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FOOD AND NUTRITION TECHNICAL ASSISTANCE

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A Process Evaluation of the PROCOMIDA "Preventing Malnutrition in Children under 2 Approach" in Guatemala

July 2013

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THE SCIENCE OF IMPROVING LIVES

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Abbreviations and Acronyms

AIEPI	*Atención Integrada a las Enfermedades Prevalentes de la Infancia* (Integrated Care of Prevalent Childhood Illnesses
AINM-C	*Atención Integral del Niño y la Mujer con Énfasis en la Comunidad* (Integrated Health Care for Women and children in Communities)
BCC	behavior change communication
BCCE-FDM	BCC educators and Food Distribution Monitors
CC	*centro de convergencia* (convergence center)
CSB	corn-soy blend
EBS	*equipo básico de salud* (basic health team)
FANTA	Food and Nutrition Technical Assistance III Project
GMP	growth monitoring and promotion
IFPRI	International Food Policy Research Institute
IYCF	infant and young child feeding
LNS	lipid-based nutrient supplement(s)
M&E	monitoring and evaluation
MC	Mercy Corps
MNP	micronutrient powder(s)
MSPAS	*Ministerio de Salud Pública y Asistencia Social* (Ministry of Public Health and Social Assistance)
NGO	nongovernmental organization
PAHO	Pan American Health Organization
PEC	*Programa de Extensión de Cobertura* (Extension of Coverage Program)
PROCOMIDA	Programa Comunitario Materno Infantil de Diversificación Alimentaria (Maternal and Infant Community Food Diversification Program)
PSS	*prestadores de servicios de salud* (health services providers)
ORS	oral rehydration salts
PM2A	Preventing Malnutrition in Children under 2 Approach
SBS	*servicios básicos de salud* (basic health services)
USAID	U.S. Agency for International Development
WHO	World Health Organization

1 Introduction

1.1 Background

To simultaneously address the myriad underlying causes of undernutrition (e.g., illness, limited access to nutrient-rich foods, and suboptimal infant and young child feeding [IYCF] and care practices), the Preventing Malnutrition in Children under 2 Approach (PM2A) delivers a package of health and nutrition interventions aimed at preventing child undernutrition. This report is an evaluation of *Programa Comunitario Materno Infantil de Diversificación Alimentaria*) (PROCOMIDA) (Maternal and Infant Community Food Diversification Program), the PM2A program being implemented by Mercy Corps in Alta Verapaz, Guatemala. PM2A includes three main components: distribution of food rations (food), attendance at preventive health services (health), and participation in a behavior change communication (BCC) strategy (care). These three core components are expected to positively affect maternal and child health and nutrition outcomes through three hypothesized program impact pathways. To understand how the components are expected to work together in PROCOMIDA to achieve impact, the International Food Policy Research Institute (IFPRI) together with Mercy Corps developed a program theory framework linking the three hypothesized primary program impact pathways and outlining how they are envisioned to lead from inputs to impact (**Figure 1.1**). More detailed program impact pathways for each of the three primary pathways (described next) were also developed by IFPRI and Mercy Corps and are presented along with their associated results in this report.

Food component. The food component of PROCOMIDA is expected to increase availability of staple foods (beans, rice, and oil) for the household and micronutrient-rich foods (corn-soy blend [CSB], lipid-based nutrient supplements [LNS], or micronutrient powders [MNP] for the target beneficiaries (pregnant women, women with children under 6 months of age, and children between the ages of 6 and 23 months). This, in turn, is expected to increase consumption of these foods (the **availability–consumption pathway**). Increasing the availability of staple foods at the household level is expected to increase the dietary diversity of the target beneficiaries as well as other household members. The provision of micronutrient-rich foods to the target beneficiaries is expected to further contribute to improvements in dietary diversity as well as improvements in other health and nutrition-related outcomes, such as micronutrient status and growth.

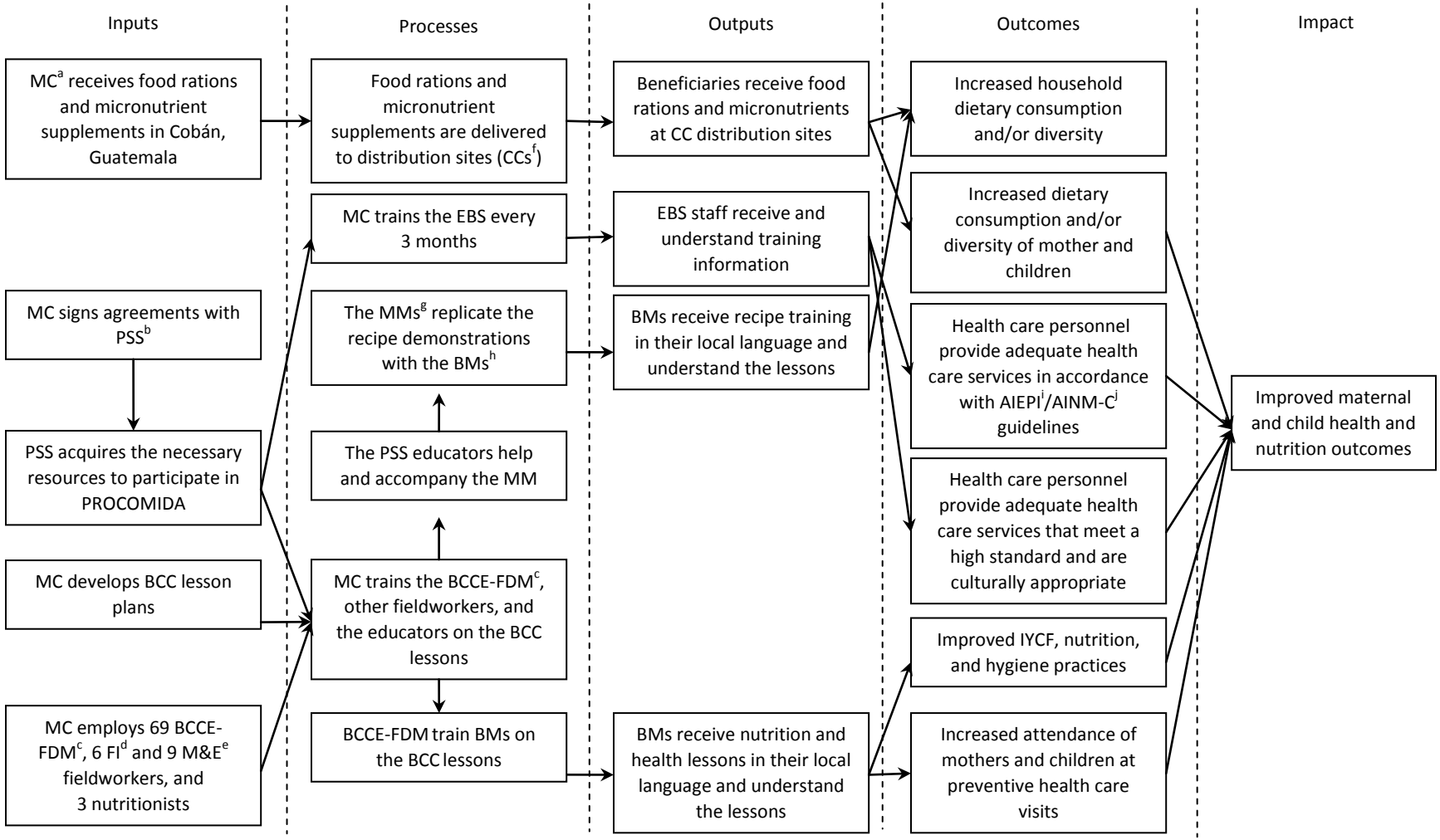
Health component. PROCOMIDA's health component aims to improve both the provision of preventive health services and the utilization of these services by pregnant and lactating women and children under 24 months of age (the **knowledge–use of preventive health services pathway**). PROCOMIDA works with the existing *equipos básicos de salud* (EBSs) (basic health teams) in Alta Verapaz, Guatemala, and provides them with training that focuses on the detection of high-risk pregnancies and malnourished children. In addition, PROCOMIDA has provided support for nutrition educators that work with the EBSs and has further trained them to assist with PROCOMIDA's BCC activities. The improved provision and increased utilization of these services are expected to contribute to improvements in maternal and child health and nutrition outcomes. PROCOMIDA beneficiaries are expected to utilize the existing preventive health services as part of their participation in the program.

Care component. PROCOMIDA's BCC strategy was designed to educate beneficiaries about best practices in health and nutrition and to encourage them to adopt these practices (the **knowledge–adoption of optimal health and nutrition practices pathway**). PROCOMIDA's BCC strategy includes the required participation by beneficiary women at BCC sessions prior to collecting their monthly food rations; recipe demonstrations provided by model mothers, who are themselves beneficiaries; and ad hoc BCC sessions provided to men who attend food distribution events with the beneficiary women.

Taken together, these three primary program impact pathways comprise the hypothesized program theory framework that was developed by IFPRI in collaboration with Mercy Corps. This program theory framework was used to develop the process evaluation presented in this report. The framework allowed the authors to identify the core program components, the actors responsible for the implementation and/or utilization of each of the components, and how these components were expected to work together to achieve impact. Along each of the three primary program impact pathways, we examined program delivery and utilization of services by beneficiaries and assessed knowledge of some key health- and nutrition-related practices among program implementers, EBS staff, and beneficiary women and their husbands. The results of the process evaluation are presented in the context of the three primary program impact pathways and the overall program theory framework in order to identify potential bottlenecks in program implementation and utilization and to determine if certain components could potentially benefit from strengthening or modification.

This research was conducted by IFPRI in collaboration with Mercy Corps and is part of IFPRI's overall research related to PROCOMIDA. Preliminary results from this evaluation were presented to Mercy Corps in Guatemala in January 2013.

Figure 1.1. The overall program theory framework illustrating the components of PROCOMIDA and how they work in concert to improve the health and nutrition outcomes of mothers and children within the beneficiary population



[a] Mercy Corps; [b] *prestadores de servicios de salud* (health service providers); [c] BCC educators and Food Distribution Monitors; [d] *fortalecimiento institucional* (institutional strengthening); [e] monitoring and evaluation; [f] *centros de convergencia* (convergence centers); [g] *madres monitoras* (model mothers); [h] beneficiary mothers; [i] *Atención Integrada a las Enfermedades Prevalentes de la Infancia* (Integrated Care of Prevalent Childhood Illnesses); [j] *Atención Integral del Niño y la Mujer con Énfasis en la Comunidad* (Integrated Health Care for Women and Children in Communities)

1.2 Overall Research Design

The evaluation of PROCOMIDA includes a longitudinal impact evaluation, two process evaluations, and a cost study. This report describes the results from the first process evaluation of the delivery and utilization of PROCOMIDA's primary program components. *Centros de convergencia* (CCs) (convergence centers), where preventive health services are provided, were randomized to receive one of six intervention packages from PROCOMIDA (study arms) (**Table 1.1**):

- (A) full family ration + CSB individual ration
- (B) reduced family ration + CSB individual ration
- (C) no family ration + CSB individual ration
- (D) full family ration + LNS individual ration
- (E) full family ration + MNP individual ration
- (F) no intervention (or control)

The control group does not receive food or BCC sessions from PROCOMIDA. The longitudinal impact evaluation will assess the impact of study arms A–E on maternal and child health and nutrition outcomes as compared to the control group. In addition, it will examine the differential impact of the size and/or absence of a family ration on these outcomes. It will also evaluate the differential impact of different types of micronutrient-fortified individual rations on maternal and child health and nutrition outcomes.

Table 1.1. PROCOMIDA intervention packages by study arm

	Arm A	Arm B	Arm C	Arm D	Arm E	Control
Family ration	Yes	Half	–	Yes	Yes	–
Individual ration	Yes	Yes	Yes	Yes	Yes	–
CSB	Yes	Yes	Yes	–	–	–
LNS (either Nutri Fuerza or Nutri Nim)	–	–	–	Yes	–	–
MNP (either Kawil Nabej or Sa Us)	–	–	–	–	Yes	–
BCC	Yes	Yes	Yes	Yes	Yes	–
Preventive health visits provided by the MSPAS[a]	Yes	Yes	Yes	Yes	Yes	Yes

[a] Ministerio de Salud Pública y Asistencia Social (Ministry of Public Health and Social Assistance).

1.3 Organization of Report

Section 2 of this report presents the research design and methodology of the process evaluation. Section 3 presents the results according to the three primary program impact pathways from inputs to impact. Section 4 concludes the report with a brief summary of the key findings and offers a set of recommendations that may potentially help improve the quality, implementation, and/or utilization of the primary PROCOMIDA components.

2 Methods

2.1 Research Design and Methods

2.1.1 Sampling

The primary goal of this process evaluation was to explore how the program was being implemented by the program implementers and utilized by the beneficiaries and to identify any barriers or facilitators to optimal implementation and utilization. Given that goal, the authors determined that it would be essential to select a diverse sample of respondents based on characteristics that may affect their experiences with PROCOMIDA. Three characteristics that could affect people's experiences with the program are their assigned study arm, the size of the population served by the CC, and whether or not there are satellite communities. Therefore, the aim was to select respondents that would have these different characteristics, with the expectation that this would provide a range of responses.

To select these respondents, a stratified random sampling method was used to identify the CCs to be included in the process evaluation. The stratification variables used included: study arm, the size of the population served by the CC (divided by having either two or four PROCOMIDA fieldworkers assigned to the CC), and whether or not the CC had satellite communities. The fact that implementation and uptake of the program may differ by study arm and by the number of PROCOMIDA fieldworkers working at the CCs, as well as the proximity to the CC, necessitated stratification by these three variables (**Table 2.1**). The selected CCs served as the base for selecting the key informants, beneficiaries, dropouts, and non-beneficiaries to be included in the research.

Table 2.1. Sampling[a]

Satellites	Field-workers	CC or satellite community	Arm A	Arm B	Arm C	Arm D	Arm E	Control	TOTAL
No	2	CC	Nc=1	Nc=1	Nc=1	Nc=1	Nc=1	Nc=2	7
			Nm=3	Nm=3	Nm=3	Nm=3	Nm=3	Nm=4	19
		Satellite	–	–	–	–	–	–	0
	4	CC	Nc=1	Nc=1	Nc=1	Nc=1	Nc=1	Nc=2	7
			Nm=3	Nm=3	Nm=3	Nm=3	Nm=3	Nm=4	19
		Satellite	–	–	–	–	–	–	0
Yes	2	CC	Nc=1	Nc=1	Nc=1	Nc=1	Nc=1	Nc=2	7
			Nm=3	Nm=3	Nm=3	Nm=3	Nm=3	Nm=4	19
		Satellite	Nc=1	Nc=1	Nc=1	Nc=1	Nc=1	Nc=2	7
			Nm=3	Nm=3	Nm=3	Nm=3	Nm=3	Nm=4	19
	4	CC	Nc=1	Nc=1	Nc=1	Nc=1	Nc=1	Nc=2	7
			Nm=3	Nm=3	Nm=3	Nm=3	Nm=3	Nm=4	19
		Satellite	Nc=1	Nc=1	Nc=1	Nc=1	Nc=1	Nc=2	7
			Nm=3	Nm=3	Nm=3	Nm=3	Nm=3	Nm=4	19
TOTAL	CC (% of total)		4 (14%)	4 (14%)	4 (14%)	4 (14%)	4 (14%)	8 (29%)	28 (100%)
	Communities		6	6	6	6	6	12	42
	Mothers		18	18	18	18	18	24	114

[a] Nc = Number of communities, Nm = number of mothers.

2.1.2 Household and Participant Selection

Program participants (beneficiaries) and women living in the control communities (non-beneficiaries) were selected to participate in semi-structured interviews using a proportional random sampling method**.** Among program participants in study arms A–E, three beneficiary mothers were selected from each of the CCs that did not have satellite communities, and six beneficiary mothers were selected from those that did have satellite communities (three from non-satellite communities and three from satellite communities), for a total of 90 semi-structured interviews with beneficiary mothers (**Table 2.2**). In addition, 24 women who were either pregnant or had a child 6–23 months of age were randomly selected from six of the CCs in the control arm (4 from each of the CCs that did not have satellite communities [n=8] and 16 from those that did [4 were selected from the non-satellite communities associated with these CCs (n=8) and 4 from a satellite community associated with these CCs (n=8)]).

Brief semi-structured interviews were also conducted with two randomly selected women per arm who were still eligible for the program (pregnant or with a child under 24 months of age) and who had been enrolled in the program, but who were no longer participating in the program at the time of the interviews (due to dropout or failing to comply with program requirements).

The BCC sessions and food distribution activities were observed at the 18 CCs selected from study arms A–E, and preventive health care activities were observed at all of the selected 26 CCs. For the BCC sessions and food distribution activities, two beneficiary mothers and one leader mother were randomly selected at each CC to follow through the BCC and food distribution process. For the preventive health visits, two pregnant women and two children between the ages of 0 and 24 months of age were randomly selected to be followed through their preventive health visits at each of the selected CCs.

