



**Window of Opportunity
Bangladesh**

Final Evaluation Report

Draft 1

**CARE USA
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List of Acronyms and Definitions

AS	<i>Akhoni Shomay</i> the Window of Opportunity project in Bangladesh
ACPR	Associates for Community and Population Research
BCC	Behavior Change Communication
CC	Community Counselor
CFA	Community Focused Approach
CHNM	Community Health and Nutrition Mobilizers (POPIField Staff)
CHNW	Community Health and Nutrition Worker (community volunteer)
DHO	District Health Office
EKATA	Empowerment Knowledge and Transformative Action
FGD	Focus Group Discussion
FWA	Assistant from Family Welfare
FWC	Family Welfare Centre
GAIN	Global Alliance for Improved Nutrition
HAZ	Height for Age z-score
HDDS	Household Dietary Diversity Score
IIN	El Instituto de Investigación Nutricional (The Institute of Nutritional Research), Peru
IYCF	Infant and Young Child Feeding
IYCN	USAID's Infant and Young Child Nutrition Project
HA	Health Assistant
KII	Key informant interviews
LQAS	Lot Quality Assurance Sampling, Survey used at mid-term
MCH	Maternal child health
M&E	Monitoring and evaluation
MOHFW	Ministry of Health and Family Welfare
MNP	Micronutrient powder
MTMSG	Mother-to-mother support group
MTR	Mid-term Review
PNGO	Partner non-government organization
rMN	Related maternal nutrition

SBC	Social and Behaviour Change
SPSS	StatisticalProgramforSocialSciences
TBA	Traditional Birth Attendant
UNICEF	United Nations Children’s Fund
WAZ	Weight for Age z-score
WHZ	Weight for Height z-score
WASH	Water Sanitation and Hygeine
WHO	World Health Organization

EPI Center- Immunization center

Model Union- Areas where the program included advocacy and activities to increase involvement of local government and representatives (Union Parishad)

Pushti packet- Micronutrient powder packet

Sprinkles- Micronutrient powder

Union Parishads (UP) - The smallest rural administrative and local government units in Bangladesh.

Upzaila – The upazila is the second lowest tier of regional administration in Bangladesh

B. Introduction

Window of Opportunity is CARE's flagship nutrition program with the goal to protect, promote and support optimal infant and young child feeding (IYCF) and related maternal nutrition (rMN) practices by improving the enabling environment, strengthening health systems support, and empowering communities and individuals to make optimal infant and young child feeding and maternal nutrition choices. Programming is supported through a central grant to CARE USA for work in five countries—Bangladesh, Indonesia, Nicaragua, Peru, and Sierra Leone.

The Bangladesh project under *Window of Opportunity*, known in-country as *Akhoni Shomay*, was implemented from July 2009 through December 2012 in the Karimganj sub-district of the Kishoreganj district. The project area is in the Haor region, northeast of Dhaka. Detailed information on how the project area was selected can be found in Appendix 1. Nutrition and poverty statistics are among the worst in Bangladesh in this region. Several factors affect maternal and child nutritional status: food insecurity is high, communities are vulnerable to flooding and geographical isolation occurs during annual monsoons; moreover, the overall quality of health care services is lacking and not consistent throughout the Karimganj upazila. At the time of Akhoni Shomay's baseline, the area was not covered under the Government of Bangladesh National Nutrition Program.¹ Akhoni Shomay covered 195 communities in 11 unions in the Karimganj sub-district with a total population of 258,266. The project covered all areas, outside of the main urban center, targeting approximately 25,413 poor women of reproductive age and 15,496 infants and young children under two. The project focused on all pregnant women and lactating mothers to improve their ability to provide optimal nutrition for themselves and their infants and young children.

Project Area = 195 communities in 11 unions the Karimganj sub-district of Kishoreganj district
Unions covered = Baragharia, Dehunda, Gujadia, Gundhar, Kadir Jangal, Jafarabad, Joyka, Kiraton, Niamatpur, Noabad, Suter Para



¹ CARE Bangladesh Project proposal for Akhoni Shomay (Windows of Opportunity Project, June 2009).

Akhoni Shomay was implemented in partnership with Peoples Oriented Program Implementation (POPI), a partner non-governmental organization (PNGO). Oversight was provided by CARE Bangladesh's National Nutrition Coordinator and by a CARE project manager based out of a field office in Karmiganj. The field team also included a CARE Bangladesh monitoring and evaluation (M & E) officer and 11 POPI community health and nutrition mobilizers (CHNMs). Other project partners included Global Alliance for Improved Nutrition (GAIN) and USAID's Infant and Young Child Nutrition Project (IYCN) who provided technical and commodity support for the introduction and distribution micronutrient powders (MNPs-called *Sprinkles*) and the International Centre for Diarrhoeal Diseases and Research, Bangladesh (ICDDR,B) as a research partner for the baseline survey and an ongoing independent cohort study on determinants and intentions for exclusive breastfeeding and complementary feeding. Associates for Community and Population Research (ACPR) with technical assistance by an external consultant conducted the final evaluation. In three of the 11 unions, Akhoni Shomay was aligned with a food security initiative funded by the European Commission that focuses on the ultra poor. Activities for the EC FSUP began in January 2009 and will be completed by December 2014. The EC FSUP focuses on outcomes related to economics, empowerment, disaster risk mitigation and management, as well as interventions related to agriculture.

Akhoni Shomay expanded on successful community-based strategies used by CARE Bangladesh in previous projects such as SHOUHARDO, using the same collaborative programmatic approach working with multiple stakeholders including community members, staff from the Ministry of Health and Family Welfare (MOHFW), and government councils (i.e., Union Parishads) to improve basic health and nutrition service and accessibility and support optimal IYCF and rMN. Additionally, the project included a range of activities including facilitated meetings with mothers, grandmothers, fathers; school educational sessions with adolescents; health promotion campaigns lead by adolescent girls and; IYCF individual counselling at vaccination centers as entry points into communities.

The results framework for Akhoni Shomay (Appendix 2) closely models that of the global project and sought to improve IYCF and rMN practices and thus nutritional status of children under two through two intermediate results:

IR1: Improve enabling environment to bring to the forefront of nutrition marginalized women and extremely poor communities.

IR2: Ensure communities and individuals have the knowledge and skills to practice optimal IYCF and maternal feeding.

Overall, the project focused on increasing the IYCF knowledge and skills of caregivers; building the knowledge, skills and capacity of community volunteers, community members, project staff, and opinion leaders to promote optimal infant and young child feeding and related maternal nutrition (rMN) practices, and changing social norms to enable optimal behavior change among caregivers of children under age two. Project activities were implemented under the overarching strategies of: advocacy, capacity building, social and behavior change communication and activities, monitoring and evaluation, and organizational learning and knowledge sharing.

The initial design of the project and results framework was driven by several factors. Data were reviewed from the 2004 Bangladesh Demographic Health Survey and several other studies (see Appendix 1 for detailed information). Additionally, discussions with CARE Bangladesh staff and potential partners; results and lessons learned from the SHOUHARDO project; review of ongoing national initiatives in nutrition; and already existing partnerships at district and community levels established through CARE's long presence of working in the area helped in the design. The initial approach was to continue working through existing community structures (i.e., Imams, informal birth attendants and village doctors) and local government (i.e. Union Parishad) to continue many of the activities which had been found to be effective previously concerning maternal and child nutrition programming. This approach is evident in the set of activities and their related indicators included in the project's results framework.

Specific project activities can be grouped into several key intervention areas²:

- **Social and behavior change and advocacy to support program activities in line with the national IYCF strategy.** Social and behavior change (SBC) activities and communication were an essential component of the Window of Opportunity project as a whole. SBC is a term used to describe the use of communication and activities to bring about change, including changes in individual behaviors of mothers (including self care, adherence, care seeking, and caregiving for children and other family members), other caregivers, and providers; changes in related social norms and collective actions; and creating an enabling environment. A SBC strategy was developed specifically for Akhoni Shomay based on the Bangladesh National IYCF Strategy. The project used targeted and tailored communication interventions to facilitate change, address barriers, and reinforce key messages at each level: caregiver, household, community, facility, and enabling environment.
- **Capacity strengthening of community members to counsel and support infant, young child, and maternal feeding and nutrition:** Using the Community Focused Approach (CFA) the project trained and established a network of volunteer community-based counselors who maintained frequent contact and provided individual counseling with pregnant and lactating women and their families. Community Counselors (CCs) were supervised and supported by Community Health and Nutrition Workers (CHNWs), community based extension workers employed by the project. Additionally, Akhoni Shomay trained MOHFW health assistants and family welfare assistants (MOHFW frontline workers) to promote/ counsel mothers on IYCF and rMN at MOH sponsored vaccination centers. Joint supervisory visits are provided by MOHFW staff and Akhoni Shomay community mobilizers. Mother-to-Mother Support Groups (MTMSG) were also introduced in the some communities to better meet the needs of mothers and provide additional motivation and support.

² More information on all the different activities can be found in Appendix 3.

- **Social mobilization to create a supportive environment for community and families for behavior. Change.** Individual counseling was further supported by a large range of social mobilization activities which included: workshops with opinion leaders, meetings with community women, men, grandmother/elderly women; religious leaders; special campaigns during World Breastfeeding Week, World, Global Handwashing Day, and National Immunization Day (NID) and vitamin A campaigns; and advocacy work with local government and other development agencies/groups.
- **Distribution of Micronutrient powders (*Sprinkles*):** From March to December 2012, *Akhoni Shomay* distributed micronutrient powders to children age 6 to 23 months. Through a partnership with GAIN and IYCN, the project developed messages and built knowledge and skills in the use of micronutrient powders as part of adequate and appropriate complementary feeding among health workers and caregivers. A detailed system was developed to closely monitor distribution and compliance. After piloting this work, the system and remaining supplies were handed over to the MOHFW to continue in the area. Please refer to the evaluation report on the MNP intervention titled, *Using micronutrient powders as a vehicle to motivate improved infant and young child feeding practices in Bangladesh* for a detailed description of the intervention and results.

Advocacy and Knowledge Sharing: CARE staff attended national level monthly nutrition working group meetings in Dhaka and coordination meetings with MOHFW at the sub-district and district levels. Findings from formative research, the baseline survey and midterm reviews were shared within CARE and at national and district level meetings. The project integrated activities and supported outreach efforts of the MOHFW during national immunization days and campaigns and participated in NGO coordination meetings at the national, district, and sub-district levels. The position of a CARE National Nutrition Coordinator, supported by the *Akhoni Shomay* project, enabled CARE to increase involvement and visibility in the national nutrition arena, and collaborate with UNICEF, national level MOHFW, the Bill and Melinda Gates Foundation funded Alive and Thrive project and other national nutrition players. Table B.1 summarizes the project timeline and highlights key activities implemented in project communities.

Table B.1: Community Level Activities of Akhoni Shomay

Initial Program Activities	Activities added before the midterm review	Activities added after the midterm review
<ul style="list-style-type: none"> • Registration of mothers and children by CCs and CHNWs • Linkages and close work with EPI outreach staff • Individual Counseling - Home visits and counseling of pregnant women and mothers with children < 2 years • Male meetings • Mother gatherings • Father gatherings • Community mobilizing and participation in MOHFW campaigns (EPI, Vitamin A, Handwashing and World Breastfeeding Week). 	<ul style="list-style-type: none"> • Mother-to-mother support groups • First food demonstrations/<i>Mukhe bhat</i> sessions • Adolescent girl groups and campaigns • School campaigns • Workshops with Imams, village doctors and TBAs • Joint supervision visits to communities with MOHFW and CARE staff • Integrated development approach with <i>Union Parishad</i> body in 4 unions 	<ul style="list-style-type: none"> • Capacity strengthening of MtMSG facilitators • Grandmother meetings • Capacity development for CCs around or postpartum depression support • Distribution, promotion and counseling for MNPs

The final evaluation of Akhoni Shomay was conducted Feb 10 to June 8, 2013. The goal of the final evaluation is to assess the design, performance and effect of the project and to document lessons learned for future programming. This report compares the results of the baseline survey and final survey on a set of key indicators combined with findings from the qualitative research to assess the impact of the program and analyzes these results to address the final evaluation's objectives:

1. Assess the conceptual model of the project
2. Assess project fidelity and implementation
 - a. Coherence between objectives and activities.
 - b. Implementation of the activities and fidelity to the proposed protocol.
 - c. Barriers and enhancers to the implementation of activities.
3. Assess changes in IYCF practices.
4. Assess changes in nutritional status among children 0-23 months of age and among childbearing women.
5. Assess other influential variables.
 - a. Women's empowerment and social capital
 - b. Household food security
6. Identify lessons learned and provide recommendations for future programming.

B. Summary of Key Findings

Overall comparison of baseline and final survey results show improvements in IYCF practices in the project population. Four of the 10 World Health Organization (WHO) IYCF practice indicators show notable improvements. Three of the indicators, *continued Breastfeeding at 1 Year*, *introduction of solid, semi-solid or soft foods*, and *minimum meal frequency* had a very high baseline percentage (above 80 percent) that declined both in the project and comparison areas. Two indicators, *timely complementary feeding* and *minimum meal frequency* do not have comparable baseline data. Additionally, nutritional status of children improved across two of the three indicators in the project area: *underweight and wasting*. Rates of childhood anemia decreased slightly in the project area, at the same time they increased substantially in the comparison area.

Table B.2: IYCF practice indicators comparing measured change against project targets

	Key IYCF Practices by indicator	Baseline %	Final %	Actual Change
1	<i>Timely initiation of breastfeeding</i>	44.9	58.7	13.8
2	<i>Exclusive breastfeeding under 6 months</i>	51.6	54.7	3.1
3	<i>Timely complementary feeding</i>	*	78.2	
4	<i>Introduction of solid, semi-solid or soft foods</i>	84.7	75.4	-9.3
5	<i>Continued breastfeeding at 1 year</i>	98.1	95.4	-2.7
6	<i>Minimum dietary diversity</i>	19.2	36.6	17.4
7	<i>Minimum meal frequency</i>	91.0	82.4	-8.6
8	<i>Minimum acceptable diet</i>	*	32.5	
9	<i>Consumption of iron-rich or iron-fortified foods</i>	48.8	64.9	21.1
10	<i>Bottlefeeding</i>	13.5	13.2	-0.3

*Missing data

- Baseline and endline comparisons for the project area demonstrate that IYCF practices improved for several of the key IYCF practices assessed. Large improvements (more than 12 percentage points) were observed for the project's highest priority practices: exclusive breastfeeding under 6 months, introduction of solid, semi-solid or soft foods, minimum dietary diversity; and consumption of iron rich/fortified foods.
- Nutritional status improved substantially for two indices in the project area: the percent of children classified as underweight reduced substantially (from 39 to 23%), and the percent of children wasted was reduced by more than half (from 17 to 7.6%). The percent of children classified as stunted did not change, however the level was maintained in the project area while stunting worsened in other areas.
- Project activities reached a large proportion of women and children in project communities. Over 90 percent of women reported that they received IYCF counseling in the last six months. The introduction of CCs and CHNWs played a pivotal role, since they were almost the sole source of counseling.
- The project achieved high rates of exposure to IYCF and related nutrition and care messages. More than 98% of mothers in the project area were reached with key messages, much more than in the comparison area where access to health services and exposure to mass media was higher. Qualitative research also found that not only mothers but other family members and community leaders had been reached with information about key IYCF practices.
- Consistent messaging through multiple activities and communication channels and created an environment that reinforced and encouraged optimal child feeding and care practices.
- Father and grandmother meetings in communities proved effective strategies to increase involvement of key household decision makers, and increase family support for optimum practices.
- Work with local government provided an effective platform to support community activities. Widespread community involvement helped to raise general awareness of the importance of child feeding and care, and critical role in the health and future of children.
- The project's results provide strong evidence that an MNP intervention can help change IYCF practices and potentially achieve nutritional impact.
- Women's involvement and participation with social groups and roles in decision making are key indicators of women's empowerment. In the project area, the proportion of mothers involved in community groups increased from 25.7 to 38.8%, while in the comparison area women's participation remained about the same at 34%. Husbands dominate most decision making in the household with the exception of how food is distributed within the household.
- Factors contributing to the success of the project included; collaboration with Union Parishads throughout the implementation area to improve basic health and nutrition service and accessibility capacity strengthening in IYCF individual counseling for CCs, CHNW; and the use of already existing community-based structures such as Imams, informal birth attendant and village doctors as a means to promote optimal IYCF practices.

C. Methodology

Quantitative Evaluation Methods

Survey Design

The purpose of the survey was to assess the Akhoni Shomay project overall and changes from before and after program implementation, specifically:

- a. Assess the logic model of the project
- b. Assess the coherence between activities and objectives
- c. Assess activities implementation
- d. Identify barriers and enhancers to the implementation of activities
- e. Assess changes in IYCF practices
- f. Assess women's empowerment, social capital and household food security issues as a part of the factors involve in the project context
- g. Assess changes in nutritional status (anthropometry and anemia) among children 0-23 months of age and among childbearing woman
- h. Identify and analyze lessons learned for future programming

Cross-sectional surveys were conducted at baseline and for the final evaluation to measure IYCF knowledge and practice, coverage of program activities, and nutritional status of children under two. Both surveys used a design based on standardized World Health Organization (WHO) IYCF indicators. The indicators measured and the questions in the final survey tool were kept consistent with those in the baseline to ensure that results would be comparable. The final instrument retained the same questions asked in the baseline and also included a few new sections of interest for the Window multi-country analysis.

Survey Area and Sampling

Baseline and endline surveys were conducted in two sub-districts – Karimganj, the sub-district where *Akhoni Shomay* was implemented and in Katiadi, a neighboring sub-district considered similar and included in both surveys for comparison. Survey respondents were primary caretakers of children under two years. Stratified random sampling was applied in the same manner as it was for the baseline to ensure consistency.

Inclusion criteria for children

- Children 0-23 months of age
- Children who permanently live with family members in households in the selected sub-districts and were selected for the CARE program.

Exclusion criteria for children

- Foster children
- Children with any known or suspected chronic or congenital diseases or physical deformity that is associated with growth problems.

Inclusion criteria for women

- Women of 15-49 years of age who are non-pregnant and have at least one child less than 2 years of age that was surveyed.
- Women who permanently reside in the households in the selected upazilas.

Exclusion criteria for women

- Any women 15-49 years of age living in the sub-districts for less than 6 months
- Women with any known or suspected chronic or congenital disease.

Sample size requirements for the endline survey were determined based on the minimum size required to measure expected changes in one of the WHO IYCF and nutritional status indicators (i.e., exclusive breastfeeding) using a significance level of 5%, a power of 80%, and a design effect of 1.5. Estimates were calculated for the number of children age 0 to 5 months required to measure changes in exclusive breastfeeding, and equal numbers of children targeted for each 6 month age group. The final sample size was 615 children age 0 to 5 months and 1845 children age 6 to 23 months for a total of 2460 children in the project area, and 307 children age 0 to 5 months and 923 age 6 to 23 months for a total of 1230 in the comparison area. The sample size in the comparison area was reduced by half to save survey costs and time. The required sample size to measure changes in nutritional status of mothers was 924 in each area and 230 children age 6 to 23 months in each area to measure changes in anemia status.

The sample was stratified per union proportionate to population size of each union. In the project sub-district, the survey covered all 11 unions but excluded three urban wards where the project was not implemented. In the comparison area, the project covered nine of 10 unions with the exclusion of the urban center of the sub-district (one union) to mirror the exclusion of urban centers in the project area. This slight deviation from the baseline survey may result in slightly a less urbanized population than in the baseline in both areas.

Within each union, random sampling procedures were consistent with those used in the baseline survey for community and household selection. The research agency (ACPR) used a current census population and community listing of rural areas to select the most populous ward and community as a starting point in each union. The survey team started in the selected community and visited all households to identify eligible respondents. If needed, the survey teams continued in adjacent communities until sample requirements were filled. While the approach of using only one starting point per union means that the sample is clustered around just one area in the union and may not be completely representative of the population within the union, this is the procedure that was followed in the baseline survey and was applied again to maintain consistency.

For the hemoglobin assessment sample size, a total of 460 children age 6 months to 23.9 months were to be selected for anemia testing. Thus, 230 children are to be tested in each area (project and control). Every 8th child in the project and every 4th child in the control area who has their anthropometry measured were selected to have their hemoglobin assessed.

As a result of oversampling by survey field teams, data were collected and analyzed for 2530 children age 0 to 23 months in the project area and 1262 in the comparison area. Additionally, weight and height measures were taken for all mothers surveyed instead of only the required sub-sample due to a miscommunication during field work. The required sample size for hemoglobin measures was met –239 children in the project area and 231 in the comparison area were measured.

Table C.1: **Sample Size for baseline and final**

Final Sample Size		
	comparison	intervention
Final baseline sample	2600	2600
Calculated endline sample	1230	2460
Final endline sample	1262	2530

Table C.2: **Survey sample sizes included in the analysis, by age group for the baseline**

Baseline Sample Size		
age in months	comparison	project
0-5	609	668
6-8	379	322
9-11	505	455
12-15	412	418
6-23	1991	1991
Total (0-23)	2600	2600

Table C.3: Survey sample sizes included in the analysis, by age group for the endline

Endline Sample Size		
age in months	comparison	project
0-5	317	626
6-8	141	331
9-11	198	417
12-15	217	452
6-23	945	1904
Total (0-23)	1262	2530

Characteristics of final survey sample

In both the project and comparison area approximately 77.5 percent of the mothers surveyed were between the ages of 20 – 34 and 99 percent were married with the average age of marriage being 16. 6 years. Approximately 27 percent had no formal education with the other 73 percent having a mixture of some primary (18.4 percent), primary completed (16.9 percent), some secondary (30.1 percent), secondary and above (6.5 percent), and religious education only (1.1 percent). The majority of mothers (98.5 percent) lived in a house made of tin with a mud/sand floor. Approximately 64.5 percent owned their own deep tube well which was their primary source of drinking water and 75.5 percent had access to a traditional pit latrine.

Survey Tools

Baseline and final survey questionnaires were adapted from Window tools based on WHO recommended standard indicators for measuring infant and young child feeding indicators³ and CARE’s *Step-by-Step Guide for Data Collection*.⁴ For anthropometric measures, standardized WHO/UNICEF methods were used to measure and calculate underweight, stunting and wasting compared to 2006 WHO reference population.⁵ The final survey tool was adapted in-country by the consultant under guidance from El Instituto de Investigación Nutricional (The Institute of Nutritional Research), Peru (IIN) and CARE USA.

The questionnaire included the following sections: 1) Background demographic information and age data; 2) Maternal care including nutritional counseling; 3) Infant feeding history used to calculate standard IYCF indicators to measure adherence to recommended feeding practices for children under two; 4) Use of MNPs and responsive feeding practices; 5) Feeding during illness; 6) Coverage and exposure to

³ WHO, *Indicators for assessing infant and young child feeding practices* <http://www.who.int/nutrition/publications/infantfeeding/9789241596664/en/index.html>

⁴ CARE, *Infant and young child feeding practices. Collecting and Using Data: A step by step Guide guide*. <http://childhealthandnutrition.care2share.wikispaces.net/file/view/Infant%20and%20Young%20Child%20Feeding%20Practices%20-Collecting%20and%20Using%20Data-%20A%20Step-by-Step%20Guide.pdf>

⁵ <http://www.who.int/childgrowth/en/>, <http://www.bbc.co.uk/news/entertainment-arts-17743849>

information and messages; 7) Participation in and coverage of intervention activities; 8) Community participation and social capital; 9) Women's autonomy and empowerment; 10) Household food security; 11) Hand washing practices; 12) Household information used for socio-economic indicators; and 13) Self-efficacy about breastfeeding; 14) Community cohesiveness; and 15) Anthropometry and assessment of hemoglobin.

The survey tool was completed in English and translated into Bangla and both were reviewed and approved by the Bangladesh Medical Research Council in early January. The Bangla survey tool was field tested and further adjustments made by the local agency, ACPR, the external consultant and the CARE Bangladesh team together during preparations for survey training.

Anthropometry data were collected using regular digital scales provided by CARE and Schorr boards from ACPR. Hemoglobin assessments were done on selected children age 6 to 23 months using HemoCue HB201 monitors provided by CARE HQ.

Training of Enumerators

Survey field work and data collection was managed by local research agency ACPR. Training for survey enumerators and supervisors took place in Dhaka from January 19th- 30th. ACPR trainers conducted the training in Bangla with technical oversight and assistance from the final evaluation consultant. Survey training covered: the purpose of the survey; household and respondent selection; interview techniques; an orientation to program activities and key messages; and detailed review of each section of the survey questionnaire. The external consultant together with the project M&E officer provided additional training in anthropometry including practice sessions and standardization exercises to ensure technical quality for biometric measurements. Both in-classroom and field practice sessions were conducted to ensure correct and consistent understanding of survey tool and anthropometry, and trainees were tested on the survey and observed in the field as part of the final selection process. Two field practice sessions were held in rural areas outside Dhaka.

Data Collection

The final survey team was comprised of 20 enumerators organized as 6 teams with a male and female supervisor and one porter per team. ACPR also provided 6 quality control officers to oversee anthropometry measures and ensure quality control during data collection.

Data collection continued from February 2nd - 28th. The final evaluation consultant and Window's Project Manager and M & E Officer observed teams in the field and the M&E officer supervised quality control and logistic supplies for HemoCue tests.

Household visits were conducted at a time when respondents were home. In cases where eligible respondents resided in a household but she was not home, effort was made to re-visit the home within the next two days to complete the interview. Enumerators began each interview with an informed consent statement read and signed by the respondent.

Data Management and Analysis

Data entry and initial analysis was managed by ACPR. Data were entered into SPSS, cleaned and analyzed by the ACPR team. Preliminary tables, defined by CARE and the external consultant were generated by ACPR and reviewed by the external consultant and CARE Nutrition Coordinator. Raw data were sent to CARE HQ where key indicators were calculated and question frequencies generated.

