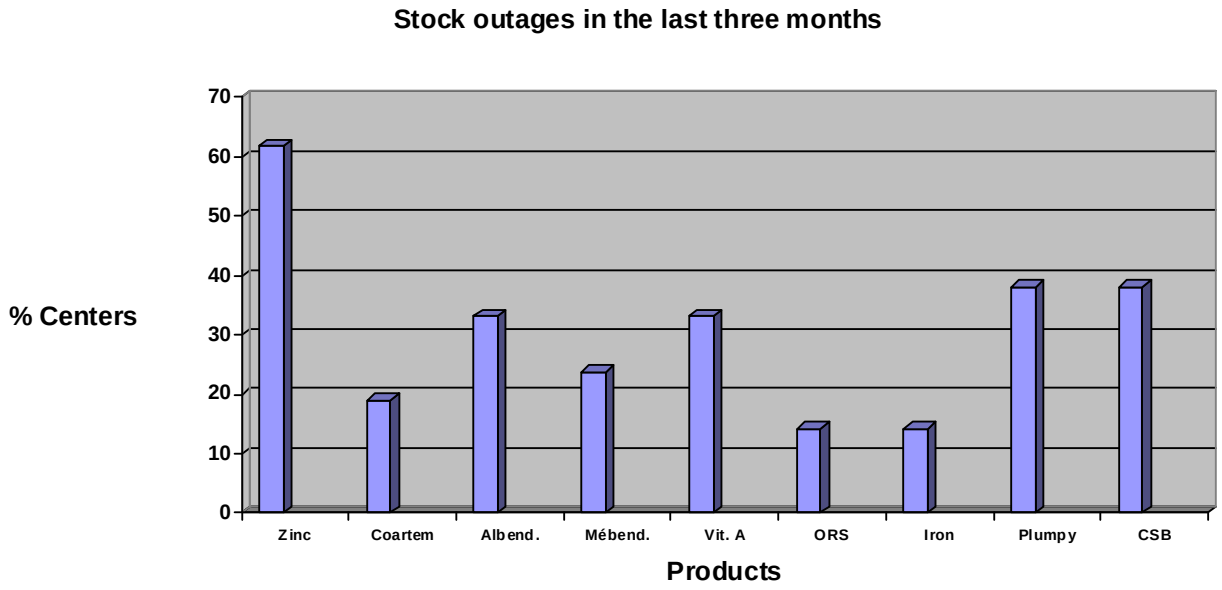
It was found that 14 of the health facilities visited had motorcycles as a means of transport but three of these were in poor condition. Five health centers had functioning vehicles.

5.1.2. Consultation record books were present in all the health facilities visited and 20 of the 21 had record books for treating malnutrition. However, only 8 of the facilities had ICMCI record books and referral records. The forms and data collection tools which the staff should use in their work were not available in the facilities. Record forms for children in the nutritional rehabilitation program were noted in 8 centers out of 21. Pre-natal consultation record forms were in 16 of the 21 facilities, infant consultation records in 20 of the facilities and medicine management record forms in 14. Support materials for nutrition education were seen in 19 of the health facilities.

5.1.3. Twenty of the health facilities surveyed work had a management committee. Free care was provided for children under five years of age in all the health facilities. The Ministry of Health reimburses the facility after care is provided. It was noted that 12 of the 21 management committees do not have a woman among their members but 3 committees had at least 2 female members. 7 of the 21 management committees did not keep an activity notebook. 14 committees had not had any meetings during the preceding six months – a situation that is not as good as at the baseline when only four had not held a meeting in the preceding six months. More encouraging was that three committees had held four meetings, two had held two meetings, and one had held one meeting. Meeting themes included management, cost recovery, support funds, organization of national immunization days, etc.

Out of all the personnel working at the health facilities visited, the only ones paid by the local government (commune) were two untrained assistants. It should be noted, though, that six people worked as volunteer assistants, particularly in Mainé Soroa district.

Graph 1 : Stock outages in the last three months



5.1.4 Overall, no medication was available in all of the health facilities. At the time of the survey, the medications missing were ampicillin (missing in 18 facilities), zinc (missing in 13 facilities), IV solution (missing in 9-14 facilities according to the type of solution), albendazole and vitamin A (both missing in 9 facilities), and quinine (missing in 7 facilities).

The above table shows the stock outages observed. Zinc was the product most frequently absent, followed by products for nutritional rehabilitation, and then vitamin A and albendazole. Note that zinc was not available in any health facilities at the time of the baseline survey since it had not yet been adopted by the Ministry of Health.

5.2. Interviews with health agents :

Table N° 1 : Types of health agents surveyed

Qualifications	DISTRICTS			TOTAL
	DIFFA	*MAINE*	*N'GUIGMI*	
Nurses	6	10	6	**22**
Midwives	1	1	1	**3**
Social welfare agents	1	1	0	**2**
Other	2	2	1	**5**
TOTAL	***10***	***14***	***8***	**32**

Note that 15 of the health agents have fewer than five years of experience; 11 have between 5 and 10 years of experience; and 5 have more than 20 years of experience.

5.2.1 Supervision :

Table N° 2 : Health agents supervised during the last six months

DISTRICTS	Supervisd	Not supervisd	Total
Diffa	8	2	10
Mainé	9	5	14
N'Guigmi	7	1	8
Total	24	8	32

A total of 24 out of the 32 health agents (about two thirds) reported having been supervised during the last six months, which is a clear improvement when compared to the baseline study when only 35.7 of the agents reported having been supervised during the preceding six months. Only one of the five agents based in health posts were supervised during the period.

5.2.2 Training :

Table N° 4 : Training received by health agents

Type of training	Baseline Survey		Final survey	
	Number of agents	%	Number of agents	%
Baby-friendly hospital initiative	1	2,4	1	3,4
Micronutrients	1	2,4	0	
Other nutrition training/ENA	0	0	23	79,3
Nutrition rehabilitation			9	
IMCI	10	23,8	10	34,5
Diarrhea	1	2,4	7	24,1
Malaria	13	30,9	15	51,7
Partogram /PMTCT	0	0	9	31,0
Other	23	54,8	10	34,5

The efforts to build health agents' capacity were noteworthy. However, even for nutritional topics, a number of the agents did not receive training. This may be due to the high mobility rate of the personnel that various partners complain about.

PART I: SELF REPORTS BY HEALTH AGENTS

5.2.3 Prenatal Consultations

a) Agents reports of exams conducted

Table N° 4 : Health agents self reports of exams conducted during prenatal consultations

Exams conducted	Baseline survey			Final evaluation		
	Yes	No	%	Yes	No	%
Weight	37	5	***88,1***	27	2	***93,1***
Height	30	12	***71,4***	24	5	***82,7***
Temperature	7	35	***16,7***	8	21	***27,6***
Blood pressure	41	1	***97,6***	23	6	***79,3***
Measure fundal height	41	1	***97,6***	27	2	***93,1***
Listen to fetal heart sounds	31	11	***73,8***	21	8	***72,4***
Stool analysis	2	40	***4,8***	3	26	***10,3***
Hemoglobin	2	40	***4,8***	4	25	***13,8***
Conjunctivitis	36	6	***85,7***	22	7	***75,9***
Other blood analysis	4	38	***9,5***	5	24	***17,2***
Urinalysis	14	28	***33,4***	12	17	***41,4***
Check for edema	40	2	***95,2***	21	8	***72,4***
Breast exam	5	37	***11,9***	6	23	***20,7***
Verification of immunizations	17	25	***40,5***	14	15	***48,3***

Some exams were almost systematically listed by the vast majority of health agents at both the baseline and the final survey. These include weight, blood pressure, and the size and height of the uterus. Even if improvement was noted, however, some exams important for monitoring pregnancy were not mentioned by the agents. For example, the breast exam, verification of immunizations, and blood and urine exams were listed by less than 50% of the health agents.

b) Agents' reports of counseling provided

Table N° 5 : Counseling provided during pre-natal exams according to the health agents

Counseling provided	Baseline survey			Final survey		
	Yes	No	%	Yes	No	%
Start pre-natal exams early	6	36	***14,3***	6	23	***20,7***
Respect appointments	25	17	***59,5***	22	7	***75,9***
Iron supplementation	25	17	***59,5***	25	4	***86,2***
Sleep under mosquito net	9	33	***21,4***	22	7	***75,9***
Malaria prophylaxis	36	6	***85,7***	24	5	***82,3***
Deworming	0	42	***0,0***	15	14	***51,7***
Importance of iron-rich foods	19	23	***45,2***	17	12	***58,6***
Importance of eating fruit	3	39	***7,1***	11	18	***37,9***
Secondary effects of iron	4	38	***9,5***	12	17	***41,4***
Setting appointments	14	28	***33,3***	19	10	***65,5***
Avoiding tea and coffee	2	40	***4,8***	3	26	***10,3***
Test for HIV/AIDS	1	41	***2,4***	3	26	***10,3***
Advice concerning fevers	5	37	***11,9***	6	23	***20,6***
Importance of rest	17	25	***40,5***	6	23	***20,6***
Avoid hard labor	22	20	***52,4***	9	20	***31,0***
Counseling on exclusive breastfeeding	4	38	***9,5***	14	15	***51,7***
Report any bleeding	8	34	***19,0***	10	19	***34,5***
Other	21	21	***50,0***			

At the time of the baseline study, 85.7% of the health agents said they counseled on malaria prophylaxis. About half of the agents reported that they discussed the importance of regular pre-natal consultations, avoiding difficult labor and iron/folate supplementation. Other topics such as starting pre-natal consultations early, food hygiene, importance of treating for parasites and exclusive breastfeeding were rarely cited as topics on which they provided advice during pre-natal consultations.

Improvement was noted at the final survey particularly on the topics rarely covered at the time of the baseline. For example, treating for parasites was cited by half (51.7%) of the agents at the final survey but wasn't cited by anyone at the baseline.

5.2.4 Sick child consultations

a) Agents self reports of exams conducted

Table N° 6 : Agents' reports of exams conducted during sick child consultations

Exams conducted	Baseline study			Final survey		
	Yes	No	%	Yes	No	%
Vitamin A supplementation	7	35	***16,6***	21	10	***67,7***
Weight	42	0	***100,0***	30	1	***96,8***
Height	23	19	***54,8***	27	4	***87,1***
Growth curve	21	21	***50,0***	21	10	***67,7***
Check for anemia	7	35	***16,6***	15	16	***48,4***
Check immunization status	27	15	***64,3***	25	6	***80,6***
Hemoglobin	0	42	***0,0***	1	30	***3,2***
Check date for deworming	0	42	***0,0***	15	16	***48,4***
Deworming	0	42	***0,0***	13	18	***41,9***
Immunize children	26	26	***61,9***	21	10	***67,7***
Determine nutritional status	-	-	-	16	15	***51,6***
Other	16	26	***38,1***	6	25	***19,4***

With the exception of testing for hemoglobin which most of the health centers do not have the capacity to do, an increase of at least 40% was noted on the final survey for the exams the least cited at the baseline survey. An increase from 16.6% to 67.7% was reported for Vitamin A supplementation.

b) Counseling provided

Table N° 7 : Agents' reports of counseling provided during child consultations

Counseling provided	Baseline survey			Final survey		
	Yes	No	%	Yes	No	%
Explain growth curve	7	35	***16,6***	7	24	***22,6***
Exclusive breastfeeding to 6 months	32	10	***76,2***	28	3	***90,3***
Complementary feeding after 6 months	37	5	***88,1***	29	2	***93,5***
Frequency of meals	3	39	***7,1***	10	21	***32,2***
Active feeding	7	35	***16,6***	6	25	***19,4***
Animal source foods	7	35	***16,6***	6	25	***19,4***
Foods rich in iron	5	37	***11,9***	12	19	***38,7***
Foods rich in vitamin A	0	42	***0,0***	20	11	***64,5***
Foods rich in iron	2	40	***4,8***	17	14	***54,8***
Vitamin A supplementation	7	35	***16,6***	20	11	***64,5***
Deworming	1	41	***2,4***	20	11	***64,5***
Use of mosquito net	7	35	***16,6***	19	12	***61,3***
Iodized salt for cooking	1	41	***2,4***	6	25	***19,4***
Set next appointment	20	22	***47,6***	13	18	***41,9***
Other	22	20	***52,4***			

Improvement was noted on the final survey, especially for the topics least cited at the baseline survey such as iron and vitamin A supplementation, de-worming, and use of a treated bednet – topics listed by more than half of the health agents. Although there was improvement noted, there is still a lot of work to do on food diversification and frequency of meals.