Key informants associated with each of the CCs were also asked to participate in semi-structured interviews. These included community health workers, midwives, community facilitators, nurses, the leader of the health commission, and PROCOMIDA fieldworkers. The key informants associated with the CCs were either purposely or randomly selected, depending on the sample size necessary for each type of interview and the number associated with each CC. For the PROCOMIDA fieldworkers, two fieldworkers per CC were interviewed, both of the fieldworkers for those CCs with only two fieldworkers and half of the fieldworkers for those CCs with four fieldworkers. For the EBS staff at the selected CCs, one nurse, one institutional strengthening technician, one educator, one *facilitador comunitario* (community facilitator) FC, one midwife, and one community health worker (where there was at least one available) were interviewed. Finally, the monitoring and evaluation (M&E) staff (n=9), institutional strengthening technicians (n=6), educators, and nutritionists (n=3) were asked to complete a written interview, which included knowledge questions related to the BCC strategy and their feedback about the various aspects of PROCOMIDA.

Table 2.2. Summary of methods and associated sample sizes used in the process evaluation

	Semi-structured interview	Observation and exit interview			Self-administered questionnaire
	Household or service delivery site	BCC session/ food distribution site	Prenatal visit	Growth monitoring and promotion visit	Mercy Corps, Cobán
Beneficiary women	84	36	36	36	
Model mothers		18			
Non-beneficiary women	24		15	16	
Program dropouts	33				
PROCOMIDA fieldworkers	36				
Health commission leaders	26				
EBS	139				
Mercy Corps technical staff					18

2.2 Data Collection

The data for the process evaluation were collected between May 2012 and July 2012. The fieldwork was conducted by Vox Latina in collaboration with IFPRI and the field team consisted of local, experienced fieldworkers who were fluent in Q'eqchi' and Spanish. Prior to data collection, extensive training was conducted in general qualitative data collection techniques as well as specific training related to the instruments used in this study. Pilot testing of the semi-structured interviews and observation guides was also conducted prior to data collection and revisions were made as necessary. All of the instruments were translated into Spanish and Q'eqchi' and all of the interviews were conducted and tape recorded in Q'eqchi'. The field team transcribed all of the responses directly into Spanish and used the tape-recorded material as necessary to check accuracy of recorded responses.

2.3 Data Analysis

Quantitative data were analyzed using SPSS and STATA. Qualitative data were coded by grouping similar responses together and looking for common themes among the respondents. Results from the quantitative and qualitative data were combined according to major topics, and results were analyzed within each of the primary program components along the three primary program impact pathways laid out in the program theory framework. Program components with a positive response in more than 75 percent of the aspects of the program component were classified as "working well," 25 percent to 75 percent as "needs improvement," and fewer than 25 percent as "not working." If problems or concerns were raised by more than a few respondents related to a particular program, that component could be reclassified as "needs improvement" and/or "not working," depending on the frequency and/or severity of the respective problems.

3 Results

3.1 The Availability–Consumption Pathway

This section evaluates PROCOMIDA's first pathway, through which the provision of individual rations (CSB, LNS, or MNP), with or without a family ration composed of rice, beans, and oil, is expected to contribute to improvements in maternal and child health and nutrition outcomes. The provision of the individual rations with or without a family ration is expected to directly increase the availability of food and micronutrients for the beneficiary population; improve the dietary consumption and diversity for beneficiary households; and improve the dietary intake and diversity of beneficiary women who are pregnant and who have children under 6 months of age, as well as beneficiary children between the ages of 6 and 23 months. These improvements in dietary intake and diversity, in turn, are expected to contribute to improvements in maternal and child health and nutrition outcomes, including hemoglobin concentration among beneficiary mothers and children and growth among beneficiary children between the ages of 6 and 23 months.

To achieve the outcomes and impacts outlined in the **availability–consumption pathway**, PROCOMIDA conducts monthly distributions of individual and family rations at selected CCs. This section first presents results related to the delivery and utilization of the family and individual rations provided by PROCOMIDA. This is followed by a presentation of the results related to the perceived impacts of the rations on the beneficiaries' diets. Lastly, the program activities along this pathway that were identified as working well and those that needed some improvements are summarized (**Figure 3.1**).

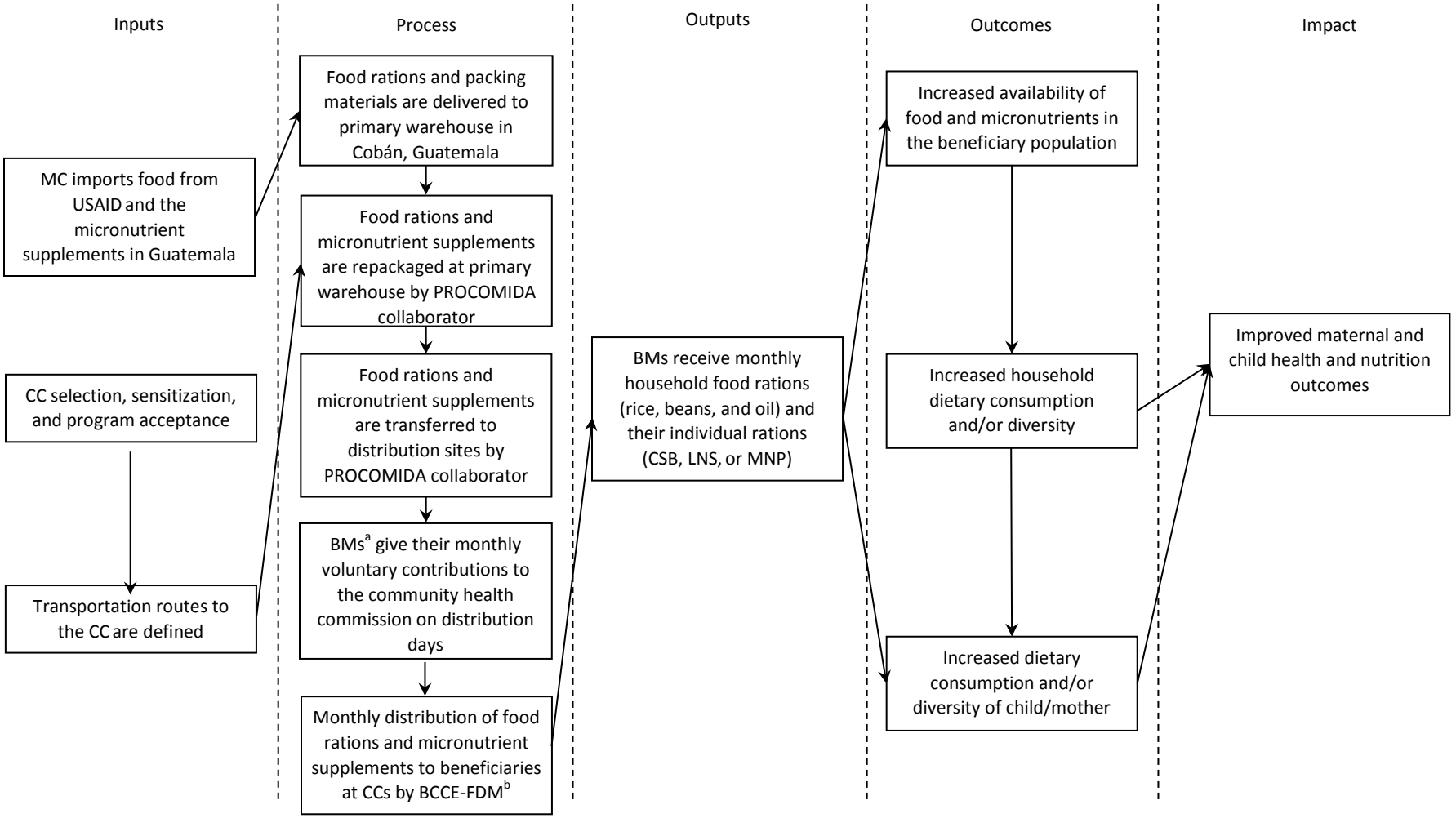
3.1.1 Description of PROCOMIDA's Food Distribution Intervention and Process

The distribution of U.S. Agency for International Development (USAID) food commodities to the beneficiary population begins with the arrival of CSB, rice, pinto beans, and oil in Guatemala and the transportation of these commodities to the PROCOMIDA warehouse in Cobán, Guatemala. Once the food commodities are received at the warehouse, the CSB, rice, and beans are repackaged into bags that contain a monthly supply of each particular commodity. The bags in which the commodities are repackaged are printed with pictures depicting key BCC messages. The oil is not repackaged and is distributed every 2 months in the full family ration arm and every 4 months in the reduced family ration arm. The LNS and MNP supplements are packaged according to the necessary monthly rations and shipped to Guatemala by Nutriset and Hexagon, respectively. After clearing customs, these supplements are then transported to the PROCOMIDA warehouse in Cobán.

After the rations are organized at the Cobán warehouse for a particular CC, they are loaded onto transport vehicles and delivered to the CC before the monthly scheduled distribution day. Rations are unloaded and received by members of the CC's health commission and are stored in the CC warehouse, typically located adjacent to the CC, until the scheduled distribution day.

On the day of distribution, a PROCOMIDA fieldworker and one or two health commission members work together to distribute rations to the beneficiaries.

Figure 3.1. Program theory framework for the *availability–consumption pathway*



[a] Beneficiary mothers; [b] BCC educators and Food Distribution Monitors

To receive their monthly food rations, beneficiaries[1] must first attend a PROCOMIDA BCC session. After verifying her participation in the monthly BCC session, the beneficiary enters the CC warehouse and receives the prepackaged family and individual rations from a member of the CC's health commission.

On the day of the BCC session and food distribution, beneficiaries are asked to make a voluntary monetary contribution. The voluntary contribution amount provided by each beneficiary was determined by a general assembly of community members and may vary by study arm since one consideration in determining the amount was likely the types and quantities of rations distributed by the program. The voluntary contributions are collected by a PROCOMIDA fieldworker and a health commission member. These funds are then kept and managed by the treasurer of the health commission.

The voluntary contributions made by program beneficiaries are expected to be used to make improvements to the CC's infrastructure or to purchase necessary supplies, purchase foods used in recipes taught by PROCOMIDA, and help with transport of medical emergencies to the nearest health facility. Each month, PROCOMIDA updates the list of beneficiaries at each CC based on the number of rations distributed the previous month, the number of leftover rations (due to beneficiaries not showing up to collect their rations), changes in enrollment status (i.e., women with children turning 6 months old), the number of graduating children (i.e., children turning 24 months of age), and new enrollees. Based on the updated list of beneficiaries, PROCOMIDA prepares the number of family and individual rations for each CC at the Cobán warehouse for the next month. The size of the family ration is conditional on the research arm that the CC is enrolled in: a full family ration, a reduced family ration, or no family ration. The composition of the individual ration is also conditional on the CC's study arm and is CSB, LNS, or MNP (see Section 1.2 for further explanation).

3.1.2 Results Related to the Food Distribution Process along the Availability–Consumption Pathway

Distribution of Food Rations and LNS or MNP to Beneficiaries at CCs

Food distribution site management. Overall, there were very few problems reported regarding the management of the food distribution activities by either the health commission leaders or the PROCOMIDA fieldworkers. In all cases, beneficiary lists were available on the days of the food distributions and, for the most part, beneficiary women reportedly had their PROCOMIDA cards. In addition, according to both the health commission leaders and the PROCOMIDA fieldworkers, very few non-beneficiaries tried to obtain food rations.

Although beneficiary lists were available on all of the observed food distribution days, about one-quarter of the PROCOMIDA fieldworkers interviewed (8/36, 22%) cited problems related to the accuracy of these lists. The most commonly reported problems were either that beneficiaries

[1] PROCOMIDA allows beneficiaries to register up to three proxies or replacements to attend BCC sessions and received food rations when the beneficiary has a valid reason not to attend (e.g., newborn, illness, or child illness).

had been added too late so that, although they were on the electronic list, they were not on the printed list (3/8, 38%) or that beneficiaries were not in the correct group on the list (either in the group of women who were pregnant or with a child under 6 months of age or in the group of women with a child between the ages of 6 and 23 months) (2/8, 25%). A few other problems with the lists were mentioned, including beneficiaries not being on the list, ex-beneficiaries still being on the list, and changes in or incorrect personal details. The PROCOMIDA fieldworkers who had identified these problems explained that they dealt with them by notifying the program managers or data technicians (4/8, 50%), by consulting old lists (2/8, 25%), by making a note and distributing the rations anyway (1/8, 13%), or through discussion at the program's technical meetings (1/8, 13%). They went on to explain that, in general, they felt that when these problems were identified, PROCOMIDA had responded appropriately and had offered good solutions to the problems (7/8, 88%), although three respondents mentioned that the problems were recurrent (3/8, 38%). PROCOMIDA fieldworkers thought that these problems could be further addressed by having more skilled data technicians (2/8, 25%) or by giving the data technicians assistants (2/8, 25%), through better communication (1/8, 13%) or teamwork (1/8, 13%), or by taking better account of changes (1/8, 13%).

According to the health commission leaders (2/13, 15%) and the PROCOMIDA fieldworkers (15/36, 42%), there had been some problems with beneficiaries not bringing their PROCOMIDA cards to the food distribution activities at least once over the past 4 months. The most commonly cited way to deal with this issue by both health commission leaders (2/2, 100%) and PROCOMIDA fieldworkers (13/15, 87%) was to consult the beneficiary list. They further explained that to help ameliorate these problems in the future, beneficiary women should be reminded about the importance of bringing these cards to receive their rations (PROCOMIDA fieldworkers: 3/15, 20%) or should be asked to place the PROCOMIDA card in their bags the day before the distribution (health commission leaders: ½, 50%). Other suggestions each made by one PROCOMIDA fieldworker included ensuring that the cards are handed out to the beneficiary women in time, that the cards be kept at the CC, that they use fingerprint scanning, that they make a list of those who do not have a card, or that peers be used to identify beneficiaries.

Non-beneficiaries trying to obtain food rations did not seem to be a real problem. Only one PROCOMIDA fieldworker and two health commission leaders reported that this had happened at least once over the last 4 months. To deal with this situation, the general suggestion seemed to be to explain the program requirements to the non-beneficiary women (mentioned by one health commission leader and the PROCOMIDA fieldworker), to explain that the rations are not for sale (PROCOMIDA fieldworker), or to suggest that they return the following month to be signed up for the program (one health commission leader).

No problems related to running out of rations before all beneficiaries had received their monthly rations were reported by either the health commission leaders or the PROCOMIDA fieldworkers.

Three of the PROCOMIDA fieldworkers interviewed reported problems with external factors during the preceding four distribution sessions (3/36, 8%). One reported problems with bad weather and heavy rainfall; one noted the conflict with the planting period; while the third

reported problems on two occasions, once because of the weather and once because of a death in the community. Problems resulting from these factors included:

- Beneficiaries not attending BCC sessions and/or food distribution and therefore not receiving rations (2/3, 67%)
- Beneficiaries missing BCC sessions (1/3, 33%)
- Large amounts of rations left over (1/3, 33%)
- Negative effects on the diet of beneficiaries (1/3, 33%)

Suggestions for addressing these issues were limited to emphasizing to beneficiaries the importance of both the rations and the BCC sessions.

Food distribution site location, materials, and organization. At the 18 CCs where food distribution activities were observed, all but one occurred inside the storage room at the CCs (**Table 3.1**). At all sites, food was stored in metal containers and protected from the rain. Nearly all of the areas surrounding the food distribution sites were characterized as clean (16/18, 89%), while two were described as dirty because of the presence of litter, garbage fires, and animal feces. In half of the CCs, there was nowhere for the women to sit down while waiting for the program activities.

Table 3.1. Observation of the food distribution sites at the CCs[a]

	CC (n=18)
Distributions conducted outdoors	1 (6%)
Sites with a clean outdoor environment	16 (89%)
Sites with visible animal feces	1 (6%)
Sites with a roof to protect food rations from rain	18 (100%)
Sites that had the food stored in metal containers	18 (100%)
Sites that provided seating for beneficiaries	9 (50%)

[a] Numbers are n (%).

All the health commission staff who were assisting in the food distribution on the day of the interview agreed that the CCs were good locations for the activity. They cited an accessible or central location (7/13, 54%), available space (6/13, 46%), security (5/13, 38%), and cleanliness (2/13, 15%). All but two technicians said their CCs were good places for distribution. Two who dissented said:

- Because it is the CC and they are still building the storeroom. Being a CC, the food could get contaminated and also because it is not a dedicated facility, anyone could get access.
- There is not enough space.

Beneficiaries attend food distributions. All but one of the beneficiaries interviewed at home attended at least one food distribution in the past 4 months (80/81, 99%), and all but 4 of the 81 interviewed (95%) reported that they (or a proxy) attended three or four of the past four

distributions. Only 6 of 81 people (7%) reported having sent a proxy to collect their food rations and attend the BCC session on their behalf.

Overall, beneficiaries reported missing very few food distributions, and those who had missed a food distribution most commonly reported missing only one of the last four distributions. Being sick or having a baby were the primary reasons people reported for having missed a distribution, although a few people also mentioned things like work responsibilities, not remembering or knowing when the distribution was, or not having enough money to attend as other reasons for having missed a food distribution over the past 4 months (**Table 3.2**). Study arms C and E had the highest rates of absenteeism. The reasons for missing distributions in study arm C related to agricultural responsibilities, not having money, or not knowing when to attend, while those in study arm E had to do with being sick or having a baby and, in one case, not having money for transport. This could reflect less motivation to attend food distributions by those in study arm C who do not receive a family ration, although this should be interpreted with caution as there were not many observations per study arm.