Qualitative Research Methods

Design

The purpose of the qualitative component was to assess coverage and awareness of key program interventions, examine experience and perceptions about project activities (counseling, MTMSGs, social mobilization and advocacy efforts) and determine whether activities enhanced empowerment and social support. Methods included focus group discussions and key informant interviews in community locations, FGDs with community counselors and community health and nutrition workers, and in-depth interviews with the POPI program coordinator, the sub-district civil surgeon (MOHFW representative) and CARE staff.

The following section outlines research themes by target group:

Community Level:

- Knowledge and understanding of key IYCF concepts, and changes in practices
- Experience with home visit counseling (experience, perceptions/quality, barriers and facilitators)
- Experience with MTMSGs where groups were active
- Experience with other project activities (i.e. grandmother meetings, male meetings, , adolescent girl campaigns, community campaigns, and workshops with opinion leaders)
- Barriers and facilitating factors for participation in activities
- Extent of infant and young child feeding key message dissemination and creating a supportive environment for mothers and families
- Knowledge sharing within the household, and the extent of support and barriers for optimal IYCF practice from influential members of the household.

MOHFW, NGO partner staff and CARE staff:

- Perceptions of project community-level activities and their contribution to effecting change in the nutrition and health environment
- Participation in and quality of the CARE IYCF program training and activities
- Barriers and facilitating factors for program activities and the context of the CARE IYCF program
- Identify project achievements, potential for sustainability and lessons learned.

Area and Sampling

Three communities were selected for in-depth research, each in a different union and with different characteristics to capture the diversity across the project and activities. Using program monitoring data and activity information, the final evaluation consultant and M&E officer selected three unions for

qualitative work. Areas within the unions were selected where CHNWs were available to assist with logistics,⁶ where communities overlapped with those in the endline survey, and which met the remaining criteria:

- a) Geographic diversity – each community was in a different union, and included one close to town, one far from town, and one in a distant haor area
- b) Program performance – unions were classified as high, medium, or low performers based on project monitoring data on quality of counseling and service coverage. One low and two high performance unions were selected
- c) Proximity to MCH clinics
- d) All communities had active community counselors and MTMSGs, however activity level of MTMSGs varied
- e) Two out of the four *model unions* in the project were selected

Table C.4 **Communities selected for qualitative research**

Location	Union	Community Name	Performance	Model Union	Distance from urban	Near MCH center	MTMSG
LOC1	Dehunda	<i>Char Dehunda</i>	High	yes	close	yes	active
LOC2	Joyka	<i>Nansree</i>	Low	no	distant	no	weak
LOC3	Bharagharia	<i>Tulsia</i>	High	yes	haor area	no	strong

Focus group discussions were conducted with mothers, fathers and elder women in the family. KIIs were also conducted with mother participants, mother non-participants in the program and MTMSG facilitators. Additionally, focus groups were conducted with project volunteers (i.e., community counselors and CHNW who were supervisors). In each community, community leaders were interviewed (i.e., Imams, village doctors, members of the Union Parishad). Interviews with national-level MOHFW and other organizations were not included because the final evaluation was conducted during a period of widespread political protests and strikes in the country and mobility in Dhaka were severely restricted. Unfortunately interviews of AScommunity mobilizers were not possible because their contracts had ended and they had left the area; however, the consultant was able to interview the CARE Bangladesh National Nutrition Coordinator and the Health Director, and the Akhoni Shomay Project Manager. Table C.5 outlines the number of respondents or groups per method.

⁶ Qualitative research took place two months after program activities ended. POPI field staff were no longer in the area and CHNWs were needed to help locate selected respondents in the communities, thus the list of potential communities for research was restricted to areas where CHNWs were available.

Table C. 5: **Qualitative methods, types of respondents, and locations**

Respondents				Upazila:	Total
	Dehunda Union	Joyka Union	Baraghoria Union	Karimgonj Village: NoyaKandi	
FGDs					
Mother FGD	1	1	1		3
Father FGD	1	1	1		3
Elder women FGD	1	1	1		3
CCs FGD				1	1
CHNWs FGD				1	1
KIIs					
Program participant	1	1	1		3
Program non-participant	1	1	1		3
MTMSG facilitator	1	1	1		3
Imam	1	1	1		3
Other community leader	1	1	1		3
Local govt. official -Union	1	0	1		2
Akhoni Shomay staff					3
Total	9	8	9	2	31

Qualitative Tools

Research tools were adapted to the Bangladesh project and context from a set of tools developed by IIN and used in the final evaluations in Indonesia, Nicaragua and Sierra Leone. A specific guide was developed for each type of respondent. Tools were translated directly into Bangla by ACPR staff and CARE Bangladesh Nutrition Coordinator.

Training, Data Collection and Schedule

Orientation to data collection tools and training of facilitators was held in the ACPR office in Dhaka from February 9th -14th. The external consultant provided an overview and explanation of information sought from each tool, and ACPR and CARE staff worked on wording and refinements of questions.

Data collection was managed by ACPR and took place February 16- 22nd. The research team consisted of three FGD facilitators, and an additional three people that acted as interviewers and note takers. All FGDs and KIIs were conducted by a facilitator with a note taker and were tape recorded. The final evaluation consultant accompanied teams to the field locations. Review sessions were scheduled for each evening; however, time for de-briefing was severely limited by mobility restrictions due to political protests and strikes. Once the research team returned to Dhaka, the ACPR team transcribed field notes and recordings.

Data Management and Analysis

ACPR managed field work for data collection, transcription and translation. Focus group discussions and interviews were taped and transcribed in Bangla, and then translated into English and checked by the ACPR team in the Dhaka office. The CARE National Nutrition Coordinator reviewed a subset of transcripts to verify accuracy and translations.⁷ Transcripts translated to English were sent to the external consultant for analysis. Matrices developed by IIN were used as a framework for analysis. Raw data were entered into spreadsheets organized by topics, main themes and respondent groups.

D. Results

Project's conceptual model

The conceptual framework for Bangladesh (Appendix 2) closely modeled that of the global project and sought to improve nutritional status of infants, young children and women of reproductive age by improving IYCF and related maternal nutrition practices. *Akhoni Shomay* adapted two of the three intermediary results from the global project:

- IR1: Supporting an enabling environment to bring to the forefront of nutrition marginalized women in extremely poor communities
- IR2: Ensure communities and individuals have the knowledge and skills to practice optimal choices for IYCF and related MN and care

The project did not include the global project's second result - *strengthening the health system to support optimal practices* as was included in other Window country work plans. The reason being at the start of the project, government health services did not reach much beyond the sub-district level. Services were irregular, poorly staffed and under supplied and it was considered beyond the project's capacity to build the government peripheral health system in a three year project.⁸ Nevertheless, as part of the enabling environment under IR2, the project did include a component to foster collaboration with government aimed at strengthening linkages between project communities and government services by facilitating coordination at ward, union, and sub-district level and community levels. In fact, the project worked closely with the MOHFW on the National Nutrition Strategy and with Union Parishads throughout the project area to improve basic accessibility of health and nutrition services and governance. Through this partnership, *Akhoni Shomay* even persuaded one Union Parishad to open a vaccination center in a previously underserved union. At the community level (IR2), AS focused on family and community support to change the 10 key IYCF practices outlined by WHO. This approach also included promotion of rest during pregnancy; access to prenatal care including checkups, immunization and iron supplements; referrals for pregnancy danger signs/ complications; and good hygiene practices. While this approach is in line with global best practices of targeting the first 1,000 days of life, it may be

⁷ A limited number of transcripts were reviewed and checked for correct translation (i.e., Mother FGDs, CC and CHNW FGDs); however, there was insufficient time for review and verify all the transcripts.

⁸ Project Situation Analysis, Country Proposal and Final Evaluation Interview with the CARE National Nutrition Coordinator.

too narrow in scope to improve nutritional status of children and women of reproductive age. For instance, while feeding practices were addressed, other factors that also affect nutritional status were not included such as food security, maternal health care and prevention of low birth weight, preventive care for children, and appropriate management and feeding during a child's illness. It is important to note that at the design stage, project staff recognized the costly effect of repeated illnesses on children's health and nutrition, and advocated for including community based IMCI, but given the limited time frame, the focus remained on feeding practices only.⁹ During the final evaluation, CARE project staff still felt that this component was needed. In contrast, CARE Bangladesh's SHOUHARDO II project implemented in other areas of the country takes a broader health and nutrition approach and addresses food security and coverage of MCH services as well as nutritional practices.¹⁰

Furthermore, in addition to the Window conceptual model, an important objective of the Akhoni Shomay project was to demonstrate that changes in practices and nutritional status can be achieved through changing practices without external inputs of food aid. The desire of Akhoni Shomay was to show results that could demonstrate that practices could be changed and that this would lead to change in nutritional status, as an alternative to programs dependent on commodity inputs. There are concerns that the design of Akhoni Shomay might not have been appropriate for such demonstration. Work of this intensity covering one sub-district down to the household level, looked more like a "demonstration or pilot project". There were serious questions of sustainability of project activities after the project ended, and how much of this could be replicated in wider scale CARE programs or by MOHFW. Project staff felt that if they were to design the project again, they would partner more strongly with MOHFW from the outset as well as with local government. Work with the Union Parishad in the four model unions was considered a big success, and program staff recommend including this approach from the beginning of similar projects.

2. Fidelity and implementation

Coherence between activities and objectives

A review of the mid-term evaluation, project activities and discussions with CARE staff revealed that over the three years of project implementation, some adjustments were made to approaches and activities.

Project design was based on a situation analysis with important input from SHOUHARDO I technical staff. The initial design incorporated recommended approaches and placed emphasis on areas outlined in the *National Communication Framework and Plan for IYCF in Bangladesh*. MTMSGs, work with adolescents, work with fathers, elder women and religious leaders were all encouraged areas of activity in the national strategy. These approaches were in-line with Window of Opportunity global work. Nonetheless, the initial design incorporated a couple of activities that never came to fruition for various reasons. For example, the initial design incorporated growth monitoring activities even though this activity was not being done by MOHFW. Subsequently, growth monitoring was not carried out by the

⁹ Interviews of Community health mobilizers and CARE staff during mid-term review, Interviews with CARE staff during final evaluation.

¹⁰ SHOUHARDO II Midterm Evaluation report.

AS team. Additionally it was suggested that Akhoni Shomay model the work being done in the SHOUHARDO I project in regards to the EKATA groups because women's empowerment was identified as a big issue in the situation analysis and in formative research; nonetheless, AS formed independent MtMSGs instead and did not combine these groups with any other women empowerment activities.

Further adjustments followed the midterm review (MTR). For instance, a large scale-up of MtMSGs (from 36 to 289) maximized geographical reach and coverage through implementation of MtMSGs in new communities. This was followed by improved supportive supervision and support for CCs and CHNWs, including intensive training around MNP distribution, IYCF concepts and counseling skills, an emphasis on complementary feeding practices, and capacity development around providing women and families support around postpartum depression.

Assessment of Implementation of Activities

Coverage

The project reached moderate to high level of coverage across the various activities in the 195 communities in 11 unions of the Karimaganj sub-district. The midterm review (conducted October 2011) suggested the project achieved good program coverage the first part of the project with individual counseling and community mobilization activities and efforts continued in these areas in 2012. Both the mid-term and endline evaluation indicate high levels of awareness and knowledge of recommended IYCF practices amongst project participants. See table D.1 for a list of AS activities, coverage, and dates when each of the activities started. The project's main activities were individual home counseling and mother-to-mother support groups.

Table D.1: Coverage of all Akhoni Shomay activities

Activity	Coverage
Individual home counseling	74% of pregnant women in 2011 and 90% in 2012 76% of mothers with children under two and 86% in 2012 *From all 11 unions ¹¹ Started January 2011
MtMSGs	92 meetings per month (in 8 unions) / Approximately 920 participants Started March 2011
MNPs (Sprinkles)	Distribution of MNP reached 100% by the end of the MNP intervention(from all 11 unions) 77.3% of children in the intervention area between the ages of 6 to 23 months reported to have fed food mixed with MNP Started March 2012
Elder Women’s Meeting	116 meetings per month (in all 11 unions)/ Approximately 928 participants Started January 2012
Male Meeting	22 meetings per month (2 in each of the 11 unions) / 942 participants Started March 2011
Father’s Gathering	26 gatherings / 100 -150 participants per gathering Started March 2011
Mother’s Gathering	15 gatherings / 100 - 150 participants per gathering Started March 2011
Opinion Leaders’ Workshop	275 Imams, 275 informal birth attendants, 275 village doctors from all 11 unions Workshops held in 2011 and 2012
Adolescent Girl Campaign	2410 girls in 2011 and 1205 girls from all 11 unions Started July 2011
School Sessions	1140 adolescents per month from all 11 unions Started July 2011
Postpartum depression support	317 trained community counselors and 47 CHNWs trained. March 2012

¹¹Counseling contacts were more frequent for mothers with children age 0 to 11 months than those with children over age one year.¹¹

Table D. 2: **Summary of the coverage of activities measured in the endline survey**

Table D.2: Coverage of project activities		
Percent of all respondents who...	Endline	
	Comparison %	Project %
Received any individual counseling in the last 6 months	24.9	90.6
Received counseling from CC/CHNW in the last 6 months	1.4	87.5
Participated in MTMSGs in the last 6 months	0.8	19.3
Total	1262	2530

Individual Counseling

The project achieved very high coverage of counseling services. By the end of the project, more than 90% of mothers with children under two had received counseling services in the last six months. In contrast, only a quarter of mothers in the comparison area had received individual counseling. Frequency of counseling contacts was also much higher for women in the project area. More than half of all mothers of children age 6 to 23 months had received counseling at least three times in the last six months (58.6 percent) in the project area compared to 10 percent in the comparison area.

Table D. 3: **Frequency of counseling contacts in the comparison and intervention areas**

Endline Coverage of Counseling	Comparison		Intervention	
	%	N	%	N
% of respondents with children age 0 to 23 months who received individual counseling in the last 6 months	24.9	1262	90.6	2530
% of respondents with children age 6 to 23 months who received individual counseling in the last 6 months	24.7	945	94.3	1904
% of respondents with children age 6 to 23 months who received three or more counseling sessions in the last six months	9.9	945	58.6	1904

Coverage rates for counseling varied some according to the child's age in the project area. Only 79 percent of mothers with children age 0 to 5 months reported counseling compared to 94 percent of those with children age 6 to 23 months. Since the project activities ended two months before the endline survey, it is unclear how much lower coverage of mothers with younger infants may be related to the two month lag in project activity, or whether home counseling during the later part of the project tended to focus more intensely to support older children during complementary feeding and MNP distribution. Individual home counseling in Bangladesh was carried out as planned.

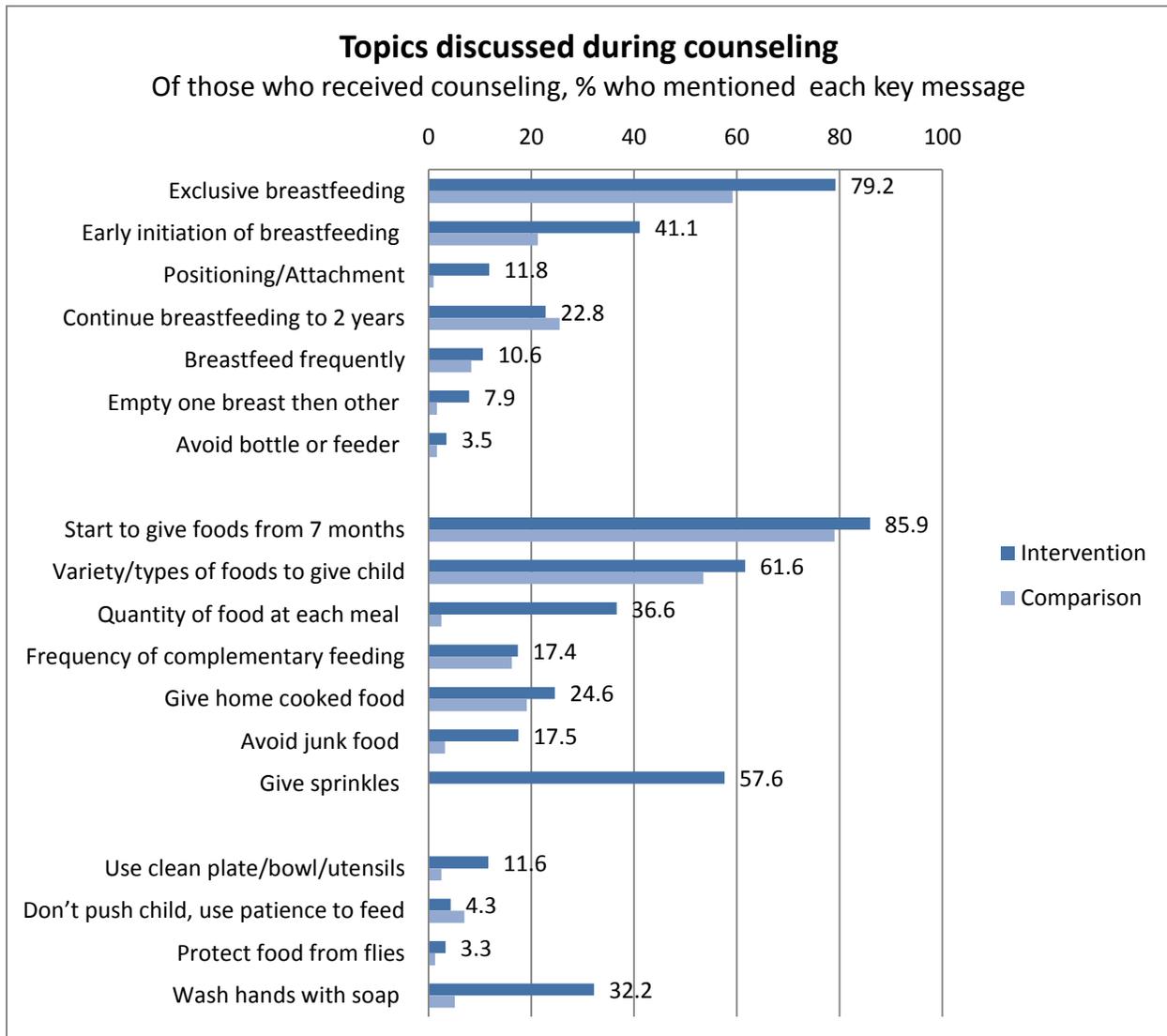
In the project area, CCs and CHNWs were the main and almost sole providers of counseling (96.7 percent of those counseled). Counseling was also provided by MOHFW health and family planning workers (8.4 percent) at immunization centers and routine checkup in outreach center and mother support group facilitators (7.0 percent). In the comparison area, counseling was provided by a wider variety of personnel. Of those who received counseling, a third cited other NGO workers (32.5 percent), and some mentioned health and family planning workers (19.4 percent), a qualified doctor (17.8 percent) or village doctor (12.4 percent) provided the counseling.

The midterm review suggested limited progress in some IYCF indicators and identified need for more direct reach and counseling support to mothers (i.e., a shift away from increasing awareness and knowledge and more towards negotiation, skill building, and support for changing the practice). In response, CCs and CHNWs, negotiation skills were further strengthened through training and supportive supervision. Endline qualitative findings confirm that families received frequent home visits and counselors worked with mothers to identify problems and negotiate with them to try small doable actions that were in-line with optimal practices.

Figure D.4 presents the topics which were most frequently discussed during counseling. In both areas, the most common topic was about *starting to feed foods at seven months*, followed by *exclusive breastfeeding* and *the types and variety of foods to feed* the child. Qualitative data collected at endline from program participants confirm that a variety of topics were covered during individual home-based counseling. For all but two of the IYCF recommended actions, a significantly larger proportion of women in the project area reported receiving counseling on these than in the comparison area. In addition, counseling on some complementary feeding practices appear unique to the project area. Only women in the project area reported counseling on using MNPs, and many more reported counseling about the quantity of foods to feed a child and about handwashing with soap.

Women in the project area also were much more likely to discuss the information from counseling with a friend or family member. Of those who received counseling, 48.7 percent said that they had discussed or shared information with family or friends.

Figure D.1: Topics which were most frequently discussed during counseling



Counseling proved to be a popular intervention approach. Mother participants stated they gained new knowledge and developed confidence and skills. They especially liked that the counselors provided in-home support when encouraging them to try new practices. One mother from Dehunda Union stated during an interview, “We desire to have services at our houses because mothers with children around can get together in a short time and raise their problems and can have their problems solved.” The CCs and CHNWs became trusted sources of feeding and health information and were even called “Daktar Apa” which means doctor in Bangla. A mother from Dehunda Union that participated in counseling sessions stated in an individual interview, “When I compare my knowledge of child rearing, I find it very clear that my old ideas were absolutely wrong. And what Apa (CC) taught me should be followed meticulously.”

Another mother participant explained during a focus group discussion in Joyka Union,

We consider her advice roaming around house to house is very, very important and useful. Now the babies are safe from dangers. Their health is good; they suffer much less from diarrheal diseases; their physical growth is better, their brain will be good and we know how to feed the babies now.

Other family members (i.e., father, sister-in-law(s) and mother-in-law) were invited to join in counseling sessions. This created buy-in as family members developed general understanding of the reasons behind recommended practices and encouraged to be supportive towards trying out optimal IYCF practices. A CC commented during an endline FGD that,

Sometimes grandmothers and aunts inside the house helped to convince mothers for feeding the baby. In some cases, if mothers are conscious and aware, then they also support our works and provide reference for other mothers.

Often CCs had to make an extra effort to speak with family members to try and persuade them to allow optimal IYCF practices to be performed in the household. A CC in an endline FGD stated,

A husband told his wife to start bottle feeding their baby as he thought without bottle feeding the baby will get weak. Then I talked to her husband to change his opinion in favor of breast feeding, and it worked well.

Another CC shared,

A mother with 8 month pregnancy, they are poor, but her husband is a good person. But her mother-in-law is not taking care of her daughter-in-law. In most days, she is taking meal once in a day. When I visited her, she told me everything. I talked to her husband but her husband was helpless, he asked me "What can I do? I am bringing food for her, but she can't take food. You better talk to my mother about this." Then I talked to the mother-in-law and talked about that they are going to have their grandson, their dream of family. If they can take care of mother properly, then their grandchild will be fine. Then the mother-in-law is convinced and started taking care of her daughter-in-law.

CHNWs and CCs also stated that in some instances it took a while for families to warm to the idea of counseling. One CHNW stated that when she first started working as a counselor, older women in particular would question her motives implying she was just doing the job so she could benefit financially and that if she wasn't handing out money or food then they weren't interested in talking to her. She replied,

[t]hat if you get money and food, you will not learn something what you may use for your whole life. These particular issues might help you and your family for rest of the life which is a big

contribution rather than food and money to you. When these mother-in-laws went to doctors for consultation, then they told us “you are right.” Doctor also told what you reminded us earlier.

Another CHNW in the same FGD stated she had similar experiences.

Some mother-in-laws said that in their age, they tackle pregnancy without these preparedness and check up. Then I put some examples of huge numbers of mother death in their age. I told them that information is available now in TV, we can communicate with mobile phones which makes our life easy to take decision and early treatment. These saves lives now a days. Then they are convinced.

Mother-to-Mother Support Groups

Mother-to-mother support groups were established in fewer than half the project communities, with the potential to reach about 36 percent of the women. The final survey found that that 19 percent of mothers had participated in MtMSGs in the project area, however this figure must be interpreted with caution since the extent to which communities with MtMSGs were represented in the survey is unclear.¹²

Table D. 4: **Frequency of MtMSGs in the comparison and intervention areas**

	Comparison		Intervention	
	%	N	%	N
% of respondents with children 0 to 23 months who attended MtMSG meetings in the last 6 months	0.8	1262	19.3	2530
% of respondents with children 6 to 23 months who attended MtMSG meetings in the last 6 months	1.1	945	22.1	1904
% of respondents with children age 6 to 23 months who attended three or more MtMSG sessions in the last six months	0.7	945	7.2	1904

MtMSG members were asked how often they had attended meetings in the last 6 months. More than three quarters of those who responded (77.1 percent) said that they had attended three or more times, and more than half (54.1 percent) said they had attended four times or more.

When MtMSG members were asked about what was discussed in the groups, IYCF topics ranked highest. The most common topics were about starting to *feed foods at seven months*, followed by *exclusive breastfeeding* and the *types and variety of foods to feed the child*, as well as *early initiation of breastfeeding*. The qualitative research found similar results with the most common topics during

¹² The endline survey followed the same sampling strategy as the baseline survey which was not widely dispersed or geographically representative within each Union.

MtMSGs being pregnancy and maternal diet and care, initiation of and exclusive breastfeeding, complementary feeding for children especially the feeding of family foods and the quantity to feed, and hand washing with soap.¹³

Qualitative research conducted during the final evaluation identified a gain in knowledge from peers as the main factor for participation in MtMSGs. MtMSG participants appreciated having a venue where they could solve feeding problems together. In an interview a mother from Barahoria Union stated, “I really liked all about this MTMSG meetings. All of us discussed issues together and if anyone had any difficulty, probable solutions came from these meetings. Another mother from the Baraghoria Union during a FGD stated, “We have got ample help and assistance from other members of the MtMSG.” Another mother participant from Joyka Union stated in an FGD, “I got cooperation from other participants of MtMSG members. During illness of my children, I sought help from MtMSG participants, and they came happily to help me with their experiences. This I appreciated so much.”

Women who participated in MtMSGs in both areas were likely to share information learned in the groups. In the project area, 94 percent of those who had attended a MtMSG meeting said that they had shared information they learned in the group with their family and friends. A mother participant from a FGD conducted in Dehunda Union stated, “Yes, we discussed with others in the family. I discussed with my sister-in-law and with my husband as well.” Additionally, qualitative data indicated that family members, (i.e., fathers and mothers in-law) were supportive of women attending groups.

Migration out of the area, household responsibilities and harvest seasons were stated as the common reasons for not participating regularly in the groups.