5.2.5 Treatment for diarrhea

a) Evaluating cases of diarrhea

Table N° 8 : Health agents' reports of evaluation of diarrhea cases presenting

Information sought	Baseline survey			Final survey		
	Yes	No	%	Yes	No	%
Check symptoms	39	3	***92,8***	27	3	***90,0***
Check weight	14	28	***33,3***	17	13	***56,6***
Check height	-	-	-	11	19	***36,6***
Determine nutritional status	-	-	-	10	20	***33,3***
Check temperature	15	27	***35,7***	5	25	***16,6***
Evaluate the child's general condition	18	24	***42,8***	15	15	***50,0***
Other	8	34	***42,8***	30	0	***100,0***

At the time of the baseline survey, 92.8% of the health agents reported that they checked for symptoms, but other items were much less considered. 42.8% of the health agents reported that they considered the child's general condition, 33.3% reported weighing the child and 35.7% reported taking the child's temperature. These scores are not high but the parameters in question are very important for providing proper care to a sick child.

The final survey showed a slight improvement in how the health agents report they evaluate a case of diarrhea in terms of checking a child's weight and evaluating his/her general condition – but there was a slight decrease in checking temperature.

b) Treating a case of severe dehydration

Table N° 9 : Responses of health agents when asked how they treat cases of diarrhea with severe dehydration

Treatment proposed	Baseline survey			Final survey		
	Yes	No	%	Yes	No	%
IV solution	32	10	***76,2***	22	8	***73,3***
Use of naso-gastric tube	9	33	***21,4***	9	21	***30,0***
ORS as soon as possible	17	25	***40,5***	15	15	***50,0***
Zinc supplementation	0	42	***0,0***	14	16	***46,6***
Evacuation	20	22	***47,2***	15	15	***50,0***
Other	11	31	***26,2***	7	23	***23,3***

Many shortcomings were identified in the treatment of severe dehydration as reported at the time of the baseline survey. For example, about a quarter (23.8%) of the health agents did not mention IV solution to address dehydration. Only 40.5% thought to replace IV solutions with ORS as soon as possible. The possible use of a naso-gastric tube was only mentioned 21.4% of the time.

The final survey showed improvement in how health agents reported they treated a case of diarrhea, particularly in the area of zinc supplementation.

c) Counseling provided to the family

Table N° 10: Health agents' reports of counseling provided to the family of a child with diarrhea

Proposed treatment	Baseline survey			Final survey		
	Yes	No	%	Yes	No	%
How to prepare ORT	38	4	***90,5***	25	5	***83,3***
How to give zinc	0	42	***0,0***	12	18	***40,0***
Good food choices	24	18	***57,1***	11	19	***36,6***
Other	24	18	***57,1***	16	14	***53,3***

The results shown on the final survey are mixed – there is a decrease in everything except in how to give zinc where there is a significant increase.

5.2.6 Caring for a child with anemia or another illness

a) Agents reports of exams conducted

Table N° 11 : Exams conducted during a consultation for a child suffering from anemia or another illness

Exams conducted	Baseline survey			Final survey		
	Yes	No	%	Yes	No	%
Weight	17	25	***40,5***	31	1	***96,9***
Height	4	38	***9,5***	26	6	***81,2***
Check for anemia	38	4	***90,5***	30	2	***93,7***
Check hemoglobin	5	37	***11,9***	2	30	***6,2***
Check vitamin A supplementation	8	34	***19,0***	13	19	***40,6***
Check deworming	1	41	***2,4***	18	14	***56,2***
Temperature	18	24	***42,8***	10	22	***31,2***
Check for dehydration	8	34	***19,0***	13	19	***40,6***
De-worm	-	-	-	19	13	***59,4***
Iron/folate supplementation	-	-	-	19	13	***59,4***
Check immunization status	-	-	-	21	11	***65,6***
Immunize	-	-	-	14	18	***43,7***
Others	17	25	***40,5***	4	28	***12,5***

In general, the final survey showed a strengthening of the health agents' capacity to treat a child for anemia or another illness. There was improvement shown in most areas when compared to the baseline survey.

b) Counseling given

Table N° 12: Health agents' report of counseling topics during a consultation for a child suffering from anemia or another illness

Topics covered	Baseline survey			Final survey		
	Yes	**No**	***%***	**Yes**	**No**	***%***
Exclusive breastfeeding to six months	16	26	***38,1***	24	8	***75,0***
Complementary feeding after six months	0	42	***0,0***	27	5	***84,4***
Food frequency	4	38	***9,5***	15	17	***46,9***
Active feeding	11	31	***26,2***	11	21	***34,4***
Give animal source foods	13	29	***30,1***	8	24	***26,1***
Give foods rich in iron	24	18	***57,1***	23	9	***71,9***
Give foods rich in vitamin A	8	34	***19,0***	12	20	***37,5***
Suggest fruit as part of meals	6	36	***14,3***	6	26	***18,75***
De-worm	4	38	***9,5***	-	-	
Give iron/folate	12	30	***28,6***	-	-	
Sleep under a mosquito net	6	36	***14,3***	19	13	***59,4***
Use iodized salt for cooking	1	41	***2,4***	2	30	***6,2***
Set an appointment	10	32	***23,8***	-	-	
Suggest regular well-baby consultations	7	35	***16,6***	-	-	
Other	11	31	***26,2***	3	29	***9,4***

Education provided to caregivers was generally inadequate at the time of the baseline survey – the only topic that more than half of the health agents (57.1%) reported covering was the importance of providing iron-rich foods. The final survey showed a positive evolution in the health agents' reported counseling, especially on how to prevent anemia. A certain number of parameters, however, were not considered on the final survey.

PART II: HEALTH AGENT OBSERVATIONS

5.3 Observations of consultations for healthy and sick children

A total of 86 consultations with children were observed during the baseline survey. 75 were observed during the final survey.

a) How clients are received and made to feel welcome (accueil)

Table N° 13 : Health agent practices observed as related to receiving clients

Practices	Baseline survey			Final survey		
	Yes	No	%	Yes	No	%
Greeting	56	30	***65,5***	45	4	***91,8***
Seating (installation)	81	5	***94,2***	48	1	***97,9***
Gaining confidence	69	17	***80,2***	33	16	***68,7***
Language understood	81	3	***96,4***	46	3	***93,9***
Use of an interpreter	7	77	***8,3***	12	37	***24,5***

At the final survey, the health agents did a poorer job in gaining the confidence of the mothers – the score decreased from 80.2% to 68.7%. An interpreter was used three times as often as the final survey, indicating a problem of communication. On the other hand, there was significant improvement noted in the greeting.

5.3.1 Well-baby consultations

a) Physical exams

Tableau N° 14 : Exams conducted by health agents as observed during well-baby consultations

Exams	Baseline survey			Final survey		
	Yes	No	%	Yes	No	%
Weight	41	1	***97,6***	20	2	***100,0***
Height	7	35	***16,6***	15	7	***68,2***
Draw the growth curve	28	13	***66,6***	12	20	***54,5***
Check for anemia	11	31	***26,2***	6	16	***27,3***
Check vitamin A supplementation	9	33	***21,4***	6	16	***27,3***
Check immunization status	-	-	-	17	5	***77,3***

The baseline survey showed that the child's weight, the key element in growth monitoring, was measured for almost all children but the growth curve was drawn for only 68.3% of the children. 26.2% of the children were checked for anemia and 21.4% of the children had their vitamin A supplementation verified.

Improvement was noted on the final survey for some actions, including checking weight and height. There was little evolution for the other actions. Checking immunization status was not measured at the baseline but more than two thirds of the children had their status checked during the final survey.

b) Counseling

Table N° 15 : Counseling provided by health agents to mothers of children brought to well-baby consultations

Conseils	Baseline survey			Final survey		
	Yes	**No**	***%***	**Yes**	**No**	***%***
Explain growth curve	18	24	***42,8***	7	15	***14,3***
Counsel on exclusive breastfeeding	11	31	***26,2***	6	16	***12,2***
Counsel on complementary foods	21	21	***50,0***	14	8	***28,6***
Frequency of meals	11	31	***26,2***	11	11	***22,4***
Active feeding	19	23	***45,2***			
Animal-source foods	9	33	***21,4***	5	17	***10,2***
Foods rich in iron	1	41	***2,4***	5	17	***10,2***
Fruit during meals	5	37	***11,9***	4	18	***8,16***
De-worming	0	42	***0,0***	5	17	***10,2***
Iron supplementation	1	41	***2,4***	4	18	***8,16***
Sleeping under treated bednet	0	42	***0,0***	11	11	***22,4***
Iodized salt for cooking	33	9	***78,6***	4	18	***8,16***
Set appointment	0	42	***0,0***	16	6	***32,6***

The final survey showed a general decrease in the percentage of women who received counseling on the various topics covered. It was noted, however, that some topics that were not covered at all during the baseline survey, including de-worming and setting an appointment for the next visit, were discussed during the final survey.

5.3.2 Observation of care given to sick (anemic) children

a) Physical exams

Table N° 16 : Exams conducted on children brought to consultation for anemia or other illnesses

Exams	Baseline survey			Final survey		
	Yes	No	%	Yes	No	%
Weight	37	7	***88,1***	18	5	***78,3***
Height	2	42	***4,8***	10	13	***43,5***
Draw growth curve	0	44	***0,0***	9	14	***39,1***
Check for anemia	18	26	***42,8***	13	10	***56,5***
Check vitamin A supplementation	7	37	***16,6***	14	9	***60,9***
Examine lower limbs	11	33	***26,2***	12	11	***52,2***
Check hemoglobin	0	44	***0,0***	0	23	***0,0***
Check de-worming	0	44	***0,0***	12	11	***52,2***
Temperature	32	12	***76,2***	20	3	***86,9***
Skin pinch and check if child has diarrhea	13	31	***30,1***	10	13	***43,5***
Cough				22	1	***95,6***
Check for ENT afflictions				13	10	***56,5***

The final survey showed fairly significant progress on almost all exams.

b) Counseling

Table N° 17 : Counseling provided by health agents to mothers of children brought for consultation due to anemia or other illnesses

Questions	Baseline survey			Final survey		
	Yes	No	%	Yes	No	%
Counsel on exclusive breastfeeding	6	38	***14,3***	3	20	***13,0***
Counsel on complementary foods	14	30	***33,3***	14	9	***60,9***
Frequency of meals	10	34	***23,8***	18	5	***78,3***
Active feeding	14	30	***33,3***	18	5	***78,3***
Animal-source foods	9	35	***21,4***	7	16	***30,4***
Iron-rich foods	2	42	***4,8***	5	18	***21,7***
Fruit as part of meals	0	44	***0,0***	10	13	***43,5***
De-worming	0	44	***0,0***	9	14	***39,1***
Iron supplementation	3	41	***7,1***	6	17	***26,1***
Sleep under treated bednet	1	43	***2,4***	11	12	***47,8***
Use iodized salt for cooking	0	44	***0,0***	2	21	***8,7***
Set an appointment	28	14	***66,6***	19	4	***82,6***
Come regularly to pre-natal consultations	12	32	***28,6***	16	7	***69,6***

The final survey showed significant progress when compared to the baseline. All the topics were covered more frequently during the final survey with the exception of exclusive breastfeeding where the rate stayed essentially the same. That may have been due to the ages of the children observed since the topics covered need to be appropriate for the case. In 34.8% of the cases, the care provided was judged adequate by the survey supervisors responsible for conducting the observations.