Table 3.2. Beneficiary absence from food distributions over the past 4 months[a]

	Arm A (n=18)	Arm B (n=15)	Arm C (n=14)	Arm D (n=16)	Arm E (n=18)	All (n=81)
Missed one or more food distributions in past 4 months	1 (6%)	2 (13%)	4 (29%)	3 (19%)	5 (28%)	15 (19%)
Reasons missed						
Illness	1 (100%)[b]			1 (33%)[e]	2 (40%)[f]	4 (27%)[g]
Transport costs					1 (20%)[f]	1 (7%)[g]
Agriculture responsibilities			1 (25%)[d]			1 (7%)[g]
Work		1 (50%)[c]				1 (7%)[g]
Had a baby				1 (33%)[e]	2 (40%)[f]	3 (20%)[g]
Did not have money			1 (25%)[d]			1 (7%)[g]
Did not know and/or remember when to attend			1 (25%)[d]	1 (33%)[e]		2 (13%)[g]
Not interested		1 (50%)[c]				1 (7%)[g]

[a] Numbers are n (%); [b] n=1, [c] n=2, [d] n=4, [e] n=3, [f] n=5, [g] n=15.

Of the 54 beneficiaries who were interviewed on food distribution days, only three (6%) reported problems with attending the distributions. The problems cited were problems with home activities, bad weather, and muddy roads. Two of these respondents noted that attendance at the food distribution would have been easier if they had access to motorized transport, while one simply observed that it would have been easier had the roads been dry.

Beneficiary Inputs to Receive Rations: Voluntary Contributions

As part of their participation in PROCOMIDA, beneficiaries are asked to make a voluntary contribution on the day of the BCC session and food distribution. The amount of the requested contributions is determined at the level of the CC and tends to correspond with those receiving

the full family ration (study arms A, D, and E) giving the most, those receiving the reduced family ration (Arm B) a little less, and those who do not receive a family ration (Arm C) contributing the least, as would be expected (**Table 3.3**). In general, the reported usual contribution was in line with what the beneficiaries stated they were willing to contribute on a monthly basis, although beneficiaries in study arms C, D, and E would prefer to pay less on average, while those in study arms A and B would be willing to pay slightly more on average. Relatively few beneficiaries reported dissatisfaction with the amount of the contribution: Only in study arm D did more than one beneficiary woman report dissatisfaction.

All of the women who were observed at the CC receiving rations made a voluntary contribution on the day of the observation. The amount paid on the observation days was very similar to what women in each group reported usually contributing, although members of study arm C contributed a little less and members of study arm D contributed slightly more.

Although relatively few beneficiaries who were currently participating in PROCOMIDA reported dissatisfaction with the amount of the contribution requested, it was the most commonly cited reason for dropping out of the program among former beneficiaries of PROCOMIDA (11/33, 33%). As explained by one former beneficiary, “I don’t have the money that they ask for every month,” and by another, “I don’t have money for the voluntary contribution and I don’t have transportation to go to the CC for the distribution.”

Table 3.3. Voluntary contributions

	Arm A	Arm B	Arm C	Arm D	Arm E
Beneficiaries interviewed at home	**(n=18)**	**(n=15)**	**(n=14)**	**(n=16)**	**(n=18)**
Usual monthly voluntary contribution (quetzales)[a]	14.1 (2.0)	10.2 (0.4)	6.4 (3.6)	13.8 (4.7)	16.1 (3.7)
Amount willing to contribute monthly (quetzales)[a]	14.6 (8.1)	11.0 (5.0)	4.7 (3.1)	10.7 (6.2)	14.7 (6.7)
Average difference between what they usually contribute and what they are willing to contribute on a monthly basis (quetzales)[a]	0.5 (7.6)	0.7 (5.1)	−2.1 (4.6)	−2.8 (4.7)	−1.6 (5.1)
Beneficiary mothers who are dissatisfied with the amount of the usual monthly voluntary contribution[b]	1 (6%)	1 (7%)	1 (7%)	5 (31%)	1 (6%)
Beneficiaries interviewed at food distribution site	**(n=12)**	**(n=9)**	**(n=9)**	**(n=12)**	**(n=12)**
Made monthly contribution[b]	12 (100%)	9 (100%)	9 (100%)	12 (100%)	12 (100%)
Monthly contribution made on observed distribution day (quetzales)[a]	12.9 (3.3)	10.3 (0.5)	5.0 (0.0)	15.0 (3.7)	16.3 (2.7)

[a] Numbers are mean (SD).
[b] Numbers are n (%).

Opinions of voluntary contributions. Most of the 54 beneficiaries interviewed on food distribution days across the study arms had a positive opinion about the amount of the requested voluntary contribution (**Table 3.4**). Responses showed that these beneficiaries believed that the amount was fair, justified, important, and would not place an unnecessary strain on their household finances, and, furthermore, that it was voluntary. One respondent noted that the amount of rations obtained from PROCOMIDA for this money was greater than what one would be able to buy in the shops, while others flagged the altruistic nature of the contribution: By giving this money, they were helping their community, the CC, and other mothers. Some mothers said that they were "happy to contribute" and that the contribution made them feel good. While four mothers did not express an opinion about the amount, only two voiced negative opinions of the contribution. One stated that it was a lot of money and hard to get hold of (from study arm D), while the other (from study arm B) said that the rations were not worth even 10 quetzales.

Table 3.4. Beneficiaries' opinions about the monthly voluntary contributions[a,b]

	Arm A (n=12)	Arm B (n=9)	Arm C (n=9)	Arm D (n=12)	Arm E (n=12)	All (n=54)
Positive opinions about the monthly voluntary contributions						
Amount of rations obtained is worth more than the voluntary contribution	0 (0%)	0 (0%)	1 (11%)	0 (0%)	3 (25%)	4 (7%)
The money helps their communities	1 (8%)	1 (11%)	0 (0%)	0 (0%)	1 (8%)	3 (6%)
The money helps the CCs	2 (17%)	1 (11%)	3 (33%)	3 (25%)	0 (0%)	9 (17%)
Happy to contribute – makes them feel good, satisfied	3 (25%)	2 (22%)	0 (0%)	1 (8%)	0 (0%)	6 (11%)
Fair and appropriate	2 (17%)	2 (22%)	0 (0%)	2 (22%)	3 (25%)	9 (17%)
Helps offset program costs	0 (0%)	1 (11%)	1 (11%)	1 (8%)	0 (0%)	3 (6%)
Helps others	0 (0%)	0 (0%)	1 (11%)	0 (0%)	0 (0%)	1 (2%)
Important	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (8%)	1 (2%)
Other generally positive	4 (33%)	0 (0%)	0 (0%)	1 (8%)	2 (17%)	7 (13%)
Neutral opinions about the monthly voluntary contributions						
It is a collaboration/voluntary contribution	3 (25%)	1 (11%)	0 (0%)	1 (8%)	2 (17%)	7 (13%)
It is sufficient	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (8%)	1 (2%)
Negative opinions about the monthly voluntary contributions						
Too much money and hard to obtain	0 (0%)	0 (0%)	0 (0%)	1 (8%)	0 (0%)	1 (2%)
Rations were not worth 10 quetzales	0 (0%)	1 (11%)	0 (0%)	0 (0%)	0 (0%)	1 (2%)
Too much now that they have taken away CSB and give oil every 2 months	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (8%)	1 (2%)

[a] Numbers are n (%).
[b] Multiple responses were possible.

Beneficiaries' understanding of what the voluntary contributions were spent on was broadly congruent with their opinions of what the money should be spent on, and also with what they would spend the contributions on if they were asked to make this decision. About half of the respondents focused on uses for the voluntary contributions related to construction and renovation projects at the CCs, while about one-quarter thought that the funds should and do go toward purchasing supplies for the recipe demonstrations held by PROCOMIDA (**Table 3.5**). Other less commonly mentioned uses included such things as buying furniture and equipment for the CCs, helping with emergency medical cases, and providing transportation of staff and food rations.

Table 3.5. Beneficiaries' opinions about how the money from the voluntary monthly contributions should be used[a,b]

	Arm A (n=12)	Arm B (n=9)	Arm C (n=9)	Arm D (n=12)	Arm E (n=12)	All (n=54)
CC construction and renovation projects (e.g., food storage area, training area, fencing)	4 (33%)	7 (78%)	3 (33%)	8 (67%)	6 (50%)	28 (52%)
Kitchen and cooking demonstrations	3 (25%)	4 (44%)	1 (11%)	2 (17%)	2 (17%)	12 (22%)
Furniture and equipment for the CC	1 (8%)	0 (0%)	2 (22%)	2 (17%)	2 (17%)	7 (13%)
Emergency medical cases	1 (8%)	0 (0%)	1 (11%)	0 (0%)	1 (8%)	3 (6%)
Savings/safety net	1 (8%)	1 (11%)	0 (0%)	0 (0%)	0 (0%)	2 (4%)
Utility bills at CC	0 (0%)	0 (0%)	0 (0%)	2 (17%)	0 (0%)	2 (4%)
Assisting pregnant women	0 (0%)	0 (0%)	2 (22%)	0 (0%)	0 (0%)	2 (4%)
Transportation of staff and rations	0 (0%)	0 (0%)	0 (0%)	1 (8%)	1 (8%)	2 (4%)
Loans	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (8%)	1 (2%)
Health commission expenses	1 (8%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (2%)

[a] Numbers are n (%).
[b] Multiple responses were possible.

Beneficiaries Receive Rations

Table 3.6 below is provided for reference and shows the specific quantities of rations and supplements allocated to each beneficiary by study arm.

Table 3.6. Quantity of household and individual rations allocated to beneficiaries by study arm

	Arm A	Arm B	Arm C	Arm D	Arm E	Control
Family ration						
Rice	6 kg	3 kg	–	6 kg	6kg	–
Beans	4 kg	3 kg	–	4 kg	4 kg	–
Oil	3.7 kg	1.85 kg	–	3.7 kg	3.7 kg	–
Individual ration (pregnant women and women with a child under 6 months or child 6–23 months)						
CSB	4 kg	4 kg	4 kg	–	–	–
Nutri Fuerza (pregnant women and women with a child under 6 months)	–	–	–	30 sachets	–	–
Nutri Nim (children 6–23 months)	–	–	–	60 sachets	–	–
Kawil Nabej (pregnant women and women with a child under 6 months)	–	–	–	–`	60 sachets	–
Sa Us (children 6–23 months)	–	–	–	–	60 sachets	–

All of the beneficiaries who attended the observed food distributions received the different types of food rations that they were supposed to receive according to their assigned study arm. In addition to all beneficiaries receiving the correct food rations, very few problems were found with the quantity of rice and beans provided to the beneficiaries at the observed food distributions. Each beneficiary's rations were weighed and only one beneficiary was found to have received more rice than allocated while all beneficiaries received the correct quantity of beans (**Table 3.7**). Oil was being distributed to beneficiaries at only two CCs since oil is distributed every other month (study arms A, D, and E) or every 4 months (study arm B). Of the five beneficiaries who were observed to have received oil at the two CCs distributing oil, two (40%) received more than 3.7 kg of oil. However, those who received incorrect quantities of oil received either 3.8 or 3.9 kg of oil, representing a difference of only 0.1 or 0.2 kg from the intended ration size. These results were encouraging, and demonstrated that ration distribution was generally being carried out with care.

Table 3.7. Beneficiaries who received incorrect quantities of family rations by study arm[a]

	Arm A (n=12)	Arm B (n=9)	Arm C (n=9)	Arm D (n=12)	Arm E (n=12)
Rice	**6 kg**	**3 kg**	**–**	**6 kg**	**6 kg**
Received incorrect amount	0 (0%)	1 (11%)	–	0 (0%)	0 (0%)
Received less than required	0 (0%)	0 (0%)	–	0 (0%)	0 (0%)
Received more than required	0 (0%)	1 (11%)	–	0 (0%)	0 (0%)
Beans	**4 kg**	**3 kg**	**–**	**4 kg**	**4 kg**
Received incorrect amount	0 (0%)	0 (0%)	–	0 (0%)	0 (0%)
Received less than required	0 (0%)	0 (0%)	–	0 (0%)	0 (0%)
Received more than required	0 (0%)	0 (0%)	–	0 (0%)	0 (0%)
Oil	**3.7 kg[b]**	**1.85 kg[c]**	**–**	**3.7 kg[d]**	**3.7 kg[e]**
Received incorrect amount	0 (0%)	–	–	1 (33%)	1 (50%)
Received less than required	0 (0%)	–	–	0 (0%)	0 (0%)
Received more than required	0 (0%)	–	–	1 (33%)	1 (50%)

[a] Numbers are n (%); [b] n=1, [c] none distributed, [d] n=3, [e] n=2.

As with the commodities included in the family rations, the CSB, LNS, or MNP provided for the individual rations were generally provided in the correct amounts (**Table 3.8**). The CSB was repackaged into individual ration sizes by PROCOMIDA, while the LNS and MNP were packaged into monthly rations by the producers of the LNS and MNP. The quantity of Nutri Nim provided showed the most variability in terms of the monthly quantity distributed, although the amount was never off by more than 2 out of 60 sachets (3%) of what was supposed to be distributed. Of the six children who received Nutri Nim, four (67%) received incorrect amounts. One received 58 sachets, two received 59, and one received 61.

One mother correctly received Nutri Fuerza and Nutri Nim, as she had one child who was 4 months of age and one that was 19 months of age. She received Nutri Fuerza for herself (mother with child under 6 months of age) and Nutri Nim for her child who was 19 months of age.

Table 3.8. Beneficiaries who received the incorrect quantity of individual rations by study arm[a]

	Arm A (n=12)	Arm B (n=9)	Arm C (n=9)	Arm D (n=12)	Arm E (n=12)
CSB	**4 kg**	**4 kg**	**4 kg**	**–**	**–**
Received incorrect amount	0 (0%)	0 (0%)	0 (0%)	–	–
Received less than required	0 (0%)	0 (0%)	0 (0%)	–	–
Received more than required	0 (0%)	0 (0%)	0 (0%)	–	–
Nutri Fuerza	**–**	**–**	**–**	**30 sachets[b]**	**–**
Received incorrect amount	0 (0%)	0 (0%)	–	0 (0%)	–
Received less than required	0 (0%)	0 (0%)	–	0 (0%)	–
Received more than required	0 (0%)	0 (0%)	–	0 (0%)	–
Nutri Nim	**–**	**–**	**–**	**60 sachets[c]**	**–**
Received incorrect amount	–	–	–	4 (67%)	–
Received less than required	–	–	–	3 (50%)	–
Received more than required	–	–	–	1 (17%)	–
Kawil Nabej or Sa Us	**–**	**–**	**–**	**–**	**60 sachets**
Received incorrect amount	–	–	–	–	0 (0%)
Received less than required	–	–	–	–	0 (0%)
Received more than required	–	–	–	–	0 (0%)

[a] Numbers are n (%); [b] n=7, [c] n=6.

Perceptions of quantities received over the past 4 months by beneficiaries interviewed at home. Overall, beneficiaries interviewed at home were either always satisfied or sometimes satisfied with the quantity of rice, beans, and oil that they received for their household food rations (**Table 3.9**), as well as with the quantities of individual rations received (**Table 3.10**). Frequencies of "never satisfied" responses were generally higher for rice and oil, and were consistently higher for family rations than for individual ones. This was probably related to the fact that family rations are familiar foodstuffs, whereas individual rations are supplements (CSB is a food, but it is not a normal part of the diet). Thus, demands on family ration quantities were likely higher, in part because other household members were consuming these foods and in part because the individual supplements have defined dosages. Reasons cited for being "never satisfied" about family rations and CSB revolved around the quantities not lasting long enough, that they used to receive a greater quantity (in reference to the family rations), and that the program should give them more, while those corresponding to the LNS and MNP referred to preferences, dislikes, and qualitative features of these products.

Table 3.9. Beneficiary satisfaction with the quantity of family rations received over the past 4 months[a]

	Arm A (n=18)	Arm B (n=15)	Arm C (n=14)	Arm D (n=16)	Arm E (n=18)
Rice	**6 kg**	**3 kg**	**–**	**6 kg**	**6 kg**
Always satisfied	12 (67%)	8 (53%)	–	8 (50%)	13 (72%)
Sometimes satisfied	4 (22%)	3 (20%)	–	4 (25%)	3 (17%)
Never satisfied	2 (11%)	4 (27%)	–	4 (25%)	2 (11%)
Beans	**4 kg**	**3 kg**	**–**	**4 kg**	**4 kg**
Always satisfied	16 (89%)	10 (67%)	–	10 (63%)	15 (83%)
Sometimes satisfied	1 (6%)	4 (27%)	–	1 (6%)	3 (17%)
Never satisfied	1 (6%)	1 (7%)	–	5 (31%)	0
Oil	**3.7 kg**	**1.85 kg[b]**	**–**	**3.7 kg**	**3.7 kg**
Always satisfied	12 (67%)	6 (43%)	–	7 (44%)	8 (44%)
Sometimes satisfied	1 (6%)	4 (29%)	–	4 (25%)	7 (39%)
Never satisfied	5 (28%)	4 (29%)	–	5 (31%)	3 (17%)

[a] Numbers are n (%); [b] n=14.