MNP intervention

The general objective of the MNP intervention was to introduce MNP in the context of Akhoni Shomay’s larger behavioral change program around IYCF practices in order to reduce anemia and improve nutritional status among children between 6 and 23 months of age, and to assess the potential of MNP for motivating improved feeding practices. Specific objectives included:

1. Consumption of MNP by children between 6 to 23 months of age
2. Reduction of anemia in children between 6 to 23 months
3. Improvement in the nutrition status of children between 6 to 23 months with regard to stunting, wasting, and being underweight
4. Increase in the number of children between 6 to 23 months of age receiving appropriate number of daily meals
5. Increase in the number of children between 6 to 23 months being fed appropriate number of food groups.

¹³ Final evaluation Mother, Father and Elder women Focus Group Discussions in all 3 locations.

Additionally, three hypotheses were tested among children 6 to 23 months of age:

1. Distribution of 60 sachets of MNP for children in three cohorts reduces anemia
2. Linking specific feeding behaviors to MNP use increase the adoption of these feeding behaviors. Specifically, as MNP is a product that has been asked to be mixed with food and is to be started at a particular age (6 months in this case), it is likely that the mother will start feeding the child at the appropriate age; and
3. Linking specific feeding behaviors to MNP use (and increase adoption of these behaviors reduces the prevalence of protein-energy malnutrition (stunting, wasting and being underweight).

MNP distribution started in Akhoni Shomay's intervention area in March, 2012 and continued to the end of December 2012. All 6 to 23 month old children in the intervention area were targeted. The MNP sachets supplied by GAIN were distributed free of cost to caregivers of children in three cohorts 6 to 11 months, 12 to 17 months, and 18 to 23 months. Each cohort was given 60 sachets to be consumed over 120 days. Distribution of MNP and education sessions occurred during monthly routine immunization sessions at the village level. There were approximately 221 participating immunization centers. Community Counselors (CCs) informed mother/caregivers about the date and location of MNP distribution points. Then before each distribution session, community counselors organized a short educational session for mothers/caregivers regarding feeding procedure using MNP. Afterwards community counselors routinely paid visits to houses with children 6 to 23 months. In all there were four monthly visits starting from when a child turned age 6 months to 10 months and thereafter another four visits for the rest of the period until the child reached two years of age within the time span of the intervention. CCs addressed the different components of complementary feeding (frequency, amount, consistency, dietary diversity, responsive feeding, and hygiene) and demonstrated how to mix food with the MNP using a small sample bowl and image-based IEC materials to ensure that mothers/caregivers had access to MNP information that is accurate, understandable, and actionable. Image-based reminder materials were left with each mother/caregiver to facilitate regular consumption of MNP using the recommended procedure for preparing food to be used with MNP. Mothers were asked to tick off an image of a sachet on the reminder card for each sachet they used to feed their child. Additionally, the mothers were asked to keep the empty packets of sachets to return back to the next distribution cycle.

Summary of Key Findings

- Distribution of MNP reached 100% by the end of the MNP intervention
- 77.3 percent of children in the intervention area between the ages of 6 to 23 months reported to have fed food mixed with MNP.
- Over the course of the project, the percentage of the children who used MNP consistently increased overtime.
- Anemia was found to be less prevalent in children 6 to 23 months of age that used MNP compared to children who did not.

- Optimal changes in infant and young child feeding practices were found to be higher among children in the intervention area whose mother reported their child to have consumed MNP in the last six months than for those children who did not use MNP in the intervention area.
- A majority of mothers reported to have used the IEC materials and understood how to feed MNP properly to their children.
- The endline survey found that 70 percent of MTMSG members recalled *sprinkles* was one of the group topics.

For further information regarding the results of the MNP intervention please see the final report on the MNP intervention titled, *Using micronutrient powders as a vehicle to motivate improved infant and young child feeding in Bangladesh*.

Collaboration with MOHFW and Union Parishads for Advocacy and Support for Maternal and Child Nutrition

The Akhoni Shomay project worked closely with national and local governments in addition to a wide range of country partners at all stages of planning and implementation of the project. In particular AS worked closely with *Union Parishads* (UP), the lowest administrative unit of government that is in charge of running development activities at the local level and reports to higher level government agencies. The Local Government (Union Parishads) Ordinance of 1983 and its subsequent Amendments (in 1998 and 2009)¹⁴ provide the legislative framework for UPs, which are further regulated and controlled by orders and circulars issued by the LGD. Union Development and Coordination Committee framework is described in 2009 under section 95. This committee is primarily responsible for planning, coordination, annual resource allocation and implementation of all sorts of development activities within union. Intersectoral coordination is another major role where UDCC potentially can play a major role to improve accessibility and availability of basic health and nutrition services and sharing information regarding progress and challenges. This UDCC is comprised of 30 members including members¹⁵ from development partners. AS project targeted this platform and put stress on coordination among different sectors of the Government of Bangladesh to improve service availability and uptake rate by targeted population. AS project organized orientation for UP members, provided technical assistance in planning and implementation of development activities, analysis of service data related to maternal and child health and nutrition services, preparing annual budget, help to organize open budget sessions. These collective efforts helped to develop a systematic culture of accountability and governance around health and nutrition in Union Parishad. AS helped to organize bimonthly meeting where information were shared on current progress and challenges of basic health and nutrition services for women and children. In 2011, AS project started working with Dehunda union and expanded in another three unions by 2012. This approach widened coordination with other development agencies and created opportunities to include poor and extreme poor families into other social safety net programs to

¹⁴ Local Governance and service delivery to the poor: Bangladesh a case study prepared by Asian Development Bank, Asian Development Bank Institute, UNCDF, Nov 2003.

¹⁵ Special Standing Order published by Local Government and Rural Development ministry in 2009 under section number 95.

accelerate effect of nutrition interventions. Moreover it fostered coordination among the major standing committees like agriculture, health, education, water and sanitation and women empowerment. Working through local government institutions, project staffs experienced that intersectoral coordination at grass root level is essentially required to improve overall development and sustain positive changes. This collaboration resulted in MOH&FW staff widely disseminating IYCF & rMN related messages through their activities at community level and the opening of a vaccination center in an underserved union.

Other Activities

Additionally, the project bolstered its efforts to increase fathers' awareness and involvement in child care and created opportunities for grandmothers and elder women to act as powerful advocates in households and the community. As part of the project's social and behavior change strategy the following activities were implemented:

Grandmother meetings- occurred monthly and were facilitated by AS community mobilizers and community health and nutrition workers. The purpose of the meetings was to enhance knowledge and encourage older women to be supportive of mothers in their households to practice optimal IYCF and rMN.

Male meetings-were facilitated by AS community mobilizers. As women are unlikely to be the key decision-makers within their families regarding food purchases, activities also need to reach men. Thus, the aim of these meetings was to educate fathers on optimal IYCF and rMN practices, and persuade them to be supportive to their wives.

Father's Gatherings- were organized along with Local Government and MOH&FW. Each gathering had anywhere from 100 – 150 fathers in attendance. During these meetings fathers were encouraged to reflect and share their experience while performing their roles as fathers and husbands. Over 25 gatherings took place during project implementation.

Mother's Gatherings- were organized along with Local Government and MOH&FW. Each gathering had anywhere from 100 – 150 mothers in attendance. At these meetings women were encouraged to problem solve and come up with ways in which they can overcome barriers to optimal IYCF and rMN practices in their household. Over 15 gatherings took place during project implementation.

Workshops for opinion leaders- In 2011 and again in 2012 AS held workshops for a group of opinion leaders- 275 Imams, 275 informal birth attendant and 275 village doctors. The aim of these meetings was to educate the participants on optimal IYCF and rMN practices and conduct participatory reflection activities to solicit ideas on how they could help support optimal IYCF and rMN practices.

Adolescent Girl Campaign-According to data from UNICEF, approximately half of adolescent girls (15-19 years) in Bangladesh are married and 57 percent of them become mothers before the age of 19; nearly half of those adolescent girls are malnourished. In order to disseminate key IYCF messages, AS

conducted two campaigns using adolescent girls as peer educators. The girls were trained before each campaign. In 2011, 2410 adolescent girls participated in the campaign and 1205 girls participated in 2012. Each campaign lasted six days. The 2011 campaign focused on optimal breastfeeding practices and the 2012 campaign focused on optimal complementary feeding practices.

School sessions- took place in high schools with girls in 9th and 10th grade in ten schools in the project area. Each group of girls was visited every three months by AS community mobilizers and educated on optimal IYCF and rMN practices. The girls were encouraged to deliver IYCF & rMN key messages to their peers and family members.

Capacity Strengthening Activities

Several capacity strengthening activities were conducted during the project. Training and supportive supervision sessions used a mixture of lecture, role play, discussion, question and answer, participatory learning activities, image-based training aids and videos. During a FGD, a CHNW suggested using pictures and videos more often for training. She stated,

Simply, lectures are forgotten soon, but when videos are shown, that cuts a deep mark on every body's mind and helps remember well for a long time. Say for instance, if a picture is shown, baby suckling its mother's breast, the trainees will also see how the baby was put on the breast, how it was held on mothers arms, and things like this. The viewers are likely to retain in mind these images longer.

Additionally, it was suggested that trainings and refresher trainings for counselors and MtMSG facilitators should happen more frequently. One CC commented in an endline FGD,

We think another spell of training for us would be helpful. We had a training 2 years ago, and some of the contents covered in the training are not as fresh today as they were a couple of years ago. So we need refresher training.

MtMSGs-In March and April 2011, 92 mothers were trained as MtMSG facilitators and established groups of eight to 10 women in their community who met monthly for discussions. The facilitators were mothers themselves, selected by women in their own communities and were trained in group facilitation, communication and negotiation skills and supported by CHNWs. The initial plan was for the first batch of facilitators from eight of the 11 Unions to form groups, and then more facilitators would be trained and more groups established. However, CHNWs and AS field staff found that MtMSG facilitators needed a great deal of support. Facilitation skills were something new and attention to active listening and learning are critical for the facilitation of MtMSG sessions. In particular, some AS staff felt that the lack of critical thinking skills of facilitators was a challenge to effective group facilitation. One of the difficulties was the recommended method where women and the groups themselves were supposed to select topics for discussion. This was found difficult in this context, where women were used to staying at home and not confident in sharing opinions. AS staff felt that groups may have been more effective if groups started with discussions on pre-determined topics around child care initially and then as confidence grew and solidarity was formed that women could start to discuss and tackle topics of

mutual concern. By the midterm, project staff focused on supporting the existing facilitators and groups and felt with only one more year of program activity planned that there was insufficient time to expand and add more groups. Some frustration was expressed by AS staff that this methodology was found to be difficult.

Nevertheless, qualitative data from endline reveal that MtMSG facilitators themselves felt positive about their experiences as facilitators, that being a facilitator was not only about facilitating the groups and passing on information, but that it was about earning respect from other community members. A facilitator from Dehunda Union stated,

Before joining MMSG, I knew little of child care practices. After I had training and after I began conducting MMSG meetings I gathered experiences. Now mothers are coming to me for advice and consultation whenever they have concerns about their children.

Another facilitator from Dehunda Union stated,

We did not know before what is important for us and what is not. We are better now than before, because CARE program and its activities made us aware of real needs. If project is discontinued, we are likely to forget one day that we consider important and useful today.

Individual counseling-The project established a network of 317 trained community counselors and their supervisors, 47 CHNWs, who were trained in CARE's CFA approach and aimed to reach mothers at critical times. A robust supervision system provided both technical oversight and support to counselors through sight visits as well as formal meetings and discussions. Those who displayed weak counseling skills were provided with more frequent support by CHNWs and CHNMs. In an endline FGD a CHMW explained,

Of them one half is capable of working on their own, but the other half need help when doing house visits, because they are not confident to work alone by themselves. In such a situation, we let the efficient CCs work on their own, and we go with those who are not fully capable. We watch them at work and correct the mistakes separately. We talk one-on-one before and after counseling, discussing issues in a small group, we take notes for further improvement and continuously encouraged them for their work. This way we help them improve and work in their areas.

The project also trained 36 Health Assistants and 48 Family Welfare Assistants¹⁶ (MOH frontline workers) to promote optimal practices and counsel mothers on IYCF and rMN at 241 vaccination centers. Joint supervisory visits were provided by MOHFW and AS staff.

¹⁶ The primary focus of these assistants is on providing services around immunization and family planning; however, the AS project trained them to promote optimal IYCF and rMN practices as well.

As with MtMSG facilitators, CCs and CHNWs experienced a boost in their status in the community. During an FGD, one CHNW stated, “In our area we are now widely known to people, for example, we sit for meetings with the chairman, members, and local elites.”

Another stated,

We had the opportunity to go under training several times, and we acquired knowledge on different subjects. This was also an opportunity to meet and to be known with people from different backgrounds. As a result, our ability to mix up with people has improved.

Another CHNW stated,

I was first a CC and then I was promoted to the position of CHNW; and after some time I contested for the position of member in the Union Parishad. The people in our area voted me to that position. It means, had I not joined the position of CHNW, I would never be a member of the Union Parishad.

MNPs-The CCs and CHNWs were also trained on how to counsel mothers on how to use MNPs. The training covered different components of complementary feeding (frequency, amount, consistency, dietary diversity, responsive feeding, and hygiene) and demonstrated how to mix food with the MNP properly. The CCs and CHNWs were also given instructions on how to fill out the monitoring forms.

Postpartum Depression-In December 2011 Emory and Centers for Disease Control and Prevention (CDC) colleagues suggested that postpartum depression may be affecting IYCF practices. It was decided that Akhoni Shomay should train the CCs and CHNWs on postpartum depression and how to offer emotional support to mothers and families experiencing postpartum depression. CARE USA developed a training guide. In March 2012 all the CCs and CHNWs received one day of training. Follow-up interviews after the training and qualitative data collected at endline indicate the training was well received and provided the CCs and CHNWs knowledge and skills on how to effectively interact with mothers and families. The CCs and CHNWs requested additional training on this topic.

3. Changes in IYCF Practices

The overall purpose of the project was to improve infant and young child feeding and related maternal nutrition and care practices as measured by the ten standard WHO IYCF indicators. Final evaluation results indicate that there have been some positive changes in child feeding and care practices and improvements in nutritional status. Overall the results indicate that some child feeding practices improved and malnutrition decreased.

Table D.5 summarizes the survey results for eight of the 10 key WHO infant feeding indicators¹⁷ that were computed for the Akhoni Shomay project. The table shows the change from baseline to final surveys in the intervention area, and the results of the double difference analysis when assessed against changes in the comparison areas. Improvements were seen in the project area fortimely initiation of breastfeeding, minimum dietary diversity, consumption of iron rich or iron fortified foods, and a reduction in bottle feeding.

Table D.5: **Summary of IYCF Indicators for the Intervention area and results of double difference analysis**¹⁸

IYCF Indicator		Baseline %	Endline %	Double Difference
1	Timely initiation of breastfeeding	55.4	58.5	-21.8
2	Exclusive breastfeeding under 6 months	57.5	56.8	-6.0
3	Introduction of solid, semi-solid or soft foods	81.0	76.1	9.2
4	Continued breastfeeding at 1 year	97.8	96.5	3.9
5	Minimum dietary diversity	19.2	41.8	15.8
6	Minimum meal frequency	91.1	84.0	4.4
7	Consumption of iron-rich or iron-fortified foods	48.6	69.3	4.0
8	Bottle feeding	10.5	9.8	-4.2

Indicator 1: Timely Initiation of Breastfeeding

The proportion of children under two years old who were put to the breast within the first hour of birth increased in the Intervention area from 55.4 to 58.5 percent, a small but still statistically significant

¹⁷ The double difference for timely complementary feeding and minimum acceptable diet were unable to be calculated due to missing data.

¹⁸The double difference, or difference in differences, is a methodology that helps understand the impact of an intervention. Double difference helps measure the intervention effect by excluding possible effects of other activities in place in the project area. Here, the unit of double difference is percentage points. The first difference is the change between the intervention (I) and comparison group (C) at endline (e). The second difference is the difference between the intervention and comparison group at baseline (b).

$$\text{Double Difference: } (\% I_e - \% C_e) - (\% I_b - \% C_b)$$

A positive double difference indicates an improvement in the intervention group if a *positive* change is desired from baseline to endline. Conversely, a negative double difference can indicate improvement if a *reduction* is desired. However, the double difference measurement is based on one key assumption— that the change in the intervention area would have been the same as the change in the comparison area had the intervention not occurred. Thus, the double difference should be interpreted with caution.

change from baseline. A much larger increase was observed in the comparison area, where initiation of breastfeeding rose from 34.3 to 59.2 percent.

Table D.6: Proportion of Children aged 0-23 months put to breast within one hour of birth

	Baseline		Final Evaluation		BDHS 2011	Double difference
	Comparison	Project	Comparison	Project		
%	34.3	55.4	59.2	58.5	47.1	-21.8
n=	892	1441	747	1479		
N=	2600	2600	1262	2530	17,842	

The large negative double difference arises from the large increase observed in the comparison area from baseline to endline. There is a substantially lower proportion of timely initiation of breastfeeding at baseline in the comparison area (by more than 20 percentage points), while numbers are similar in both areas at the endline. The baseline survey report did not address why this indicator was so much lower in the comparison area than the intervention site at baseline. One possible explanation for the difference could be due to changes in the survey population and sampling frame for the final survey (i.e., removal of some highly urbanized areas). For this reason, the double difference result should be used with caution. According to DHS data for 2007 and 2011, national trends show an increase in this indicator similar to the change in the intervention area. Nationwide, timely initiation of breastfeeding¹⁹ was reported as 42.6 percent in 2007 and 47.1 percent in 2011.

Using the WHO definition, this indicator is calculated to include only those responses of less than one hour after birth. Those who report that they put their baby to the breast at exactly one hour are not included. If the indicator is expanded to include 'one hour,' the number is markedly higher with 78.8 percent of mothers in the comparison area and 85.6 percent of mothers in the project area, reporting initiating breastfeeding in one hour or less. Analysis of this indicator by time also shows that most mothers (more than 94 percent) in both comparison and project areas reported initiation of within the first six hours.

¹⁹ Percent of women who delivered in the last 5 years and reported breastfeeding, reporting on initiation of breastfeeding within one hour for their last born child.

Table D.7: Proportion of Children aged 0-23 months put to breast by time of initiation

Initiation of breastfeeding	Comparison %	Project %
< 1 hour	59.2	58.5
1 hour	19.5	27.1
More than 1 up to 6 hours	15.5	10.9
More than 6 hours less than 24	0.8	0.9

Indicator 2: Exclusive Breastfeeding

WHO defines exclusive breastfeeding as the proportion of infants exclusively breastfed is the percent of children age 0-5 months were given only breastmilk and no other liquids or foods during the previous day. This indicator does not exclude infants who were given ORS or vitamin and medicinal syrups.

In the project area, exclusive breastfeeding decreased from 57.5 to 56.8 percent and modest increase was observed in the comparison area from 45.2 to 50.5 percent. DHS reported national rates of exclusive breastfeeding among infants 0-5 months as 43 percent in 2007 and 64 percent in 2011.

Table D.8: Proportion of infants aged 0-5 months who were fed exclusively with breastmilk the previous day

	Baseline		Final Evaluation		BDHS 2011	Double difference
	Comparison	Project	Comparison	Project		
%	45.2	57.5	50.5	56.8	64	-6.0
n=	275	384	160	357		
N=	609	668	317	628	17,842	

Indicator 3: Introduction of Semi-solid Foods

WHO defines the introduction of semi-solid foods as the proportion of all infants age 6 to 8 months who received solid, semi-solid or soft foods during the previous day. Liquids, thin, water-based soups and thin porridge are not sufficiently nutrient and energy dense so these are counted as semi-solid or soft foods.

In the project area, the proportion of children introduced to semi-solid food decreased from 81 percent in the baseline to 76.1 percent in the final evaluation. A decrease was also noted in the comparison area. In both areas, this indicator is higher than the national figure reported by the DHS.

Table D.9: **Proportion of infants 6-8 months who received solid, semi-solid or soft foods the previous day**

	Baseline		Final Evaluation		BDHS 2011	Double Difference
	Comparison	Project	Comparison	Project		
%	87.9	81.0	73.8	76.1	62	9.2
n=	333	269	104	252		
N=	379	332	141	331	17,842	

Indicator 4: Continued Breastfeeding

Continued breastfeeding by the age of one year is measured as the proportion of children age 12 to 15 months who are still breastfed (i.e. they received breastmilk during the previous day). This indicator was already high in both project and comparison communities. A slight decrease was observed in both the comparison and the project area. Endline survey results are similar to the national DHS figure of 95 percent.

Table D. 10: **Proportion of children 12-15 months that were fed breastmilk the previous day**

	Baseline		Final Evaluation		BDHS 2011	Double difference
	Comparison	Project	Comparison	Project		
%	98.3	97.8	93.1	96.5	95	3.9
n=	405	409	202	435		
N=	412	418	217	451	17,842	

Indicator 5: Minimum Dietary Diversity

Minimum dietary diversity measures the proportion of children age 6 to 23 months who received foods the previous day from four or more food groups. The seven food groups are: Grains, roots and tubers; Legumes and nuts; Dairy products (milk, yogurt and cheese); Flesh foods (meat, fish, poultry and live/organ meats); Eggs; Vitamin A-rich fruits and vegetables; and any other fruits and vegetables. The minimum dietary diversity among children 6 to 23 months in the project area increased substantially from 19 to 42 percent, more than doubling. An improvement was also noted in the comparison area, from 19 to 26 percent and is similar to the 2011 National DHS figure of 25 percent.²⁰ The increase observed in the project area is more than three times the magnitude of change observed in the comparison area indicating a major achievement of the project.

²⁰“It is important to note that data from the 2011 BDHS are not comparable with data from previous BDHS reports because of changes in the definition of IYCF indicators and the data collection tool in 2011.” Bangladesh DHS Survey Report 2011, p.176

Table D.11: **Proportion of children 6-23 months that received foods from 4 or more food groups the previous day**

	Baseline		Final Evaluation		BDHS 2011	Double difference
	Comparison	Project	Comparison	Project		
%	19.2	19.2	26.0	41.8	25.2	15.8
n=	383	370	246	795		
N=	1991	1932	945	1902	17,842	

Indicator 6: Minimum Meal Frequency

Minimum meal frequency measures the proportion of children age 6-23 months who received solid, semi-solid or soft foods the minimum number of times or more the previous day. Both meals and snacks are counted as a feeding. The minimum number of times is dependent on breastfeeding status and age: 4 times a day for all non breastfed children, 2 times for breastfed children age 6 to 8 months, and 3 times for breastfed children age 9 to 23 months.

A decrease in the minimum meal frequency was observed in both intervention and comparison areas. The indicator decreased 7.1 percentage points in the intervention area and 11.5 percentage points in the comparison area.

Table D.12: **Proportion of children 6-23 months that received solid, semi-solid or soft foods the minimum number of times the previous day**

	Baseline ²¹		Final Evaluation		BDHS 2011	Double difference
	Comparison	Project	Comparison	Project		
%	90.9	91.1	79.4	84	64.5	4.4
n=	1809	1761	750	1597		
N=	1991	1932	945	1902	17,842	

Indicator 7: Consumption of Iron-rich/iron-fortified foods

Consumption of iron-rich/iron fortified foods is the proportion of children age 6 to 23 months who received in the previous day any iron-rich food or iron-fortified food that is specially designed for infants and young children, or that is fortified in the home. Iron-rich or iron-fortified foods include flesh foods, commercially fortified foods specially designed for infants and young children which contain iron, or

²¹ In the Baseline report, this indicator was reported separately for 6-8 month and 9-23 month age groups. For purpose of comparison, aggregate indicator was estimated by the numbers were combined, in a 3:15 month ratio

foods fortified in the home with a micronutrient powder containing iron or a lipid-based nutrient supplement containing iron.

In the project area, consumption of iron rich/fortified foods increased from 48.6 to 69.3 percent, a substantial increase of 20.7 percentage points. This indicator also increased in the comparison population, but the increase of 16.7 percentage points is less than that observed in the intervention group.

Table D.13: Proportion of children 6-23 months that received an iron-rich or iron-fortified food the previous day

	Baseline		Final Evaluation		BDHS 2011	Double Difference
	Comparison	Project	Comparison	Project		
%	39.2	48.6	55.9	69.3	54	4.0
n=	781	938	528	1319		
N=	1991	1932	945	1902	17,842	

It is important to note that this increase reflects dietary intake of iron rich or fortified foods only, because use of home fortificants was not measured in the endline survey. The project included a successful MNP distribution component from March to December 2012 which achieved high coverage. However, distribution was discontinued in December two months prior to the endline survey. If this project activity had continued at the time of the survey, the proportion of children consuming iron rich/fortified foods likely would have been even higher in the project area.

Indicator 8: Bottle feeding

This indicator measures the proportion of children 0 to 23 months who were fed with a bottle with a nipple or teat the previous day. The indicator includes both breastfed and non-breastfed children, and the child could receive any liquid from the bottle, including breastmilk, water or thin porridges. A decrease in this indicator marks an improvement.

Bottle feeding continued to be low in the project area and decreased slightly from 10.5 percent to 9.8 percent. Meanwhile, bottle feeding in the comparison area was higher than in the project area at baseline and increased further to 20 percent by the endline. The negative double difference reflects that the desired effect (a decline in bottle feeding) improved more in the project area more than in the comparison area. This is consistent with project efforts to improve exclusive breastfeeding and to discourage the use of bottles for breastmilk, formula, or any liquids including diluted rice or wheat-based porridges.