5.4 Observation of care given for diarrhea

A total of 39 consultations for diarrhea were observed during the baseline survey while 21 cases of diarrhea were observed on the final survey.

a) How clients are received and made to feel welcome (accueil)

Table N° 18 : Health agent practices observed as related to receiving clients

Practices	Baseline survey			Final survey		
	Yes	No	%	Yes	No	%
Greetings	29	10	***74,3***	21	0	***100,0***
Seating	39	0	***100,0***	20	1	***95,2***
Gaining confidence	31	8	***79,5***	12	9	***57,1***
Language understood	33	6	***84,6***	17	4	***80,9***
Use of interpretor	10	29	***25,6***	4	17	***19,0***

The final survey showed improvement in greeting clients (74.3 to 100% of the cases) but a deterioration was noted in the other factors related to how clients were received. The health agents gained the confidence of the women 57% of the time, a significant decrease from the 79% noted at the baseline. Seating the mother also showed a decline – from 100% to 95.2%.

b) Observation of the evaluation of diarrhea cases

Table N° 19 : Questions asked by health agents to evaluate cases of diarrhea

Questions	Baseline survey			Final survey		
	Yes	No	%	Yes	No	%
Frequency of stools	24	15	***61,5***	13	8	***61,9***
Diarrhea for how long	34	5	***87,2***	17	4	***80,9***
Blood in stool	33	6	***84,6***	17	4	***80,9***
Other	8	31	***20,5***	3	18	***14,3***

The final survey shows a slight decrease in the frequency with which the questions were asked. It was noted that the health agents working at the health posts had a harder time providing appropriate care for cases of diarrhea.

Table N° 20 : Exams conducted by health agents to evaluate cases of diarrhea

Exams	Baseline survey			Final survey		
	Yes	No	%	Yes	No	%
Weight	21	18	***53,8***	16	5	***76,2***
Temperature	13	26	***33,3***	10	11	***47,6***
Skin pinch check for dehydration	21	18	***53,8***	16	5	***76,2***

The final survey shows an increase in the frequency with which all exams were conducted. Weight was measured in 76.2% of the cases (up from 53.8% at the baseline) as was a skin pinch to check for dehydration.

c) Observation of treatment provided for diarrhea

Table N° 21 Treatment prescribed by health agents for diarrhea

Actes	Baseline survey			Final survey		
	Yes	No	%	Yes	No	%
Diarrhea without dehydration						
Give ORS	31	7	***81,6***	14	2	***87,5***
Continue feeding	13	25	***34,2***	10	6	***61,5***
Give zinc supplementation	0	38	***0,0***	5	11	***31,25***
Advise when to return	20	18	***52,6***	11	5	***68,75***
Diarrhea with symptoms of dehydration						
Give ORS under observation				2	0	
Explain why observation needed				2	0	
Give first dose of zinc				0	2	
Feed and continue breastfeeding				2	0	
Diarrhea with severe dehydration						
Treat with IV fluids	1			0	1	
Use of naso-gastric tube	0			0	1	
Evacuation	0			1	0	
ORS if can drink	1			1	0	
Give zinc after rehydrated	0			0	1	

At the time of the baseline survey, no child received zinc for diarrhea without dehydration since it was not yet part of the protocol for treating diarrhea. 34.2 percent of the clients were asked to continue providing adequate food to the children. ORS was prescribed in 81.6% of the cases. Improvement was noted at the final survey – zinc was prescribed for 31.2% of the cases and ORS was prescribed for 87.5% of the cases.

c) Counseling

Table N° 22 : Counseling given by health agents to mothers/those accompanying children suffering from diarrhea

Topics covered	Baseline survey			Final survey		
	Yes	No	%	Yes	No	%
How to give ORS	31	8	***79,5***	17	4	***80,9***
How to give zinc	0	39	***0,0***	5	16	***23,8***
Good food choices	12	27	***30,8***	10	11	***47,6***
Importance of hand-washing	5	34	***12,8***	6	15	***28,6***
Importance of protecting food	3	36	***7,7***	7	14	***33,3***
Use of memory aide	8	31	***20,5***	4	17	***19,0***
Explain when to return	13	26	***33,3***	14	7	***66,6***

The final survey showed improvement in all scores on counseling, including how to give zinc. The survey supervisors judged that adequate care was provided for diarrhea in 16 out of 38 cases (41%) at the baseline. On the final survey, they judged that adequate care was provided in 12 out of 21 cases (57%).

5.5 Observation of care given pregnant women

A total of 43 consultations with pregnant women were observed at the baseline. A total of 25 clients were observed for the final survey.

a) Interview

Table N° 23: Questions asked by health agents during pre-natal consultations

Questions	Baseline survey			Final survey		
	Yes	No	%	Yes	No	%
Age of the woman	30	13	***69,8***	18	7	***72,0***
Outcome of previous pregnancy	25	18	***58,1***	13	12	***52,0***
Appetite	4	39	***9,3***	10	15	***40,0***
Eating habits	4	39	***9,3***	9	16	***36,0***
Workload	1	42	***2,3***	2	23	***8,0***
Previous iron supplementation	5	38	***11,6***	16	9	***64,0***
Secondary effects of iron	5	38	***11,6***	13	12	***52,0***
Malaria prophylaxis	21	22	***48,8***	16	9	***64,0***
Use of mosquito net for sleeping	0	43	***0,0***	14	11	***56,0***
Treated mosquito net	0	43	***0,0***	12	13	***48,0***
De-worming	0	43	***0,0***	10	15	***40,0***
Use of iodized salt for cooking	0	43	***0,0***	0	25	***0,0***
Night blindness	1	42	***2,3***	0	25	***0,0***
Other	6	37	***13,9***	0	25	***0,0***

The final survey showed significant progress as regards the percentage of times that most of the questions were asked the pregnant women. There were a few exceptions, though, with a decrease in asking about night blindness and the outcome of previous pregnancies.

b) Physical exams

Table N° 24 : Exams conducted by health agents during pre-natal consultations

Exams	Baseline survey			Final survey		
	Yes	No	%	Yes	No	%
Weight	39	4	***90,7***	22	5	***88,0***
Height	21	20	***48,8***	16	8	***64,0***
Temperature	6	36	***13,9***	6	19	***24,0***
Blood pressure	39	4	***90,7***	21	6	***84,0***
Fundal height	43	0	***100,0***	24	5	***96,0***
Fetal heart sounds	41	2	***95,3***	20	9	***80,0***
Stool exam (if not already done)	0	41	***0,0***	3	22	***12,0***
Blood test	2	39	***4,9***	3	24	***12,0***
Check for anemia	41	2	***95,3***	20	9	***80,0***
Urine test	7	36	***16,3***	4	21	***16,0***

The final survey showed that the extent to which exams were conducted had not significantly changed – there was a slight decrease for some exams but a slight increase for others.

c) Prescriptions

Table N° 25 : Treatment prescribed by health agents during pre-natal consultations

Prescriptions	Baseline survey			Final survey		
	Yes	No	%	Yes	No	%
Anemia prophylaxis	30	13	***69,8***	22	7	***88,0***
Malaria prophylaxis	38	5	***88,4***	24	6	***96,0***
Presumptive treatment of helminths	0	43	***0,0***	17	12	***68,0***

Improvement was noted for all treatments – anemia prophylaxis increased from 69.8% to 88%, malaria prophylaxis increased from 88.4% to 96% and de-worming from 0% to 68%. Pregnant women benefitting from the complete set of protective measures increased from 0% at the baseline survey to 68% at the final survey.

d) Counseling

Table N° 26: Counseling provided by health agents to pregnant women during pre-natal consultations

Recommendations	Baseline survey			Final survey		
	Yes	**No**	***%***	**Yes**	**No**	***%***
Start prenatal consultations early	15	28	***34,9***	12	13	***48,0***
Iron folate supplementation	23	20	***53,5***	21	4	***84,0***
Importance of bednet use	4	39	***9,3***	18	7	***72,0***
Importance of malaria prophylaxis	26	17	***60,5***	18	7	***72,0***
Importance of de-worming	0	43	***0,0***	15	10	***60,0***
Foods rich in iron	2	41	***4,6***	9	16	***36,0***
Secondary effects of iron	0	43	***0,0***	16	9	***64,0***
Fruit included in meals	2	41	***4,6***	6	19	***36,0***
Declare any bleeding	11	32	***25,6***	13	12	***52,0***
Respect appointments	34	9	***79,1***	13	12	***52,0***
Avoid tea and coffee	0	43	***0,0***	8	17	***32,0***
Test for HIV/AIDS	0	43	***0,0***	2	23	***8,0***

The final survey showed clear improvement in scores when compared to the baseline survey. Counseling for the use of a treated bed net increased from 10% to 72% of the cases and for iron supplementation from 53.5% to 84%. Discussion of secondary effects from iron increased from 0% to 64% and the importance of malaria prophylaxis increased from 60.5% to 72%.