Table 3.10. Beneficiary satisfaction with the quantity of individual rations received over the past 4 months[a]

	Arm A (n=18)	Arm B (n=15)	Arm C (n=14)	Arm D (n=14)	Arm E (n=12)
CSB	**4 kg**	**4 kg**	**4 kg**	**0**	**0**
Always satisfied	16 (89%)	11 (73%)	8 (57%)	–	–
Sometimes satisfied	1 (6%)	2 (13%)	4 (29%)	–	–
Never satisfied	1 (6%)	2 (13%)	2 (14%)	–	–
Nutri Fuerza	**–**	**–**	**–**	**30 sachets[b]**	**–**
Always satisfied	–	–	–	0 (0%)	–
Sometimes satisfied	–	–	–	3 (60%)	–
Never satisfied	–	–	–	2 (40%)	–
Nutri Nim	**–**	**–**	**–**	**60 sachets[c]**	**–**
Always satisfied	–	–	–	0 (0%)	–
Sometimes satisfied	–	–	–	12 (92%)	–
Never satisfied	–	–	–	1 (8%)	–
Kawil Nabej	**–**	**–**	**–**	**–**	**60 sachets[d]**
Always satisfied	–	–	–	–	0 (0%)
Sometimes satisfied	–	–	–	–	9 (90%)
Never satisfied	–	–	–	–	0 (0%)
No response					1 (10%)
Sa Us	**–**	**–**	**–**	**–**	**60 sachets**
Always satisfied	–	–	–	–	10 (83%)
Sometimes satisfied	–	–	–	–	1 (8%)
Never satisfied	–	–	–	–	0 (0%)
No response					1 (8%)

[a] Numbers are n (%); [b] n=5, [c] n=13, [d] n=10.

Quality of food and supplements received. Overall, very few problems were noted regarding the quality of the household or individual rations distributed by PROCOMIDA (**Table 3.11**). The single biggest problem related to quality was with the oil that was being distributed at the two sites that were distributing oil. In both cases, all of the oil was found to be past the "best if used by" date. This date refers to the quality of the product and is not a safety date (U.S. Department of Agriculture). In one case, the oil was about 1.5 months past the "best by" date and in the other about 2 months past the "best by" date. No problems were found with the quality of the 20 samples of Nutri Fuerza, Nutri Nim, or Kawil Nabej, and it is worth noting that problems with rice, beans, CSB, and Sa Us were not very prevalent.

Table 3.11. Problems with the quality of household and individual rations observed at food distribution sites

	Number of samples examined	Number and (%) of problems found
Rice that was past the "best if used by" date	75	1 (1%)
Beans that were discolored	75	3 (4%)
Beans that were moldy	75	6 (8%)
Beans that appeared to be dirty	75	2 (3%)
Oil that was past the "best if used by" date	10	10 (100%)
CSB bags that were punctured	55	3 (5%)
Packages of Sa Us that had powder on the inside	20	1 (5%)
Packages of Sa Us that were leaking	20	1 (5%)

Perceptions of Quality of Food and Supplements Received over the Past 4 Months by Beneficiaries Interviewed at Home

In accordance with overall observations conducted at the food distribution sites that found very few objective quality-related problems with either the family rations or the individual rations, beneficiaries interviewed at home also reported very few quality-related issues with the PROCOMIDA rations. Interestingly, however, they were more likely to note quality issues with the CSB (4/49, 8%) than with the oil (0/66, 0%) distributed by PROCOMIDA. This may be because oil that is past its "best if used by" date, unless it has gone rancid, is not spoiled or of a lower noticeable quality than oil that is not past its "best if used by" date. In terms of the problems cited with the CSB, beneficiaries reported that it turns black when cooking and tastes bad (1/4, 25%), that it was bitter and had a bad smell (1/4, 25%), that it was bad quality (1/4, 25%), or that it looked expired (1/4, 25%). The one person (1/67, 1%) who noted a problem with the beans said that the beans provided by PROCOMIDA did not boil well. One person mentioned having had problems with the quality of Nutri Fuerza and one with Nutri Nim, but neither described the nature of the perceived problems. No quality-related issues were mentioned for oil, rice, Kawil Nabej, or Sa Us by the beneficiaries interviewed at home.

Perception of the Food Distribution Process by Beneficiaries Interviewed at the Food Distribution Sites

All beneficiaries, across the five study arms, who were interviewed on the day of the observed food distributions said that they had been pleased with the activity. Asked to expand on this, beneficiaries responded along two principal axes, corresponding to the BCC and the food distribution activities. Overall, a stronger emphasis was placed on learning than on collecting rations, although the latter also carried considerable weight in the responses. Beneficiaries were pleased to have the opportunity to learn new recipes (8/54, 15%), childcare techniques (2/54, 4%), and hygiene (5/54, 9%), and several also noted that they enjoyed the sessions because of the teaching techniques used: They were entertaining and offered an opportunity to participate and share their own experiences with their groups (9/54, 17%). One mother made the point that the sessions provided an opportunity to see other beneficiary mothers.

Beneficiaries were asked to discuss their husbands' opinion about their participation in the food distribution activities. All 54 beneficiaries reported that their husbands were either supportive (44/54, 81%) or neutral (10/54, 19%) toward their participation in the program, both for economic reasons and for the BCC sessions, which are clearly well regarded by husbands. As one mother said, "He encourages me to come and learn new things because this will help me to prevent illnesses among my children."[2]

Mothers were asked whether they planned to attend the next BCC session and food distribution. Of the 54 mothers in the sample, 53 said that they would be attending. (The one who said she would not attend explained that she would be graduating from the program.) The reasons offered in response to open-ended questions, split almost equally into the food distribution and BCC categories, variants on "I will attend because I need to collect my ration allocation" (41/54, 76%) and variants on "I attend so that I can learn new things in the training session" (37/54, 69%).

Interactions between Food Distribution Staff and Beneficiaries

Interviews carried out with the 54 beneficiaries interviewed on food distribution days revealed positive interactions with the food distribution staff. Nearly all (52/54, 96%) reported that they felt respected, and none of the beneficiaries interviewed on that day reported having had a problem with the food distribution staff. With no exceptions, and across all five study arms, beneficiaries interviewed on the observed food distribution days had positive things to say about their interactions with the food distribution staff (**Table 3.12**). Particularly common descriptors of the nature of their interactions with the staff at food distributions included that the PROCOMIDA staff were friendly and patient and that they have good relationships with them. Beneficiaries interviewed at home had similarly positive things to say about their interactions with the food distribution staff.

[2] Further and more focused research would be needed to explore the issue, but it appears from the current data that husbands do not feel threatened by women's participation in the BCC sessions. It would be interesting to explore in greater depth how these sessions might be affecting intra-household social dynamics.

Table 3.12. Beneficiaries' comments describing their interactions with the PROCOMIDA food distribution staff on the observed food distribution days[a,b]

	Arm A (n=12)	Arm B (n=9)	Arm C (n=9)	Arm D (n=12)	Arm E (n=12)	All (n=54)
They are friendly	6 (50%)	3 (33%)	4 (44%)	6 (50%)	3 (25%)	22 (41%)
They are patient	0 (0%)	1 (11%)	2 (22%)	3 (25%)	2 (17%)	8 (15%)
We have a good relationship	2 (17%)	1 (11%)	1 (11%)	2 (17%)	0 (0%)	6 (11%)
They are respectful	1 (8%)	2 (22%)	0 (0%)	1 (8%)	0 (0%)	4 (7%)
We have no problems	0 (0%)	0 (0%)	1 (11%)	2 (17%)	0 (0%)	3 (6%)
They treat us well	0 (0%)	1 (11%)	0 (0%)	0 (0%)	2 (17%)	3 (6%)
They are punctual	0 (0%)	2 (22%)	0 (0%)	0 (0%)	0 (0%)	2 (4%)
They are not angry	1 (8%)	0 (0%)	0 (0%)	1 (8%)	0 (0%)	2 (4%)
We have good communication	1 (8%)	0 (0%)	0 (0%)	0 (0%)	1 (8%)	2 (4%)
They are polite/courteous	1 (8%)	0 (0%)	0 (0%)	1 (8%)	0 (0%)	2 (4%)
They are happy to give out food	0 (0%)	0 (0%)	1 (11%)	0 (0%)	0 (0%)	1 (2%)
They look after us well	0 (0%)	0 (0%)	1 (11%)	0 (0%)	0 (0%)	1 (2%)

[a] Numbers are n (%); [b] Multiple responses were possible.

In addition to beneficiaries, PROCOMIDA fieldworkers and health commission leaders were interviewed on the subject of interactions with beneficiaries. As with the beneficiary interviews, opinions on these relationships and interactions were universally positive across the five study arms. Responses to questions about the quality of interactions and relationships with beneficiaries again focused on having good relations and that they are friendly (**Table 3.13**). They also mentioned having respectful relationships and having good communication among other positive characteristics.

Table 3.13. Comments made by PROCOMIDA fieldworkers and health commission leaders in describing their interactions with the PROCOMIDA beneficiaries on the observed food distribution days[a,b]

	PROCOMIDA fieldworkers (n=36)	Health commission leaders (n=27)
Friendly	5 (14%)	7 (26%)
Good relations	3 (8%)	6 (22%)
We have respectful relations	12 (33%)	1 (4%)
We have lots of trust	14 (39%)	0 (0%)
We have good communication	7 (19%)	2 (7%)
Good because we speak the same language	7 (19%)	0 (0%)
Equality	2 (6%)	0 (0%)
I am accepted	1 (3%)	0 (0%)
There is harmony	1 (3%)	0 (0%)
They treat me well on home visits	1 (3%)	0 (0%)
Patience and tolerance	1 (3%)	0 (0%)
Consideration	1 (3%)	0 (0%)
Mothers understand the need to obey me	1 (3%)	0 (0%)
Solidarity	1 (3%)	0 (0%)

[a] Numbers are n (%); [b] Multiple responses were possible.

Suggestions on How to Improve the Food Distribution Events

Only 3 of the 54 mothers interviewed at food distributions said that there were things that could have improved the BCC or food distribution activities in which they participated on the day of the interview. Those three comments related only to the kind of rations that the women were receiving. The respondent from study arm B said that she would have liked to receive sugar and oil. (Beneficiaries in study arm B receive oil as part of their family ration once every 4 months.) The respondent from study arm D wanted to receive CSB (this arm receives no CSB), and the respondent from study arm C (CSB-only arm) said that she would like to receive the other rations.

Use of Food Rations

We now turn to the demand side of the **availability–consumption pathway** and examine how food rations and supplements were reportedly being used in beneficiary households. Questions investigated include: What were the perceived benefits and problems associated with the rations? Who consumed rations in the household, and how long did they last? Were rations being sold or shared? Did beneficiaries perceive impacts on their diets?

Perceptions and opinions about the benefits of and problems with the food rations.[3] In this section, we examine the benefits and problems associated with the family rations and CSB as perceived by a range of institutional actors: technicians, health commission leaders, and EBS staff members. The most commonly reported benefits of the different food rations revolved around either perceived financial benefits or nutrition-related benefits (**Table 3.14**). Perceived benefits of CSB tended to be slightly more specific, focusing on the idea that CSB is good for lactating mothers and for the growth and development of children. Very few problems were reported with the rice or oil rations; however, 39 percent of the PROCOMIDA fieldworkers noted that the beans distributed by the program did not cook well. This was also mentioned by one of the beneficiaries interviewed at home when discussing problems with the quality of the food rations. A number of the PROCOMIDA fieldworkers as well as the EBS staff also thought that there could be problems with the CSB. The PROCOMIDA fieldworkers emphasized that the CSB has a bitter taste and that some of the beneficiaries did not like the CSB. EBS staff focused more on the perception that CSB could cause diarrhea.

[3] Perceived problems and benefits with the micronutrient supplements are examined in the preventive health services section of the report.

Table 3.14. Perceived benefits and problems related to the foods included in the family rations and CSB by the PROCOMIDA technicians, health commission leaders, and basic health team members

	PROCOMIDA fieldworkers (n=36)	Health commission leaders (n=27)	EBS staff (n=139)
Rice			
Benefits reported			
Financial	18 (50%)	7 (26%)	10 (72%)
Nutritional	8 (22%)	3 (11%)	22 (16%)
Problems reported			
Sometimes infested with weevils	3 (8%)		
Sometimes moldy			1 (1%)
People sell it	1 (3%)		
Beans			
Benefits reported			
Financial	16 (44%)	8 (30%)	
Nutritional	14 (39%)	3 (11%)	21 (15%)
Problems reported			
Did not cook well	14 (39%)		12 (9%)
Can cause diarrhea	1 (3%)		1 (1%)
Mothers did not like them			
Oil			
Benefits reported			
Financial	19 (53%)	6 (22%)	9 (6%)
Nutritional	7 (19%)	2 (7%)	7 (5%)
Problems reported			
Problems with containers		1 (4%)	2 (1%)
Infrequent distribution	1 (3%)		
Sometimes past the “best by” date	1 (3%)		
CSB			
Benefits reported			
Good for lactating mothers	22 (61%)	2 (7%)	
Good for children’s growth and development	19 (53%)	9 (33%)	26 (19%)
Contains vitamins			18 (13%)
Problems reported			
Had a bitter or bad taste/people disliked the taste	15 (42%)		5 (4%)
Can cause diarrhea	2 (6%)		8 (58%)

Ration consumption. Overall, rations were reportedly eaten by the intended beneficiaries. Family rations were generally eaten by beneficiary women and children as well as by other household members as intended by the program design (**Table 3.15**). CSB was intended to be eaten solely by beneficiary women who were pregnant or had a child under 6 months of age and by beneficiary children who were between the ages of 6 and 23 months. Although these two groups of beneficiaries reportedly ate the CSB as intended by the program design, there did appear to be some sharing of CSB both by mothers of children between the ages of 6 and 23 months (89%) and by other household members (32%). This sharing with other household members did appear to vary by study arm, with about one-quarter of beneficiaries in study arms A and B reporting that other household members ate the CSB (4/18, 22% and 4/15, 27%, respectively), while half of the beneficiaries in study arm C reported the same (7/14, 50%). With the exception of a few mothers who were either pregnant or had a child under 6 months of age reporting that they use the Nutri Nim or Sa Us supplements intended for children 6–23 months of age, the LNS and MNP were generally used by the intended beneficiaries. (Pregnant women and those with children under 6 months of age used either Nutri Fuerza or Nutri Nim and children 6–23 months of age used either the Nutri Nim or Sa Us).

CSB is intended to be eaten daily by either the beneficiary mother (pregnant women and those with children under 6 months of age) or by the beneficiary child between the ages of 6 and 24 months. According to self-reporting, half of the beneficiary women who were pregnant or had a child under 6 months of age had eaten CSB in the previous day and on average reported eating CSB about four times per week. This is far from ideal. Although not one of the two intended recipients of the CSB, a little fewer than half of the mothers of children between the ages of 6 and 23 months had eaten the CSB in the 24 hours prior to the interview and on average reported eating it about three times per week. CSB intake for beneficiary children was about the same, with only 45 percent having reportedly eaten CSB in the previous 24 hours and reportedly eating it about three times per week. However, this varied by study arm. Children in study arm A were the most likely to have eaten CSB in the past 24 hours (10/16 [63%], 7/14 [50%], and 1/10 [10%] for study arms A, B, and C, respectively) and ate it the most frequently (3.9, 2.8, and 1.0 times per week for study arms A, B, and C, respectively).

Like CSB, the LNS and MNP were intended to be daily. Sa Us, Nutri Nim, and Kawil Nabej were intended to be used twice daily, while Nutri Fuerza was intended to be used once daily. Intake of the LNS and MNP by the beneficiary children was more in line with their intended use than was the CSB. Nearly all of the beneficiary children consumed LNS the previous day (13/14, (93%), and their mothers reported that they used it on average twice per day, 6 days per week. Three-quarters of beneficiary children assigned to receive the MNP had used the MNP in the 24 hours prior to the interview (8/11, 73%) and reportedly used it an average of two times per day, four times per week. It appears that overall the LNS and MNP were more likely to be used by the targeted beneficiary than was the CSB, especially as compared to those in study arms B and C.

Table 3.15. Household members who reportedly eat the PROCOMIDA food rations[a]

	Rice	Beans	Oil	CSB	Nutri Fuerza	Nutri Nim	Kawil Nabej	Sa Us
	(n=67)	**(n=67)**	**(n=66)**	**(n=47)**	**(n=6)**	**(n=14)**	**(n=11)**	**(n=12)**
Other household members	65 (97%)	66 (99%)	64 (97%)	15 (32%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	(n=53)	**(n=53)**	**(n=52)**	**(n=10)**	**(n=6)**	**(n=14)**	**(n=11)**	**(n=12)**
Beneficiary mother (pregnant or with a child under 6 months of age)	51 (96%)	51 (96%)	51 (98%)	10 (100%)	5 (83%)	2 (14%)	10 (91%)	1 (8%)
Consumed yesterday				5 (50%)				
Mean number of days consumed in past week				4.3 (2.3)				
	(n=14)	**(n=14)**	**(n=14)**	**(n=37)**				
Beneficiary mother (has a child 6–23 months of age)	14 (100%)	14 (100%)	14 (100%)	33 (89%)				
Consumed yesterday				15 (41%)				
Mean number of days consumed in past week				2.8 (2.1)				
	(n=9)	**(n=9)**	**(n=9)**	**(n=7)**	**(n=1)**	**(n=0)**	**(n=4)**	**(n=0)**
Children under 6 months of age	0 (0%)	0 (0%)	0 (0%)	1 (14%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	(n=57)	**(n=57)**	**(n=56)**	**(n=40)**	**(n=5)**	**(n=14)**	**(n=11)**	**(n=11)**
Children 6–23 months of age	51 (89%)	51 (89%)	51 (91%)	36 (90%)	0 (0%)	10 (71%)	0 (0%)	11 (100%)
Consumed yesterday				18 (45%)		13 (93%)		8 (73%)
Mean number of days consumed in past week				2.8 (2.7)		5.9 (2.2)		4.2 (2.9)

[a] Numbers are n (%) or mean (SD).