Table D.14: **Proportion of children 0-23 months who were fed with a bottle with a nipple or teat the previous day**

	Baseline		Final Evaluation		BDHS 2011	Double difference
	Comparison	Project	Comparison	Project		
%	16.5	10.5	20.0	9.8	16	-4.2
n=	429	272	252	248		
N=	2600	2600	1262	2530	17,842	

4. Changes in Nutritional Status

Nutritional status of children was measured using standard anthropometric measurements and comparing nutritional profiles recorded at baseline and final evaluation surveys. The extent of underweight, stunting and wasting was measured to assess the children’s nutritional and overall health status, and to determine whether project goals for improving nutritional status were met. Children were classified as underweight (WAZ), wasted (WHZ), or stunted (HAZ) if the z-score for the anthropometric indicator was more than 2 standard deviations below the WHO 2006 Child Growth Standards median. For details of anthropometry indicators and cut offs used, see Appendix 4.

Table D.15 summarizes the findings from the anthropometric data presenting changes in the indicators from baseline to endline in the project area and the double differences when compared to the change observed in the comparison population. Since the desired effect is a *decrease* in rates of malnutrition in the survey population, a *negative* double difference indicates an improvement in the intervention group.

Table D. 15: **Summary Table: Prevalence of underweight, wasting and stunting and changes in the project area and double difference for each anthropometric indicator**

Anthropometric Indicators	Baseline %	Endline %	Change	Percent Change	Double Difference
Severe to moderate underweight among 6-23 months	39.1	23.3	-15.8	-40%	-6.9
Severe to moderate wasting among 6-23 months	17.0	7.6	-9.5	-56%	0.3
Severe to moderate stunting among 6-23 months	40.9	41.0	+0.1	0%	-2.1

In summary, the anthropometric indicators suggest an improvement in nutritional status of children in the project area with significant decreases observed in rates of both underweight and wasting. Rates of stunting appear to show no change in the project area, however when compared to a slight increase observed in the comparison area, this suggests a positive outcome that the situation did not worsen in the project area.

Underweight

The prevalence of underweight (low weight for age) is commonly used to assess change in magnitude of malnutrition over time. Table D.16 shows a large decrease in low weight for age in both population groups from baseline to final indicating that overall nutritional status has improved considerably. Among children age 6 to 23 months, the percent underweight declined by 15.8 percentage points (40 percent) in the project area compared to 8.9 (24 percent) in the comparison area, indicating more improvement in the project area.

When age-specific data is reviewed, both population groups showed a small increase in proportion underweight among the youngest age group, and then substantial declines in the older age groups. Nutritional status improved among the older age groups especially among those age 6 to 11 months in both populations with a greater improvement noted in the intervention group.

Table D.16: **Underweight Among Children age 0-23 months (WAZ \leq -2 SD)**

Underweight Among IYC 0-23 months (WAZ \leq -2 SD)						
Age group (months)	Baseline		Endline		Double difference	DHS 2011
	Comparison % (n)	Project % (n)	Comparison % (n)	Project % (n)		
0 - 5	14.8 (90)	12.0 (80)	15.5 (49)	13.7 (86)	1.0	
total	609	668	317	628		
6-11	25.2 (197)	29.3 (206)	23.1 (72)	18.7 (119)	-8.5	
total	781	703	312	635		
12-23	43.6 (528)	44.8 (550)	29.7 (188)	25.6 (324)	-5.3	
total	1210	1229	633	1267		
0-23	31.3 (815)	32.2 (836)	24.5 (309)	20.9 (529)	-4.5	
total	2600	2600	1262	2530		
6 - 23	36.4 (725)	39.1 (756)	27.5 (260)	23.3 (443)	-6.9	29.95
total	1991	1932	945	1902		

Wasting (Acute Malnutrition)

The prevalence of wasting (low height for weight) is commonly used as an indicator of current nutritional status and is sensitive to immediate changes in food intake and illness. Table D.17 shows a large decrease in wasting in both population groups from baseline to final evaluation where rates were reduced by more than half. Among children age 6 to 23 months the percent wasted declined by 9.5 percentage points (56 percent of the baseline value) in the project area compared to 9.8 (58 percent) in the comparison area.

Slightly better improvement was observed in the comparison area than the project area evidenced by the positive double difference values. This difference is largest among children under 6 months where there was no change in wasting in the project area, yet rates decreased by half in this age group in the comparison area. In the older age groups this gap is reduced and among children aged 12-23 months both areas show the same and a substantial decrease in wasting (62 percent of the baseline value).

Table D.17: Wasting Among Children age 0-23 months (WHZ \leq -2 SD)

Wasting Among IYC 0-23 months (WHZ \leq -2 SD)							
Age group (months)	Baseline		Endline		Double difference	DHS 2011	
	Comparison % (n)	Project % (n)	Comparison % (n)	Project % (n)			
0 - 5	9.4 (57)	6.1 (41)	4.1 (13)	6.4 (40)	5.6		
total	609	668	317	628			
6-11	14.1 (110)	11.8 (83)	7.1 (22)	7.6 (48)	2.8		
total	781	703	312	635			
12-23	18.6 (225)	20.0 (246)	7.1 (45)	7.6 (96)	-0.9		
total	1210	1229	633	1267			
0-23	15.1 (392)	14.2 (370)	6.3 (80)	7.3 (184)	1.9		
total	2600	2600	1262	2530			
6 - 23	16.8 (335)	17.0 (329)	7.1 (67)	7.6 (144)	0.3		15.15
total	1991	1932	945	1902			

Stunting (Chronic Malnutrition)

The prevalence of stunting (low height for age) is indicative of chronic malnutrition. Survey results in Table D.18 show no significant change in stunting in either population group. Among children age 6 to 23 months, stunting stayed the same in the project area and increased slightly from 40.9 to 42.2 percent in the comparison area. The small double difference value suggests a slight improvement in the project area.

From baseline to endline evaluation stunting increased in both the 0 to 5 month age group and 6 to 11 month age groups in both project and comparison areas. Among children age 12 to 23 months, stunting decreased in both groups with slightly more of a decrease in the project area (-1.8 percentage points) than the comparison area (-0.6 points). The double difference increases with age group suggesting slightly more improvement in the project area among older children.

Table D.18: Stunting Among Children age 0-23 months (HAZ \leq -2 SD)

Stunting Among IYC 0-23 months (HAZ \leq -2 SD)						
Age group (months)	Baseline		Endline		Double difference	DHS 2011
	Comparison % (n)	Project % (n)	Comparison % (n)	Project % (n)		
0 - 5	15.1 (92)	12.3 (82)	21.1 (67)	19.1 (120)	0.8	
total	609	668	317	628		
6-11	23.7 (185)	26.5 (186)	26.6 (83)	28.5 (181)	-0.9	
total	781	703	312	635		
12-23	50.5 (611)	49.1 (604)	49.9 (316)	47.3 (599)	-1.2	
total	1210	1229	633	1267		
0-23	34.2 (888)	33.5 (872)	36.9 (466)	35.6 (900)	-0.6	
total	2600	2600	1262	2530		
6 - 23	40.0 (796)	40.9 (790)	42.2 (399)	41.0 (780)	-2.1	35.93
total	1991	1932	945	1902		

Anemia in Children

The measurement of hemoglobin (Hb) is the standardized method of screening for anemia. The baseline and endline evaluation used HemoCue rapid testing methodology to measure Hb. High rates of anemia were found in children age 6 to 24 months in both areas. In the project area rates of anemia (using a cut off of 10.5gm/dl), decreased a little by 1.6 percentage points, while in the comparison area anemia rates increased by 8.6 percentage points, more than 10 percent of the baseline value. The sizeable double difference which results suggests more improvement to address anemia in the project area than the comparison area.

Anemia rates were also calculated using a cut off of 11.0gm/dl so that results could be compared to national DHS figures. Using this cut off, anemia rates increased in both population groups but to lesser extent in the intervention group. National anemia rates in the 2011DHS were highest among children 11-17 months (76.4 percent) in and those 18 to 23 months old (62.5 percent). Anemia rates in the both the project and comparison areas appear to be considerable higher than these national figures.

Table D.19: Anemia rates among Children age 0-23 months

	Baseline		Endline		Double difference
	Compariso n	Project	Comparison	Project	
% Anemia in Children age 6-23 months (cut off < 10.5gm/dl)	71.5	71.9	80.1	70.3	-10.2
n=	178	179	185	167	
N=	249	249	231	237	
% Anemia in Children age 6-23 months (cut off < 11.0gm/dl)	82.5	82.7	86.6	84.1	-2.7
n=	207	206	200	199	
N=	251	249	231	237	

5. Knowledge and Practice

Akhoni Shomay was largely a social and behavior change (SBC) intervention. SBC is a set of planned communication interventions that aim to foster positive behaviors; encourage sustainable individual, community and societal changes in behavior; and maintain optimal behaviors. As part of the behavior change process, CARE Bangladesh strengthened interaction and engagement with women of reproductive age, their family members and community members through a variety of channels. This focus was encouraged through the *National Communication Framework and Plan for Infant and Young Child Feeding* and recommendations from other organizations including UNICEF and ICDDR, B and draws on CARE Bangladesh's strengths organizationally with regards to community mobilization and empowerment.

Specific key behaviors were targeted during the project.²²

Maternal Nutrition and Care

1. Additional and diverse food for pregnant and lactating women each day
2. At least two hours of rest during the day for pregnant women and avoidance of heavy work
3. ANC visits during pregnancy and PNC visits after delivery

Early initiation and breastfeeding

1. Initiation of breastfeeding immediately (within 1 hour of birth) after birth
2. No pre-lacteals for child 0-5 months of age

²² The project did not set specific targets for these behaviors.

3. Exclusive breastfeeding for children 0-6 months of age
4. Continued breastfeeding up to 2 years of age

Complementary feeding

1. Age appropriate complementary feeding (quantity, quality, diversified and responsive feeding) for children 6-23 months

Handwashing

1. Washing hands with soap and water before food preparation and feeding the child

Micronutrient Powders

1. Adding MNPs daily to food for children 6 to 23 months (March 2012- December 2012)

Maternal Nutrition and Care

Although maternal nutrition and care was selected by the Bangladesh team as an area of focus, discussions with AS staff, CHNWs, and CCs, revealed that there was marginal focus on this area during project implementation.

1. Additional and diverse food for pregnant and lactating women each day

Quantitative findings indicate that more mothers in the project area report hearing the message about eating more food than mothers in the comparison area. However, an equal proportion of mothers report hearing the message to eat a variety of nutritious foods in both the project and comparison area. When asked directly about maternal diet in FGDs and interviews, mothers, grandmothers, fathers, CCs, and CHNWs mentioned, but did not emphasize, the importance of a diverse diet or extra food for mothers.

2. At least two hours of rest during the day for pregnant women and avoidance of heavy work

Nonetheless, qualitative findings from the endline reveal that some of the mothers interviewed appreciated that these practices were being promoted by the project although none of them talked about practicing either behavior. The data also indicated that there were strong opinions, especially from older women, about the project promoting additional rest and avoidance of heavy work for pregnant women. For example, during a FGD a CHW told about a time when she was speaking to a young pregnant woman about personal care practices when the woman's mother-in-law interjected that women in the past did not take rest. "We are doing hard work at home even when there labor pain." Another CHNW stated mother-in-laws told them that heavy work during pregnancy, especially in the ninth month of pregnancy, helps get the baby in position for delivery. The perception that younger pregnant women are somehow being pampered by being given extra rest was a sentiment that was encountered by many CCs and CHNWs. In turn, CCs and CHNWs had to find persuasive ways to convince older women that extra rest and avoidance of hard work is important during pregnancy. A CHNW reflects on the situation,

Then I asked “How many children did you deliver?” The mother-in-law replied “Nine.” I asked her “How many are alive?” and she told me “Only three.” I asked “Why?” She told me that “One baby died due to pneumonia, one child due to convulsions, two-three were delivered dead.” I told her, “That you have used bamboo piece to cut your chord which causes tetanus to your baby and she died. And for all those dead child, because you didn’t follow advice and didn’t go for medical check-up during pregnancy. These days child death is coming down, because mothers are having better treatment, good care. Mothers are not dying because of tetanus and bleeding, because they are conscious now, they go to doctors for check-up. Pregnant mothers follow advice about food and rest. If you are conscious about these, you will get a healthy grandson. Don’t you want your grandson to be literate and healthy?” She replied, “I want my grandson beautiful and healthy, not a burden to us.”

Another CHNW spoke of a similar situation, “While we had meeting with them, we explained that you had 12 babies, but out 12 how many are alive? Now-a-days, if mothers delivered four babies, all four are alive, no child is dying.”

CHNWs went on to discuss that not all mother-in-laws pose challenges to their daughter-in-laws. “Those mother-in-laws who are comparatively young are conscious and help their daughter-in-laws.” Nonetheless, one CHNW explains,

Those mother-in-laws who are older, they are not supportive to their daughter-in-laws. Older mother-in-laws neither help nor resist their daughter-in-laws. Mothers are saying that mother-in-laws are quarreling with them for the babies. Then we discuss with mother-in-laws that these [children] are your dynasty, you need to keep your dynasty up, so help your daughter-in-laws. In this area, in last two years, mother-in-laws are not resisting their daughter-in-laws. Either they support or they keep quiet.

3. ANC visits during pregnancy and PNC visits after delivery

Formative research revealed apart from receiving tetanus toxoid (TT) injections, most mothers did not get any antenatal care. Reasons given ranged from some mothers believing that going is a waste of time and they will not learn anything that they do not already know to being frustrated by the long wait or for staff that do not turn up or turn up late and rush through consultations. The endline survey measured whether women sought care during pregnancy, and whether the mothers received counseling during these visits. Almost two thirds of mothers in the project area reported that they had gone for prenatal care, compared to just over half of mothers in the comparison area. Of these, more than half of all mothers (57 percent in the project area) received ANC care with counseling on nutrition compared to 33 percent in the comparison district.

Table D.20: Care seeking and counseling during pregnancy

	Endline	
	Comparison %	Project %
Percent of mothers who sought care during their last pregnancy	54.2	61.7
Percent of all mothers who received counseling on maternal and child nutrition during ANC visits for their last pregnancy	32.9	57.3
Total	1254	2501

CCs and CHNWs mentioned that learning the *five danger signs of pregnancy* was valuable learning in their training and that they now are able to confidently refer women for medical treatment. During FGDs with CHNWs, it was stated that nobody in the community was telling mothers about the five danger signs before they started disseminating messages. Nevertheless, respondents report that access to services, although improved during the project especially in the four model union districts, still remains a challenge. CCs and CHNWs mentioned that some women do not go for ANC checkups and that affordability especially around transportation is one of the main deterrents. Furthermore, the respondents state that sometimes the staff at the health center (Family Welfare Center) are not able to, or not available to do checkups. Additionally, supply of iron-folate at area clinics is another challenge as they rely on government services and there are frequent stock-outs.

Additionally, CCs during FGDs at endline discussed that many mothers are not willing to go to PNC checkups because they feel they are physically alright, and they don't need it.

Early initiation and breastfeeding

1. Knowledge and practice: Initiation of breastfeeding immediately (within 1 hour of birth) after birth

Baseline data indicated that approximately a little over half of mothers in the project area initiated breastfeeding within an hour of birth with another 27.1 initiating breastfeeding in one hour. Formative research examined what mother who did not early initiate did instead and identified that in many cases mothers purposely discarded colostum because they thought it was infected or tainted breastmilk and not suitable to feed to children. Much emphasis was placed on promoting early initiation of breastfeeding in all of the activities the AS project implemented.

Survey findings show that early initiation of breastfeeding slightly increased to 58 percent in the project area and that 86 percent of project mothers started breastfeeding within the first two hours. Furthermore, the data indicates that almost all mothers (97 percent) initiated breastfeeding within six hours. The practice of early initiation increased higher in the comparison area. The reason why is unknown. The importance of early initiation, and moreover, exclusive breastfeeding was mentioned in

all the FGDS and individual interviews with mothers, mother-in-laws and fathers. The participants confirmed that early initiation and exclusive breastfeeding was addressed during a variety of AS activities and shared their own and others' observations that children who were exclusively breastfed tend to grow faster and stronger and are sick less often than those who are not exclusively breastfed.

Additionally, in FGDs, CCs and CHNWs stated they have confidence in assisting mothers with correct positioning and attachment. This was a practice they said they often demonstrated during counseling and helped mothers with especially when they first started breastfeeding a newborn. In all the FGDs, respondents talked about positioning and attachment and how this helps establish breastfeeding and ensures milk flow. During FGDs some fathers even demonstrated correct positioning and talked about proper attachment.

Data from all the FGDs with CCs and CHNWs indicate that they were strongly motivated to promote immediate initiation of breastfeeding based on their training and new understanding of the importance, as a best start in breastfeeding and way to ensure good milk flow, and also for bonding purposes and prevention of post partum hemorrhage. It should also be noted that during FGDs with CCs and CHNWs, they stated a video used during training on skin-to-skin contact and attachment is a persuasive tool and should be used in future trainings.²³ During all the FGDs, CCs and CHNWs stated they encouraged families not to bathe the child immediately or shave its head (common practices in the project and comparison areas), but to initiate skin-to-skin contact with the mother and establish breastfeeding right away. Additionally, CCs stated they worked with women and their families during pregnancy to prepare them for delivery and early initiation. They timed visits the day of the birth and the following day, often staying with a mother until breastfeeding was well established. In all the KIIs, MtMSG facilitators stated they reinforced this message with pregnant women during group sessions. CCs and CHNWs in FGDs talked with excitement about learning the purpose and importance of colostrum as the "first immunization."

The CCs mentioned how they themselves had adapted many of the practices after the birth of their latest child or had shared this information with relatives.

In my life and in my sister-in-law's life it worked well what I learnt.

When I joined this work under Akhoni Shomay, then I was pregnant. I tried to follow what I learnt from this training, took rest, had vegetables in my meal, took iron regularly, had check up once even after birth of my baby.

My sister-in-law had delivered a baby through caesarean section in hospital. Doctor told us to buy powder milk as mother is sick so she can't breastfeed her baby. Then I talked to my family members and told them to let me try with mother first and I was successful. Mother was able to breastfeed her own baby.

²³ Title of video unknown.

I gave colostrums to my own baby and fed only breast milk only upto 6 months, no other drinks.

I showed the wife of my brother-in-law about how to breastfeed her baby. She breastfed 6 months, and from 7 months onwards home cooked food was fed the baby.

While my sister-in-law was pregnant, I requested her not to do heavy work, during her pregnancy period from 3 to 6 month. I would support in her work, let her go for monthly check up, and told her to fed colostrum after birth, requested for frequent breastfeeding.

2. Knowledge and practice: No pre-lacteals for child 0-5 months of age

During project implementation the practice of giving pre-lacteals was also strongly discouraged. Respondents from the interviews and FGDS emphasized the importance of giving only breastmilk to a newborn and not giving sugar water or any other liquid (a common practice in the project and comparison areas). Endline data indicate a large decrease in the proportion of mothers who report that they gave anything besides breastmilk in the first three days to their newborn. The practice of giving pre-lacteals decreased by 34 percentage points in the project group compared to 20 percentage points in the project area.

Table D.21: Use of colostrum and pre-lacteals

	Baseline		Endline	
	Comparison %	Project %	Comparison % (n)	Project % (n)
Percent of mothers who reported giving colostrum to their child	-	-	97.3 (1228)	98.7 (2497)
Percent of mothers who reported giving any pre-lacteal in the first 3 days	60.0	48.0	40.1 (506)	14.2 (359)
Total			1262	2530

Qualitative research indicates that this was a difficult practice to change. Often there is pressure from other family members, particularly elder women (i.e., mother-in-laws), to give newborns pre-lacteals.²⁴ Nonetheless, key informant interviews and FGDS suggest mothers, sometimes alone and other times with the support of CCs and CHNWs, were able to negotiate with family members and maintain exclusive breastfeeding.

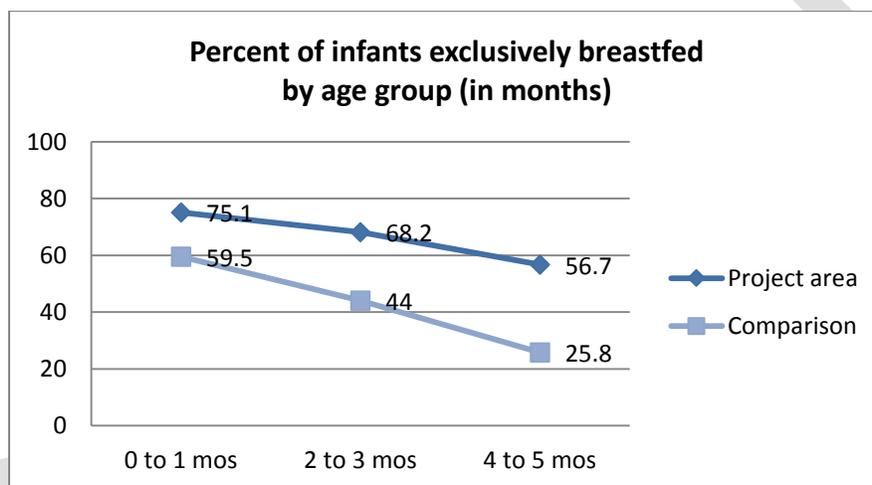
²⁴Reasons for providing children pre-lacteals given during formative research include that the mother does not produce 'milk' yet; that babies are in danger of dehydration; swallowing something 'pure' clears the mucus (polluted substance) that remains in the baby's orifices; sugar water protects against 'pneumonia' (a generic term referring to respiratory infections); and that babies should start life with the taste of sweetness.

3. Knowledge and practice: Exclusive breastfeeding for children 0-6 months of age

Survey findings confirm that the messages about exclusive breastfeeding were widely disseminated during the project. In the project area, more than twice as many mothers (79 percent) reported hearing the message than in the comparison area (41 percent). Rates of exclusive breastfeeding improved significantly in the project area (an increase of 20.6 percentage points) compared to the comparison area (an increase in 6.1 percentage points).

Age-specific rates of exclusive breastfeeding indicate that rates of exclusive breastfeeding drop off significantly from the beginning in both areas with large decreases observed within the first two months. Yet, by age 4 to 5 months, more than half of infants in the project area were still being exclusively breastfed more than double the percent in the comparison area, suggesting the project had success in maintaining exclusive breastfeeding especially among older infants.

Figure D.5: **Percent of infants exclusively breastfed by age group**



The practice of giving plain water (14 percent), milk (8.6 percent) or formula (3.5 percent) to children under 6 months also occurred less often in the project area than in comparison area (plain water- 25.6 percent, milk- 11 percent, formula -9 percent). Additionally, early introduction of solid/semisolid food before age 6 months occurred less often in the project area, with 15 percent of children age 0 to 5 months given foods in the project area, compared to 20 percent in the comparison area. However, data are not available to assess changes in these specific practices from baseline.

Key informant mothers and mothers in FGDs spoke about pressure from family members to feed milk, formula or fruit juices to their child, especially when she experienced problems with breastfeeding or when the child was older and family members were concerned that breastmilk was insufficient. In some cases, CCs were able to support mothers and negotiate with family members to support exclusive breastfeeding. One CC spoke of a time she was able to convince a mother-in-law to give milk or additional foods to the mother instead of the infant. In some cases where the family could not be convinced or ignored advice, the child often ended up sick and the family had to spend money on

medical care. Counselors spoke of how they would use such a situation as a teaching opportunity with the family. One grandmother from Joyka Union stated, “Yes! It’s important, if we go by the suggestions of counselors, children will suffer less from diseases; the family environment will be congenial, and family income will increase.” CCs and CHNWs also spoke with family members about the time commitment that exclusive feeding demands and what family members could do to support a breastfeeding mother. During a FGD in Dehunda, a father stated he learned, “Sometimes, babies mother hardly has time to feed her baby. When such situation evolves, some should take up tasks that mother was doing, so to make time for mother to feed her baby.”

4. Knowledge and practice: Continued breastfeeding up to 2 years of age

Quantitative data from the endline survey indicate that approximately 90 percent of the children aged 20 – 23 months in the intervention area continued to be breastfed. It should be noted that approximately 89.36 percent of the children aged 20 – 23 months in the comparison continued to be breastfed up to two years. Both figures are in-line with national findings reported in the 2011 BDHS. Continued breastfeeding was not mentioned in any of the qualitative findings.

Complementary feeding

1. Knowledge and practice: Age appropriate complementary feeding (quantity, quality, diversified and responsive feeding) for children 6-23 months

Starting complementary feeding at seven months

Formative research indicated both an early introduction and late introduction to complementary feeding in the project area. Formative research indicated one of the first foods children are given is *luta*, a home-ground rice boiled in water to which sugar is added or, less often, milk and sugar, or salt. *Luta* is introduced when the caregiver believes the baby is not getting full from breastmilk and thus, this perception is highly variable. During formative research one mother told how she introduced *lutato* her two month old baby; however, most mothers that participated in the formative research stated they started complementary feeding later and introduced *luta* from nine months onward. Quantitative findings from the endline indicate that 9.6 percent of children age 6-7 months in project area and 4 percent in comparison area were still being exclusively breastfed, thus the start of complementary feeding was delayed for a small percentage of infants. Many respondents from FGDs and interviews stated that complementary feeding should begin at seven months, including community leaders. Quantitative findings indicate that a high percentage of mothers in both the project and comparison area stated they heard that babies/ young children should be given food at seven months.

Frequency of complementary feeding

Qualitative research indicates that respondents in both the project and comparison area were knowledgeable regarding the minimum number of times a child should be fed in a day according to the child’s age. However, according to the endline quantitative findings, approximately 85 percent of breastfed and 63.8 percent of children in the project area age 6-8 months received minimum meals.

Amount of food to feed by age

Qualitative research indicates there is widespread knowledge of correct amount of food to feed children by age. Amount and frequency were discussed during individual counseling during other project activities such as MtMSGs. CHNWs and CCs used a demonstration bowl to show the amount of food children should be feed by age. One CHNW remarked during a final FGD, “We showed the size of the cup and then they remember it. Without showing this, they can’t remember.” Another CHNW explained the process she uses in teaching caregivers the correct amount to feed children starting at seven months.