5.6 Observation of care for malnutrition

Care for malnutrition was not specifically evaluated at the baseline survey. The final survey included observation of 11 consultations for malnutrition – 2 each in Mainé and N'Guigmi districts and 7 in Diffa district.

a) Introduction to the consultation

Table N° 27 : Questions asked by health agents during consultations for malnourished children

Information requested	Yes	No	Total	%
Child's appetite	9	2	11	81.8
Exclusive breastfeeding	1	10	11	9.0
Complementary foods	7	4	11	63.6
Prolonged breastfeeding	6	5	11	54.5
Food availability	1	10	11	9.0
Types of meals	9	2	11	81.8
Preparation and storage of meals	6	5	11	54.5
Frequency of meals	6	5	11	54.5
Consistency of meals	1	10	11	9.0
Night blindness	0	11	11	0
Use of treated bednets	5	6	11	45.5
Iron supplementation	3	8	11	27.3
De-worming	5	6	11	45.5
Vitamin A supplementation	8	3	11	72.7

Health agents' concern about the feeding of a malnourished child was evident. It was noted that 9 out of 11 health agents asked questions concerning the child's appetite and the type of meal given while 7 asked about complimentary foods. 6 out of 11 asked about frequency of meals, continued breastfeeding, and food preparation and storage.

b) Physical exams

Table N° 28 : Exams and « acts » conducted by health agents during consultations for malnourished children

Exams and other actions	Yes	No	Total	%
Registering	10	1	11	90.9
Completing form	10	1	11	90.9
Weight	9	2	11	81.8
Height	9	2	11	81.8
Measure upper arm circumference (MUAC)	3	8	11	27.3
Check for edema	5	6	11	45.5
Check for skin lesions	2	9	11	18.2
Determine nutritional status	3	8	11	27.3
Appetite test	0	11	11	0
Refer severe case with complications	N/A	11	11	N/A
Give sugar water	0	11	11	0
Specific care for severe case without complications	0	11	11	0
Check for anemia	5	6	11	45.5
Verify date vitamin A supplementation	5	6	11	45.5
Provide vitamin A supplementation	11	0	11	100
Verify date de-worming	5	6	11	45.5
De-worm	9	2	11	81.8
Verify immunization status	8	3	11	72.7
Immunize	1	10	11	9.0
Folic acid	1	10	11	9.0
Prescribe antibiotic	2	9	11	18.2
Malaria treatment	1	10	11	9.0
Plumpy'Nut	0	11	11	0
Check temperature	0	11	11	0
Check for signs of dehydration	4	7	11	36.4
Check for trouble breathing	2	9	11	18.2
Other	0	11	11	0

In 10 out of the 11 cases observed, the malnourished child was registered and a monitoring form completed. In 9 out of the 11 cases, the health agents measured the weight and height of the child and in 8 cases the child's immunization status was verified. All 11 children received vitamin A supplementation. Less satisfactory was checking for signs of dehydration – this was done in only 4 of the cases.

c) Counseling

Table N° 29 : Counseling provided by health agents to mothers of malnourished children

Topics Covered	Yes	No	Total	%
Monitoring schedule	10	1	11	90.9
Exclusive breastfeeding	1	10	11	9.0
Complementary foods	8	3	11	72.7
Meal frequency	8	3	11	72.7
Active feeding	7	4	11	63.6
Animal-source foods	1	10	11	9.0
Iron-rich foods	0	11	11	0
Vitamin-A rich foods	5	6	11	45.5
De-wormng	7	4	11	63.6
Iron supplementation	3	8	11	27.3
Sleeping under treated bednet	6	5	11	54.5
Use of iodized salt	0	11	11	0
Set an appointment	10	1	11	90.9
Regularity of treatment	8	3	11	72.7
Other	4	7	11	36.4

In 10 cases out of 11, an explanation was provided on the frequency of regular monitoring was given and the next appointment was set. Advice on complimentary foods and meal frequency was given in 8 of the cases while active feeding and de-worming were discussed in 7 cases.

5.7 Interviews with Beneficiaries

5.7.1 Interviews with mothers of children suffering from diarrhea or anemia

a) Introductory period of the consultation

Table N° 30: Mothers' or accompanying persons' impression of how they were received

Questions	Baseline survey			Final survey		
	Yes	No	%	Yes	No	%
Greeting	116	9	***92,8***	83	9	***90,2***
Seating	120	5	***96,0***	90	2	***97,8***
Language understood	112	13	***89,6***	88	4	***95,6***
Reason for visit asked	120	5	***96,0***	89	3	***96,7***
Name asked	119	6	***95,2***	91	1	***98,9***
Age asked	118	7	***94,4***	89	3	***96,7***

The baseline showed that women had a positive impression of the introductory period of the consultation with satisfaction levels ranging from 89.6 to 96% according to the parameter

considered. The clients were greeted and asked for the reason for the visit as well as their name and age. The final survey showed slight improvement in most of the areas.

b) Interview

Table N° 31 : Questions asked by health agents during sick child consultations

Questions	Baseline survey			Final survey		
	Yes	**No**	***%***	**Yes**	**No**	***%***
Appetite	85	40	***68,0***	57	35	***61,9***
Exclusive breastfeeding	34	91	***27,2***	29	63	***31,5***
Complementary foods	69	56	***55,2***	70	22	***76,1***
Number of meals per day	46	79	***36,8***	40	52	***43,5***
Consistency of meals	26	99	***20,8***	39	53	***42,4***
Active feeding	53	72	***42,4***	27	65	***29,3***
Preparing and storing food	36	89	***28,8***	40	52	***43,5***
Traditional medicine given	20	105	***16,0***	33	59	***35,9***
Vomiting noted	90	35	***72,0***	64	28	***69,6***
Diarrhea noted	105	20	***84,0***	71	21	***77,2***
Blood or pus in stool	69	56	***55,2***	52	40	***56,5***
Frequency of stool	61	64	***48,8***	56	36	***60,9***
Cough noted	96	29	***76,8***	63	29	***68,5***
Fever noted	104	21	***83,2***	64	28	***69,6***
Night blindness	21	104	***16,8***	30	62	***32,6***
Vitamin A supplementation	18	107	***14,4***	33	59	***35,9***
Use of iodized salt	3	122	***2,4***	28	64	***30,4***
Iron supplementation	11	114	***8,8***	30	62	***32,6***
Child sleeps under bed net	16	109	***12,8***	36	56	***39,1***
Sleeps under treated bed net	7	118	***5,6***	35	57	***38,0***
Length of illness	91	34	***72,8***	61	31	***66,3***

At the final survey, improvement was noted for the questions least asked during the baseline survey. While the majority of the health agents still didn't ask these questions, significant progress was made and efforts should be continued to improve the quality of the interview.

c) Physical exams

Table N° 32 : Exams conducted by health agents during sick child consultations

Exams	Baseline survey			Final survey		
	Yes	**No**	***%***	**Yes**	**No**	***%***
Weigh child	105	20	***84,0***	70	22	***76,1***
Measure child's height	23	102	***18,4***	48	44	***52,2***
Draw growth curve	18	107	***14,4***	20	72	***21,7***
Pinch skin	70	55	***56,0***	40	52	***43,5***
Count respiration	23	94	***18,4***	38	54	***41,3***
Take temperature	86	39	***68,8***	57	35	***61,9***
Examine skin	45	80	***36,0***	31	61	***33,7***
Check for anemia	70	55	***56,0***	46	46	***50,0***
Examine legs and feed	29	96	***23,2***	40	52	***43,5***
Examine ears	26	99	***20,8***	22	70	***23,9***
Stool test	1	124	***1,0***	12	80	***13,0***
Blood test	3	122	***2,4***	13	79	***14,1***
Prescribe iron				17	75	***18,5***
Prescribe ORS				53	39	***57,6***

The final survey showed an increase in the percentage of times that certain exams were conducted – including measuring height, checking for edema or respiratory infections, supplementing with iron and prescribing ORS. A decrease was noted, however, in weighing the child and in taking his/her temperature.

d) Counseling

Table N° 33 : Counseling given by health agents when caring for sick children during infant consultations

Topics Covered	Baseline survey			Final survey		
	Yes	No	%	Yes	No	%
Explain growth curve	16	109	***12,8***	10	82	***10,9***
Exclusive breastfeeding	20	97	***16,0***	24	68	***26,1***
Complementary foods	56	69	***44,8***	59	33	***64,1***
Meal frequency	32	93	***25,6***	29	63	***31,5***
Meal consistency	28	97	***22,4***	22	70	***23,9***
Active feeding	41	84	***32,8***	24	68	***26,1***
Animal-source foods	12	113	***9,6***	26	66	***28,3***
Foods rich in iron	16	109	***12,8***	25	67	***27,2***
Foods rich in vitamin A	2	123	***1,6***	23	69	***25,0***
Other foods	16	109	***12,8***			
Iodized salt for cooking	7	118	***5,6***	22	70	***23,9***
Usefulness of vitamin A	11	124	***8,8***	27	65	***29,3***
Usefulness of iron	9	116	***7,2***	20	72	***21,7***
Usefulness of ORS	66	59	***52,8***	41	51	***44,6***
Preparation of ORT	74	51	***59,2***	51	41	***55,4***
Explain medications prescribed	106	18	***84,8***	48	44	***52,2***
When to bring the child back	89	36	***71,2***	53	39	***57,6***
Sleep under a bed net	10	115	***8,0***	31	61	***33,7***
Use educational support materials	7	118	***5,6***	13	79	***14,1***

The baseline survey showed that counseling was seldom provided to the clients. The final survey showed progress in certain areas, especially as related to feeding children (breastfeeding and diversification) and the use of bed nets. There was, however, a decrease in the percentage of times that prescriptions were explained and the clients were told when to bring the child back.

e) Client satisfaction

Table N° 34 : Client satisfaction with services provided by the health agents

Questions	Baseline survey			Final survey		
	Yes	No	%	Yes	No	%
Long wait	69	56	***55,2***	55	37	***59,8***
Comfortable	118	7	***94,4***	86	6	***93,5***
Received well	115	10	***92,0***	83	9	***90,2***
Listened to	121	4	***96,8***	78	14	***84,5***
Concerned about health status	117	8	***93,6***	77	15	***83,7***

The long waiting time is what most bothered the women interviewed for the baseline survey – the other aspects were globally positive. The degree of satisfaction was somewhat lower at the final survey with decreases noted in most of the factors measured.

5.7.2 Exit Interviews with mothers of children brought to well-baby consultations

A total of 76 mothers were interviewed at the baseline survey following an infant consultation. At the final survey, a total of 66 mothers were interviewed.

a) Introduction to the consultation

Table N° 35 : Impressions of mothers/those accompanying children to well-baby consultations concerning the way they were received

Questions	Baseline survey			Final survey		
	Yes	No	%	Yes	No	%
Greeting	72	4	***94,7***	64	2	***96,9***
Seating	72	4	***94,7***	62	4	***93,9***
Language understood	72	4	***94,7***	63	3	***95,5***
Reason for visit	68	8	***89,5***	65	1	***98,5***
Name	72	4	***94,7***	64	2	***96,9***
Age	74	2	***97,4***	64	2	***96,9***
Child ill	46	30	***60,5***	53	13	***80,3***

During the baseline survey, the clients expressed overall satisfaction with the way they were received – approximately 95% were greeted, invited to sit, understood the health agent, and were asked their name. The reason for the visit, however, was not always specifically asked, perhaps because the well-baby consultation already had a defined purpose. The final survey showed improvement in most scores, including asking the purpose of the visit and whether the child was ill.