Amount of time monthly food rations last in the household. The family rations and individual rations are intended to last up to 30 days (or 1 month), with the exception of oil, which is expected to last up to 60 days (or 2 months) in study arms A, D, and E and up to 120 days (or 4 months) in study arm B. In study arms A and E, the rice and beans distributed by PROCOMIDA reportedly lasted an average of between 24 days (beans in study arm A) and 29 days (beans in study arm E), falling fairly close to the maximum intended according to the program design (**Table 3.16**). These two commodities only lasted about 20 days in study arm D, and 16 and 18 days for beans and rice, respectively, in study arm B. It was not surprising that beneficiaries from study arm B reported that their food rations lasted for less time that those in the other study arms, as they receive a smaller quantity of rice and beans as compared to those in study arms A, D, and E. The oil distributed by PROCOMIDA was the family ration that was least likely to last for the intended period of time, with beneficiaries from study arms A, D, and E explaining that it lasted a little more than an average of 30 days (as opposed to the intended 60 days) and 49 days in study arm B (as opposed to the intended 120 days).

Regarding the longevity of the individual rations, the LNS and MNP reportedly lasted for the intended 30 days. However, the CSB only lasted for an average of between 18 and 24 days, with beneficiaries in study arms B and C reporting using up their CSB the fastest, at 18 days and 20 days, respectively. This could be due to the fact that beneficiaries in study arm B receive a reduced family ration and those in study arm C receive no family ration. One interesting finding was that the micronutrient supplements were more likely to last for the intended period of time than the CSB. This was likely due to the fact that CSB was reportedly shared by more household members than were the micronutrient supplements.

Table 3.16. Longevity of household and individual rations (mean number of days)[a]

	Arm A (N=18)	Arm B (N=15)	Arm C (N=14)	Arm D (N=16)	Arm E (N=18)	All (N=67)
Family ration						
Rice	24.9 (7.1)	17.7 (10.2)	–	21.1 (8.7)	26.4 (6.4)	22.8 (8.6)
Beans	24.2 (8.9)	15.9 (10.3)	–	19.7 (8.7)	28.6 (4.2)	22.5 (9.3)
Oil	33.7 (13.1)	48.9 (32.3)	–	28.6 (12.4)	35.9 (15.1)	36.1 (19.7)
Individual ration						
CSB	24.1 (7.7)	17.9 (10.3)	20.1 (8.1)	–	–	20.5 (9.3)
Nutri Fuerza	–	–	–	30 (0.0)	–	–
Nutri Nim	–	–	–	29.5 (1.9)	–	–
Kawil Nabej	–	–	–	–	35.1 (19.5)	–
Sa Us	–	–	–	–	30 (0.0)	–

[a] Numbers are mean (SD).

Sharing and selling of food rations. Selling and sharing of the family and individual rations outside the nuclear household was uncommon according to the beneficiaries interviewed at home. These beneficiary women explained that they had not shared any of the oil, Nutri Fuerza, Nutri Nim, Kawil Nabej, or Sa Us at any time over the past 4 months outside of their nuclear

households. A couple of women reported sharing either the rice or beans distributed by PROCOMIDA and one that she had shared some of her CSB twice over the past 4 months (**Table 3.17**). None of the beneficiary women interviewed at home reported that they had sold any of the family or individual rations they had received from PROCOMIDA at any time over the past 4 months.

Table 3.17. Sharing of rations outside the nuclear household

Ration	Number of women who ever shared	Number of times shared in sample	Reasons for sharing
Oil (n=66)	0	–	
Rice (n=67)	2 (3%)	3 (once by one mother, twice by another)	· Took some when visiting the beneficiary's mother · Shares with non-beneficiary mother-in-law
Beans (n=67)	2 (3%)	4 (twice by two mothers)	· Shares with visitors · Shares with non-beneficiary mother-in-law
CSB (n=47)	1 (2%)	2 (by same mother)	· Shares with non-beneficiary mother-in-law
Nutri Fuerza (n=5)	0	–	
Nutri Nim (n=14)	0	–	
Kawil Nabej (n=11)	0	–	
Sa Us (n=12)	0	–	

Beneficiaries' Perceptions of Dietary Changes

Overall, about 80 percent of the beneficiary women interviewed felt that the program had a positive impact on mothers' and children's diets (**Table 3.18**). Slightly more than half thought that the program had also had an impact on the diet of other household members. Beneficiary women emphasized positive changes related to having more food available and having more diverse diets for themselves, their children, and other household members. In addition, some women commented on the fact that they now prepare the different recipes learned at PROCOMIDA's recipe demonstrations and that their children eat CSB. A few women also explained that they thought their children were growing well.

Table 3.18. Beneficiary mothers' perceived impact on their diets, that of other household members, and that of their children between the ages of 6 and 23 months[a,b]

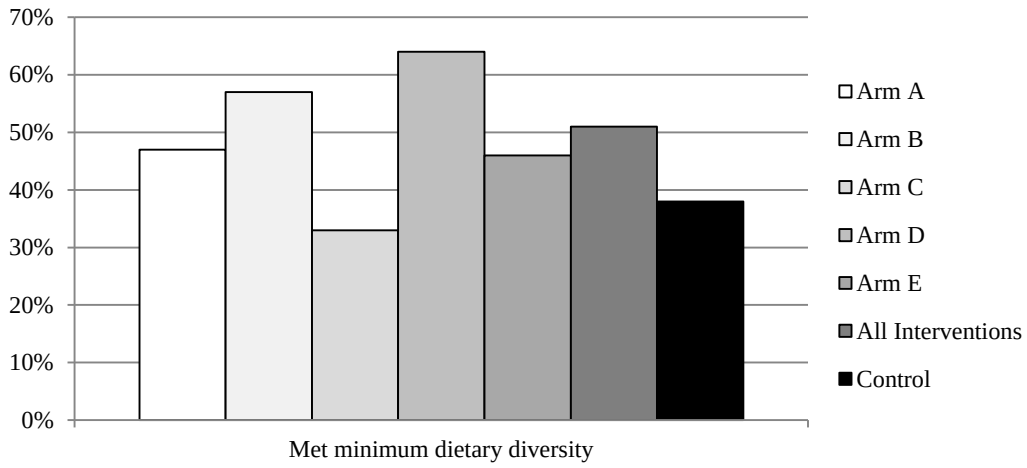
	Arm A	Arm B	Arm C	Arm D	Arm E	All
	(n=18)	(n=15)	(n=14)	(n=16)	(n=18)	(n=81)
Perceived impact of PROCOMIDA on mother's diet	15 (83%)	13 (87%)	9 (64%)	13 (81%)	14 (78%)	64 (79%)
	(n=15)	(n=13)	(n=9)	(n=13)	(n=14)	(n=64)
Eats a more varied diet	7 (47%)	4 (31%)	5 (56%)	12 (92%)	7 (50%)	35 (55%)
Has more food	8 (53%)	4 (31%)	3 (33%)	3 (23%)	6 (43%)	24 (38%)
Eats recipes learned from program	0 (0%)	2 (15%)	2 (22%)	3 (23%)	4 (29%)	11 (17%)
	(n=18)	(n=15)	(n=14)	(n=16)	(n=18)	(n=81)
Perceived impact of PROCOMIDA on diet on other household members	10 (56%)	9 (60%)	6 (43%)	12 (75%)	10 (56%)	47 (58%)
	(n=10)	(n=9)	(n=6)	(n=12)	(n=10)	(n=47)
Eats a more varied diet	7 (70%)	2 (22%)	2 (33%)	12 (100%)	0 (0%)	23 (49%)
Has more food	5 (50%)	3 (33%)	1 (17%)	0 (0%)	7 (70%)	16 (34%)
Eats recipes learned from program	1 (10%)	2 (22%)	0 (0%)	1 (8%)	1 (10%)	5 (11%)
	(n=15)	(n=14)	(n=10)	(n=15)	(n=13)	(n=67)
Perceived impact of PROCOMIDA on diet of children 6–23 months of age	12 (80%)	13 (93%)	8 (80%)	14 (93%)	8 (62%)	55 (82%)
	(n=12)	(n=13)	(n=8)	(n=14)	(n=8)	(n=55)
Eats a more varied diet	2 (17%)	0 (0%)	2 (25%)	10 (71%)	6 (75%)	20 (36%)
Has more food	2 (17%)	3 (23%)	0 (0%)	1 (7%)	1 (13%)	7 (13%)
Eats CSB	6 (50%)	8 (62%)	7 (88%)	0 (0%)	0 (0%)	21 (38%)
Receives MNP	–	–	–	–	2 (25%)	2 (4%)
Growing well	0 (0%)	1 (8%)	0 (0%)	0 (0%)	2 (25%)	3 (5%)

[a] Whether or not beneficiary women perceived an impact on diet for the different groups were asked as yes/no questions.
[b] Multiple responses were possible for the reasons for perceived impacts.

Dietary diversity of children between the ages of 6 and 24 months. In addition to the perceived changes in children's diets, a more objective measure of children's dietary diversity demonstrated that participating in PROCOMIDA has potentially contributed to increases in children's dietary diversity. According to this measure, children participating in PROCOMIDA

were more likely to have met their minimum dietary diversity according to the World Health Organization (WHO) dietary diversity indicator for children (4 out of 7 food groups) (WHO 2008) in the past 24 hours (51%), as compared to those in the control group (38%) (**Figure 3.2**). It is interesting to note that those in study arm C, who receive only CSB from PROCOMIDA, were the least likely to have met their minimum dietary diversity requirements (33%) and those in study arm D the most likely (64%). This will be examined more thoroughly in the longitudinal impact study.

Figure 3.2. Percentage of children who met the minimum dietary diversity (4 of 7 food groups) in the past 24 hours by study arm



3.1.3 Summary of the Results along the Availability–Consumption Pathway

Overall, the primary program components along the **availability–consumption pathway** were working well. In general, the food distribution activities were well managed and interactions between the distribution staff and beneficiaries seemed to be congenial. The one issue that was identified as potentially problematic was the accuracy of the beneficiary lists, although this issue seemed to be being managed appropriately by PROCOMIDA. A majority of the food distribution sites were found to be clean and in all cases the food was stored in metal containers and protected from rain and other environmental factors. Furthermore, all of the beneficiary women received their allocated rations with very few problems identified with either the quantity or quality of the different food commodities being distributed (with the exception of the expired oil). Beneficiaries and program personnel gave high marks to the implementation of the program components along this pathway, expressing convincingly positive opinions about the processes and also about the people in charge of implementing them.

The two areas along this pathway that could use some improvements were those related to longevity of the foods at the household level and dietary intakes. On average, the household food commodities and the CSB were reported to only last for about 20 days instead of the intended 30 days. And oil was reported to last only about 30 days (as opposed to the intended maximum of 60 days) or 49 days (as opposed to the intended maximum of 120 days). Some beneficiaries expressed frustration with the fact that the quantity of the family ration had been reduced since the program started and stated that in the beginning they received enough but they did not

anymore, which is why the food did not last the month. Some specifically requested to receive oil on a monthly basis. As of 2013, PROCOMIDA has been rebottling the oil and distributing it on a monthly basis to beneficiaries.

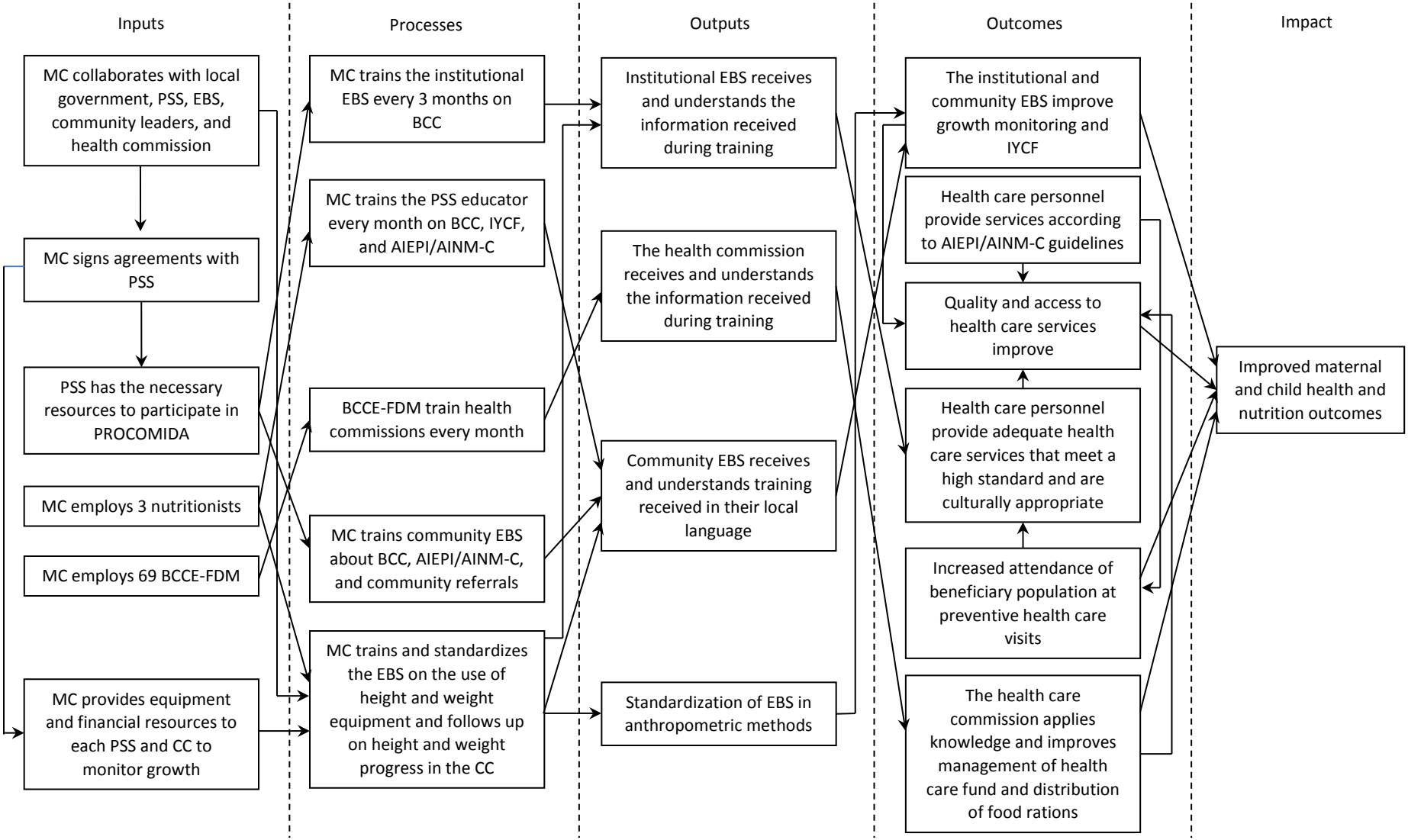
In terms of dietary intake, fewer than half of the 37 beneficiary women interviewed and of the 39 beneficiary children between 6 and 23 months of age who were included in the sample and who had received CSB had consumed it in the previous day and reported eating it only an average of 4 and 3 out of the past 7 days, respectively, as opposed to every day as intended by the design of the program. Children in the LNS group (study arm D) (n=14) were the most likely to have consumed their individual ration in the previous day, with nearly all of them (93%) having reported eating it in the previous day and on average eating it 6 out of the past 7 days, which is close to the intended 7 days per week. Children in the MNP group (study arm E) (n=11) were in the middle, with 73 percent reportedly having had their supplement in the previous 24 hours and having had it 4 out of the past 7 days.

It appears that the CSB was more likely to be shared by other household members as well as to be used less frequently than intended as compared to the LNS or MNP. This was especially true when compared to beneficiaries in study arms B and C, who received either a smaller family ration or no family ration. It is possible that the sharing may be more a reflection of the availability of the foods from the family ration rather than of the CSB, LNS, or MNP themselves. In any case, these intake patterns may limit the potential of women and children receiving CSB to attain the maximum benefits of receiving this fortified food. This issue should be further explored in the second round of the process evaluation. In addition, although it appears that children participating in PROCOMIDA were more likely to meet their minimum dietary diversity requirements than those in the control group, there is room for improvement in this area, especially among children assigned to study arm C.