When baby is on 7 month, then we show (demonstrate) about feeding practically. After telling them, sometime they don’t understand, then I take out the sample cup (which I kept with me), and wash my hands and cup with soap, tell them that I will teach your grandson how to eat. Then I take ½ cup of food, then the mother is saying that he is too young to take ½ cup food at a time. Then I assured them that we need to habituate baby with food slowly but don’t force baby to eat more.

Additionally, the promotion of MNPs may have helped with correct knowledge around the optimal amount of food to feed children 6 -23 months because messaging emphasized that caregivers should give the correct amount of food when using MNPs.

Thickness (consistency) of complementary foods

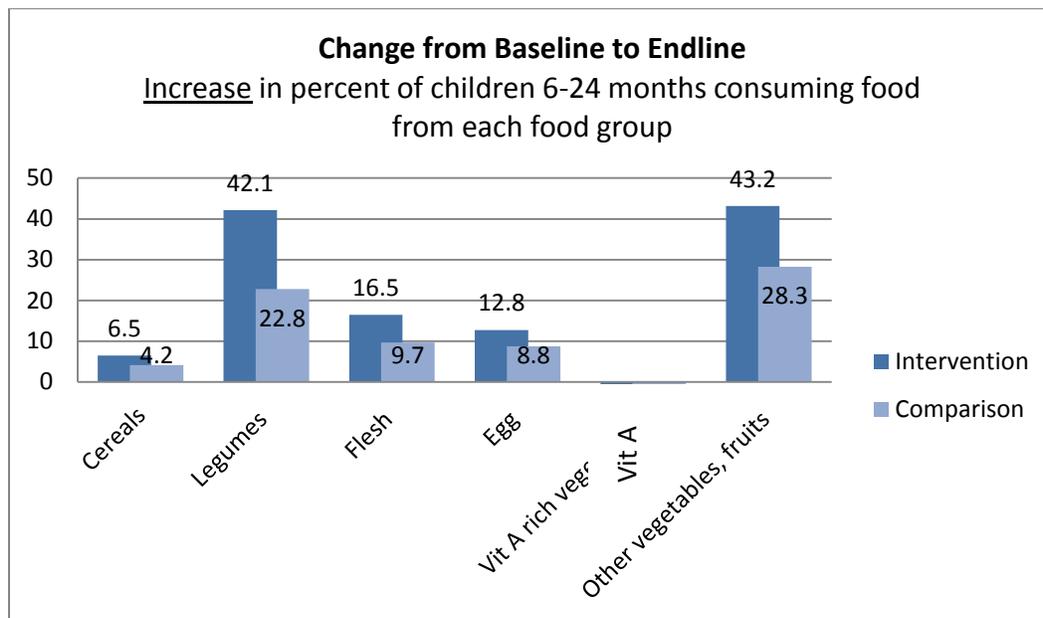
Very little data were collected at baseline or endline that spoke of the thickness of complementary foods. From the qualitative data it is evident that caregivers were instructed to “mash” soft foods but none of the respondents provided details on the consistency of the food that is given to infants and young children.

Variety of foods

Endline results show that there was a large improvement in the variety of foods fed to children, in particular, nutrient dense foods such as legumes and vegetables and fruits.²⁵At endline, approximately 60.1 percent of all children in the project area received minimum dietary diversity compared to approximately 40.6 percent of all children in the comparison area.

²⁵It should be noted that the baseline survey was conducted during the summer during peak mango season and the endline was conducted during the winter season when some vitamin A rich vegetables are plentiful, but there are not any vitamin A rich fruits in season.

Figure D.2: Percent increase from baseline to endline in consumption of food from selected food groups



In all project activities using home foods for complementary foods was emphasized. A CHNW explained in a final FGD how she communicated to families about using home foods.

Our advice on feeding home cooked food is simple. For elders in the family 3-4 items food are usually cooked every day. From those, some could be taken separately for the child, say, some rice, vegetables, little fish, or lentils or dal. These items could be mixed together to a soft swallowable, and then it be given to baby to eat.

Qualitative research indicates that caregivers and family members found it easy to use home foods as complementary foods and appreciated that they did not have to buy special foods to feed children.

Additionally, endline qualitative data suggest that the project had some success in influencing families²⁶ to not buy or feed junk food (called *ulufa* in Bangladesh that refers to snack foods such as cake, biscuits, doughnuts, crisps, chips, or valobasha, a sweetened drink) to children 6-23 months. It was reported during endline FGDs with CHNWs that fathers involved in the project were changing their practices and purchasing healthier food instead of *ulufa*. Nevertheless, endline data shows that 60 percent of children were fed sugary foods such as chocolates, sweets, cake, goja, kata gaja, jilapui, biscuits, chips, bhalobasha, candy or pastries according to the 24 hour recall.

Active/responsive feeding

²⁶ Formative research identified that fathers often buy their children junk food from local shops as a way of expressing their love for them.

Throughout project activities, in particular individual counseling, active and responsive feeding was promoted. Endline quantitative findings indicate that in both the project and comparison areas, it was the mother who feed the child. CHNWs and CCs report that many mothers complained of having time constraints that affected the time they could spend feeding and interacting with their child/children. CHNWs and CCs encouraged family members to become involved in child feeding and modeled how to encourage infants and young children to eat during counseling sessions. At endline in the project area, approximately 44.6 percent of mothers reported the child was verbally encouraged to eat compared to 13.8 percent in the comparison area. Other reported approaches to encourage children to eat in the project area included refocusing the child's attention, ordering, threatening, or forcing the child to eat, having the child sit close to the person feeding it, or letting the child feed him or herself.

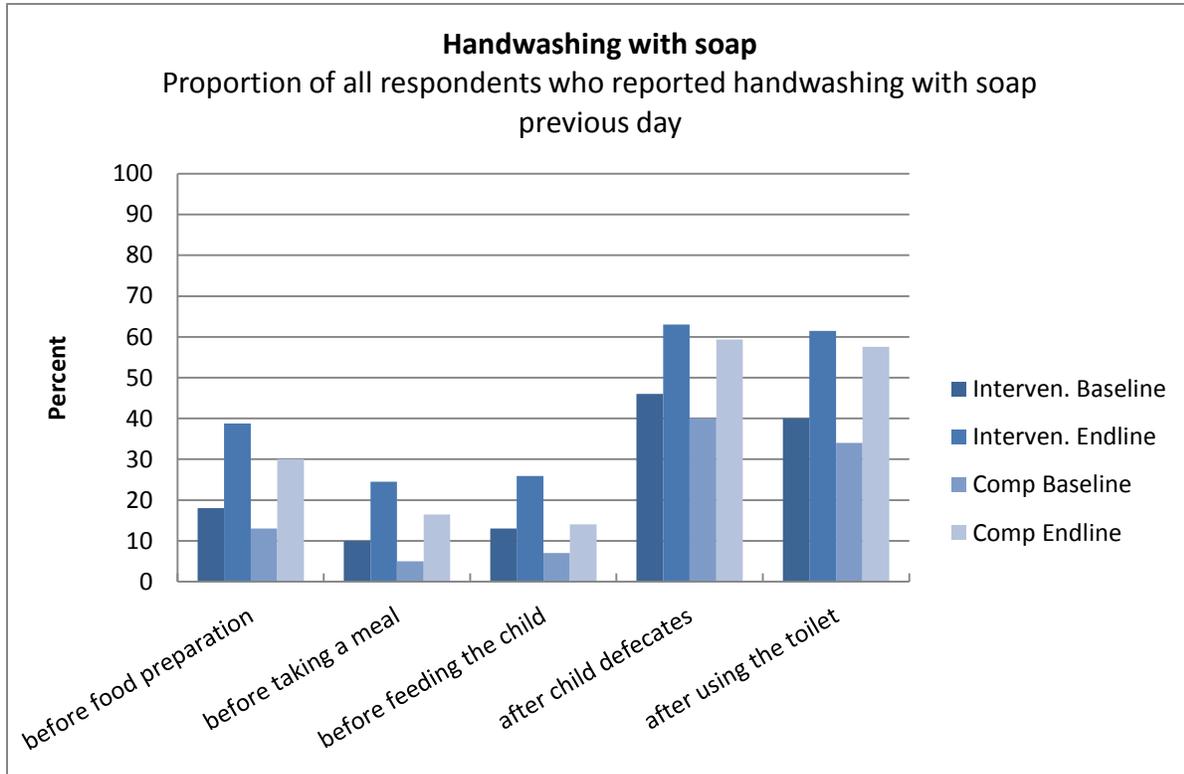
Handwashing

1. Knowledge and practice: Washing hands with soap and water before food preparation and feeding the child

Promotion of handwashing and hygiene was integrated with messages promoting good child feeding practices. Demonstrations of handwashing were included in individual counseling sessions and child feeding demonstrations emphasizing the importance of good hygiene. Additionally, World Handwashing Day was celebrated each year by community-wide campaigns. MtMSG facilitators organized and led demonstrations during WHD campaigns and included discussion of cleanliness and hygiene during MTMSGs.

The endline survey found a substantial increase in handwashing with soap reported in both the project and comparison areas for all five critical times (i.e., before preparing food, before eating, before feeding young children, after using the toilet or cleaning the baby's bottom). The proportion of respondents who reported handwashing with soap before food preparation and child feeding more than doubled in both areas, while handwashing with soap after toilet use or cleaning the child increased by a third to a half. More improvement was observed in the project area than the comparison area in the project's priority practices of handwashing before food preparation and child feeding. For handwashing with soap after defecation, slightly more improvement occurred in the comparison area.

Figure D.3: Proportion of all respondents who reported handwashing with soap the previous day



Micronutrient Powders

Knowledge and Practice: Adding MNPs daily to food for children 6 to 23 months (March 2012-December 2012)

The Akhoni Shomay project heavily promoted regular MNP consumption through intensive household visits by community counselors, through promotion by village doctors, and the engagement of grandmothers and fathers to help support mothers/caregivers in optimal infant and young child feeding practices in the household. Using different channels to promote MNP and intensive support for mothers at the household level likely contributed to the increase of regular feeding of MNP by mothers/caregivers to their children. MNP distribution/counseling helped to reinforce complementary feeding practices, in particular the introduction complementary feeding and the amount of food to be feed to infants and young children per their age.

Distribution of MNP to caregivers started out at 90 percent and steadily climbed. Factors that affected the distribution included seasonal migration patterns and mothers initially refusal to use MNP.

Figure D.4: MNP distribution trends²⁷



Table D.22: Children age 12 -23 months given MNPs in the last six months in the project area

	Endline	
	Project	Comparison
% children 12 – 23 months who were given MNPs in last 6 months	89.3%	2.7%
N=	1269	1269

There were marked improvements in feeding practices among children in the project area whose mother reported their child to have consumed MNP in the last six months. In particular, there was an increase in the number of children receiving the appropriate number of daily meals and being fed an appropriate number of food groups. Furthermore, 69 percent of the mothers knew to use a separate plate for the child to whom MNP is fed, and 84 percent of mothers knew to mix MNP with solid or semi-solid food. This marks that programmatic efforts to increase knowledge of proper use of MNPs were mostly successful. One CHNW in an endline FGD talked about how she helped caregivers remember to use sprinkles.

²⁷It is important to note that distribution of MNPs discontinued 4 to 6 weeks before final evaluation. This data obtained by monitoring during implementation of the intervention.

In case of children with 7 months, we showed how the leaflet and explained clearly. Moreover we showed to how to prepare food while visiting their houses. As these are new to feed sprinkles, they some repetitive instructions. Those who are at 9 months or 13 months old children, they are used to it. They don't mix sprinkles with hot food or liquid food. During home visit, visit through CCs and during getting back the sachets, we are making sure children are consuming sprinkles. These are techniques worked well.

Qualitative data shows that mothers in the project area were knowledgeable on how and when to use MNPs and overall report having a positive experience with MNPs. According to CHNWs, mothers reported MNPs improved their child's appetite and made their children happier. However, CHNWs reported that a few mothers were skeptical about MNPs because they believed they upset their child's stomach, caused diarrhea, or turned their child's stool black. In these cases, CHNWs and CCs helped problem solve what could be causing the gastrointestinal issues and encouraged mothers to continue using MNPs. Additionally, there were some reports of mothers/caregivers sharing their supply of MNPs with other children older than two years of age within same household.

6. Coverage and Exposure to Information and Messages

The project achieved a high level of exposure to key messages, with almost all mothers (98 percent) reporting that they had heard maternal and child health or nutrition messages. This is significantly higher than 62 percent of mothers exposed to key messages in the comparison area.²⁸

Table D.23: **Exposure to key messages**

	Endline	
	Comparison	Intervention
Percent of all respondents who heard any message or information about IYCF or maternal nutrition and care	62.2 %	98.3 %
Total	1262	2530

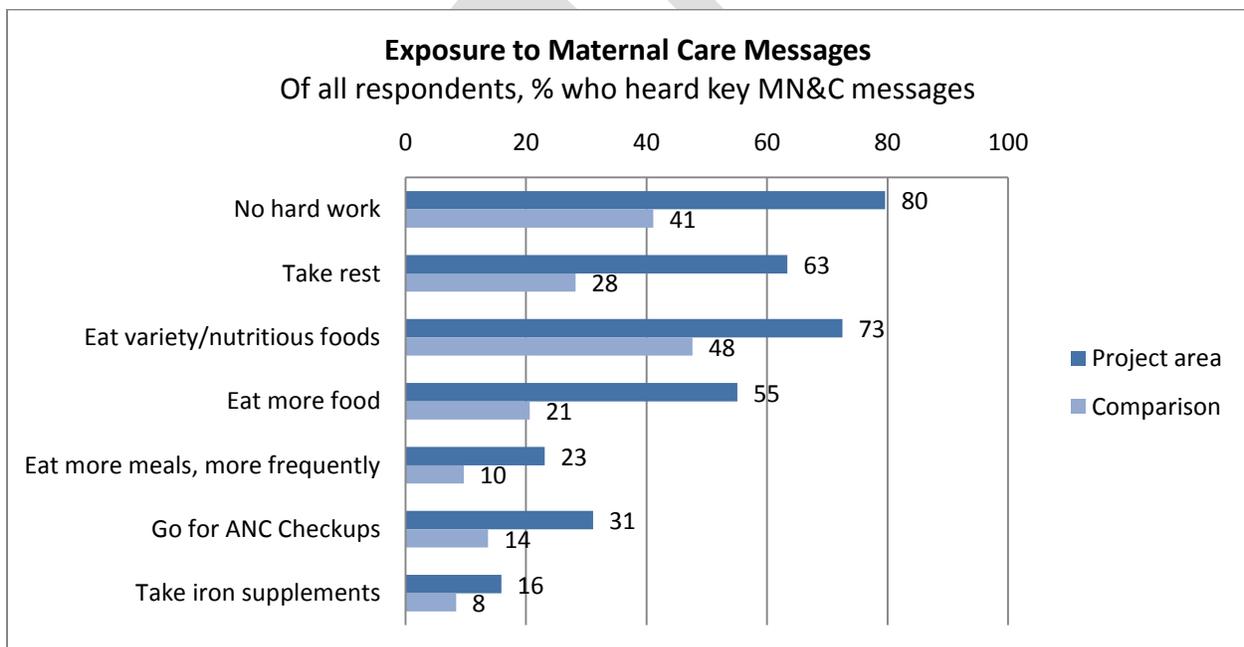
Qualitative findings in both the midterm and endline evaluations suggest that optimal maternal nutrition and care practices were promoted vigorously, in particular through counseling and MtMSGs. When female participants were interviewed about their experiences with counseling, most said they had received visits while they were pregnant and after delivery and valued counseling visits because of the support they received and because they were exposed to new information about related maternal nutrition and care. Furthermore, mothers in all FGDs who had attended MtMSGs also mentioned pregnancy care as a major topic of discussion during groups. Key messages around the importance of pregnant women consuming a diverse diet, taking iron supplements, getting adequate rest, and avoiding

²⁸ Exposure to messages was defined as any respondent who had heard messages from any source other than only from family members. This was done to capture messages from any project or health and media source.

hard work were recognized in all three locations. Mother, father and grandmother FGD respondents in all groups talked about what they had learned through individual counseling visits about the importance of extra food and rest for pregnant women, and that this was new learning. Adequate nutrition, care and rest for pregnant women were also addressed in larger community gatherings according to the three community leaders interviewed at endline. Furthermore, the need for pregnant women to take iron folate tablets was mentioned by CCs and CHNWs and by an Imam and representatives of the Union Parishad in Dhunda and Bharaghoria. Akhoni Shomay project registers tracked ANC visits and iron folate consumption during pregnancy. By 2012, almost half of the women registered (43 percent) said that they had received IFA tablets.

These findings are supported by survey data showing high exposure to messages on maternal nutrition and care. A large majority of all women in the project area recalled hearing messages about *avoiding hard work* (80 percent), the need to *eat a wider variety of food* (73 percent), and *to take additional rest* (63 percent). Over half of the female participants also heard to *eat more food*, although fewer mentioned to eat more frequently. Message exposure was considerably lower in the comparison area both in terms of overall exposure, as well as recall of specific messages. Only the messages to *eat a wider variety of food* and to avoid hard work were mentioned by more than 40 percent of respondents in the comparison area.

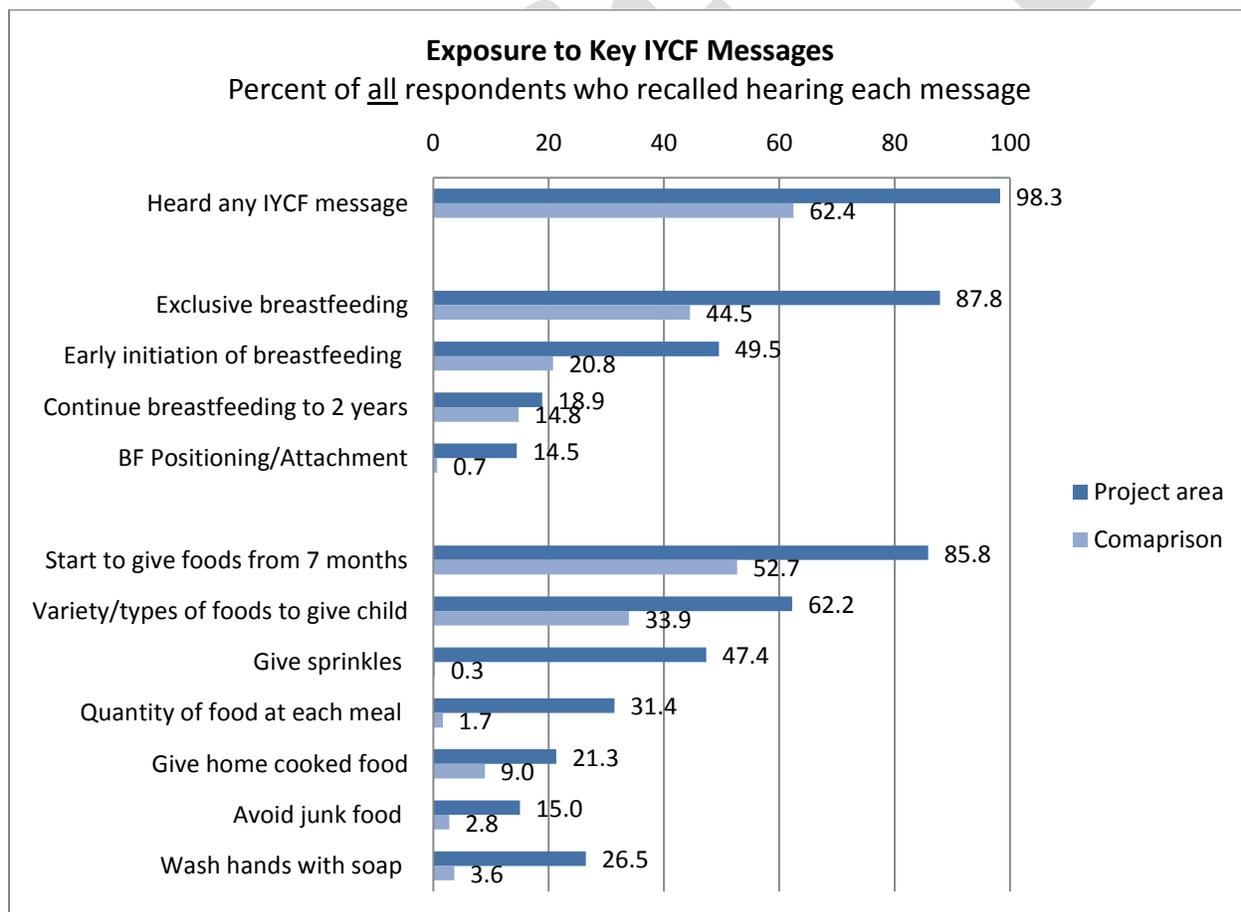
Figure D.5: **Proportion of all respondents who reported having heard about maternal nutrition and care by message**



Quantitative data indicate that twice as many respondents were exposed to the message about early initiation of breastfeeding (cited unprompted by 50 percent of project participants) than in the comparison area (20 percent). Qualitative research found that the message to initiate breastfeeding immediately after delivery, or within the first hour, was widely understood across the project participants. The majority of mother participants interviewed in FGDs were able to state accurate key messages about early initiation without prompting indicated that they were reconsidering the practice of early initiation. One mother from Joyka Union stated, “I missed to feed colostrum to my first baby because I didn’t know at that time. But when the second one came, I learned that and fed colostrum.”

Figure D. 10 presents the proportion of all respondents who spontaneously recalled each key IYCF message. The most commonly recalled messages in both areas were about *exclusive breastfeeding, introduction of foods at age seven months, increasing the variety of food for the child and early initiation of breastfeeding.*

Figure D.6: Proportion of all respondents who spontaneously recalled each key IYCF message

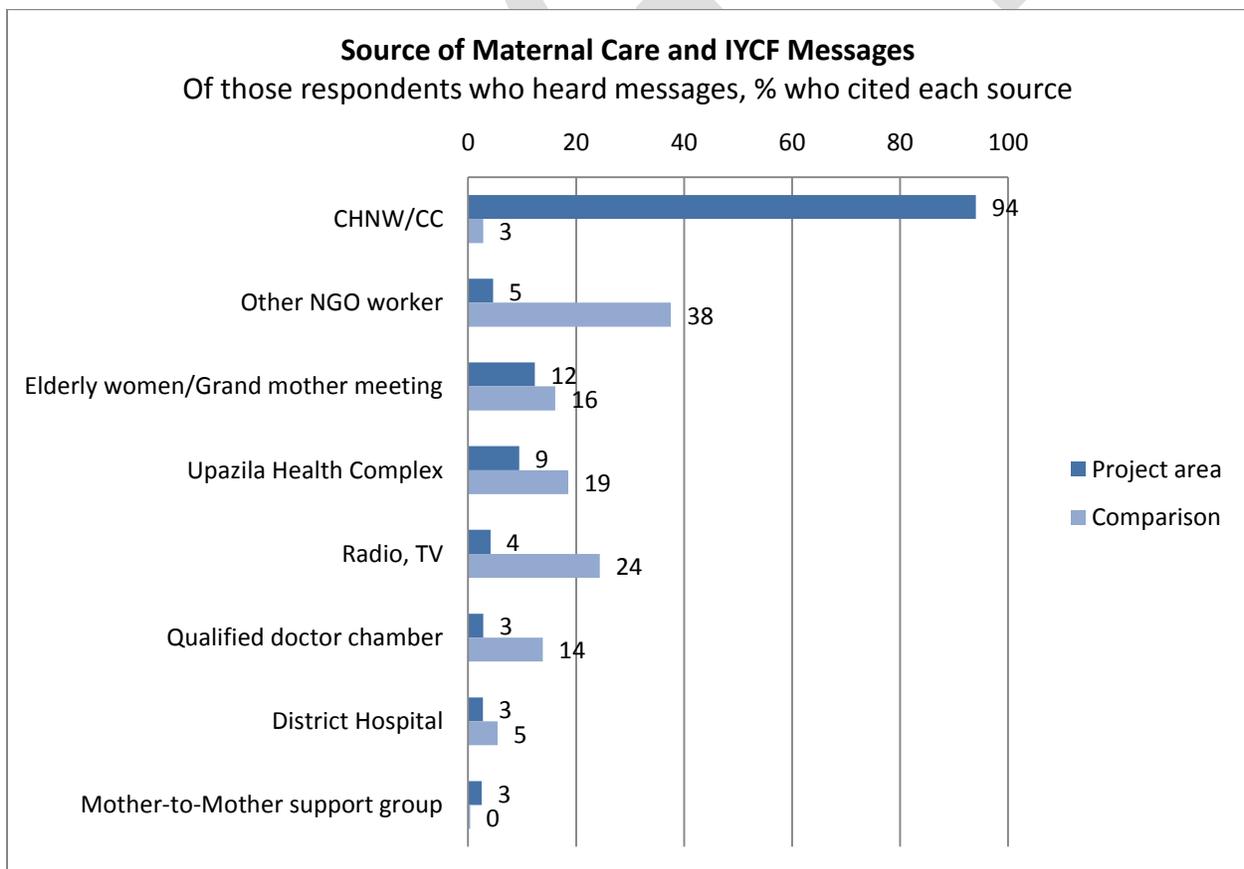


Both the number of messages recalled by respondents and the proportion of respondents to recall each IYCF messages was substantially higher in the project area. The magnitude of this difference indicates that project’s success to disseminate key messages. There was only one message - *to continue to breastfeed up to two years* which had similar level of response in the two areas.

The project achieved high exposure to messages related to complementary feeding in particular. Each of the key messages was mentioned by at least 15% of respondents in the project area, while this was the case for only two messages in the comparison area. Project-emphasized messages such as *to give MNPs, to give home food, avoid junk foods* and those related to *quantity of food* were recalled more often by respondents in the project area.

The sources of information and messages also differed considerably in the two areas. In the project area, the main sources of information were related to the project - the project CCs or CHNWs (94 percent) followed by elderly women’s meetings (12 percent). The Upazilla Health Center, radio and TV and other health centers played a more minor role in disseminating messages.