Interview

Table N° 36 : Questions asked by health agents during well-baby consultations

Questions	Baseline survey			Final survey		
	Yes	No	%	Yes	No	%
Appetite	41	5	***89,1***	41	25	***62,1***
Exclusive breastfeeding	29	17	***63,0***	36	30	***54,5***
Complementary foods given	29	17	***63,0***	48	18	***72,7***
Number of meals per day	21	25	***45,6***	40	26	***60,6***
Consistency of meals	20	26	***43,5***	38	28	***57,6***
Active feeding	24	22	***52,2***	36	30	***54,5***
Preparing and storing food	17	29	***36,9***	41	25	***62,1***
Vomiting noted	20	26	***43,5***	34	32	***51,5***
Traditional medicines given	6	40	***13,0***	18	48	***27,3***
Diarrhea noted	7	39	***15,2***	-	-	-
Night blindness	7	39	***15,2***	23	43	***34,8***
Vitamin A supplementation	9	37	***19,6***	26	40	***39,4***
Use of iodized salt	3	43	***6,5***	22	44	***33,3***
Child sleeps under bed net	8	38	***17,4***	39	27	***59,1***
Child sleeps under treated bed net	6	40	***13,0***	40	26	***60,6***

Conversation seems to be very limited between health agents and mothers during well-baby consultations. For questions that were asked, improvement was noted at the final survey for topics related to the child's eating as well as vitamin A supplementation and the use of a bed net.

c) Physical exams

Table N° 37 : Exams conducted by health agents during well-baby consultations

Questions	Baseline survey			Final survey		
	Yes	No	%	Yes	No	%
Weigh child	42	4	***91,3***	64	2	***97,0***
Measure child's height	9	37	***19,6***	56	10	***84,5***
Draw growth curve	16	30	***34,8***	18	48	***27,3***
Check for anemia	11	35	***23,9***	37	29	***56,1***
Examine legs and feet	12	43	***26,1***	36	30	***54,5***
Examine health card	27	19	***58,7***	36	30	***54,5***
Immunize or give date	-	-	-	39	27	***59,1***
Vitamin A supplementation	-	-	-	33	33	***50,0***

According to mothers interviewed at the baseline, most of the simple actions that should have been routine were actually done less often that would have been thought. For example, a child's weight was measured 91% of the time but the growth curve was drawn or explained to only 34.8% of the mothers. Less than 20% of the children had their height measured and only 23.9% of them were checked for anemia. The evaluation showed considerable improvement on

measures of height (increased from 19.6% to 84.5%) and checking for anemia (increased from 23.9% to 56.1%).

d) Counseling

Table N° 38 : Counseling given by health agents during well-baby consultations

Topics	Baseline survey			Final survey		
	Yes	No	%	Yes	No	%
Explain growth chart	22	24	***47,8***	12	54	***18,2***
Exclusive breastfeeding	25	21	***54,3***	38	28	***57,6***
Complementary foods	28	18	***60,9***	45	21	***68,2***
Frequency of meals	18	28	***39,1***	38	28	***57,6***
Consistency of meals	13	33	***28,3***	34	32	***51,5***
Active feeding	26	20	***56,5***	31	35	***47,0***
Food preparation and storage	26	20	***56,5***	30	36	***45,5***
Animal-source foods	5	41	***10,9***	27	39	***40,9***
Iron-rich foods	5	41	***10,9***	24	42	***36,4***
Vitamin A rich foods	0	46	***0,0***	25	41	***37,9***
Other foods	5	41	***10,9***			
Iodized salt for cooking	3	43	***6,5***	24	42	***36,4***
Usefulness of vitamin A	3	43	***6,5***	28	38	***57,6***
Usefulness of iron	3	43	***6,5***	32	34	***48,5***
Usefulness of ORS	32	14	***69,6***			
Preparation of ORT	30	16	***65,2***			
Sleep under a bednet	5	41	***10,9***	27	39	***40,9***
Use of education support materials	2	44	***4,3***	14	52	***21,2***
When to bring the child back	-	-	-	45	21	***68,2***

At the baseline, mothers confirmed that counseling was given sparingly. The final survey showed improvement on most of the topics related to infant feeding, including those which were rarely discussed at the baseline (including usefulness of iron, vitamin A and iodized salt).

e) Client satisfaction

Table N° 39: Client satisfaction with services offered by health agents

Questions	Baseline survey			Final survey		
	Yes	No	%	Yes	No	%
Long wait	30	16	***65,2***	45	21	***68,2***
Comfortable	42	4	***91,3***	63	3	***95,5***
Well received	42	4	***91,3***	62	4	***93,9***
Listened to	44	2	***95,6***	60	6	***90,9***
Concerned about health status	41	5	***89,1***	59	7	***89,4***

Mothers were generally satisfied with the way they were received and with how health agents behaved at both the baseline and the final survey. In both cases, the aspects of the visit least appreciated were the length of time they had to wait and the degree to which the health agent seemed concerned about the child's state of health.

5.7.3 Exit interview with pregnant women

For the baseline survey, 80 pregnant women were interviewed and the pre-natal consultations were observed for 43 of them. For the final survey, 60 women were interviewed and 25 consultations observed.

a) Introductory period of the consultation

Table N° 40 : Pregnant women's impression of the way they were received

Questions	Baseline survey			Final survey		
	Yes	No	%	Yes	No	%
Reason for visit	63	17	***78,75***	53	7	***88,3***
Name	75	5	***93,75***	54	6	***90,0***
Age	77	3	***96,25***	52	8	***86,6***
Past history of pregnancies	65	15	***81,25***	42	18	***70,0***
Number	58	22	***72,25***	42	18	***70,0***
Difficulties	37	43	***46,25***	41	19	***68,3***
Status of children (alive ?)	47	33	***58,75***	46	14	***76,6***
Number of months pregnant	51	29	***63,75***	45	15	***75,0***

Improvement was noted on the final survey for certain questions including the reason for coming to the consultation, whether children born earlier were still alive, and how long the woman had been pregnant. A slight decrease was observed, however, on such questions as age and past history of pregnancies.

b) Interview

Table N° 41: Questions asked by health agents during pre-natal consultations

Questions	Baseline survey			Final survey		
	Yes	No	%	Yes	No	%
Appetite	23	57	***28,75***	30	30	***50,0***
Eating habits	15	65	***18,75***	31	29	***51,6***
Workload	23	57	***28,75***	30	30	***50,0***
Secondary effects of iron	26	54	***32,5***	35	25	***58,3***
Malaria prophylaxis	47	33	***58,75***	31	29	***51,6***
Use of bednet	13	67	***16,25***	44	16	***73,3***
Use of treated bednet	5	75	***6,25***	45	15	***75,0***
Deworming	4	76	***5,0***	36	24	***60,0***
Sleep habits	-	-	-	29	31	***48,6***
Night vision	-	-	-	30	30	***50,0***
Iron/folate supplementation	-	-	-	51	9	***85,0***
Exclusive breastfeeding (past experience, expectations)	-	-	-	34	26	***56,6***

The final survey showed a clear increase in the percentage of times the various topics were discussed with women coming for prenatal consultations, with many of the scores showing significant improvement

c) Physical exams

Table N° 42: Exams conducted by health agents during pre-natal consultations

Exams	Baseline survey			Final survey		
	Yes	**No**	***%***	**Yes**	**No**	***%***
Weight	70	10	***87,5***	58	2	***96,6***
Height	63	17	***78,75***	51	9	***85,0***
Temperature	46	34	***57,5***	52	8	***86,6***
Blood pressure	66	14	***82,5***	53	7	***88,6***
Fundal height	75	5	***93,75***	58	2	***96,6***
Fetal heart sounds	75	5	***93,75***	45	15	***75,0***
Stool exam	0	80	***0,0***	3	57	***5,0***
Check for anemia	73	7	***91,25***	31	29	***51,6***
Blood test	5	75	***6,25***	2	58	***3,3***
Urinalysis	8	72	***10,0***	2	58	***3,3***
Blood test	3	77	***3,75***	6	54	***10,0***
Check feet	-	-	-	36	24	***60,0***
Check breasts	-	-	-	31	29	***51,6***

Results were mixed. According to what the women reported, there was a decrease in the percentage of times that the health agent checked for anemia, listened to fetal heart sounds, and performed blood or urine tests. Improvement was noted in other areas including height and weight measurement, taking the women's temperature, and measuring fundal height. New exams added since the baseline, including checking for edema and conducting a breast exam, were reported by more than 50% of the women.

d) Counseling

Tableau N° 43 : Counseling given by health agents to pregnant women during pre-natal consultations

Questions	Baseline survey			Final survey		
	Yes	No	%	Yes	No	%
Start prenatal consultations early	49	31	***61,25***	42	18	***70,0***
Iron/folate supplementation	42	38	***52,5***	55	5	***91,6***
Importance of treated bednet	7	73	***8,75***	44	16	***73,3***
Importance of malaria prophylaxis	49	31	***61,25***	32	28	***53,3***
Importance of deworming	9	71	***11,25***	-	-	-
Foods rich in iron	8	72	***10,0***	41	19	***68,3***
Fruit during meals	8	72	***10,0***	38	22	***63,3***
Secondary effects of iron	29	51	***36,25***	32	28	***53,3***
Report all bleeding	30	50	***37,5***	43	17	***71,6***
Respect appointments	75	5	***93,75***	49	11	***81,6***
Importance of avoiding tea and coffee	-	-	-	11	49	***18,3***
Importance of rest	-	-	-	25	35	***41,6***
Importance of exclusive breastfeeding	-	-	-	42	18	***70,0***
Other advice	3	77	***3,75***	16	44	***26,6***

A clear increase was noted in the percentage of times that counseling was provided on most of the various topics. Other than for malaria prophylaxis and the importance of respecting appointments, all the scores increased significantly, with some going from around 10% to more than 60%.

e) Client satisfaction

Table N° 44: Client satisfaction with services provided by the health agents

Questions	Baseline survey			Final survey		
	Yes	No	%	Yes	No	%
Long wait	29	51	***36,25***	39	21	***65,0***
Comfortable	73	7	***91,25***	60	0	***100,0***
Greeted and received well	76	4	***95,0***	60	0	***100,0***
Concerned about state of health	76	4	***95,0***	59	1	***98,3***
Respected	24	56	***30,0***	58	2	***96,6***

As confirmation that the quality of infant consultations has improved, the satisfaction level of clients interviewed during the final survey was very high. All the scores showed an improvement – even for the waiting time that has long been a weak point of these consultations.

VI. DISCUSSION

6. 1 Functioning of health centers

- Significant progress has been made in terms of infrastructure even though the vast majority of health facilities do not have places set aside for ORT and for education. 19 out of the 21 health facilities visited for the final survey had places set up for preventive activities as compared to 8 out of 21 at the baseline.

- In terms of equipment, the situation has improved for some areas such as what is needed for addressing malnutrition. Out of the 21 health facilities visited for the final survey, 20 had scales and 19 had height boards whereas at the baseline, 3 health facilities out of 23 did not have scales and 9 did not have height boards.

  The cold chain situation continues to be problematic. 7 out of 21 health facilities do not have a refrigerator as compared to 9 out of 23 who did not have one at the time of the baseline. This situation may be explained in part by the lack of clarification on exactly what activities should be conducted at a health post. It seems that the activities expected depend on the qualifications of the health agents assigned to the health post. Some health posts have trained nurses while others have community health agents.

  It was noted that some equipment, such as adult height boards and stethoscopes, were only present in 15 of the health facilities visited. This explains why certain important exams are not conducted in some locations.

- In terms of logistical support, 5 health centers were found to have vehicles while 8 had motorcycles.

- Efforts had clearly been made to provide support materials. All of the facilities were found to have recordbooks for consultations of sick people. 20 of the 21 had recordbooks for caring for the moderately malnourished (as compared to 8/23 at the baseline), and 12 for the severely malnourished - but only 8 had IMCI recordbooks.

6.2 Interviews with Health Agents

The interviews sought information concerning frequency of supervision. The final survey showed that 75% of the health agents had been supervised during the previous six months, showing significant improvement when compared to the 35% supervised over the six months preceding the baseline survey. Out of the 24 agents supervised, 22 had been supervised twice during the period, which corresponds to the frequency of supervision recommended by Niger's health system.

The health agents report on trainings received shows that considerable efforts were made in this area – 23 had received training on Essential Nutrition Actions, 9 on community management of acute malnutrition, 10 on IMCI, and 15 on malaria. Prior to the baseline survey, only 2 health agents had been trained in nutrition. However, considering that almost all the health agents in

Diffa were trained in managing malnutrition (CMAM) between 2005 and 2006, it is disappointing to see that only 9 out of the final survey sample had had the training. This would appear to confirm the mobility of health personnel in this region of the country.