3.2 The Knowledge–Use of Preventive Health Services Pathway

This section examines the second pathway through which PROCOMIDA is expected to improve maternal and child health and nutrition outcomes. This pathway aims to improve the quality of preventive health services provided to the beneficiary population and to increase utilization of these services. To realize the **knowledge–use of preventive health services pathway**, PROCOMIDA provides training to the *prestadores de servicios de salud* (PSSs) (health service providers) from the Ministerio de Salud Pública y Asistencia Social (MSPAS) (Ministry of Public Health and Social Assistance) assigned to the CCs served by the program. In addition, to ensure use of these preventive health services, PROCOMIDA requires all program beneficiaries to attend prenatal visits and to take their children under 24 months of age for growth monitoring and promotion (GMP) services. Furthermore, PROCOMIDA educates the beneficiary population about how to prevent diarrhea and anemia, the danger signs during pregnancy and childhood illness for which immediate medical care should be sought, and care for sick and malnourished children, and promotes the utilization of available preventive health services (e.g., vaccinations, micronutrient supplements, deworming). Improved provision of preventive health services and utilization of both preventive and curative health services by the beneficiary population are expected to contribute to improvements in maternal and child health and nutrition outcomes among PROCOMIDA's beneficiary population (**Figure 3.3**).

Figure 3.3. Program theory framework for the *knowledge–use of preventive health services pathway*



For this pathway, the process evaluation focused on assessing the training provided by PROCOMIDA to the EBS staff and health commission leaders. These trainings were expected to be held quarterly for all EBS staff assigned to the CCs served by the program and monthly for the educators. Knowledge questions related to the key BCC messages promoted by PROCOMIDA were asked of the EBS staff members and health commission leaders who were assigned to CCs served by the program as well as those that were not (i.e., those in the control arm of the longitudinal study). As the institutional EBS staff serve multiple CCs, it is possible that some EBS staff included in the process evaluation would be assigned to both CCs served by the program and those that assigned to the control arm of the study. The process evaluation also included direct observations of the provision of prenatal and GMP services and the use and perception of these services by those living in communities served by CCs assigned to participate in PROCOMIDA as well as some that were not.

This section provides a brief description of the preventive health services provided in Alta Verapaz and for each of the primary program components along this pathway that were included in the process evaluation. The next part of this section provides the primary results from the process evaluation related to the primary program components along this pathway. Lastly, the program components along this pathway that were identified as working well and those that needed some improvements are summarized, including suggestions on how these program components could be modified or strengthened to improve their potential to contribute to positive impacts on maternal and child health and nutrition outcomes.

3.2.1 Description of PROCOMIDA's Primary Program Components along the Knowledge–Use of Preventive Health Services Pathway

Provision of preventive health services in Alta Verapaz, Guatemala, is implemented through the *Programa de Extensión de Cobertura* (PEC) (Extension of Coverage Program), which was introduced as part of the 1996 peace accords and aimed to expand health coverage to rural populations and to provide *servicios básicos de salud* (SBS) (basic health services) to pregnant and lactating women and children under 5 years of age through CCs. The PEC system is managed by local nongovernmental organizations (NGOs), that is, PSSs, that are responsible for managing the CCs. The MSPAS is in charge of supervising the PSSs and supplying them with the necessary resources (money, equipment, and supplies) for the training of health staff as well as for service delivery at the secondary and tertiary level (health posts, health centers, hospitals, and nutritional recovery centers). SBS consist primarily of preventive health visits (prenatal and postnatal visits for women and monthly growth monitoring and annual checkups for children). In addition to consultations, women and children are provided with the recommended micronutrient supplements and vaccinations as well as basic medicines if prescribed by the doctor or nurse.

At each CC, SBS are provided by an EBS, which includes an ambulatory medical team that spends 1 day per month at each CC and a community-based team that lives in the communities served by each CC. The ambulatory medical team consists of an ambulatory doctor or nurse and an institutional facilitator. In addition, some teams may have an educator, but it is not common outside of PROCOMIDA areas. The community-based EBS team consists of a community facilitator, community health workers, and trained midwives.

Provision of Training for the Institutional EBS

Every 3 months, PROCOMIDA provides training to the EBS institutional staff on key BCC messages promoted by PROCOMIDA. PROCOMIDA also provides training and standardization in anthropometric measurements for the institutional EBS staff and provides each CC with a locally produced length and height board and Seca hanging scales to take these measurements. During monthly consultations at the CC, the ambulatory doctor or nurse is responsible for providing health consultations, prescribing necessary medication, and making referrals to other health services. The institutional facilitator is responsible for the monthly provision of immunizations and micronutrient supplements and GMP services.

Provision of Training for the Community-Based EBS

Community-based EBS staff includes the community facilitator, community health workers, and midwives. According to PROCOMIDA, to date only the community facilitator has been included in PROCOMIDA trainings, specifically in the standardization of anthropometric measurements and on when it is appropriate to refer women and children to additional health services.[4] The community facilitator is responsible for the community health workers and midwives in their communities and reports to the institutional facilitator. Other duties of the community facilitator include participating in PSS-level activities, leading the GMP and vaccination activities, and coordinating with the local health commission to transport high-risk patients to hospitals. Community health workers and midwives are the primary health staff available at the community level and are expected to make regular home visits in their communities. Midwives should also provide support for mothers during pregnancy and lactation. The community health workers' main role is to remind women to go to CCs for pre-, peri-, and postnatal care; to take their children for consultations and GMP services; and to receive vaccines and micronutrient supplements.

Provision of Training for the PSS Educator

The PSS educator is trained monthly by PROCOMIDA alongside the PROCOMIDA fieldworkers on key BCC messages promoted by PROCOMIDA.[5] The role of PSS educators is to support the community-based EBS staff and PROCOMIDA leader mothers and to provide follow-up visits to beneficiaries in their homes when necessary. The PSS educator is asked to prioritize visiting children who are malnourished or pregnant women with high-risk pregnancies. During visits, educators should reinforce BCC messages and promote consumption of household and individual rations as appropriate.

Provision of Training for the Health Commission

PROCOMIDA fieldworkers train health commission members monthly on key BCC messages before the distribution of the food rations at the CCs. Health commission members are responsible for organizing PROCOMIDA distribution days, managing the CC health fund,

[4] PROCOMIDA is currently developing a set of training materials specifically tailored for the community facilitator, community health workers, and midwives.
[5] See Section 3.3 for information on these trainings.

assisting women in their birth plans, and arranging for medical transport of women and children with medical emergencies.

Utilization of Preventative Health Services by Beneficiary Mothers and Children

PROCOMIDA beneficiaries are required to attend preventive health care services. During pregnancy, beneficiaries are encouraged to attend at least four prenatal visits. Following delivery, beneficiaries should receive a postnatal visit from EBS staff within 45 days of birth. Children under 24 months of age are expected to attend monthly GMP services provided at the CCs.

Prenatal Services Provided at CCs

Prenatal services are provided monthly at the CC by the ambulatory doctor or nurse. In addition, they often receive assistance from the CC's midwife. In Guatemala, a minimum of four prenatal visits are recommended for pregnant women, during which professional medical staff should take a woman's height, weight, urine, blood pressure, temperature, and pulse; give a tetanus shot; and provide information on danger signs during pregnancy. Tetanus shots should be given at least twice during pregnancy. MSPAS norms recommend that pregnant women take two 300 mg iron tablets and one 5 mg folic acid tablet each week, which should be provided free of charge at the CC.

GMP Services Provided at CCs

GMP services are provided monthly at the CCs and are generally administered by the community facilitator with help from the institutional facilitator or community health worker. PROCOMIDA beneficiaries are strongly encouraged to take children to the CC every month to receive the monthly GMP services. At these visits, the children are weighed and the weight should be recorded on the child's health card and then plotted on the weight-for-age graph contained on the card. The mother should then be informed about the implications of her child's weight, e.g., growth faltering, malnourished or not. Children should also receive the necessary vaccinations and micronutrients (vitamin A and either iron and folic acid or Macrovital[6]), according to his/her age (Olney et al. 2011). However, if the child is in study arm D or E, he/she should not be given Macrovital or iron and folic acid, but should instead be encouraged to consume the LNS or MNP supplement provided by PROCOMIDA.

3.2.2 Results Related to the Primary Program Components along the Knowledge–Use of Preventive Health Services Pathway

Background of EBS staff. About half of the EBS staff interviewed were female and a majority stated that their ethnicity was Q'eqchi' and that they had attended at least some school (**Table 3.19**). About one-third of the EBS staff interviewed had completed primary school, while about one-quarter and about one-third of the EBS staff interviewed at beneficiary and control CCs, respectively, had completed university. As a majority of the EBS staff interviewed are

[6] Macrovital is a micronutrient supplement, distributed by the MSPAS in Guatemala, that contains iron, folic acid, zinc, vitamin A, and vitamin C.

Q'eqchi', it is not surprising that almost all of those interviewed also said that they can speak Q'eqchi'. About 60 percent of the EBS staff interviewed explained that their work as a health staff member was their primary work during the past month, while others stated that they either did not have any primary work in the past month or that their primary work was related to agricultural activities or other paid work.

When analyzed by position, we found that nearly all of the educators and midwives were female. A majority of nurses were also female, while the institutional facilitators, community facilitators, and community health workers tended to be male (data not shown). In terms of ethnicity, nearly all of the health staff were Q'eqchi'. The only exception was the nurses, of whom fewer than half were Q'eqchi'; the others explained that they were not indigenous. Unsurprisingly, midwives and community health workers were the least likely to have ever studied, and nurses were the most likely to have completed university. If midwives or community health workers had attended school, they had completed either primary education or the first half of secondary school (*básico*) (data not shown).

Table 3.19. Characteristics of EBS staff[a]

	EBS beneficiary CCs (n=86)	EBS control CCs (n=34)
Female	45 (52%)	18 (53%)
Ethnicity: Q'eqchi'	76 (88%)	29 (85%)
Attended School	75 (87%)	25 (74%)
Schooling completed		
Primary	24 (32%)[c]	9 (36%)[d]
Básico[b]	15 (20%)[c]	2 (8%)[d]
Diversificado[b]	19 (25%)[c]	6 (24%)[d]
University	17 (23%)[c]	8 (32%)[d]
Language spoken		
Spanish	66 (77%)	22 (65%)
Q'eqchi'	83 (97%)	32 (94%)
Had prior experience in maternal and/or child health and/or nutrition	38 (44%)	17 (50%)
Primary work in the past month		
Health staff	55 (64%)	19 (56%)
Agriculture	16 (19%)	8 (24%)
Paid work	11 (13%)	3 (9%)
No work	4 (5%)	4 (12%)

[a] Numbers are n (%).
[b] Secondary school is divided in two parts: 3 years of *básico* (comparable to the junior high school in the United States) and 2 or 3 years of *diversificado.*
[c] n=75,[d] n=25.

EBS staff work with PROCOMIDA. More than one-third of the EBS staff interviewed at beneficiary CCs reported that, in addition to their work as an EBS staff member, they also had responsibilities related to the PROCOMIDA program (34/86, 40%). Those who reported having these additional responsibilities were primarily the educators (9/10, 90%), community facilitators (10/18, 56%), nurses (6/13, 46%), community health workers (5/14, 36%), and institutional facilitators (4/13, 31%). When asked what their primary responsibilities with PROCOMIDA were, the EBS staff interviewed reported activities related to prenatal care (5/34, 15%), growth monitoring (17/34, 50%), detection and follow-up of malnourished children (14/34, 41%) or women with high-risk pregnancies (4/34, 12%), conducting home visits (8/34, 24%), conducting recipe demonstrations (8/34, 24%) and other BCC-related activities (9/34, 26%), helping with the food distributions (12/34, 35%), and general coordination activities (5/34, 15%). Overall, these responsibilities are in line with what was intended according to PROCOMIDA's design.

EBS staff received training from PROCOMIDA. About half of the EBS staff associated with beneficiary CCs said that they had received training from PROCOMIDA (48/86, 56%). A little fewer than one-third of those interviewed at control CCs stated that they had also received training from PROCOMIDA (10/34, 29%). The reported provision of training to staff at control CCs is likely due to training provided to the institutional EBS team that rotates throughout the month to different CCs and thus likely serves both beneficiary and control CCs. A majority of the nurses, institutional facilitators, and educators associated with both beneficiary and control CCs had received training from PROCOMIDA. A majority of the community facilitators (11/18, 61%) and half of the community health workers (7/14, 50%) associated with beneficiary CCs had also received training from PROCOMIDA, whereas none of those associated with control CCs had received this training. Only one midwife associated with a beneficiary CC had participated in any PROCOMIDA training sessions. All but one of the EBS staff members who had received training from PROCOMIDA thought that the quality of the training provided was either good (29/48, 60% in intervention CCs and 4/10, 40% in control CCs) or very good (18/48, 38% in intervention CCs and 6/10, 60% in control CCs).

The EBS staff who had received training from PROCOMIDA explained that there were a wide variety of important topics covered in these training sessions (**Table 3.20**). From the perspectives of the EBS staff members interviewed, it appears that the focus of the training sessions provided by PROCOMIDA to EBS staff members largely revolved around training them in how to measure children's height and weight, as well as in some topics related to breastfeeding, complementary feeding, and nutrition during pregnancy. Other less commonly mentioned topics covered in these sessions that were believed to be important included hygiene, general nutrition, and use of the foods and supplements provided by PROCOMIDA. This is again in line with PROCOMIDA's goal to provide training to EBS staff in how to take anthropometric measurements and identification of malnourished children and at-risk pregnancies.

Table 3.20. Most important topics covered in trainings provided to EBS staff by PROCOMIDA[a]

	EBS beneficiary CCs (n=48)	EBS control CCs (n=10)
Growth monitoring	20 (42%)	7 (70%)
Malnutrition	13 (27%)	4 (40%)
Complementary feeding	11 (23%)	1 (10%)
Nutrition during pregnancy	7 (15%)	1 (10%)
Breastfeeding	6 (13%)	2 (20%)
Hygiene	6 (13%)	0 (0%)
Nutrition	4 (8%)	1 (10%)
Use of PROCOMIDA foods	4 (8%)	1 (10%)
Use of supplements	4 (8%)	1 (10%)
Danger signs during pregnancy	3 (6%)	1 (10%)
Detection of at-risk pregnancies	3 (6%)	0 (0%)
Birth plan	2 (4%)	0 (0%)
Use/non-use of bottles	2 (4%)	0 (0%)
Family planning	2 (4%)	0 (0%)

[a] Numbers are n (%).

Health and Nutrition Knowledge among the EBS Staff

Overall, knowledge related to the different danger signs during pregnancy among the health commission leaders and community EBS staff who were interviewed was low. Although a majority of the EBS staff members associated with both beneficiary CCs and control CCs correctly listed vaginal bleeding, severe headaches, and severe stomachaches as danger signs during pregnancy, only about one-third of those interviewed mentioned persistent back pain, amniotic fluid discharge, or swollen feet and hands as danger signs during pregnancy, and even fewer mentioned the other danger signs during pregnancy (**Table 3.21**). Knowledge related to danger signs during pregnancy was lower among health commission leaders, and seemed to be slightly better among health commission leaders associated with control CCs than among beneficiary CCs, although the sample sizes were very small. Nearly all of the institutional EBS staff interviewed correctly listed vaginal bleeding, severe headaches, and severe stomachaches as danger signs during pregnancy. There did not appear to be any consistent differences between those interviewed at treatment CCs and those at control CCs.

Table 3.21. Prenatal care knowledge among EBS staff and health commission members[a,b]

	Health commission (n=19)	Health commission control (n=8)	Institutional EBS (n=36)	Institutional EBS control (n=13)	Community EBS (n=50)	Community EBS control (n=21)
Danger signs of pregnancy; % who said:						
Vaginal bleeding	10 (53%)	3 (38%)	36 (100%)	13 (100%)	34 (68%)	13 (62%)
Severe headaches	11 (58%)	6 (75%)	32 (89%)	12 (92%)	39 (78%)	17 (81%)
Severe stomachaches	7 (37%)	5 (63%)	30 (83%)	11 (85%)	28 (56%)	13 (62%)
Persistent vomiting	0 (0%)	0 (0%)	0 (0%)	1 (8%)	0 (0%)	1 (5%)
Persistent back pain	5 (26%)	6 (75%)	12 (33%)	3 (23%)	14 (28%)	6 (29%)
Amniotic fluid discharge	10 (53%)	2 (25%)	19 (53%)	4 (31%)	17 (34%)	7 (33%)
Swollen hands, feet, body	6 (32%)	3 (38%)	20 (56%)	6 (46%)	10 (20%)	4 (19%)
Contractions before 37 weeks	2 (11%)	0 (0%)	4 (11%)	0 (0%)	4 (8%)	1 (5%)
No fetal movement after 5 months	2 (11%)	1 (13%)	0 (0%)	0 (0%)	4 (8%)	1 (5%)

[a] Numbers are n (%).
[b] Multiple responses were possible.

Danger signs during childhood illness were even less well known than were those during pregnancy. Overall, fewer than 75 percent of the EBS staff interviewed correctly listed each of the different danger signs during childhood illness (**Table 3.22**). Institutional EBS staff associated with beneficiary CCs were more likely than those associated with control CCs to correctly mention such signs as intensifying symptoms, trouble breathing, and bloody stools as danger signs during childhood illness, but fewer than 75 percent of those interviewed mentioned any of those important danger signs during childhood illness. As with the EBS staff, fever was the most commonly mentioned danger sign during childhood illness among the health commission leaders interviewed. Knowledge of the other danger signs during childhood illness was generally low.