Figure D.7: Proportion of all respondents who heard messages and percentage who cited each source



In the comparison area, the sources for health and nutrition messages were more varied. Major sources were NGO workers (38 percent), radio and TV (24 percent), the Upazilla Health Center (19 percent) followed by elderly women's meetings (16 percent), and private doctor's office (14 percent).

These findings correlate well with responses from women when they were asked who they most trusted for advice. In the project area, almost three quarters of the women (74.7 percent) said they trusted the CC or CHNW the most, followed by a qualified medical doctor (13.4 percent) and the village doctor (9.3 percent). In the comparison area the most trusted source of advice was a medical doctor (28.4 percent), the husband (26.9 percent) and the village doctor (14.2 percent).

When asked whose advice they were most likely to follow the majority of respondents in the project area said the CC or CHNW (70.2 percent), followed by their husband (8.5 percent), a qualified doctor (7.6 percent) or the village doctor (7.3 percent). In the comparison area women were most likely to follow the advice of husbands first (38.4 percent), followed by a qualified doctor (23.9 percent), their mother-in-law (12 percent) and the village doctor (11.9 percent).

It is important to note that the intervention included the development and distribution of IEC materials for the MNP intervention. The materials were specifically designed to promote key components of complementary feeding, how to properly mix the MNP in with food and act as a reminder to mothers/caregivers to provide MNP regularly to their child. Monitoring data indicates nearly half of the mothers/ caregivers did not use the reminder materials. There was no indication after pretesting the various IEC materials that mothers would reject or not use the materials.

During an endline FGD with CHNWs it was suggested that projects like AS use image-based (i.e., photos and videos) for training purposes as a CHNW explains,

Simply, lectures are forgotten soon, but when videos are shown, that cuts a deep mark on every body's mind and helps us remember well for a long time. Say for instance, if a picture is shown, baby suckling its mother's breast, the trainees will also see how the baby was put on the breast, how it was held on mothers arms, and things like this. The viewers are likely to retain in mind these images longer.

It is hypothesized that image-based training would be appreciated by community members as well.

7. Other Influential Variables

Women's Empowerment and Social Capital

While the project hoped to develop social capital in the communities through its various activities, the project did not implement activities with the direct intent of improving women's empowerment.

The baseline and endline measured some aspects of social capital and women's empowerment such as women's involvement and participation with community social groups; community engagement; freedom of movement by women and; decision making power by women.

Community participation and social capital

In the project area, the proportion of mothers involved in community groups increased from 25.7 percent to 38.8 percent, while in the comparison area women’s participation remained about the same at 34 percent.

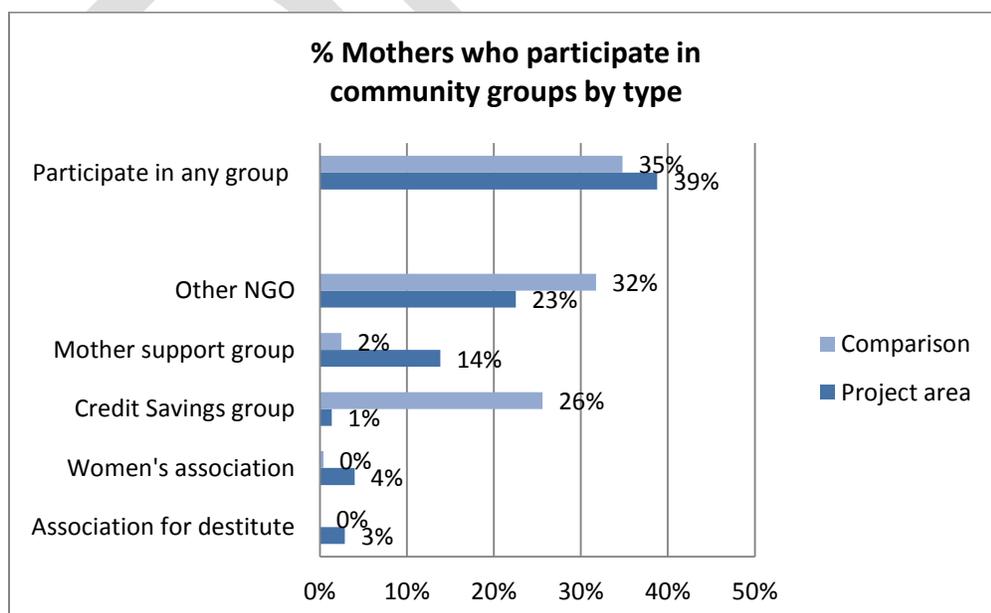
Table D.24: **Participation of mothers in community groups**

	<u>Comparison</u>		<u>Project Area</u>	
	Baseline	Endline	Baseline	Endline
% of mothers who participate in any type of community group	34.2	34.8	25.7	38.8
% mothers who are members of an NGO group		31.7		22.5
% mothers engaged in savings groups	11.3	25.6	7.6	1.4
N =	2600	1254	2600	2501

At baseline, mothers in both areas were involved mainly in NGO groups and savings groups with participation in other types of groups negligible. This pattern did not change in the comparison area; however, in the project area, mothers became more involved in community groups, mostly with increased involvement in mother-to-mother support groups, and also to a smaller degree in women’s associations and groups for the destitute (Please note that CARE was not involved with groups for the destitute).

Participation in savings groups also changed in both areas – in the project area, participation decreased to involve fewer than 2 percent of mothers, while in the comparison area participation in savings groups more than doubled from 11 percent to 26 percent.

Figure D.8: **Mothers participation in community groups by type at endline**



Nearly half of the mothers in both the project and comparison areas stated they received economic help from community groups. Other assistance came in the form of information (31.1 percent in the project area versus 21.3 percent in the comparison area) and emotional help (18.5 percent in the project area versus 15.3 percent in the comparison area).

Still, the majority of mothers in both areas did not participate in any community groups. When those who did not participate were asked for reasons for not participating, 79 percent of in both areas responded that they didn't feel the need to. The second most common reason for non-participation was that this was discouraged by the husband or mother-in-law. Nonetheless, this response was given twice as often (by 21.5 percent of non participants) in the comparison area than in the project area (10.7 percent of non participants).

Community engagement

Women's involvement in problem solving in their own community remains very low, but did increase in the project area. Mothers who said that within the last year, they joined with community members to address a problem increased from 0.4 to 5.0 percent in the project area and from 1.1 to 1.9 percent in the comparison area.

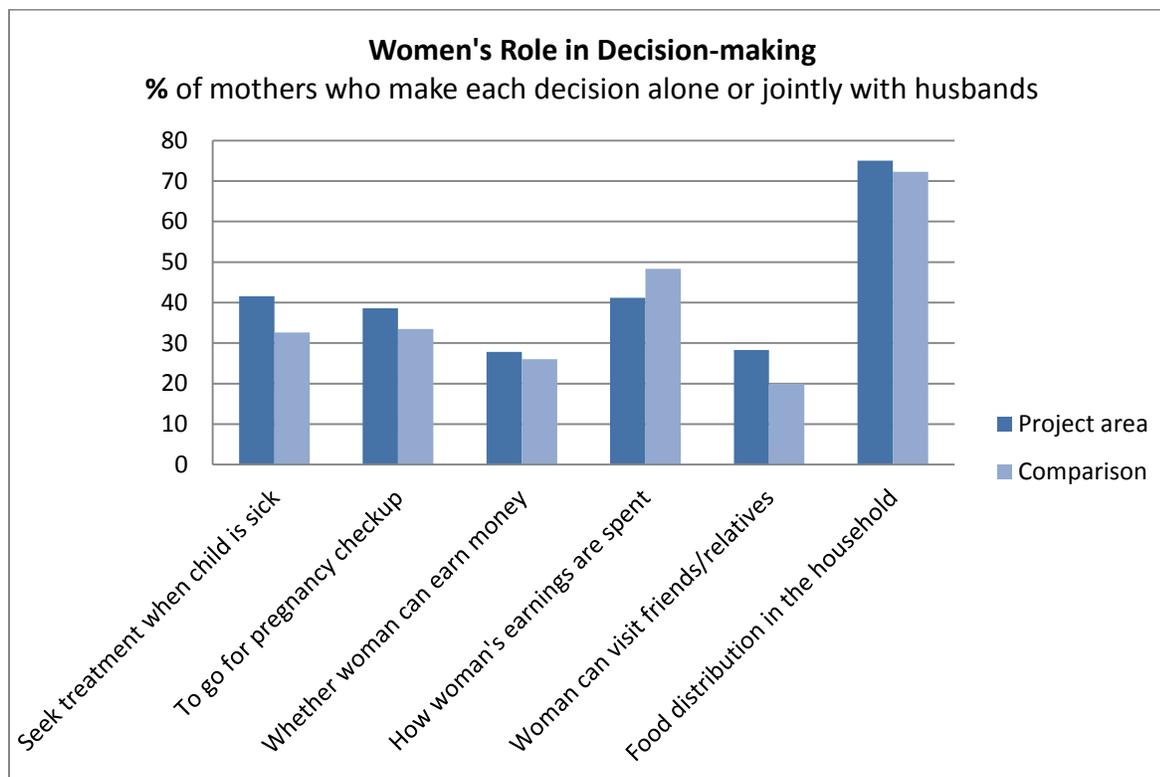
Freedom of movement for women

Endline data indicates that roughly half of the women in the project area and approximately 41 percent of women in the comparison area can go alone to a health center. A smaller percentage can go alone if accompanied by their children. There was no change on this indicator from the baseline survey.

Decision-making

There is great social inequity between the sexes with men leading on household decision making even when men migrate away from the family home for work. The extent of women's roles in decision-making was assessed and shows that husbands dominate most decision-making in the household. Figure D. 13 shows the percent of mothers who said they make decisions alone or jointly with their husbands, and that women's involvement in decision-making remains well below 50 percent for most household decisions. The only exception is decisions related to how food is distributed within the household in which women have the major role. For most of these decisions, women in the project area appear to have more slightly involvement in decision-making than those in the comparison area, with the exception of how a woman's own earnings are spent. For instance, women in the project area appear to have more determination in whether they can join groups. When group members were asked who determined whether they can participate in groups, 61.5 percent of participants in the project area said that they alone or together with their husbands would make this decision, compared to only 26.3 percent in the comparison area. Unfortunately inconsistencies with the baseline data prohibit baseline-endline analysis on how decision-making changed during the project period.

Figure D.9: **Women’s role in decision making in various areas for the project and comparison area at endline**



Self efficacy around breastfeeding

Quantitative data indicate that mothers in the project area had higher self efficacy around breastfeeding compared to respondents in the comparison area. For instance, approximately 96.7 percent of mothers in the project area compared to 52.5 percent in the comparison area stated they were sure that they could exclusively breastfeed if they wanted to. Furthermore, in the project area a higher percentage of mothers stated they could breastfeed compared to mothers in the comparison area even if they didn’t receive encouragement from their families (93.2 percent compared to 46.2 percent); even if their family tried to give the baby a pre-lacteal (87.1 percent compared to 43.3 percent); and even if their family did not help them with household chores (87.9 percent compared to 44.3 percent).

Household Food Security

Food insecurity is known to be a problem in the project area and affects many households. Several indicators were used for the AS final evaluation to assess food security in the project and comparison areas. For instance, food scarcity in the last 12 months, and the average duration of insecurity were used as indices of household food insecurity. If food security improves in the area, then the percent of households reporting food scarcity should decrease. A *negative* double difference would indicate more improvement in the food security situation in the project area than in the comparison.

The proportion of respondents who reported food scarcity in their households the past year decreased significantly in both groups indicating that overall household food security improved in both areas. However, more improvement was observed in the comparison area where the proportion of households affected by food insecurity decreased by 19 percentage points compared to only 8.5 points in the project area. In other words, almost a third of households experienced periods of food scarcity in the project area compared to less than a quarter of households in the comparison area.

The average number of months that households were affected by food insecurity decreased in both areas as well. The duration of food insecure periods was higher in the comparison area than in the project area. For this indicator, more improvement was observed in the project area, where periods of insecurity decreased on average by 0.8 months compared to 0.3 months in the comparison area.

Table D.25: Household Food Insecurity

	Baseline		Endline		Double difference
	Comparison	Project	Comparison	Project	
Households experiencing food scarcity in the last 12 months	42.6%	40.8%	23.3 %	32.3 %	10.8
Total	2600	2600	1262	2530	
Average number of months duration for food scarcity	4.24	3.77	3.93	2.95	-0.5

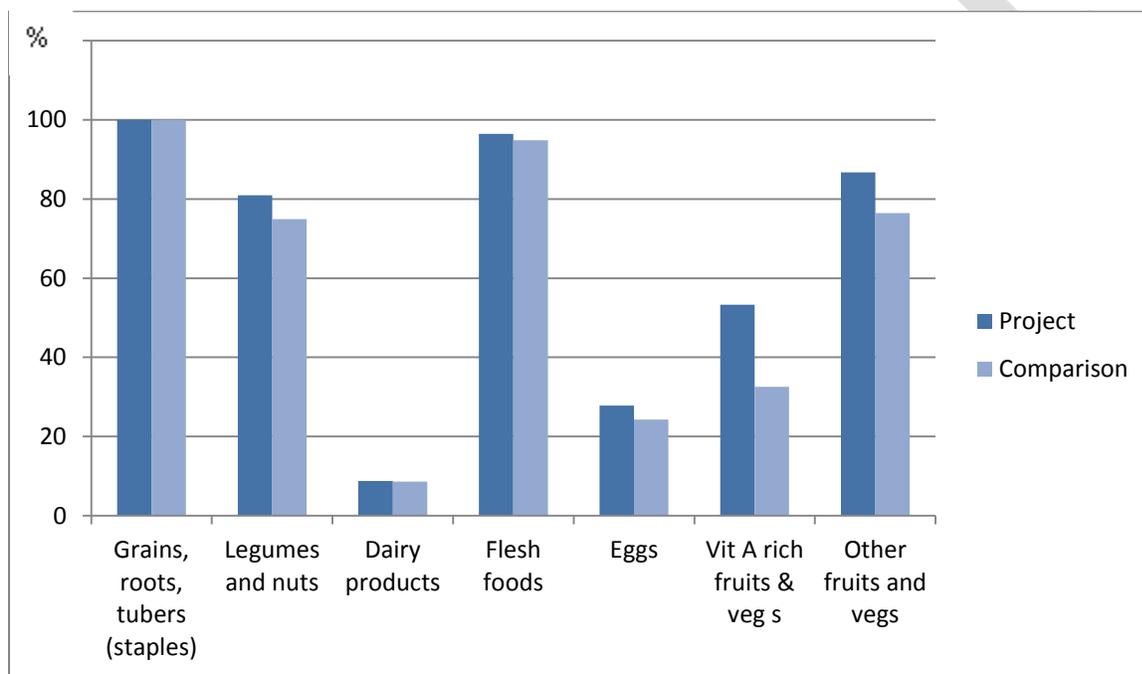
Nonetheless, as indicated on the baseline evaluation, endline data indicate that members of households in both the project and comparison areas had to periodically skip meals; consume less amounts of food in a meal than usual; and substitute other foods for rice. Please note that qualitative data were not collected regarding household food security so no further explanation on these indicators can be given.

The household dietary diversity score (HDDS) was calculated at endline only. The HDDS is based on 12 food groups proposed by FANTA (Swindale and Bilinsky, 2006)²⁹. There is no international consensus on

²⁹Swindale A. & Bilinsky, P. 2006. *Household dietary diversity score (HDDS) for measurement of household food access: indicator guide, Version 2*. Food and Nutrition Technical Assistance Project, Academy for Educational Development, Washington, D.C.

which food groups to include in the scores.³⁰ Thus, the 12 food groups were collapsed into seven food groups and used for the measurement of the HDDS for the AS endline evaluation. This list was based on knowledge of local diet and of the nutrient value of local foods. At the household level, DD scores are mainly used as proxies of food security; they are correlated to the energy adequacy of intakes, i.e. to the ability of the household to cover basic energy needs of its members. They have been shown to be associated with various other measures of household food security related to access. However, they are not directly related to the nutritional status of household members and they only give a valid picture of the dietary diversity at the community level.³¹ Looking at the percentage of households or individuals consuming individual food groups is an important analytical strategy. As can be seen in Table D.26 the data indicate a wider range of foods were consumed in the project area as opposed to the comparison area.

Figure D.10: Frequency of household food consumption by food group



The mean dietary diversity score allows comparison between the project and the comparison communities. The higher the household dietary diversity score, the better the household dietary diversity.³² DD scores are defined as the number of foods or food groups consumed by any member (in

³⁰ Kennedy, G, Ballard, T, & Dop, M. (2010). *Guidelines for Measuring Household and Individual Dietary Diversity*, FAO.

³¹ UNSCN

³² When interpreting the dietary diversity score, it is important to keep in mind that:

- The dietary diversity score does not indicate the quantity of food consumed.

this case the respondent of the final evaluation questionnaire) of the household inside the home (HDDS) over a reference time period. A reference period of the last 24 hours was used for this evaluation and is intended to be a proxy for habitual diet. While the mean household food diversity score for all respondents was 2.90 in the project area and 2.42 in the comparison area, endline data indicate that 86.8 percent of the households in the project area and 72.3 percent of the respondents in the comparison area met household diversity criteria.

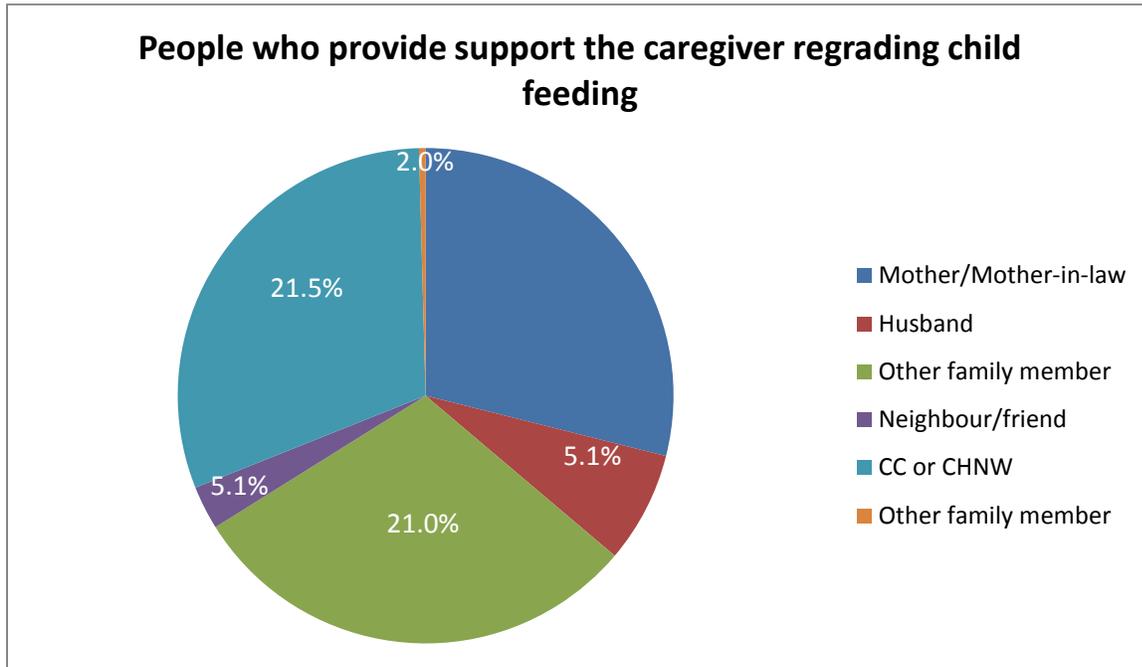
Support by fathers and mother-in-laws

Qualitative findings from formative research suggested that family members are not always supportive towards the mother in terms of her own wellbeing or feeding children under two. Hence, the project promoted family support as a way to improve the nutritional status of children in many of the activities that were implemented (e.g., individual counseling male meetings, father gatherings, grandmother meetings, and workshops for opinion leaders). CCs and CHNWs in particular emphasized the types of support that fathers and mother-in-laws could provide (e.g., buying nutritious foods instead of junk food for the children under two, doing chores the mother typically does around the house to allow her to rest when she is pregnant or helping feed children when the mother is busy).

At endline, approximately 52.6 percent of mothers reported they received support to make child feeding easier. In the project area, mothers reported receiving help from multiple sources. Findings suggest that mother-in-laws, other family members (not husbands), and the CCs and CHNWs provided the most support to mothers in terms of child feeding.

-
- Diet varies across seasons and some foods can be available in large quantities and at low cost for short periods.
 - There may be urban/rural differentials in dietary diversity. Variety is often much greater in urban and peri-urban centers where food markets are adequately supplied and easily accessible.

Figure D.11: People that provide support to caregivers to make child feeding easier in the project area



Qualitative findings suggest that the project activities encouraged more fathers and family members like mother-in-laws to provide support to mothers with children under two years. One community counselor reported in a FGD that,

Last two years, changes came about child feeding and caring. Some fathers go even a step farther than mother, helping babies to eat, encouraging mothers to feed. Some of the fathers don't buy food for babies from shops. When it's time for baby to eat, father comes forward and helps mother feeding baby, taking care of the babies. A guess is that out of 100 fathers, 60 are very aware and conscious about feeding and its care. Sometimes, mother-in-laws asked for food from shop to feed babies, but fathers resisted to bring foods from shop. They encourage mother to feed children to eggs, bananas milk. Even they encourage mothers to eat well and if you eat baby will get more milk. Sometimes they supported mothers in their work. If baby cries, they take into their lap.

Additionally, a CC had this to say about older women,

Grand mothers are also becoming cooperative with their daughter-in-laws. They help mothers do their household chore. They were seen before say to their daughter-in-laws "Finish your job first and then feed your child", and now the scenario is just the opposite. When baby starts crying, she says, "Go and give feed baby first, and then finish your work." Even they now suggest mothers to eat well.

E. Discussion

1. Project implementation

Coherence between activities and objectives

Adjustments were made to approaches and activities which enabled the project to respond well to needs and new opportunities to improve rMN and IYCF practices, especially after the mid-term evaluation. Overall the activities implemented by the project were relevant to achieving the objectives. A few areas of improvement are listed below.

- Project design needs to be specific to circumstances instead of a one size fits all approach. Some activities promoted from HQ might not have been appropriate for the context. Individual counseling worked well but MtMSGs, as implemented, with women making decisions themselves about what to discuss was a foreign concept and it was hard to get the MtMSG facilitators to understand and implement in the prescribed fashion.
- Project SBC communication and activities were based on the *National Communication Framework and Plan for Infant and Young Child Feeding in Bangladesh*³³ that was in-line with Window of Opportunity global objectives. The National “communication framework and plan outlines the role of communication in demand creation for basic services and in the adoption of key life saving behaviours and bringing about social norms change related to IYCF. The plan sets out actions for reaching mothers and families through interpersonal and mass media channels and creating an enabling environment for them to adopt healthy behaviours through social actions and supportive policies. This plan has been prepared for 2010-2013 and will be reviewed and extended up to 2016 to fit the national Health, Population and Nutrition Sector Strategy Plan for the period of 2011-2016.”³⁴ Project design was based on a problem analysis using existing data and targeted to specific behaviors and groups. The project did well to move beyond generalized education but even more specific targeting could have reduced the load of so many different activities.

Implementation of Activities

Coverage of counseling was high with many other activities complementing it. The involvement of many community groups and traditional leaders ensured that not only women, but their families and other community members became involved in efforts to support optimal IYCF and rMN. High exposure to key messages, knowledge of optimal rMN and IYCF, and changes in behavior all indicate success in raising the profile of maternal and child nutrition.

- The project did well to reach families, not only with high coverage, but to reach families at critical times. Counseling followed a schedule of visits at critical times and included a solid

³³Author: Institute of Public Health Nutrition (IPHN), Directorate General of Health Services, Ministry of Health and Family Welfare, Bangladesh

³⁴ Page 1

supervisory system that helped ensure that counseling was specific to the child's current circumstance.

- The project implemented many activities – targeted at households and community level. These appear to be successful at changing some practices and providing support to influence change; nevertheless, it is difficult to assess which activities contributed the most to behavior change. Clearly Individual counseling reached almost all mothers and provided both information and a supportive environment for change. Moreover, male meetings and elder women meetings helped increase family understanding around the importance of rMN and IYCF and let these individuals see an important role for themselves.
- Special campaigns around complementary feeding targeted children at the crucial time of introduction of foods, and MNP distribution added a second mechanism for outreach and support during this critical time.
- Use of demonstrations was critical. Pictures and demonstrations about positioning and attachment with breastfeeding were effective. Demonstrations with home food, especially on the spot was successful to show this was doable, overcome concerns about feeding a child too soon and motivated families to continue the practices on their own. Monitoring visits associated to the MNP distribution also provided an opportunity to assess complementary feeding practices.
- The MNP distribution component of the project, and its use to reinforce complementary feeding practices was a very effective approach which can be replicated in other projects. The project's approach provided a viable mechanism integrating distribution through the EPI center contacts. The project did well to secure MNP supplies despite many obstacles, however the delay of half the project period meant that one cohort of children benefited for only 7 months. The project also developed an effective system for monitoring and follow-up and quality control for the MNP distribution. Nonetheless, the project could have done more to help facilitate linkages with the Ministry of Health and Family Welfare so that distribution was phased directly over to MOHFW instead of being stopped for two months before the final evaluation.
- The project provided intense work and contact at the community level and established a good network of community counselors; however, sustainability issues were not addressed. This needed to have been addressed in the project design stage.

2. Project Performance

The purpose of *Akhoni Shomay* was to protect, promote and support optimum IYCF and maternal nutrition practices, towards a goal of improving the nutritional status of infants, young children and women.

Changes in IYCF and rMN practices

Although no specific targets were set for IYCF indicators, the project was successful in improving four of the ten recommended key IYCF practices. Baseline-endline survey comparisons show that substantial improvement was achieved for four IYCF indicators: *timely initiation of breastfeeding, exclusive breastfeeding, minimum dietary diversity, and increased consumption of iron-rich and iron-fortified*

foods. Some of these behaviors were also some of the most emphasized in project activities evidenced by high coverage in exposure to key messages and most frequently mentioned topics for counseling.