Information provided by the health agents concerning exams they conduct during pre-natal exams showed improvement when compared to the baseline. Weight measurement increased from 88% to 93% and height from 71 to 82%. A decline was noted, though, in the percentage of the time that they took the woman's blood pressure (from 97% to 85%) and that they checked for edema (from 79% to 76%).

There was a significant improvement in scores related to counseling provided. For example, counseling on presumptive treatment for helminthes increased from 0% to 51% and exclusive breastfeeding from 9% to 51%.

Considerable improvement was also noted for infant consultations. Vitamin A supplementation increased from 16% to 67%; height measurement from 54% to 87%; and de-worming from 0% to 48%. There was a slight decrease in weight measurement (from 100% to 97%).

All the scores related to care provided for a case of diarrhea increased, sometimes significantly, when compared to the baseline. This was true for diarrhea without dehydration, severe diarrhea, persistent diarrhea, and diarrhea where cholera was suspected. Zinc was considered by about half of the health agents.

Improvement was also noted in care provided for anemia (both preventive and curative) through supplementation, in the promotion of foods rich in vitamin A, in de-worming and in the use of treated bed nets. De-worming was recommended by about half of the health agents at the final survey, compared to 0% at the baseline. Use of a treated bed net was recommended 59% of the time – significant improvement over the 11% reported at the baseline. Similarly, iron supplementation was recommended 40% at the final survey compared to 11% at the baseline.

6.3 Observations

Observations of pre-natal exams during the final survey showed improvements in prescriptions given as well as counseling. Significantly, 68% of the women observed benefitted from the complete set of interventions foreseen for anemia as compared to 0% at the baseline. There was, however, a decrease noted in some of the questions asked and the exams conducted – including measuring height and weight, and checking blood pressure and fundal height. There is good reason to believe the lack of equipment in some health facilities contributed to these results. Furthermore, the lack of clarity as to what care is to be provided at a health post makes it difficult to interpret the results from the survey.

The infant consultations observed showed improvement when compared to the baseline. This may be explained by the denominator not necessarily corresponding to the total in this context where some infants are brought for malnutrition or other problems and weight measurement may not be systematic in all of these cases.

The supervisors for data collection judged that care for anemia was correctly given in 34.8% of the cases according to the IMCI protocol. For diarrhea, they judged that it was 57.1% of the time.

6. 4 Interviews with Beneficiaries

Sick-child consultations:

The vast majority of mothers who brought children suffering from diarrhea or anemia for consultation expressed satisfaction with how they were received. Other than for the greeting, all scores showed improvement when compared to the baseline. Their overall satisfaction level for the full consultation, however, shows that improvement is still needed. The scores here are the lowest that were observed and little progress was noted.

The health status of the child was the primary concern of the health agents. The topics the least covered during the interview at the time of the baseline are those that showed the most improvement on the final survey. For other topics, some showed improvement while others showed a slight decrease.

In terms of physical exams, the interviews showed that the current situation is similar to that at the time of the baseline. There was an increase in the score for height measurement but decreases noted in some of the exams most reported at the time of the baseline – such as measuring weight and taking temperature.

There was little progress noted on counseling between the baseline and the final survey.

Well-baby consultations:

Mothers exiting well-baby consultations reported that they were generally satisfied with the way they were received and the scores in this area showed improvement. The lowest score – both for the baseline and the evaluation – was whether the health agent asked about the child's state of health. 60.5% did so at the time of the baseline and 80.3% asked this at the final survey.

In terms of questions asked, a slight decrease was noted at the final survey compared to the baseline for exclusive breastfeeding and the child's appetite. The other scores showed clear improvement. There was also a clear increase in scores related to exams conducted and actions taken, with the exception of drawing the growth curve on the child's health card. There was apparent improvement in counseling offered for most topics, with the exception of explaining the growth curve and discussing active feeding of a sick child.

Scores on overall satisfaction with the consultation showed an increase at the final evaluation except for whether or not they felt they had been listened to. The lowest score, as at the baseline, was related to the length of wait time – but there was improvement in this area when compared to the baseline.

Pre-natal consultations:

Women who came for pre-natal consultations during the final survey appear to have been less satisfied with the way they were received than those who came during the baseline survey. Although improvement was seen in some areas (asking the reason for the visit, difficulties encountered, length of pregnancy and whether children from earlier pregnancies were still alive), in others there was deterioration noted (asking name and age of the woman as well as a history of other pregnancies). On the other hand, there was improvement seen concerning the questions asked during the interview – almost all showed an increase. In terms of exams and actions taken, there was a decrease seen in checking for fetal heart sounds and anemia. However, it is possible that they occurred without with mothers knowing it if the health agent did not explain what s/he was doing.

There was significant improvement noted in all scores related to counseling with the exception of malaria prophylaxis and the importance of respecting appointments. Women's level of satisfaction with the consultations was significantly higher than at the baseline.

VII. CONCLUSION

The evaluation of the Diffa Child Survival project's component for quality of care shows that significant efforts were made to improve the quality of care provided in health facilities. This is seen in the number of health agents who benefitted from training, especially for Essential Nutrition Actions and community management of acute malnutrition. At the beginning of the project, less than 10% of the agents had received training in nutrition but the final survey showed that 79.3% had been trained in Essential Nutrition Actions and 28% in caring for the malnourished. These training sessions contributed to an improvement in the quality of care through:

- Improvement in the health agents' knowledge base, as evidenced by answers given during the interview
- Adoption of practices that impact positively on the population's health, such as de-worming children and pregnant women, integrating zinc into care for diarrhea, use of treated bed nets, and care for the malnourished
- Regular supervision of the health agents

The impact was noted in the results of the final survey in such ways as:

- More than half of the health agents systematically counsel on the use of treated bed nets
- Vitamin A supplementation has become routine for more than half of the health agents
- Care for anemia was judged to be in conformity to the full IMCI algorithm in 34.8% of the cases observed in the final survey compared to 9% at the baseline
- Care for diarrhea was judged to be in conformity to the full IMCI algorithm in 57.1% of the cases observed in the final survey compared to 41% at baseline.
- Pre-natal consultations were judged to have fully addressed anemia prevention in 68% of the cases observed in comparison to 0% at the baseline.

This list of achievements is not exhaustive. What has been achieved needs to be supported and reinforced so that the behaviors are maintained and practiced by an even greater percentage of health agents.

The status of equipment and supplies materials at the health facilities did not show much change between the baseline and the final evaluation. Had there been an improvement in this area, it would have certainly positively influenced the survey results in other areas. For example, zinc was integrated into the care for diarrhea – but the level of stock outages for zinc did not permit its regular use. Providing support to improve the supply system would contribute to reinforcing the quality of care offered by the health facilities.

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Annex 7. CHW Training Matrix

Project Area	Type of CHW[7]	Official Gov. or grantee	Paid or Volunteer?	Number Trained LOP	Focus of Training
All three departments – 60 villages total	Essential Nutrition Actions Committee	Grantee	volunteer	360	7 actions of ENA
All three departments – 29 villages total	Community-based Growth Promotion Groups (PCAC	Grantee	volunteer	112	Growth Monitoring; rations distribution to moderately malnourished children
All three departments – 60 villages total	Breastfeeding Support Groups	Grantee	volunteer	720 =/- (no more than 12 per group)	No formal training provided- OTJ training on Breastfeeding
All three departments – 62 villages total	Traditional Birth Attendants	Grantee	volunteer	36	Child Birth Skills – breastfeeding, nutrition during pregnancy and post partum
All three departments	Women's Association	Grantee	volunteer	56	How to make soap out of local materials

[7] As explained in the body of the report the MoH calls their workers who staff the most peripheral health facility, the health post, Community Health Workers. Because they work out of a health facility, are paid by the MoH and are a recognized part of the system, we do not consider these as typical CHWs. The groups included here are community volunteers, formed, trained and supported by HKI as part of the HKI CS Diffa project.

<u>Annex 8</u>: Evaluation Team Members and their Titles

1.*Maiary Abba Mammadou – HKI Animator
2. Mamadou Adamou – Point Focal Nutrition DRSP Diffa
3. Nafissatou Issoufou Maiga – Animator
4. Salamatou Mamane – HKI – Trainer and CCC
5. Amina Yaya – Direction Nutrition MOH
6. *Idi Mamane – Animator HKI
7. Maman Mahman Dir. Dept. De Amenagement Teretorial/ Dev. Communautraire
8. *Fatima Garba Sani – Animator HKI
9. *Aissata Hassane Ali – surveyor
10. Hinsa Adamou – M&E Specialist HKI
11. Oumarou ElHadji Mamane – Project Coordinator HKI
12. *Sidi Chetima el Hadji Ibrahim - Animator HKI
13. Jennifer Nielsen – Senior Program Manager HKI HQ
14. Bonnie Kittle – external consultant

*Kanouri speakers

Annex 9: Evaluation Assessment Methodology

Workplan

# of days	Cumulative # days	Date	Task Description	Location of work
1	2	July 10	Familiarization with project Documents	US
2	3	July 10-11	Travel to Niamey	Transit
2	5	July 12-13	Travel to Diffa	Transit
3	8	July 14-16	Team planning meeting, Development of Tools, Pre-testing (See schedule details below)	Diffa
3	11	July 17-19	Data collection from randomly selected project villages (see tables below)	Diffa, Maine Soroa, N'Guigmi (1 team each)
2	13	July 20-21	Data analysis and synthesis	Diffa
1	14	July 22	Preparation of presentation to stakeholders; presentation of preliminary finding	Diffa
2	16	July 23-24	Travel to Niamey Depart to US	Transit
5	21	Aug. 3 -7	Report Writing	US
2	23	Aug. 24 - 25	Finalize report	US

Team Planning Meeting Schedule

DAY 1 – All Evaluation Team Members

Task/Activities	Amt Time	Time frame
Welcome and Introduction of Team members –Each person writes their name, title, organizational affiliation, length of time on the project, experience on evaluations, languages they speak and one thing they want to learn about qualitative evaluations on a piece of paper. Each one presents themselves to the group.	30 min	8:30 - 9:00
Identify the purpose of the evaluation – divide the large group into 3 small groups, each small group writes down 5 words they associate with Final Term Evaluation. Share – choose 2 people to develop a statement what incorporates the common ideas into one purpose statement. Include that one of my desires is that each person will learn something new about conducting a qualitative evaluation.	60 min	9:00 – 10:00
Discuss qualities of a good evaluator – each person writes down 2-3 words that they think characterize an effective evaluator – brain storm, compile a master list –discuss – bring out idea that being an evaluator means analyzing things making judgments and recommendations/lessons learned; Also remind the team members that the evaluation is NOT about individuals, it is about the project so each person needs to be objective about the process and the findings and not take any findings personally.	45 min	10:00 – 10:45
Present and discuss the general work schedule of the evaluation (flip chart) also discuss the idea that we will be working in three teams for the field work –	30	11:00 - 11:30
Presentation and Discussion of Project (ask Jennifer to make a list of the documents we need to get for reference) a. Differences between original DIP and actual Project b. Where CSP/Diffa works geographically (refer to maps), How many villages/communities, distances, issues with population; partner groups c. Show KPC Results for each Objective/indicator d. By Project objective – the strategies being used to achieve the objectives and any issues/constraints encountered during the project e. Staffing – how many of which type and where they are based f. Up date on/ Issues related to Monitoring g. Questions they want the evaluation to answer	4 hours	11:30 – 4:30 w/ 60 min lunch break