Three-quarters of the institutional EBS staff and about half of the community EBS staff interviewed correctly stated that children should be given more liquids and breast milk when they are sick. However, only about half of the institutional EBS staff and fewer than one-quarter of community EBS staff correctly stated that they should also be given more food than usual when they are ill. Health commission leaders on the other hand did not seem to be familiar with the recommendations that children should be given more breast milk, liquids, or food than usual when they are sick, as very few of those interviewed answered these questions correctly. About half of the health commission leaders did know that children should be given more liquids and food when recovering from illness, while more than half knew that they should be given more

breast milk than usual when recovering from illness. Knowledge related to the use of ORS was generally good across the different groups interviewed.

Table 3.22. Knowledge of child health care practices among EBS staff and health commission members[a]

	Health commission (n=19)	Health commission control (n=8)	Institutional EBS (n=36)	Institutional EBS control (n=13)	Community EBS (n=50)	Community EBS control (n=21)
Danger signs of childhood illness; % who said:						
Cannot drink/ breastfeed	4 (21%)	4 (50%)	21 (58%)	10 (77%)	14 (28%)	5 (24%)
Symptoms intensify	4 (21%)	3 (38%)	11 (31%)	2 (15%)	16 (32%)	7 (33%)
Fever	13 (68%)	5 (63%)	23 (64%)	9 (69%)	34 (68%)	16 (76%)
Rapid breathing	3 (16%)	2 (25%)	17 (47%)	7 (54%)	12 (24%)	1 (5%)
Trouble breathing	6 (32%)	2 (25%)	23 (64%)	6 (46%)	18 (36%)	2 (10%)
Bloody stools	4 (21%)	0 (0%)	17 (47%)	2 (15%)	17 (34%)	8 (38%)
Treating diarrhea; % who knew:						
The purpose of oral rehydration salts (ORS)	15 (79%)	8 (100%)	31 (86%)	12 (92%)	40 (80%)	15 (71%)
Feeding a sick child; % who knew:						
To give more food	2 (11%)	1 (13%)	19 (53%)	6 (46%)	11 (22%)	1 (5%)
To give more liquids	5 (26%)	2 (25%)	27 (75%)	10 (77%)	35 (50%)	7 (33%)
To give more breast milk	2 (11%)	1 (13%)	29 (81%)	10 (77%)	23 (46%)	10 (48%)
Feeding a child immediately following recovery; % who knew:						
To give more food	7 (37%)	5 (63%)	15 (42%)	7 (54%)	26 (52%)	11 (52%)
To give more liquids	10 (53%)	4 (50%)	17 (47%)	8 (62%)	32 (64%)	15 (75%)
To give more breast milk	11 (58%)	6 (75%)	17 (47%)	10 (77%)	32 (64%)	18 (86%)

[a] Numbers are n (%).

EBS staff appeared to be more familiar with the recommendations related to the timing for the initiation of breastfeeding, introduction of liquids other than breast milk and semi-solid foods, and meal frequency for children between the ages of 6 and 8.9 months than those for feeding children during illness and recovery. Nearly all of the EBS staff interviewed (both institutional and community) correctly stated that children should begin breastfeeding within 1 hour after birth and should begin to receive liquids other than breast milk at 6 months of age and that children between the ages 6 and 8.9 months should eat two or more meals per day (**Table 3.23**). About three-quarters of the EBS staff interviewed (both institutional and community) associated with both beneficiary and control CCs also correctly stated that children should begin to receive

semi-solid foods at 6 months of age, although some also reported that children should not be introduced to semi-solid foods until after the recommended 6 months of age.

Although nearly all of the health commission leaders interviewed correctly explained that children between the ages of 6 and 8.9 months should eat 2 or more meals per day, fewer than three-quarters of those interviewed knew that children should begin breastfeeding within 1 hour of birth and should begin to receive liquids other than breast milk at 6 months of age. A few mentioned that children should begin to receive liquids other than breast milk earlier than 6 months of age and others after the recommended 6 months of age. Fewer than half of the health commission leaders interviewed correctly stated that children should begin to receive semi-solid foods at 6 months of age. Most of the other health commission leaders interviewed stated that children should begin to receive semi-solid foods after 6 months of age. Late introduction of complementary foods could contribute to nutritional deficiencies, as breast milk is no longer sufficient to meet children's nutritional needs past 6 months of age (Pan American Health Organization [PAHO]/WHO 2003).

Table 3.23. Breastfeeding and IYCF knowledge of EBS staff and health commission members[a]

	Health commission (n=19)	Health commission control (n=8)	EBS Group 1 (n=36)	EBS Group 1 control (n=13)	EBS Group 2 (n=50)	EBS Group 2 control (n=21)
Breastfeeding						
Baby should be breastfed immediately (< 1 h) after birth	13 (68%)	6 (75%)	36 (100%)	12 (92%)	44 (88%)	19 (90%)
Age of introduction of liquids						
Before 6 months	2 (11%)	2 (25%)	0 (0%)	1 (8%)	4 (8%)	3 (14%)
At 6 months	13 (68%)	6 (75%)	35 (97%)	12 (92%)	43 (86%)	16 (76%)
After 6 months	4 (21%)	0 (0%)	0 (0%)	0 (0%)	2 (4%)	1 (5%)
Age of introduction of food						
Before 6 months	0 (0%)	1 (13%)	1 (3%)	0 (0%)	0 (0%)	0 (0%)
At 6 months	9 (47%)	5 (63%)	27 (75%)	11 (85%)	35 (70%)	16 (76%)
After 6 months	10 (53%)	2 (25%)	8 (22%)	2 (15%)	15 (30%)	5 (24%)
Meal frequency						
Children 6–8.9 months	3.4 (0.7)	3.9 (1.1)	3.7 (1.2)	3.4 (1.1)	3.9 (1.0)	3.6 (1.2)
2 or more meals	19 (100%)	7 (88%)	35 (97%)	13 (100%)	49 (98%)	20 (95%)

[a] Numbers are n (%) or mean (SD).

A large majority of institutional and community EBS staff and health commission leaders knew that boiling water and using chlorine are both methods that can be used to purify water. In addition, nearly all of the institutional and community EBS staff and health commission leaders alike correctly reported that soap should be used to wash hands. Although nearly all of the institutional and community EBS staff knew that hands should be washed before eating and

about three-quarters knew that they should be washed after using the bathroom, they less commonly mentioned the importance of washing hands before feeding a child or after cleaning a child who had defecated (**Table 3.24**). Failure to wash hands at these two important times can contribute to an increased risk of infection.

Table 3.24. Hygiene knowledge of EBS staff and health commission members[a]

	Health commission (n=19)	Health commission control (n=8)	EBS Group 1 (n=36)	EBS Group 1 control (n=13)	EBS Group 2 (n=50)	EBS Group 2 control (n=21)
Timing for handwashing						
Before eating	19 (100%)	7 (88%)	36 (100%)	13 (100%)	46 (92%)	20 (95%)
After using the bathroom	14 (74%)	7 (88%)	33 (92%)	10 (77%)	35 (70%)	11 (52%)
Before feeding a child	9 (47%)	7 (88%)	16 (44%)	9 (69%)	25 (50%)	10 (48%)
After cleaning a child who defecated	5 (26%)	1 (13%)	16 (44%)	10 (77%)	11 (22%)	2 (10%)
Before preparing or touching food	13 (68%)	4 (50%)	24 (67%)	9 (69%)	24 (48%)	14 (67%)
Handwashing products						
Soap	18 (95%)	7 (88%)	33 (92%)	13 (100%)	45 (90%)	21 (100%)
Ash	2 (11%)	1 (13%)	8 (22%)	4 (31%)	7 (14%)	3 (14%)
Water purification methods						
Boiling	13 (68%)	7 (88%)	31 (86%)	10 (77%)	39 (78%)	17 (81%)
Chlorine	18 (95%)	7 (88%)	34 (94%)	12 (92%)	42 (84%)	15 (71%)
Filter	4 (21%)	2 (25%)	6 (17%)	2 (15%)	3 (6%)	6 (29%)

[a] Numbers are n (%).

Beneficiaries Take Their Children for GMP Visits

All but one of the beneficiary women and two control women interviewed at home had taken her child to at least one GMP visit in the past 4 months (**Table 3.25**). A majority of beneficiary women also reported having taken their children to four GMP visits over the past 4 months, as recommended by the MSPAS in Guatemala, whereas only about half of the women in control communities had done the same. A large majority of the beneficiary women interviewed explained that they had taken their children for GMP visits to know how their child was growing (64/69, 93%), while some mentioned other reasons, such as to check the health of the child (7/69, 10%), to get vaccinations for their children (4/69, 6%), and for reasons related to danger signs during childhood illness (3/69, 4%). One mother each mentioned reasons related to either receiving medication or supplements, and one explained that it was “her duty as a mother.” Women in control communities cited similar reasons for taking their children for their GMP visits. The one beneficiary mother who had not yet taken her child for a GMP visit stated that she did not know when to go for the GMP visit, and the two control mothers said that their children had not yet reached 1 month of age.

Almost all of the mothers interviewed, both beneficiary mothers and control mothers, had their child's health card at the time of the interview. However, according to their health cards, only a little more than half of the children had received a high-dose vitamin A supplement in the past 6 months, as recommended by the MSPAS.

As expected according to the program design, a large majority of children in study arm D had used Nutri Nim and a majority of those in study arm E had used Sa Us in the past 4 months. None of the women in the other study arms or in the control arm had given their children Nutri Nim or Sa US over the past 4 months, as would be expected. However, Macrovital, which should be distributed to children at their GMP visits at the CCs every 6 months, was also reportedly used by some children in study arms D and E, which should not be happening. While Macrovital should be available at CCs in Alta Verapaz, it provides some of the same micronutrients as are provided in Nutri Nim and Sa Us and children do not need both supplements. Macrovital use in the other study arms was fairly low, with only about 25 percent of children reportedly having used Macrovital in the past 4 months in study arms A and C, a little more than 50 percent in study arm B, and 37 percent in the control arm.

Beneficiary mothers explained benefits of all three types of supplements. Regarding the use of Nutri Nim, beneficiary mothers highlighted benefits related to the growth (10/15, 67%) and health (4/15, 27%) of their children, as well as the prevention of illness (2/15, 13%). A majority of beneficiary mothers who had given Sa Us to their children reported benefits related its use (9/11, 82%) and focused on benefits related to making their children healthy (6/9, 67%) and strong (2/9, 22%), helping their growth (2/9, 22%), and protecting them from illness (3/9, 33%). One beneficiary mother also said it helps with the development of her child (1/9, 11%). About one-third of the mothers who had given their children Sa Us in the past 4 months reported that their children had experienced at least one episode of diarrhea that they believed was related to the use of the supplement (4/11, 36%), and one explained that her child did not like the supplement (1/11, 9%). Benefits believed by beneficiary mothers to be related to the use of Macrovital were similar to those for Nutri Nim and Sa Us and included improving the growth (10/19, 53%), health (10/19, 53%), and strength of the children (5/19, 26%). Mothers in the control communities explained similar benefits related to giving their children Macrovital. About one-third of the beneficiary mothers reported that their children had at least one episode of diarrhea that they associated with the use of Nutri Nim (5/14, 36%). One beneficiary woman who had given her child Macrovital over the past 4 months also reported diarrhea as a problem associated with this supplement (1/19, 5%).

Table 3.25. Beneficiary attendance and barriers to attending GMP visits[a]

	Arm A (n=16)	Arm B (n=14)	Arm C (n=11)	Arm D (n=15)	Arm E (n=13)	All (n=69)	Control (n=19)
Attended at least one GMP visit	16 (100%)	14 (100%)	11 (100%)	14 (93%)	13 (100%)	68 (99%)	17 (89%)
Attended four GMP visits in the past 4 months	15 (94%)	12 (86%)	8 (73%)	7 (47%)	12 (92%)	54 (78%)	8 (53%)[b]
Had child's health card	14 (88%)	13 (93%)	11 (100%)	14 (93%)	12 (92%)	64 (93%)	17 (90%)
Received vitamin A within the past 6 months according to the child's health card	8 (57%)[c]	10 (77%)[d]	6 (55%)	4 (29%)[c]	8 (62%)	36 (56%)[e]	10 (59%)[f]
Used Macrovital or Chispitas in the past 4 months	4 (25%)	8 (57%)	3 (27%)	1 (7%)	3 (23%)	19 (28%)	7 (37%)
Used Nutri Nim in the past 4 months	0 (0%)	0 (0%)	0 (0%)	14 (93%)	0 (0%)	14 (20%)	0 (0%)
Used Sa Us in the past 4 months	0 (0%)	0 (0%)	0 (0%)	0 (0%)	11 (85%)	11 (16%)	0 (0%)

[a] Numbers are n (%); [b] n=15, [c] n=14, [d] n=13, [e] n=64, [f] n=17.

Quality of GMP Visits Provided at the CCs

In all cases, children who were observed at the GMP visits were weighed as expected (**Table 3.26**). In a majority of cases, their weight and weight-for-age were recorded and plotted, respectively. About two-thirds of the observed mothers in both beneficiary CCs and control CCs were told what their child's weight was and in a few cases (all in beneficiary CCs) the health staff discussed the child's weight/growth with the mother. Children's height was measured for 42 percent of the children attending beneficiary CCs and for 27 percent of children attending control CCs. One striking result among the beneficiary CCs was that none of the observed children from CCs in study arm D had their height measured.

Observed distribution of Macrovital was similar to what was reported by mothers, with the exception of study arm B, where more than 50 percent of the mothers interviewed at home had reported giving their child Macrovital in the past 4 months, but only 17 percent of children observed at the GMP visit had received supplements (iron, chispitas or Macrovital). As was reported by mothers interviewed at home, we also observed that 25 percent (2/8) of children attending CCs assigned to study arm E had received supplements (iron, chispitas or Macrovital). Although the sample size is small, it confirms mothers' report of distribution and potential use of both types of supplements in some areas assigned to study arm E. Although there was some distribution of Macrovital, only one mother received any information from the health staff regarding how the supplement should be used (e.g., dose and frequency).

Only six mothers (6/51, 12%) received any advice related to children's weight, growth, nutrition, or feeding during any of the observed GMP visits. Two of these mothers had children who were

found to be undernourished and were advised to feed their children more food. One of these women was specifically given the following advice: "She should feed her child more so that she can regain the weight she had lost and she should also take better care of her child in respect to her hygiene."

The flip charts produced by PROCOMIDA were seen in about one-quarter of the beneficiary CCs and in 13 percent of the control CCs. These flip charts were used during only two observations of a GMP visit. In one case, the health staff member used the flip chart to show the mother what a healthy child looks like and in the other case, the health staff used it to explain how the child should eat porridge.

Table 3.26. Provision of GMP visits by EBS staff[a]

	Arm A (n=8)	Arm B (n=6)	Arm C (n=6)	Arm D (n=8)	Arm E (n=8)	All (n=36)	Control (n=15)
Child weighed	8 (100%)	6 (100%)	6 (100%)	8 (100%)	8 (100%)	36 (100%)	15 (100%)
Weight recorded	8 (100%)	6 (100%)	5 (83%)	8 (100%)	7 (88%)	34 (94%)	14 (93%)
Weight-for-age plotted	8 (100%)	4 (67%)	4 (67%)	5 (63%)	5 (63%)	26 (72%)	13 (87%)
Health personnel told mother child's weight	4 (50%)	3 (50%)	4 (67%)	5 (63%)	7 (88%)	23 (64%)	10 (67%)
Health personnel talked to mother about child's weight	0 (0%)	1 (17%)	1 (17%)	1 (13%)	2 (25%)	5 (14%)	0 (0%)
Child's length/height measured	6 (75%)	1 (17%)	3 (50%)	0 (0%)	5 (63%)	15 (42%)	4 (27%)
Height recorded	6 (100%)[b]	1 (100%)[c]	2 (67%)[d]	0 (0%)	4 (80%)[e]	13 (87%)[f]	4 (100%)[g]
LAZ/HAZ recorded[h]	6 (100%)[b]	1 (100%)[c]	2 (67%)[d]	0 (0%)	3 (60%)[e]	12 (80%)[f]	4 (100%)[g]
Health personnel told mother child's height	2 (33%)[b]	1 (100%)[c]	1 (33%)[d]	0 (0%)	4 (80%)[e]	8 (53%)[f]	1 (25%)[g]
Health personnel talked to mother about child's height	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (20%)[e]	1 (7%)[f]	1 (25%)[g]
Child received supplements (iron, chispitas, or Macrovital)	2 (25%)	1 (17%)	1 (17%)	0 (0%)	2 (25%)	6 (17%)	5 (33%)
Gave advice about child feeding and/or care	0 (0%)	0 (0%)	1 (17%)	0 (0%)	3 (38%)	4 (11%)	2 (13%)
Saw flip charts from PROCOMIDA at the CC	2 (25%)	0 (0%)	2 (33%)	0 (0%)	4 (50%)	8 (22%)	2 (13%)
Used flip charts from PROCOMIDA	0 (0%)	0 (0%)	1 (17%)	0 (0%)	1 (13%)	2 (6%)	0 (0%)
Supplements given recorded	1 (50%)[h]	1 (100%)[c]	1 (100%)[c]	0 (0%)	2 (100%)[h]	5 (83%)[b]	4 (80%)[e]

[a] Numbers are n (%); [b] n=6, [c] n=1, [d] n=3, [e] n=5, [f] n=15, [g] n=4, [h] n=2.
[h] Length-for-age z-score/height-for-age z-score.