Breastfeeding practices were improved, particularly exclusive breastfeeding. The project achieved slight improvements for decreased bottle feeding and continued breastfeeding at 1 year. Rates of bottle feeding were already low in the project area and these were maintained, while rates of bottle feeding increased in the comparison area. The proportion of women who continued breastfeeding through the first year was already high at the beginning of the project and this high level was sustained.

Initiation of breastfeeding in the first hour appears to show only slight improvement, however this may be more related to how the question was asked and understood in the surveys than a true reflection of practices. If the time period one hour is included in the analysis, then 86 percent of women said they initiated breastfeeding at one hour or less. How much these responses reflect actual practice rather than what respondents know is the ideal practice, is unclear.

Considerable improvement was achieved with complementary feeding practices. Large improvements were noted in all complementary feeding indicators, especially in introducing foods after 6 months and improving dietary diversity which more than doubled. Frequent contact with counselors, high levels of message exposure through a wide variety of channels and venues, and in-home demonstrations using family food all supported this change. The use of micronutrient supplementation (*Sprinkles*) to reinforce complementary feeding practices was also a successful strategy that likely contributed to these achievements. Counseling reached approximately 90 percent of women with children age 0 to 23 months and 77.3 percent of children in the intervention area between the ages of 6 to 23 months reported to have fed food mixed with MNP. It is possible that if the supplementation program continued, the observed increase in the indicator on consumption of iron-rich and fortified foods (69.4 percent) would have been even higher. Positive double differences in three of four complementary feeding indicators suggest more improvement in complementary feeding practices in the project than in the comparison area.

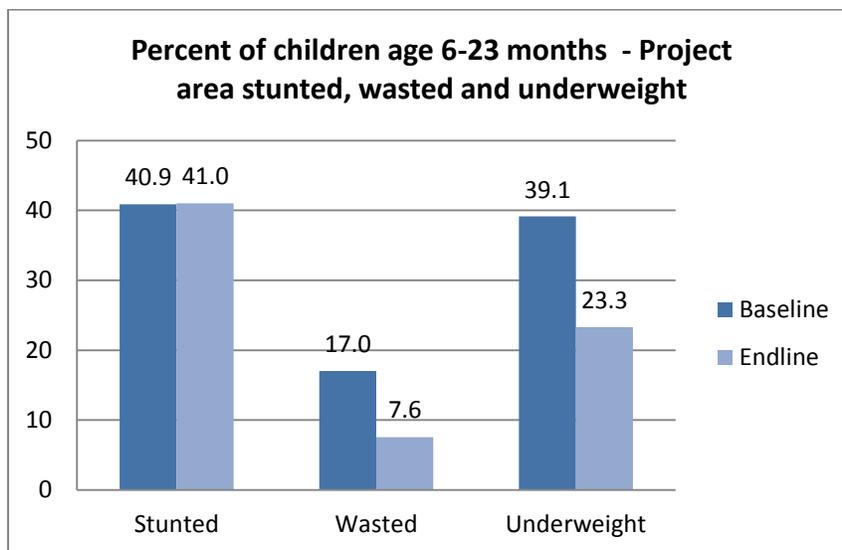
Less data is available to assess project performance in changing practices related to maternal nutrition and care. No baseline measures or targets were set for these practices. Qualitative findings indicate that mothers and family members were well exposed to key messages related to maternal nutrition and care especially the need to avoid hard work, take rest and eat more nutritious and a wide variety of food during pregnancy.

Changes in nutritional status among children 0 to 23 months of age

The project had some positive impact on the nutritional status of children, especially in children age 6 to 23 months. Significant improvement was documented for two of the three nutritional indices (i.e., underweight and wasting). The proportion of children wasted was reduced by more than half, and the proportion underweight reduced by more than a third.

The indicator for chronic malnutrition, the percent of children stunted, did not change. However, this is in the context of increased rates of stunting in the comparison area and national trends for the same period.

Figure E.1: Summary Table: Prevalence of underweight, wasting and stunting at baseline and endline in the project area



Factors that should be taken into consideration when assessing changes in nutritional status among children 0 to 23 months of age

It should be noted that all three anthropometric indicators showed a positive double difference in the 0-5 month age group. This suggests that other factors such as maternal care, access to health services and low birth weight may have affected children right from birth. Thus, for all the nutritional indicators, a question can be raised about how much low birth weights and mothers' nutritional status are a factor affecting the child's nutritional status. When nutrition data for all three nutritional indices are disaggregated by age group, little change is seen in nutritional status of infants 0 to 6 months, and larger changes seen in the older age groups.

The comparison area is known to have NGO programs targeting women's health and early infancy. BRAC, Population Services Training Center (PSTC), SWANIRVAR, PROTTASHA, MARIE STOPES are working in Katiadi. These organizations are working on a variety of programs ranging from Maternal Newborn Child Health (MNCH) program, Community-based Integrated Management of Childhood Illness (C-IMCI) program, Smiling Sun Clinic program etc. And these programs are primarily working with women and children to increase utilization of ANC/PNC checkups, new born health and communicable diseases to improve overall health and nutrition. Hence there is major improvement in terms of healthy pregnancy outcome, improved feeding practices of children under two, increased access to basic health which reduces child mortality and morbidity. And thus, creating sustained positive changes of health and nutrition of women and children.

Additionally, an important dynamic in Bangladesh that undermines nutrition outcomes, is seasonality. Levels of malnutrition (wasting and underweight) follow a seasonal tendency, increasing during the summer months and decreasing in the winter months. Baseline and Endlines were done in two different seasons (BL done in summer and EL in winter). Thus, it is unclear how much of the change in nutritional status is due to seasonality.

Lastly, it should be noted that the project was implemented for only two years which means that no children in the survey completed the project cycle of the last half of pregnancy through the age of two years. Project activities were also stopped for 6 weeks before the final evaluation took place. Changes in practices take time and particularly for measurable nutritional impact this is a very short project cycle.

3. Other Influential Variables

Women's empowerment and social capital

Women's empowerment and social capital are considered crucial for improving nutrition outcomes. While women's decision making and mobility continued to be limited in the project area, results indicate greater involvement of women in women's or community groups in the project area. Inclusion of fathers/men increased their interest and involvement in child rearing and capitalized on their strong desires and dreams for children to grow healthy and become well educated for a good future. Likewise, work with elder women in households increased their understanding, and in many cases turned them from potential obstacles to be supporters of the new practices. Given their seniority, elder women also had influence on the men to ensure a supportive environment.

Influence of household food security issues

Bangladesh is ranked 146th out of 169 countries in the 2012 Human development Index (HDI), and 68th in a list of 79 countries in the 2012 Global Hunger Index (GHI). Bangladesh's high poverty and undernutrition rates are exacerbated by frequent natural disasters, gender equalities, and high population density. In this context, household food security is likely to influence efforts to improve feeding practices, especially complementary feeding, and to affect nutritional status ; nevertheless, child feeding practices improved despite food security issues. It would be good to compare a child food diversity index with a household food diversity index but this is not possible.

Socio economic indicators and indicators poverty

It would have been useful to have a composite some socio-economic status indicator to assess before after trends in both areas and also to check comparability of samples. It would also be useful to analyze whether the project reached and improved the situation of the poorest groups. SES data were collected but not analyzed.

4. Attributing changes to the project

Evaluation results indicate that and IYCF practices and nutritional status have improved in the project area and findings from the qualitative research suggests that the project has played a major role in improving these practices.

- Double difference results, show much larger gains in the project area than in the comparison area, especially for IYCF practices suggesting that changes can be attributed to the project.
- Nutritional status also improved more in the project area than in the comparison area, even though the percent of households affected by food shortages food security appears to have improved more in comparison area.
- Quantitative findings are supported by qualitative findings both on changes in IYCF and rMN practices and exposure to messages. Mothers, fathers and mother-in-laws and community members are knowledgeable regarding feeding recommendations and health reasons. And also practical aspects such as attachment for breastfeeding, quality and amounts of foods, and more rest for pregnant women.

5. Lessons Learned

The Window project in Bangladesh offers some valuable lessons learned:

- Counseling through home visits helped build child care skills and solve postpartum problems. The findings were mixed for mother-to-mother support groups. Mothers who participated in AS appreciated learning practical skills regarding IYCF. Working with counselors on skills helped them gain confidence.
- Multisectoral strategies are needed to combat malnutrition. To improve nutrition practices and ultimately nutritional outcomes, it takes more than just focusing on nutrition specific activities.
- Use of multiple channels and consistent messaging helped develop positive behaviors and promote and sustain individual, community, and societal behavior change.
- Child morbidity due to communicable diseases (fever, pneumonia and diarrhea) should be accounted while designing program interventions. Socio economic status, transportation, accessibility and availability of essential health services are crucially important issues to consider for referral linkage.
- It is critical to work with fathers and mother-in-laws in Bangladesh to improve household dynamics and family support for mothers of children under two.
- It is possible to improve women's empowerment for project workers such as was the case for CCs and CHNWs in Bangladesh, through nutrition programming.
- Because of workload issues, initial plans to train MOHFW staff was reduced to just an "orientation." Availability of MOHFW staff and especially their availability at their stations in the project location was a challenge.
- There is a need for sustainability planning from the beginning of a project. A large missing piece in the design stage of AS was planning for sustainability. By the time of the final evaluation, MtMSGs were already discontinued and counseling sessions were continuing in an informal capacity. Furthermore, at least two-thirds of the POPI field workers who benefited immensely both personally and professionally from their experience with the project moved to new jobs outside the area or sought jobs with other NGOs. Most importantly, Akhoni Shomay should have provided a vital link for the MOHFW to the local community and there was insufficient time or planning for a smooth transition once the project closed.

G. Recommendations for Future Programming

- Mothers and families really appreciated the efforts of the CCs and CHNWs. Individual counseling was an effective approach in Bangladesh.
- MNP dissemination in conjunction with complementary feeding messaging was effective and offers an approach with good potential to integrate into other programs.
- The work with the local government (Union Parishad) appears to be a very effective approach to raise the profile of nutrition and child health in general and should be expanded upon for future programming.
- All projects should include a sustainability strategy that should be developed at the start of the project. Partners and communities should have clear understanding of what is entailed from the very beginning.
- The Government of Bangladesh is committed to reducing malnutrition among children and women. In light of this situation, nutrition has been made a priority for the proposed sector programming and a variety of key strategies and actions are currently being pursued. The Government of Bangladesh is planning to accelerate the progress in reducing the persistently high rates of maternal and child malnutrition by mainstreaming the implementation of nutrition interventions into health and family planning services, scaling-up the provisional area-based community nutrition program, and updating the National Plan of Action on Nutrition. The focus will be to improve the capacity of delivering nutrition services and provide monitoring and evaluation of interventions at periodic intervals

Further analysis is suggested for the survey data sets to explore: the relationship between participation in program coverage activities and changes in child feeding practices; the influence of food insecurity on complementary feeding practices; the relationship between improved practices and nutritional outcomes; any correlations between women's empowerment and social capital and changes in child feeding practices.

Appendix 1: In-country detailed work plan for Bangladesh, February 2009

Introduction:

The Window of Opportunity project is a CARE global initiative that focuses on promoting, protecting and supporting infant, young child and maternal nutrition in order to improve the nutritional status of children under two. Programming is being supported through a central grant in Atlanta, which provides resources to six countries in three regions. Technical support for communication, advocacy, monitoring and evaluation, and capacity building is provided through Atlanta with a focus on designing an appropriate nutrition model for addressing barriers that prevent optimal nutrition.

CARE Bangladesh has been designated a country office to support Window activities from April 2009 through December 31, 2011. Within Bangladesh, the Window project will be aligned with a food security initiative funded by the European Commission that focuses on the ultra poor. Activities for the EC FSUP began in January 2009 and will be completed in December 2014. The four objectives of the EC FSUP project are to:

- Increase inclusion and capacity of 55,000 women and their dependents from ultra-poor households, to actively engage with development processes with greater support from their communities and local level institutions
- 55,000 ultra-poor households (and particularly women) have additional economic opportunities and income, improving their access to food and household food-security round the year.
- 55,000 ultra poor households have reduced vulnerability to food insecurity and poverty and improved resilience to quick and slow onset disasters
- Improved and equitable utilization of food as well as reduced malnutrition among women and their dependents in 55,000 ultra poor households

Through integration into the EC FSUP, Window will have the opportunity to benefit from outcomes related to economics, empowerment, risk mitigation and management, as well as interventions related to agriculture.

CARE Bangladesh has planned for Window to prioritize communication aspects in particular strengthening interaction and engagement with mothers and community members through BCC strategies to improve nutrition. This focus was encouraged also through recommendations from other organizations including UNICEF and ICDDR, B and draws on CARE Bangladesh's strengths organizationally with regards to community mobilization and empowerment. In addition, it is a key component to the National Bangladesh Infant and Young Child Feeding Strategy.

Data reviewed

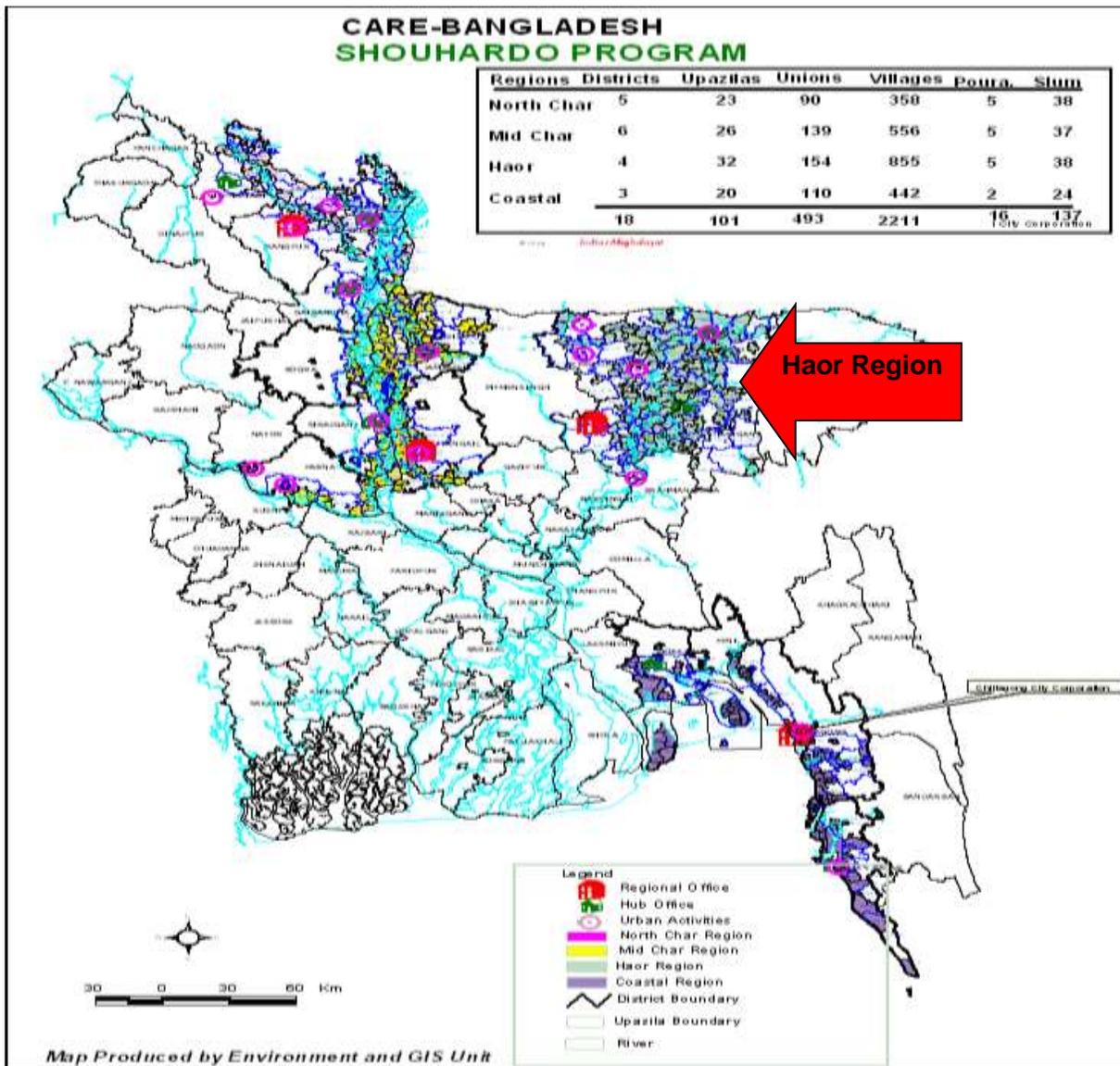
Data that were reviewed included the Bangladesh Demographic Health Survey from 2004, baseline from SHOUHARDO performed in 2005, the Bangladesh Governments Health and Nutrition Strategy compiled by Concern Worldwide and the CARE Bangladesh – Health and Nutrition Strategy. A baseline for Window of Opportunity programming will be facilitated early in programming independent of the European Commission Food Security for the Ultra Poor program or integrated into.

Given that this was a situational assessment, there was no data available specific to identified program area on the enhancers and barriers to infant, young child and maternal nutrition practices from formative research for review at this time. Anecdotal information was received from stakeholders during one on one meetings and meetings with current CARE staff working on SHOUHARDO. Other documents that were reviewed included:

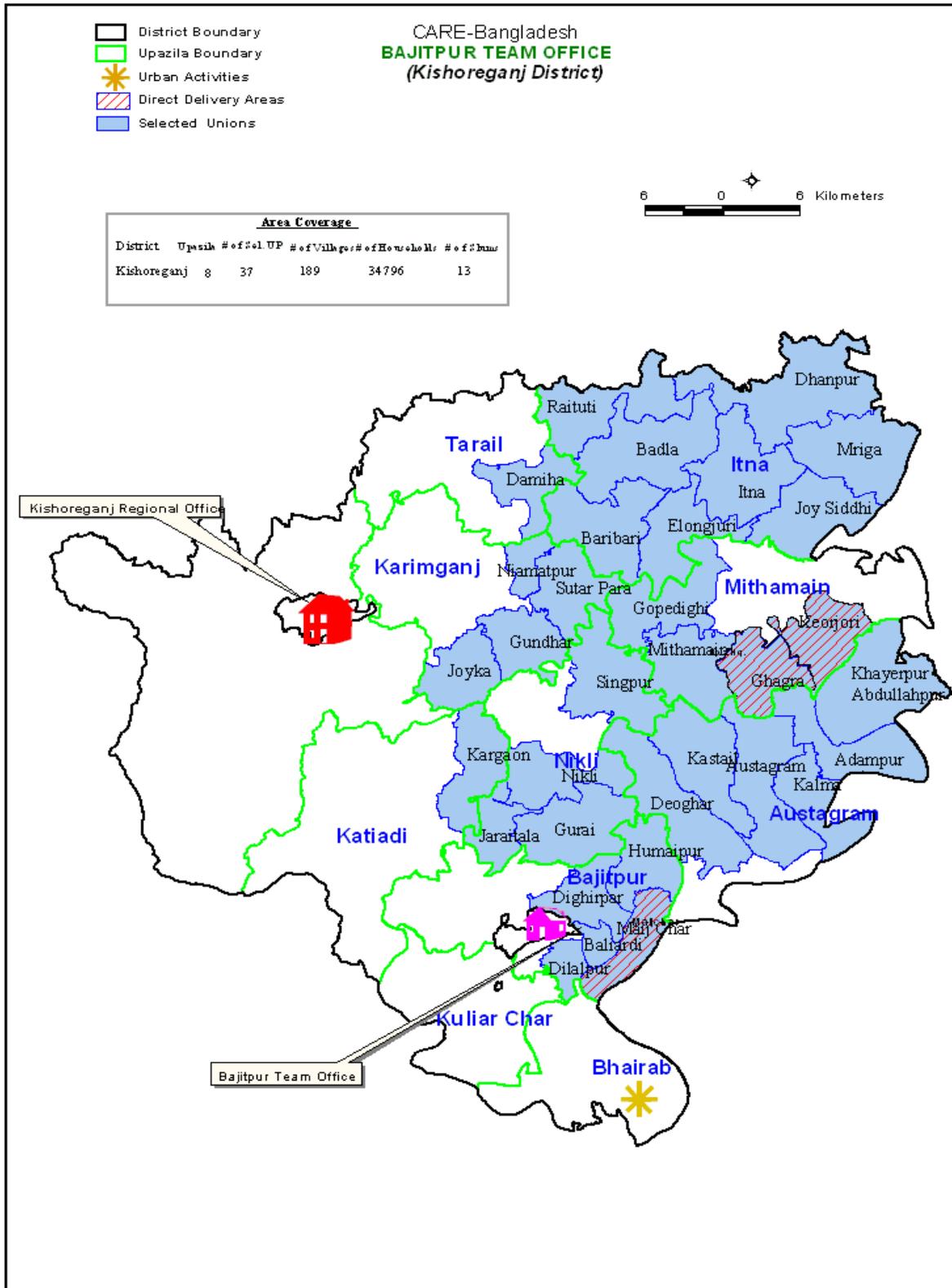
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Program Site Information:

The districts selected for implementation for the European Commission Food Security for the Ultra Poor (EC FSUP) reflect some of the worst nutrition and poverty context country wide with some of the greatest food and health service insecurity. In the Haor region, the following three districts have been considered for EC FSUP implementation: Netrakone, Kishoreganj, and Sunamganj. Based on recommendations from the January 2008 Lancet series on malnutrition, article 3 “What works? Interventions for maternal and child undernutrition and survival” (Bhutta, Ahmed, et al, 2008), which suggests focusing on one district and using the outcomes for replication and going to scale in other districts. Given this suggestion, the Window program has selected one sub-district to focus on. In a meeting with Dr. Tahmeed Ahmed at ICDDR, B co-author of the article, one sub-district (upazila, approximate population 250,000) at 70% coverage would suffice given the population density and size. The upazila Karimiganj has been identified and is located within the district of Kishoreganj. Confirmation with the National Nutrition Program (NNP) will need to take place in order to ensure that duplication of programming will not take place per a recommendation by the NNP.



Map of Haor Region, Bangladesh (ShouharDO, 2006)



Map of Karimgani Upazila in Kishoreganji District

1. Estimated population in the area

The estimated population for the three districts of implementation for the EC FSUP project in the Haor region of Northeast Bangladesh includes 7,355 villages (1,794 in Kishoreganj, 2,782 in Sunamganj, and 2,779 in Netrakona), with a total population of approximately 6.6 million (49% women).

The target groups for the EC FSUP project are women from 55,000 extremely poor households within the most remote and vulnerable communities, and their dependents. The final beneficiaries are approximately 280,000 children, women and men. In addition, it is expected that the total population of around 196,000 extreme poor people³⁵ in that region will greatly benefit from the project's empowerment and knowledge sharing initiatives.

Window will specifically focus on one upazaila – Karimganj in Kishoreganj District where the total population is 258,266. Specific focus will be on supporting approximately 25,413 ultra poor women of reproductive age in their ability to provide optimal nutrition for themselves and their infants and young children. The total target number for infants and young children under two is roughly 15,496.

2. Overview of the current health status of the target population

Based on data collected from the 2004 Bangladesh DHS the mortality rates are as follows:

- Maternal mortality: 320-440 per 100,000 live births
- Under five mortality: 88 out of 1000
- Infant mortality: 65 out of 1000
- Neonatal mortality: 41 out of 1000

In the proposed EC FSUP districts, a mother's level of education is inversely related to her child's risk of dying and childhood mortality rates are highest in the lowest wealth quintile.

According to the DHS, throughout the districts diarrhea prevalence is highest in children 6-24 months. For all cases reported there exists a minimal difference between sex and residence with regards to diarrhea prevalence. One in six children who present with symptoms of diarrhea are taken to a medically trained health provider.

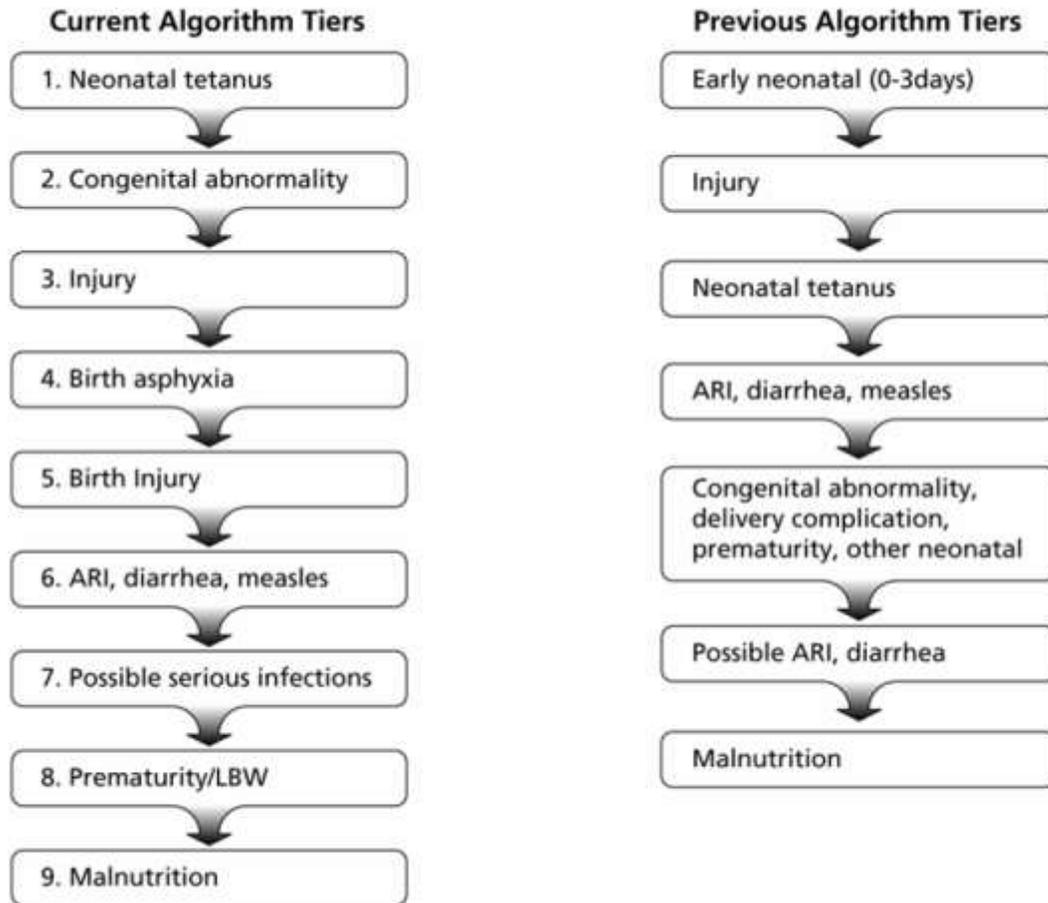
The following is a table presenting the top health issues related to neonatal and mortality in children under 5 years of age.