DAY 2

Task/Activities	Amt of Time	Timeframe
Review the outline of the report – discuss key questions; add any that are missing and finalize – identify the		
Identify the key informants and sources of information for each set of questions		
Divide the team by key informants and questions and ask each team to develop a set of questions for their key informant		
Bonnie to interview Project Staff including Field Agents		

Day 3

Task/Activities	Amount of Time	Timeframe
Review the Questionnaires – **translate** and Finalize and photocopy questionnaires	2 hr	
Discuss criteria for selection of field visits – Where /how will we find the key informants. Develop the detailed field work schedule (need copies for each team member) including the criteria used to decide where the teams would visit.	60	
Propose the division of the teams, discuss the rationale and finalize; discuss roles and responsibilities; discuss perceived conflict of interest; discuss how the translators will work; identify each team's leader and discuss the desire for daily reviews during field work	45	
Decide which key informants and how many each group will interview;	30	
Review and finalize any details regarding the field trip.	40	

Field Work Interview Organization

N'Guigmi

Village	CSI	CS	PCAC	ENA	AIE	MERE	AT
JEUDI							
Baroua	X			X	x	x	
Arikkri	X			X	x	X	
Kalawa	X			X	x	X	X
VEN							
Oudikan			X	X	x	X	
Liskidi			X	X	x	X	
Legam			X	X	x	X	
SAMEDI							
Koutou			X	X	x	X	
Mandara			X	X	x	X	
Albougaram			X	X	x	x	
	3		2x6=12	3x9=27	2x9=18	5x9=40	1x?

DIFFA

5 mother, 2 PCAC 3 ENA 2 GS AT CS CSI

Village	CSI	CS	PCAC	ENA	AIE	MERE	AT
JEUDI							
Sayman	X			X	X	X	X
NGarwa	X			X	X	X	
Dewe			X	X	X	X	
VEN							
Mamari		X		X	X	X	
Messirodi			X	X	X	X	
Mallma Boukardri	X			X	X	X	
SAMEDI							
Djaboulam		X	X	X	X	X	
Garin Dogo				X	X	X	X
Kayawa			X	X	X	X	X
	3	2	2x4=8	9x3-27	2x9=18	5x9=40	3x?=

MAINE

Village	CSI	CS	PCAC	ENA	AIE	MERE	AT
JEUDI							
Issari Kassoum			X	X	X	X	X
Tam	X			X	X	X	X
Mardodi			X	X	X	X	
VEN							
Kosseni				X	X	X	
Abarilori				X	X	X	
kadijikouini	X			X	X	X	
SAMEDI							
Kiribitoa				X	X	X	
Kadjikimi				X	X	X	
Gariva		X		X	X	X	
	2	1	2x2=4	3x9=27	9x2=18	9x5=40	2x?

Annex 10: List of people interviewed and contacted

All project staff (7) still present;
Former head of OFDA Project
Senior MCH Advisor, HKI /HQ

Total Numbers of Questionnaires by group by Team completed

	Diffa	N'Guigmi	Maine	Totals
Mothers (5 each)	44	44	45	133
TBA (all trained)	2	3	3	8
ENA team (3 each)	20	23	24	67
PCAC (2 each)	7	12	4	23
Support Groups (2)	10	14	14	38
IHC or HP Staff (chef)	5	5	5	15
	88	101	95	**284**

Child Survival and Health Grants Program Project Summary

Dec-22-2009

Helen Keller International (Niger)

General Project Information

Cooperative Agreement Number:	GHS-A-00-04-00008
HKI Headquarters Technical Backstop:	Jennifer Nielsen
HKI Headquarters Technical Backstop Backup:	
Field Program Manager:	El Hadji Mamane Oumarou
Midterm Evaluator:	Marguerite Joseph
Final Evaluator:	Bonnie Kittle
Headquarter Financial Contact:	Jennifer Nielsen
Project Dates:	9/30/2004 - 9/29/2009 (FY04)
Project Type:	Standard
USAID Mission Contact:	Paul Hoedom Sossa
Project Web Site:	

Field Program Manager

Name:	El Hadji Mamane Oumarou (Project Coordinator)
Address:	HKI Diffa Niger
Phone:	227 20-54-01-30
Fax:	227 20-75-3313
E-mail:	omamane@hki.org
Skype Name:	

Alternate Field Contact

Name:	Salamatou Mahamane (Project Coordinator)
Address:	 Diffa Niger
Phone:	227-20-54-01-30
Fax:	227-20-75-3313
E-mail:	smahamane@hki.org
Skype Name:	

Grant Funding Information

USAID Funding: $1,499,923

PVO Match: $543,221

General Project Description

The project goal is to significantly and sustainably reduce child malnutrition, morbidity, and mortality in the Diffa region by increasing the capacity of the health system, communities, and other partners, to improve women's and children's health and nutritional status. Interventions are in the following areas: nutrition, breastfeeding, diarrheal disease control, malaria control. Strategies include training, supervision, behavior change communications (BCC), monitoring and evaluation components that ensure capacity building and results measurement. Delivery mechanisms will include improving center- and community-based services and two key region-wide actions; child health weeks and radio campaigns.

Project Location

Latitude: 13.32	**Longitude:** 12.61
Project Location Types:	Rural
Levels of Intervention:	District Hospital Health Center Health Post Level Home Community
Province(s):	--
District(s):	Diffa region, which includes the districts of Diffa, Maine Soroa and N'Guigmi
Sub-District(s):	--

Operations Research Information

OR Project Title:	--
Cost of OR Activities:	--
Research Partner(s):	--
OR Project Description:	--

Partners

Ministry of Public Health (Collaborating Partner)	$0
Ministries of Basic Education, Agriculture, and Community Development (Collaborating Partner)	$0
National School of Public Health, Zinder(Collaborating Partner)	$0
Communal Councils (Collaborating Partner)	$0
Health Committees, Health Posts, VHCs (Collaborating Partner)	$0

Strategies

Social and Behavioral Change Strategies:	Group interventions Interpersonal Communication Social Marketing Mass media and small media
Health Services Access Strategies:	Implementation in a geographic area that the government has identified as poor and underserved
Health Systems Strengthening:	Quality Assurance Supportive Supervision Developing/Helping to develop job aids Monitoring health facility worker adherence with evidence-based guidelines Providing feedback on health worker performance Referral-counterreferral system development for CHWs Development of clinical record forms Review of clinical records (for quality assessment/feedback) Coordinating existing HMIS with community level data
Strategies for Enabling Environment:	Create/Update national guidelines/protocols Stakeholder engagement and policy dialogue (local/state or national) Advocacy for policy change or resource mobilization
Tools/Methodologies:	BEHAVE Framework Sustainability Framework (CSSA) Rapid Health Facility Assessment

Capacity Building

Local Partners:	National Ministry of Health (MOH) Dist. Health System Health Facility Staff Other National Ministry Health CBOs Other CBOs Government sanctioned CHWs TBAs Faith-Based Organizations (FBOs)

Interventions & Components

Nutrition (20%) - ENA - Complementary Feeding from 6 months - Continuous BF up to 24 months - Growth Monitoring - Maternal Nutrition	IMCI Integration	CHW Training HF Training
Vitamin A (20%) - Supplementation - Post Partum - Integrated with EPI	IMCI Integration	CHW Training HF Training
Micronutrients (20%) - Iodized Salt - Iron Folic Acid in Pregnancy - Food Fortification		CHW Training HF Training
Control of Diarrheal Diseases (20%) - Hand Washing - ORS/Home Fluids - Feeding/Breastfeeding - Case Management/Counseling - Zinc	IMCI Integration	CHW Training HF Training
Malaria (10%) - Training in Malaria CM - Adequate Supply of Malarial Drug - Access to providers and drugs - Antenatal Prevention Treatment - ITN (Bednets) - Care Seeking, Recog., Compliance - IPT	IMCI Integration	CHW Training HF Training
Breastfeeding (10%) - Promote Exclusive BF to 6 Months - Introduction or promotion of LAM	IMCI Integration	CHW Training HF Training

Operational Plan Indicators

Number of People Trained in Maternal/Newborn Health			
Gender	**Year**	**Target**	**Actual**
Female	2009		0
Male	2009		0
Female	2010	0	
Male	2010	0	
Female	2011	0	
Male	2011	0	
Number of People Trained in Child Health & Nutrition			
Gender	**Year**	**Target**	**Actual**
Female	2009		0
Male	2009		0
Female	2010	0	
Male	2010	0	
Female	2011	0	
Male	2011	0	
Number of People Trained in Malaria Treatment or Prevention			
Gender	**Year**	**Target**	**Actual**
Female	2009		0
Male	2009		0
Female	2010	0	
Male	2010	0	
Female	2011	0	
Male	2011	0	

Locations & Sub-Areas

Total Population: 359,400

Target Beneficiaries

	Niger - HKI - FY04
Infants < 12 months	15,131
Children 0-59 months	69,724
Women 15-49 years	76,552
Beneficiaries Total	161,407

Rapid Catch Indicators: DIP Submission

Sample Type: 30 Cluster

Indicator	Numerator	Denominator	Percentage	Confidence Interval
Percentage of children age 0-23 months who are underweight (-2 SD from the median weight-for-age, according to the WHO/NCHS reference population)	**100**	**298**	**33.6%**	**8.5**
Percentage of children age 0-23 months who were born at least 24 months after the previous surviving child	**127**	**187**	**67.9%**	**13.6**
Percentage of children age 0-23 months whose births were attended by skilled health personnel	**84**	**300**	**28.0%**	**7.9**
Percentage of mothers of children age 0-23 months who received at least two tetanus toxoid injections before the birth of their youngest child	**153**	**300**	**51.0%**	**9.9**
Percentage of infants age 0-5 months who were exclusively breastfed in the last 24 hours	**5**	**88**	**5.7%**	**6.9**
Percentage of infants age 6-9 months receiving breastmilk and complementary foods	**22**	**55**	**40.0%**	**21.1**
Percentage of children age 12-23 months who are fully vaccinated (against the five vaccine-preventable diseases) before the first birthday	**46**	**78**	**59.0%**	**20.2**
Percentage of children age 12-23 months who received a measles vaccine	**66**	**132**	**50.0%**	**14.8**
Percentage of children age 0-23 months who slept under an insecticide-treated bednet the previous night (in malaria-risk areas only)	**73**	**300**	**24.3%**	**7.4**
Percentage of mothers who know at least two signs of childhood illness that indicate the need for treatment	**190**	**300**	**63.3%**	**10.5**
Percentage of sick children age 0-23 months who received increased fluids and continued feeding during an illness in the past two weeks	**50**	**221**	**22.6%**	**8.4**
Percentage of mothers of children age 0-23 months who cite at least two known ways of reducing the risk of HIV infection	**159**	**300**	**53.0%**	**10.0**
Percentage of mothers of children age 0-23 months who wash their hands with soap/ash before food preparation, before feeding children, after defecation, and after attending to a child who has defecated	**1**	**300**	**0.3%**	**0.9**

Rapid Catch Indicators: Mid-term

Sample Type: LQAS

Indicator	Numerator	Denominator	Percentage	Confidence Interval
Percentage of children age 0-23 months who are underweight (-2 SD from the median weight-for-age, according to the WHO/NCHS reference population)	**0**	**0**	**0.0%**	**0.0**
Percentage of children age 0-23 months who were born at least 24 months after the previous surviving child	**0**	**0**	**0.0%**	**0.0**
Percentage of children age 0-23 months whose births were attended by skilled health personnel	**0**	**0**	**0.0%**	**0.0**
Percentage of mothers of children age 0-23 months who received at least two tetanus toxoid injections before the birth of their youngest child	**0**	**0**	**0.0%**	**0.0**
Percentage of infants age 0-5 months who were exclusively breastfed in the last 24 hours	**0**	**0**	**0.0%**	**0.0**
Percentage of infants age 6-9 months receiving breastmilk and complementary foods	**0**	**0**	**0.0%**	**0.0**
Percentage of children age 12-23 months who are fully vaccinated (against the five vaccine-preventable diseases) before the first birthday	**0**	**0**	**0.0%**	**0.0**
Percentage of children age 12-23 months who received a measles vaccine	**0**	**0**	**0.0%**	**0.0**
Percentage of children age 0-23 months who slept under an insecticide-treated bednet the previous night (in malaria-risk areas only)	**0**	**0**	**0.0%**	**0.0**
Percentage of mothers who know at least two signs of childhood illness that indicate the need for treatment	**0**	**0**	**0.0%**	**0.0**
Percentage of sick children age 0-23 months who received increased fluids and continued feeding during an illness in the past two weeks	**0**	**0**	**0.0%**	**0.0**
Percentage of mothers of children age 0-23 months who cite at least two known ways of reducing the risk of HIV infection	**0**	**0**	**0.0%**	**0.0**
Percentage of mothers of children age 0-23 months who wash their hands with soap/ash before food preparation, before feeding children, after defecation, and after attending to a child who has defecated	**0**	**0**	**0.0%**	**0.0**

Rapid Catch Indicators: Final Evaluation

Sample Type: 30 Cluster

Indicator	Numerator	Denominator	Percentage	Confidence Interval
Percentage of children age 0-23 months who are underweight (-2 SD from the median weight-for-age, according to the WHO/NCHS reference population)	**285**	**478**	**59.6%**	**8.2**
Percentage of children age 0-23 months who were born at least 24 months after the previous surviving child	**244**	**432**	**56.5%**	**8.5**
Percentage of children age 0-23 months whose births were attended by skilled health personnel	**236**	**867**	**27.2%**	**4.6**
Percentage of mothers of children age 0-23 months who received at least two tetanus toxoid injections before the birth of their youngest child	**703**	**827**	**85.0%**	**6.7**
Percentage of infants age 0-5 months who were exclusively breastfed in the last 24 hours	**110**	**152**	**72.4%**	**15.3**
Percentage of infants age 6-9 months receiving breastmilk and complementary foods	**64**	**89**	**71.9%**	**19.9**
Percentage of children age 12-23 months who are fully vaccinated (against the five vaccine-preventable diseases) before the first birthday	**132**	**207**	**63.8%**	**12.7**
Percentage of children age 12-23 months who received a measles vaccine	**162**	**207**	**78.3%**	**13.3**
Percentage of children age 0-23 months who slept under an insecticide-treated bednet the previous night (in malaria-risk areas only)	**274**	**602**	**45.5%**	**6.7**
Percentage of mothers who know at least two signs of childhood illness that indicate the need for treatment	**480**	**601**	**79.9%**	**7.8**
Percentage of sick children age 0-23 months who received increased fluids and continued feeding during an illness in the past two weeks	**103**	**347**	**29.7%**	**7.5**
Percentage of mothers of children age 0-23 months who cite at least two known ways of reducing the risk of HIV infection	**429**	**601**	**71.4%**	**7.7**
Percentage of mothers of children age 0-23 months who wash their hands with soap/ash before food preparation, before feeding children, after defecation, and after attending to a child who has defecated	**351**	**601**	**58.4%**	**7.3**

Rapid Catch Indicator Comments

Project staff decided to cancel the mid-term survey and reprogram funds subject to USAID approval. A modified LQAS-type survey will be conducted in January 2008 to assess progress in achieving desired behavior change.

Annex 12: HKI Plans to Address Final Evaluation Findings

Finding #1: Decision to target 60 villages rather than 115 for intensive community level activities due food crisis and delayed start of community strategy meant that 55 villages were less served. In a future project, HKI should consider a phased approach for community-level activities or budgeting for additional staff.

HKI agrees that a phased approach to implementation of a community strategy is an excellent strategy under ordinary circumstances. However, we believe that the food crisis was all-consuming of the attention of project and MOH staff and that it would not have been feasible during the crisis period of the first half of the project. For future projects in Niger and elsewhere we will build this approach into implementation where it makes sense.

We do believe that notwithstanding the challenges we faced, we achieved high quality coverage of the entire target area. The ENA/BCC training was extended to all health staff serving in the 115 target villages of the region (34 Integrated Health Center heads; 30 IHC Deputies; 85 Health Post heads) as well as three staff each in the regional offices of the ministries of Social Development, Community Development, Agriculture, Basic Education and Women's Affairs. The quality and attention to nutrition services was enhanced and regular health education sessions were held at these health facilities following the training, events that were non-existent before the project.

We acknowledge that we underestimated the logistical challenges of providing technical support to a project staff located at so great a distance from Niamey and without an effective communications infrastructure. We responded by installing a satellite system (using non US government resources) in November of 2006 that established more reliable e-mail and telephone connections, and by sending the new HQ backstop and Senior Vice President to Diffa in March 2007 to advise on an accelerated BCC strategy. Given the vast distances between villages and the limited number of field agents (increased to 10 for the last two years of the project, 4 of whom were funded through the OFDA grant and had CMAM responsibilities as well), we felt that to allow for the necessary intensive oversight it was sensible to reduce the number of sites with community-level organizations and activities to 60. The mid-term evaluator agreed with that determination.

Finding #2: The multiple community strategies were less efficient and more confusing for MOH partners than a more focused approach. Efforts to consolidate the community groups before the end of the project should be taken.

On the contrary, HKI feels that the different bodies serve to reinforce the varied and multiple ENA messages and get more community members engaged in promoting these messages. Breastfeeding support groups focus on reaching pregnant and postpartum women with messages about immediate and exclusive breastfeeding; growth monitoring committees focus on reaching mothers of children 0-36 months and identifying growth faltering; women's groups promote soap making and hygiene practices; and ENA committees reinforce all these messages with a special emphasis on promoting knowledge of recipes for enriched complementary foods among mothers of children 6-24 months.

We greatly appreciate the Quality Improvement Verification Checklists (QIVC-originally developed by Food for the Hungry) the evaluator shared with us and have adapted these tools for Diffa to serve as guides to project and MOH staff in the supportive supervision of community groups as we move forward with support for these groups. We have engaged the consultant who helped adapt the ENA/BCC modules for Niger (see #5 below) to review these tools and help train HKI and government staff in their use. We will continue to encourage the activity of the multiple groups and to use supervision visits as a means to bring all the groups together and exchange information and lessons learned. We are also continuing efforts to identify new funding sources to support the continuation of this vital and unfinished work.

Finding #3: The paper work associated with community-based growth monitoring and promotion is too complicated for the level of education one typically finds at the village level in Diffa and the approach used encourages dependence on outside food sources. In a future project, HKI should simplify the growth monitoring and consider using the PD/Hearth approach to managing moderately malnourished children at the community level.

We agree that recording weight, height and age and plotting these on a growth chart is beyond the skills of most community group members in Diffa (elsewhere in Niger HKI has supported these groups quite successfully as noted in a recent independent evaluation). We have transitioned groups to using mid-upper arm circumference to screen for acute malnutrition. Children with measures <115 mm or with bilateral pitting edema will be referred immediately to the nearest health facility and children with measures from 115-125 mm will be treated at the community level. We will also put increasing emphasis on promoting the preventive nutrition actions rather than attempting to monitor the physical growth of children. Formative supervision of these community groups in partnership with the responsible IHC head will continue until it is clear the skills are mastered and the referrals are effectively followed up.

Finding #4: MOH health workers have not been sufficiently engaged in supervising community level activities to assume full responsibility at project end. HKI should meet with the District Health Team to plan and implement a transfer of responsibility from HKI to MOH Health Agents in the 60 target villages, including documentation of roles and responsibilities.

As noted under #2 above, we have developed supervision tools based on QIVC and have held meetings with each district health office team to discuss the handover of supervision responsibilities. The district partners have accepted the value of these community groups and the need to continue supervisory support, although resources are quite limited. HKI is actively searching for new funding to bolster these efforts and is confident that these will be secured. We will continue the support from project supervisors and will conduct regular joint supervisions with health agents from the Integrated Health Centers and supervisors from the district health offices for a period of transition of responsibilities.

Finding #5: HKI introduced the Essential Nutrition Actions without in-depth formative research as a basis for adapting the messages to local culture and constraints and in the

training program techniques for negotiating for behavior change were neglected. Future projects should give greater emphasis to both.

In adapting the ENA/BCC training modules for Niger, HKI used a consultant with a long history with the Linkages project and with 40 years experience at the community level in Niger. In addition, the project staff participated in a BEHAVE training and subsequently conducted a Doer/Nondoer analysis, findings from which were used to inform the wording of certain key messages. Had time and resources allowed, additional formative research could have been optimal to fine-tune and validate the wording of certain ENA support messages the project team promoted. Whereas the basic message on each essential action is fairly factual (e.g., "Mothers put the baby to your breast immediately after giving birth,"), supporting information is often more culturally specific (e.g., "Mothers, colostrum is God's way to welcome your baby.") Nevertheless, we feel our messages were well adapted to the context of Diffa. We do agree that the training and support for the mastery of negotiating for behavior change was not as strong as it should have been. This was a new approach for the staff of HKI/Diffa and in retrospect we perceive that stronger outside support should have been provided to ensure that role plays and practicum were regularly included in training and that the skills of dialogue and negotiation were modeled for project staff and community groups. We have arranged for the same consultant to facilitate a retraining of trainers from HKI and the district and regional health offices on Negotiating for Behavior Change and to work with these trainers to design new training programs for health facility and village agents.

<u>Finding #6</u>: Despite HKI's work to make zinc an official product in the prevention and treatment of diarrhea, the MOH has not been able to ensure the availability of zinc at the health facility level in the Department of Diffa. The MOH needs to: 1) incorporate the use of zinc in pre-service training of all health care providers; 2) provide in-service training to all current health care providers; 3) amend the IMCI protocols to include zinc; and, 4) take the necessary steps to ensure an adequate supply of zinc at all health facilities in Diffa and throughout the country.

The Ministry of Health adopted a national protocol recommending the use of zinc supplementation for the treatment of acute diarrhea in June 2006; the policy has been incorporated into the IMCI protocol. Zinc has been included in the pre-service curriculum since 2007. In-service training is needed for certain health providers who have not yet been trained. The inadequate supplies of zinc do continue to be a problem, partly due to limited international availability of the appropriate form and partly to weaknesses in the national distribution chain. Zinc does not go through the normal pharmaceutical procurement channels because the national office does not have resources to cover it, thus a parallel supply system has developed. In addition, health agents may not yet have established a routine to order zinc when supplies run low. HKI and UNICEF are continuing dialogues with the MOH on how to address these problems.