³⁵ On an average 34% of the targeted districts live in extreme poverty, WFP Poverty Map

Region/Division	Health Issue	Percentage
Haor	Neonatal Mortality	
	Serious Infections	33%
	Birth Asphyxia	21%
	Pre-maturity/LBW	11%
	Acute Respiratory Infection	10%
	Under 5 Child Mortality	
	Serious Infections	31%
	ARI	21%
	Birth Asphyxia	12%
	Diarrhea	7%
	Prematurity/LBW	7%
	Malnutrition association	22%

The following is a flow chart from the 2004 Bangladesh DHS laying out the algorithm for assigning the causes of death.

Figure 9.1 Flow Chart Showing the Different Tiers Used in Assigning Cause of Death Based on Algorithms, and Comparison with Previously Used Algorithms



Source: Baqui et al., 1998; Baqui et al., 2001

Health System:

The Ministry of Health and Family Welfare (MOHFW) is responsible for health policy formulation, planning and decision making within the Government of Bangladesh. The MOHFW is divided into two Directorate Generals that include health services and family planning. Both are responsible for providing technical guidance and support on implementation for their respective focuses. Health service implementation and delivery of care services begins at the district level and trickles through to the upazila level. The upazila and union are considered the primary levels of delivery for care.

At the community level, health assistants (HA) and family welfare assistants (FWA) are the primary providers of maternal and child health services. They operate through community clinics and private homes of community members when community clinics are absent.

Quality of health care service delivery through the Government of Bangladesh has been the primary focus. In 2001, a study facilitated by the Government of Bangladesh highlighted the following findings regarding patient's thoughts on health care service delivery:

- Services are only offered about 4 hours out of the day
- About a third (28.2%) of all users were not satisfied with the time they waited to receive care
- Average consultation time between the care provider and patient was 2.5 minutes for satisfied patients and 1.5 minutes for dissatisfied patients

Government of Bangladesh Health and Nutrition Programs:

The Health, Nutrition, Population Sector Program (HNPS) is a US\$5,405,000 dollar funded project that focuses on increasing the availability and utilization of user-centered, effective, efficient, equitable, and affordable quality services that include Essential Service Packages that target improving hospital services, nutritional services, and other selected sectors. A total of 31% of the project is funded through external donors. Within the development policy framework of the government, HNPS aims to achieve sustainable improvements in health, nutrition, and reproductive health with an emphasis on reducing severe malnutrition, preventing mortality and fertility, promoting healthy lifestyles, and reducing the impact of environmental, economic, social barriers, as well as others in achieving optimal human health within poor and vulnerable populations.

The National Nutrition Program (NNP) is a credit program supported by the World Bank. NNP's purpose is to achieve sustainable improvements in birth weights and in the nutritional status of vulnerable groups through the adoption of new behaviors and the appropriate use of nutrition services by the individual and household. Currently, NNP is providing services in 109 Upazila with a goal of coverage in 260 upazila by 2011.

Child and Maternal Nutrition:

According to the 2004 DHS throughout Bangladesh, mother's education and the wealth quintile are significantly related to the health and nutritional status of children. Furthermore, the national prevalence of malnutrition in Bangladesh remains among the highest in the world (State of the World's Children, 2004). Persistent malnutrition in Bangladesh contributes not only to widespread failure towards meeting the first millennium development goal (MDG) of reducing poverty and hunger, but also undermines efforts to reach MDG's related to maternal and child health, HIV/AIDS, education and gender equity (Nutrition Surveillance Project Bulletin no.17, May 2006, IPHN, HKI). According to the same Helen Keller International (HKI) Bulletin, there have also been increases in stunting from birth through 35 months, since the inception of the MDG's.

A woman's height can be used to predict her risk for having difficulty in pregnancy given the relationship between height and pelvic size. Women's risk for giving birth to low weight infants also increases among women who are short in stature. The national level mean height for women is 150.5 cm with 16% of women falling below the cut-off of 145cm. This statistic has remained stagnant since the 1996-

97 Bangladesh DHS (Bangladesh Health, Concern). On the other hand, the mean body mass index (BMI) has increased steadily from 18.8 to 19.7.

The Government of Bangladesh does not promote growth monitoring promotion (GMP) on a national level. Currently, the NNP is responsible for oversight of GMP. However, due to budget limitations NNP has been unable to achieve national level coverage. Planned expansion could result in 50% coverage nationally. Funding for the NNP is provided by the Government of Bangladesh and World Bank through the HNPS (Health and Nutrition Population Service Project).

The 2006 HKI and IPHN survey demonstrates that 68% of children under five years of age are anemic with the highest prevalence, 92% in children 6 to 11 months. In populations of women of reproductive age roughly 40% of adolescent girls, 46% of non-pregnant women and 39% of pregnant women suffer from anemia. Through HKI and IPHN's surveillance there has been a noted increase in anemia incidence from 2001 to 2004.

Access to land and resources are important for attaining food security. In a report by HKI, nearly half of all rural households including 41% of the wealthiest households do not have access to cultivable land. In households where the size of the agricultural and homestead land is smaller, stunting prevalence among under five children significantly increases. Households in rural areas spend roughly 60% of the household expendable income on food with less than 11% going towards the purchase of animal source foods. The period of time before the harvest season is the lean time. It occurs twice a year and usually lasts one to two months.

There exists an inequity between the highest quintile for wealth and lowest. Children in the poorest households are twice as likely to be moderately malnourished and three times more likely to be severely malnourished. Mothers from the poorest households are nearly three times more likely to have BMI less than 18.5.

Nutritional Status of Children under five

	Bangladesh 2004 DHS Data	Shouhardo 2005 Baseline
Stunting	43% (improvement from 55% 1996/97)	58.9% (severe 27.4%)
Underweight	48% (improvement from 56% 1996/97)	60% (severe 22%)
Wasting	13% (decrease from 10% in 1999/2000)	14.5% (severe 1.9%)

3. Other factors that influence health

Economic Condition:

The poorest of the poor are the most adversely affected by economics and are the most marginalized through lack of consistent and equitable access to government services (CIET Canada and MOHFW, The Third Service Delivery Survey 2003, Final Report, March 2004). Between 1999 and 2003 the rating of

government services among the very poor declined. The Bangladesh MDG Progress Report from 2005 reports that income inequality in Bangladesh has been rising with the lowest three quintiles of wealth receiving about two-fifths of income. In order to achieve any reductions poverty as laid out in MDG 1, the Government of Bangladesh is trying to decrease the proportion of those in extreme poverty from 28% in 1990 to 14% by 2015. The country to date has made some progress and has been able to lower overall poverty from 58.8% in 1991-92 to 50% in 2000. Rural areas are doing better than urban in terms of reducing the depth and severity of poverty.

From the Bangladesh National Health Accounts - 1991-2001, 49.8% of the population is income poor with a total public expenditure for health and nutrition program sector at around 1.1% of GDP, which is one of the lowest in the world. Each year the total annual per capita spending on health is estimated to be about US\$12.2 (US\$3.2 is government spending, US\$1 international donors, US\$8 individual household contributions) with 64% of total health expenditures being generated by households; this represents an investment far below the minimum required to deliver an essential services package.

Social and cultural beliefs and characteristics:

Throughout Bangladesh there is great social inequity and access to services between wealth quintiles and levels of education. This equates to individuals represented in the highest percentiles receiving the greatest services and best care. As a result, many in the lower wealth quintiles and education brackets suffer from more health related morbidity and mortality.

There is great social inequity between the sexes with men leading on household decision making even during times of migration. Domestic violence is a serious issue. The maternal mortality ratio is 320-440 per 100,000 live births with a high percentage being attributed to lack of emergency obstetric services. However, nearly 14% of these deaths are attributed to injury and violence. Approximately half of adolescent girls (15-19 years) are married and 57% of them become mothers before the age of 19; nearly half of those adolescent girls are malnourished. The maternal mortality rate is 30-50% higher among adolescent girls (MDG Progress Report 2005, GOB and United Nations Country Team).

Below is a bulleted list of barriers that were solicited from a meeting with current SHOUHARDO technical coordinators:

- Men leave annually for work. This migration creates challenges financially for women in the community.
- Poor health infrastructure at the community level that includes lack of infrastructure for growth monitoring.
- Current community level health workers including both the family welfare and health assistants, neither are providing or encouraging nutrition support and counseling for communities.
- The enabling environment to support household education and counseling is not optimal.
- Male involvement is critical, but problems exist through the lack of targeting in projects.
- There is poor community level capacity to address breastfeeding, complementary feeding and water and sanitation.
- Prelacteals with honey are provided in some areas.
- Sources of protein including eggs are not provided to children.

- Currently, there exists no budget allocation from the government for nutrition programming.
- Birth spacing creates challenges for families, as there are often more than one or two children under the age of 5 in a household.
- Males are priorities in the family from infancy on into adulthood. This includes with food and meals.
- Natural disasters including monsoons create numerous challenges for projects. Mothers should be a focus during risk mitigation and support activities, as they are often overlooked though they are the primary caregivers.
- Mothers do not recognize their own needs in terms of care for themselves and in regards to their families.
- Men often do not appreciate the value of women.
- The health system is not supportive towards mothers with any of services including ANC.
- Motivation and accountability are poor within the health system. Remoteness of communities increases the challenge.

Influential decision-makers and relevant networks:

On a national level, the MOHFW leads in sustained decision making. Regarding advocacy, CARE's engagement with MOHFW on the national and district level will be important. Specific areas for advocacy had not been identified at the time of the situational analysis.

A nutrition working group at the national level comprising representation from UNICEF, Save the Children, the Breastfeeding Center, and other NGO's meets regularly and is currently chaired by UNICEF. Meetings focus on moving towards achieving strategies outlined in the Bangladesh National Infant and Young Child Feeding strategy that was adopted in 2007. The outcomes of these meetings are joint and are linked to collaborative efforts with the NNP when their meetings are held. Unfortunately, NNP meetings are not held quite as regularly, so follow through on action points is sporadic and outcomes not as successful as originally conceived.

The Gates funded AED lead "Alive and Thrive" infant and young child nutrition program will begin implementation in Bangladesh through BRAC, Save the Children US and UK, and World Vision. Their funding streams will be large and it is planned that they will go to scale. CARE will need to engage AED and others to identify an appropriate area for synergy and where value can be added.

Potential geographic, economic, political, educational and cultural constraints unique to the population:

Climate change is having a great impact on Bangladesh and will continue in the coming years. Already, much of the country is under water and the country office relies on alternative means of transportation including speed boats to access communities. Though the district of Kishoreganj is not near the coastal plains, it is affected by run-off from the Himalayan mountain range in the north and flooding that comes from the monsoons hitting the south coast. Moving forward, the limitations this may place on programming and when and how communities can be accessed will need to be taken into consideration.

4. *Current status and overall quality of health care services at the site (US NGO, MOH, local NGO, private sector, traditional providers – include barriers to access and care)*

Overall quality of health care services is not consistent throughout the Karimganj upazila. Areas that are hard to reach and lack access to health services rely on health assistants and family welfare assistants, who are government employees. In communities that lack health infrastructure such as community clinics rely on holding activities at private households. The primary focus of these assistants is immunization and family planning.

CARE has focused on building growth monitoring promotion specifically in the SHOUHARDO project sites. Growth monitoring is performed by community volunteers. Within the health structure there are identified community nutrition workers; however, due to lack of funding they only operate in upazila's where NNP is active. Where CARE and NNP do not support implementation of growth monitoring, there is poor or nearly non-existent activities. Poor national monitoring and evaluation systems and lack of means to increase capacity of health workers and/or volunteers is a large hindrance.

5. Programmatic priorities identified or confirmed as a result of baseline findings:

Given that the baseline has not been facilitated, the following highlight programmatic priorities for the CARE Bangladesh country office. Due to the high density of the population and capacity of staff and resources available through the country office, a country office priority includes going to scale in their project sites. The priority populations identified by the country office include working with marginalized women, targeting the ultra poor communities, marginalized urban populations such as sex workers, and addressing risk mitigation and management.

6. Describe other CARE projects in the area: Please review and add anything further:

In the district of Kishoreganj, SHOUHARDO will remain active until May 2010. The country office will submit a proposal for a second round. Window will be aligned with the EC – FSUP project, which will be implemented from January 2009 to December 2014. Other programs currently in start up include the signature programs – Mother's Matter and Shiree funded by DFID, which is a nutrition program being implemented further north. There will not be overlap with Shiree programming, but opportunities are being explored to improve synergy between Mother's Matter and the Window of Opportunity Program.

7. Describe related projects that other agencies may be implementing in the area:

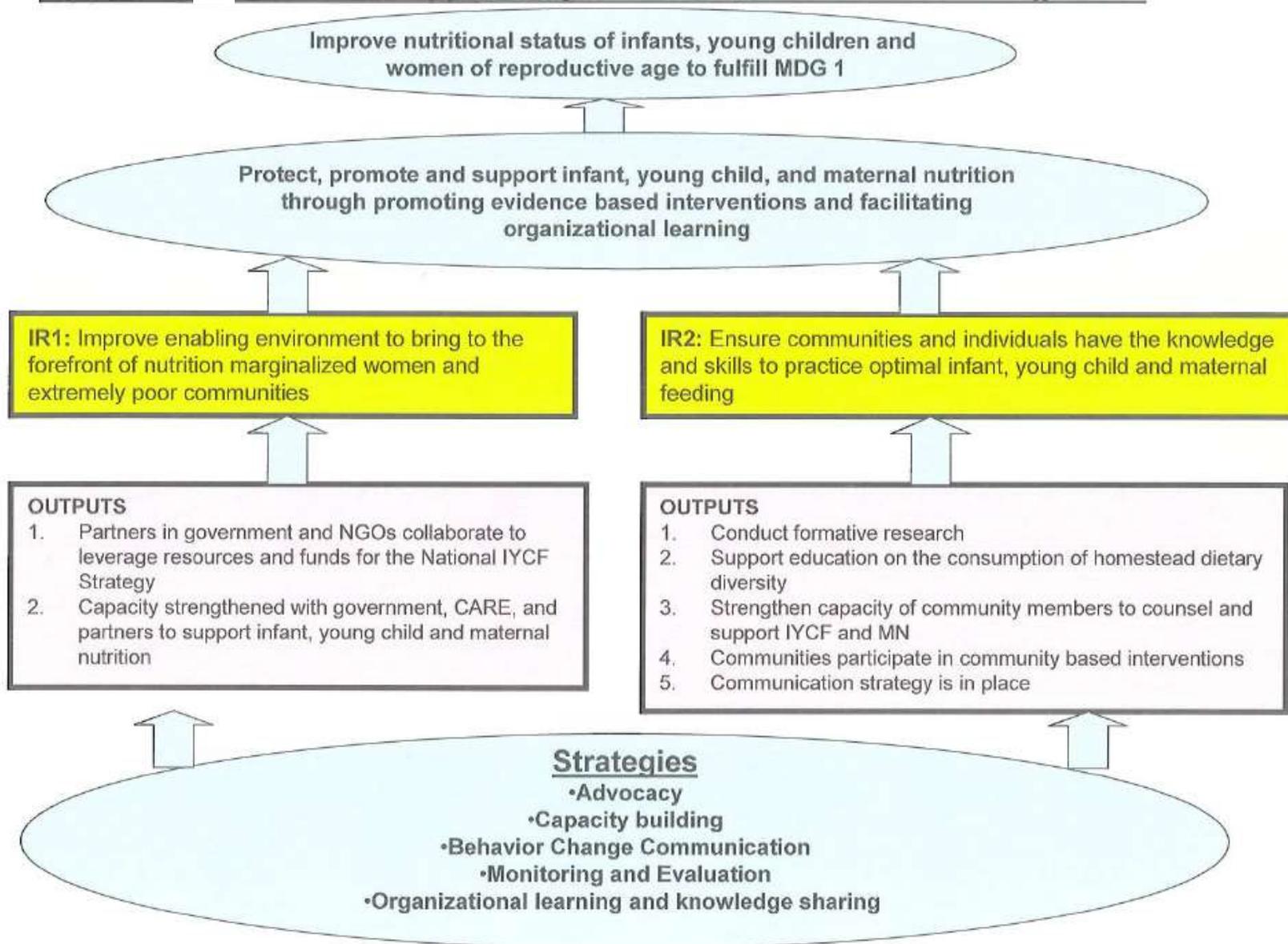
The organizations that have been identified in Koshoreganj include BRAC, Concern Worldwide, and NNP. Brac is working with communities on microcredit projects. Concern Worldwide in the last 5 to 10 years has been engaged in livelihoods initiatives and NNP is supporting national nutrition activities.

8. Nature of emergencies:

Monsoon season lasts from March to October with the worst in June, July and August. Flooding from the Himalaya Mountains in the north can exasperate the situation in particular for communities that are impacted by both rains from the monsoon and run off from the melting of the snow pack. Access to food becomes a priority due to the lack of the ability to raise crops. This exasperates malnutrition in many of these areas.

Bangladesh lies on earthquake fault lines. The country office has included evacuation and response strategies in there emergency preparedness plan that include field office and country office headquarter strategies.

(Appendix: 2 Window of Opportunity: Results Framework CARE Bangladesh)



Appendix 3: Description of Akhoni Shomay activities

1. **Grandmother meetings** – Mother-in-laws in Bangladesh have tremendous influence when it comes to IYCF and rMN practices in their family. During Akhoni Shomay grandmother meetings were held monthly and facilitated by AS community mobilizers & community health and nutrition workers. The purpose of the meetings was to enhance knowledge and encourage mother-in-laws to be supportive towards their daughter-in-laws in their households to practice optimal IYCF and rMN.
2. **Male meetings**-As women are unlikely to be the key decision-makers within their families regarding food purchases, activities also need to reach men. Male meetings were facilitated by AS community mobilizers. The aim of these meetings was to educate fathers on optimal IYCF and rMN practices, and persuade them to be supportive to their wives.
3. **IYCF individual counseling sessions at vaccine centers**- AS was implemented in areas that are hard to reach and lack access to health services. These communities rely on health assistants and family welfare assistants, who are government employees to provide basic services. In communities that lack health infrastructure such as community clinics, activities are held at private households. AS trained 36 Health Assistants and 48 family welfare assts. (MOH frontline workers) to promote/ counsel mothers on IYCF and rMN at 241 vaccination centers. The primary focus of these assistants is immunization and family planning; however, AS encouraged and trained them to promote optimal IYCF and rMN practices. Joint supervisory visits were provided by MOHFW and AS.
4. **Father's Gatherings**- were organized along with Local Government and the MOHFW. Each gathering has anywhere from 100 – 150 fathers in attendance. During these meetings the fathers are encouraged to reflect and share their experience while performing their roles as fathers and family role towards supporting their wives. Over the span of the project approximately 26 gatherings occurred.
5. **Mother's Gatherings**- were also organized by AS with assistance from Local Government and the MOHFW. As with the father gatherings there are about 100 -150 mothers in attendance at each gathering. At these meetings women are encouraged to problem solve and come up with ways in which they can overcome barriers to optimal IYCF and rMN practices. Over the span of the project approximately 26 gatherings occurred.
6. **Workshops for opinion leaders**- In 2011 and again in 2012 AS held workshops for a group of opinion leaders- 275 Imams, 275 informal birth attendant and 275 village doctors. The aim of these meetings was to educate the participants on optimal IYCF and rMN practices and conduct participatory reflection activities to solicit ideas on how they could help support optimal IYCF and rMN practices in their communities.

7. **Adolescent Girl Campaign-** was organized two times (2410 adolescent girls participated in the campaign in 2011 and 1205 girls participated in 2012). Each campaign lasted six days. The 2011 campaign focused on optimal breastfeeding practices and the 2012 campaign focused on optimal complementary feeding practices. According to data from UNICEF, approximately half of adolescent girls (15-19 years) are married in Bangladesh and 57% of them become mothers before the age of 19; nearly half of those adolescent girls are malnourished. AS aimed to create a cadre of peer educators with their campaigns . Source: UNICEF (2009). Child and Maternal Nutrition in Bangladesh. Available at: [www.unicef.org/bangladesh/Child_and_Maternal_Nutrition\(1\).pdf](http://www.unicef.org/bangladesh/Child_and_Maternal_Nutrition(1).pdf)
8. **School sessions** took place in high schools with girls in 9th and 10th grade. Each group of girls was visited every three months and educated on optimal IYCF and rMN practices. The girls were encouraged to deliver IYCF & rMN key messages to family members.
9. **Work with the Union Parishad-** The upazila and union are considered the primary levels of delivery for care. The UP is the local level government that reports to higher government agencies. The UP is in charge of running development activities at the local level. AS has been worked closely with unions throughout the implementation area to improve basic health and nutrition service and accessibility. The addition of IYCF individual counseling at the vaccination centers is the result of this partnership.
10. **Addressing post-partum depression-** In December 2011 Emory and Centers for Disease Control and Prevention (CDC) colleagues suggested that postpartum depression may be affecting IYCF practices. It was decided that Akhoni Shomay should train the CCs and CHNWs on postpartum depression and how to offer support. CARE USA developed a training guide that provides an introduction to the topic and prepares counselors to interact with family members to encourage them to offer their support to a mother. In March 2012 all the CCs received a one-day training. Community counselors are now incorporating the topic of PPD into their work. A training guide was developed for this activity and is available upon request.
11. **Multiple Micronutrient Powder (MNP/ Sprinkles) distribution-** MNP distribution started in Akhoni Shomay's implementation area in March, 2012. The first cycle distribution reached approximately 91% of targeted children under two. The MNP intervention promoted and supported adoption of complementary feeding behaviors by mothers and family members. Follow-up visits made by CCs help track progress towards optimal behaviors. Image based print materials regarding appropriate preparation and usage of MNPs were been printed and distributed along with the MNPs. An evaluation report of the MNP intervention is available upon request.

Appendix 4: Anthropometric Measurement Guidelines

1. Definition of anthropometric measurements (WHZ, HAZ, and WAZ)

- a) WHZ: weight-for-height z-score measures body weight relative to height. It is normally used to indicate current nutritional status. Low WHZ helps identify “wasting” in children, an indicator of moderate to severe malnutrition resulting from actual weight loss or failure to gain weight. WHZ is also useful as a measure when ages are difficult to determine¹.
- b) HAZ: height-for-age z-score measures height relative to age. Low HAZ relative to a child of the same sex and age in the reference population is referred to as “stunting”¹.
- c) WAZ: weight-for-age z-score measures body weight relative to age. It is commonly used for growth monitoring and assessment of change in magnitude of malnutrition over time. Low WAZ relative to a child of the same sex and age in the reference population is referred to as “underweight”¹.

2. Z-score

We used ANTHRO software from WHO to calculate Z-score for each individual. Computed Z-scores express the anthropometric value as a number of standard deviation (SD) below or above the reference median value (see the formula below²).

$$Z - score(orSD - score) = \frac{observedvalue - medianvalueofthereferencepopulation}{standarddeviationvalueofreferencepopulation}$$

3. Cut-off points

To assess anthropometric characteristics of the population, we need to set cut-off points for reported Z-scores. WHO 2006 standard provides Z-score cut-off points. Z-score <-2sd is used to classify low weight-for-height (W/Z), low height-for-age (H/A), and low weight-for-age (W/A) as moderate to severe undernutrition². Similarly, the cut-off point of <-3sd is used to classify severe or chronic malnutrition.

State	Cut-off Points
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Wasting	<-2sd WHZ
Stunting	<-2sd HAZ
Underweight	<-2sd WAZ

4. Hemoglobin

According to the WHO, the cut-off value for anemia among pregnant women is 110 g/L or (11.0 g/dl). Among non-pregnant women over 15 years of age, the cutoff value is 120 g/L³ or (12.0 g/dl).

	Mild*	Moderate	Severe
Pregnant	10-10.9	7-9.9	< 7.0
Non-Pregnant	11-11.9	8-10.9	< 8.0

*The level of anemia termed “Mild” is still a serious conditions given iron deficiency is already advanced by the time anemia is detected and deficiency have functional consequences even when anemia is not clinically apparent (WHO 2000)

There is no WHO cut-off value for anemia among children younger than 6 months of age. For children between 6 and 59 months, children who have hemoglobin levels less than 110 g/L or (11.0 g/dl) are considered anemic⁴. This value is based on data from older children and therefore may not accurately reflect appropriate hemoglobin levels in infants⁵. Cut-off values of <105 g/L or (10.5 g/dl) at 4 and 6 months of age were used by a study of iron-replete breastfed infants³.

5. Body Mass Index (BMI)

BMI is generally employed to define thinness or overweight. The normal range of BMI for adults over 20 years old is 18.5 – 24.99. BMI of 25 or above is classified as overweight, while BMI of 18.49 or below is classified as underweight.

$$BMI = \frac{mass(kg)}{height(m)^2}$$

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Draft

Appendix5: References for final evaluation report

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