Beneficiaries' perceptions and opinions related to services received at the observed GMP visits. All of the women who were interviewed following the observed GMP visits felt that it was important to bring their children for these visits, and a large majority were satisfied with the service they had received (35/36, 97% and 14/15, 93% in beneficiary and control CCs,

respectively). Although a majority of mothers were satisfied with the services received and reported that they had received the services they were expecting (30/36, 83% and 13/15, 87% in beneficiary and control CCs, respectively), some said that they would have liked to have received additional services (5/36, 14% and 2/15, 13% in beneficiary and control CCs, respectively). Beneficiary women explained that they would have liked to have had their children receive: a consultation (4/5, 80%), vaccinations (2/5, 40%), medicine (1/5, 20%), or treatment for diarrhea (1/5, 20%). Women attending CCs assigned to the control group said that they would have liked to have been given either vitamins (2/2, 100%) or treatment for diarrhea for their children (1/2, 50%).

All but two of the women interviewed stated that they felt respected by the health staff. One of the women who did not feel respected explained that "although she had come first, others were seen before her." And the other did not feel respected because the health staff "did not tell her how to feed her child." In response to a direct question about whether or not they had any problems with the health staff, only one woman explicitly said that she had a problem with the health staff at her child's GMP visit, saying that "the EBS staff was late and had misplaced the necessary documents." Although a few issues were mentioned with the GMP visits, on the whole, the women were satisfied with the services that they had received and felt that the EBS staff members were respectful, kind, and efficient. In addition, all of the women interviewed said that they planned to bring their children for their next GMP visit.

Barriers to taking their children to GMP visits. Although GMP visits were believed to be important by the women interviewed following the observed GMP visits, about half of these women reported that attending these visits interfered with their other activities (17/36, 47% and 8/15, 53% in beneficiary and control CCs, respectively). These women mainly focused on the disruption in their activities related to washing clothes (8/17, 47% and 5/8, 63% in beneficiary and control CCs, respectively), cleaning the house (9/17, 53% and 5/8, 63% in beneficiary and control CCs, respectively), cooking (7/17, 41% and 3/8, 38% in beneficiary and control CCs, respectively), and taking care of their children (1/17, 6% and 2/8, 25% in beneficiary and control CCs, respectively).

Beneficiaries Attend Pre- and Postnatal Care Visits and Use Recommended Supplements

Attend pre-and postnatal care visits. A majority of beneficiary women interviewed at home had attended the recommended four prenatal visits during their current or most recent pregnancy (**Table 3.27**). Those who had not were still pregnant. A little fewer than half of the beneficiary women had given birth at home for their most recent pregnancy. The others gave birth at either a health center or hospital. Only one-third of the women interviewed who had a child under 6 months of age had attended or received a postnatal care visit within the recommended 6 weeks of birth, and even fewer reported having received a high-dose vitamin A supplement, both of which are recommended practices according to the MSPAS in Guatemala. Although the sample sizes for this are very small, this trend indicates that it is possible that postnatal care attendance and provision is an area that could be improved.

Use recommended supplements. Of the 18 beneficiary women interviewed at home who were either pregnant or had a child under 6 months of age at the time of the interviews, fewer than 25 percent reported having taken iron supplements in the past 4 months; this group included one woman in study arm E who should have been using Kawil Nabej instead of iron. Of the six pregnant women interviewed, none had taken iron supplements in the past 4 months. Comparatively, 50 percent of women living in control CCs had reportedly taken iron in the past 4 months (7/14, 50%), four who were pregnant and three who had a child under 6 months of age. The beneficiary women who had not taken iron supplements reported either that they did not know why they hadn't used them (12/18, 67%) or that they were not available at the CC they attended (1/18, 6%). All of the women who had reportedly used iron supplements in the past 4 months explained that they thought there were benefits from taking the supplements, such as having vitamins in their bodies (2/4, 50%), being healthy (1/4, 25%), being strong (1/4, 25%), having a strong baby (1/4, 25%), being able to eat well (1/4, 25%), and being able to avoid illnesses (1/4, 25%).Women living in control communities reported similar benefits related to taking iron.

As would be expected, those who reported having taken iron in the past 4 months also reported having taken folic acid in the past 4 months. Two beneficiary women and two control women who did not report taking iron, including one from study arm D and one from study arm E who should have been using Nutri Fuerza and Kawil Nabej, respectively, stated that they had taken folic acid in the past 4 months. Among beneficiary women who had not taken folic acid in the past 4 months, mothers again explained either that they did not know why (11/18, 61%) or that it was not available at their CC (1/18, 6%). Benefits of taking folic acid were highlighted by beneficiary women who had used them in the past 4 months as giving them with strength (3/6, 50%), making them healthy (1/6, 17%), helping them eat well (1/6, 17%), helping with the formation of the fetus/having a healthy baby (2/6, 33%), and helping them avoid illnesses (2/6, 33%).

Only one woman reported a problem with either the iron or folic acid that she had taken over the past 4 months. The woman who reported a problem taking iron said that it gave her a headache and made her vomit, and the one who had a problem with the folic acid explained that it made her nauseous (both cases were in the control arm).

As would be expected by design, five of the six pregnant women and women with a child under 6 months of age from study arm E who were interviewed at home reported that they had taken Kawil Nabej over the past 4 months, and both of the women in study arm D reported that they had taken Nutri Fuerza, whereas none of the mothers in the other study arms had reportedly used either of these supplements.

A majority of women who had taken Kawil Nabej over the past 4 months believed that there were benefits to taking these supplements (4/5, 80%). They explained that the supplements have a lot of vitamins that make them healthy (2/4, 50%) and strong (2/4, 50%), that they help them avoid illness (1/4, 25%), and that they help them provide enough breast milk for their children (1/4, 25%). Although a number of benefits were cited, three women explained that they believed that it had made them vomit on at least one occasion over the past 4 months (3/5, 60%). Both of the women who had taken Nutri Fuerza thought that there were benefits to taking the

supplement, with one explaining that it helped the mother and baby have enough vitamins and the other that it helped avoid problems with her pregnancy. However, one said that she had experienced heartburn when taking the supplement.

Table 3.27. Pre- and postnatal care practices among beneficiary mothers[a]

	Arm A (n=4)	Arm B (n=2)	Arm C (n=4)	Arm D (n=2)	Arm E (n=6)	All (n=18)	Control (n=14)
Attended 4 or more prenatal visits	3 (75%)	2 (100%)	3 (100%)[b]	2 (100%)	4 (80%)[c]	14 (88%)[d]	6 (100%)[e]
Took iron in the past 4 months	1 (25%)	0 (0%)	2 (50%)	0 (0%)	1 (17%)	4 (22%)	7 (50%)
Took folic acid in the past 4 months	1 (25%)	0 (0%)	2 (50%)	1 (50%)	2 (33%)	6 (33%)	9 (69%)[f]
Used Nutri Fuerza in the past 4 months	0 (0%)	0 (0%)	0 (0%)	2 (100%)	0 (0%)	2 (11%)	0 (0%)
Used Kawil Nabej in the past 4 months	0 (0%)	0 (0%)	0 (0%)	0 (0%)	5 (83%)	5 (28%)	0 (0%)
	(n=3)	**(n=1)**	**(n=3)**	**(n=1)**	**(n=4)**	**(n=12)**	**(n=5)**
Place where mother gave birth (among those who had a child under 6 months of age)							
Health center	0 (0%)	1 (100%)	2 (67%)	0 (0%)	0 (0%)	3 (25%)	0 (0%)
Hospital	1 (33%)	0 (0%)	1 (33%)	1 (100%)	1 (25%)	4 (33%)	1 (20%)
At home	2 (67%)	0 (0%)	0 (0%)	0 (0%)	3 (75%)	5 (42%)	4 (80%)
Attended postnatal visit	0 (0%)	1 (100%)	1 (33%)	1 (100%)	1 (25%)	4 (33%)	0 (0%)
Received vitamin A within 6 weeks of delivery	0 (0%)	0 (0%)	2 (67%)	0 (0%)	0 (0%)	2 (17%)	0 (0%)

[a] Numbers are n (%); [b] n=3, [c] n=5, [d] n=16, [e] n=6, [f] n=13.

Quality of Prenatal Care Provided by EBS Staff

At the observed prenatal visits, it appeared that the basic aspects of the visit were being conducted as they should be. However, there seemed to be limitations related to the advice given to pregnant women by the EBS staff. All but one women received a physical exam, a majority were weighed, and, if they were weighed, in most cases their weight was recorded (**Table 3.28**). Although nearly all women were weighed, fewer than three-quarters of the women were told what their weight was and there were only a few observed instances in which the health staff discussed the woman's weight with her. Furthermore, only two people were given specific advice regarding their weight. One person was told that "her weight was low and she needed to eat more," and the other was told that "she needed to gain 3 pounds before her next visit because her weight was too low." In addition to the physical exam and weighing, a majority of pregnant women at beneficiary CCs and all women at control CCs were checked for danger signs during pregnancy during the observed visits.

Iron supplements were observed to be distributed to 63 percent of women attending beneficiary CCs and control CCs, much higher than the use reported by women interviewed at home. Folic acid was observed to be given to 69 percent (24/35) of the women at beneficiary CCs, and,

somewhat surprisingly, since iron and folic acid are usually given together, to only 44 percent (7/16) of women at control CCs. In terms of counseling of any type, women were most likely to be informed about the danger signs during pregnancy during the observed prenatal visits, and this was more likely to occur at control CCs than at beneficiary CCs (10/16, 63% and 12/35, 34%, respectively). In addition, some women received nutrition-related advice and a couple received advice about breastfeeding.

A majority of mothers who received advice during their visits thought that they would be able to implement what they had learned. However, a few were not sure that they could follow the nutrition- or health-related advice that they had received (2/16, 13% and 2/13, 15% in beneficiary and control CCs, respectively). One woman from study arm A explained that "she did not exactly know all of the danger signs during pregnancy because she had not yet experienced any of these danger signs" and also that she "did not fully understand when to implement the family emergency plan." Another woman, from study arm C, said that she would have trouble giving up coffee as she was used to drinking it. The two women from the control CCs who thought that they would have trouble implementing the advice they received both discussed problems related to following the nutrition advice because they did not have money or resources to buy the necessary foods.

Table 3.28. Provision of prenatal care by EBS staff[a]

	Arm A (n=8)	Arm B (n=6)	Arm C (n=6)	Arm D (n=8)	Arm E (n=7)	All (n=35)	Control (n=16)
Physical exam conducted	8 (100%)	6 (100%)	6 (100%)	7 (88%)	7 (100%)	34 (97%)	16 (100%)
Mother weighed	7 (88%)	6 (100%)	6 (100%)	8 (100%)	7 (100%)	34 (97%)	14 (88%)
Weight recorded	7 (100%)[b]	5 (83%)	5 (83%)	7 (88%)	5 (71%)	29 (85%)[c]	14 (100%)[d]
Health personnel told mother her weight	4 (57%)[b]	4 (67%)	1 (17%)	6 (75%)	5 (71%)	20 (59%)[c]	10 (71%)[d]
Health personnel talked to mother about her weight	0 (0%)[b]	0 (0%)	1 (17%)	1 (13%)	3 (43%)	5 (15%)[c]	4 (29%)[d]
Checked for danger signs	8 (100%)	6 (100%)	3 (50%)	6 (75%)	5 (71%)	28 (80%)	16 (100%)
Mother received iron	7 (88%)	2 (33%)	3 (50%)	5 (63%)	5 (71%)	22 (63%)	10 (63%)
Mother received folic acid	6 (75%)	3 (50%)	5 (83%)	5 (63%)	5 (71%)	24 (69%)	7 (44%)
Mother received prenatal vitamins	1 (13%)	0 (0%)	2 (33%)	1 (13%)	0 (0%)	4 (11%)	0 (0%)
Gave nutrition advice	2 (25%)	1 (17%)	2 (33%)	2 (25%)	0 (0%)	7 (20%)	7 (44%)
Gave advice about breastfeeding	0 (0%)	0 (0%)	1 (17%)	1 (13%)	0 (0%)	2 (6%)	1 (6%)
Informed mother about danger signs during pregnancy	5 (63%)	1 (17%)	2 (33%)	3 (38%)	1 (14%)	12 (34%)	10 (63%)

[a] Numbers are n (%); [b] n=7, [c] n=34, [d] n=14.

Beneficiaries' perceptions and opinions related to services received at the observed prenatal visits (beneficiaries, non-beneficiaries, and dropouts). All of the women who were interviewed following the observed prenatal visits felt that it was important to attend these visits, and a vast majority were satisfied with the service that they had received (32/35, 91% and 16/16, 100% in beneficiary and control CCs, respectively). Although nearly all women said that they were satisfied with the service they had received, 9 percent (3/35) of the women at beneficiary CCs and 13 percent (2/16) at control CCs explained that they would have liked to have received additional services. Of the three women at beneficiary CCs who stated that they wanted additional services, one did not specify what she wanted, one said she would like to receive vitamins, and the other explained that she wanted "medicine for her headache" and "a more thorough consult because of her pain." Both women interviewed at the control CCs explained that they wanted vitamins, and one also wanted a vaccine. All but two of the women interviewed following their prenatal visits stated that they planned to come for their next prenatal visits; the two that did not plan to come again both explained that they would be giving birth within the next month.

All but one of the women interviewed stated that they felt respected by the health staff. The woman who did not feel respected said that "they had not seen her condition and had helped other women before her." Those who felt respected explained that the EBS staff did a good job (16/35, 46% and 7/16, 44% in beneficiary and control CCs, respectively) and offered advice, explaining things well to them (7/35, 20% and 4/16, 25% in beneficiary and control CCs, respectively). As stated by one beneficiary, "They did the prenatal visit correctly and spoke to me with respect and courtesy when giving me advice related to my pregnancy." The women who were interviewed also focused on the kindness (6/35, 17% and 5/16, 31% in beneficiary and control CCs, respectively), patience (3/35, 9% and 1/16, 6% in beneficiary and control CCs, respectively), and efficiency (2/35, 6% and 1/16, 6% in beneficiary and control CCs, respectively) of the EBS staff in terms of making them feel respected during their prenatal visits. As explained by one beneficiary, "They explained my condition to me patiently and said that the midwife could help me."

Barriers to attendance at prenatal services. Very few mothers (~15%) in either beneficiary CCs or control CCs reported having any problems attending their prenatal visit. However, many women said that attending their prenatal visits did interfere with their other activities. Interestingly, women interviewed at the control CCs (13/16, 81%) were more likely than those interviewed at the beneficiary CCs (14/35, 40%) to report that attending their prenatal visits interfered with their other activities. This may have been due to beneficiaries' participation in the PROCOMIDA BCC sessions that include messages related to the importance of attending prenatal visits. However, it could also be due to reasons unassociated with participation in PROCOMIDA. Among the women who said that attending their prenatal visits interfered with their other activities, most reported problems with being able to wash their clothes (10/14, 71% and 10/13, 77% in beneficiary and control CCs, respectively), cook (4/14, 29% and 4/13, 31% in beneficiary and control CCs, respectively), clean their houses (7/14, 50% and 5/13, 38% in beneficiary and control CCs, respectively), and/or take care of their children (1/14, 7% and 4/13, 31% in beneficiary and control CCs, respectively).

Language barriers at preventive health services. Nearly all of the health staff interviewed reported that they primarily conduct their work in Q'eqchi' (83/86, 97% and 32/34, 94% in beneficiary and control CCs, respectively). About 20 percent of the health staff also reported using Spanish while conducting their work (20/86, 23% and 7/34, 21% in beneficiary and control CCs, respectively). Some of the health staff interviewed explained that they had experienced problems related to language issues while conducting their work and highlighted problems primarily related to not understanding or being able to communicate in Q'eqchi'. A little fewer than 20 percent thought that women attending the preventive health services have language-related issues when trying to utilize these services (12/86, 14% and 7/34, 21% in beneficiary and control CCs, respectively). Again, they highlighted issues with the health staff speaking Spanish and the women not understanding (7/12, 58% and 5/7, 71% in beneficiary and control CCs, respectively). Three people specifically mentioned that the nurses did not speak Q'eqchi'. As explained by one heath staff member, "Nurses that do not speak Q'eqchi' come and the women do not understand Spanish." And another who said, "Sometimes the health staff members do not speak Q'eqchi' and the women get bored and leave quickly because they do not understand."

In agreement with the EBS staff members interviewed, about 20 percent of the women interviewed at home reported that they had experienced problems related to language issues when attending preventive health visits (**Table 3.29**). Women attending prenatal visits were more likely to have experienced language-related problems than women who had taken their children to a GMP visit. This difference was especially notable among women attending beneficiary CCs. It is possible that this difference is related to the fact that nurses generally conduct these visits and are more likely to use Spanish than community EBS staff and/or due to the amount of verbal communication that takes place during prenatal visits as compared to GMP visits. From our observations, it appeared that women at prenatal visits were more likely to have received some kind of advice or counseling from the EBS staff than were mothers of children attending GMP visits.

Table 3.29. Percent of women interviewed at home, at prenatal visits, and at GMP visits who reported experiencing language barriers while attending preventive health services[a]

	Arm A	Arm B	Arm C	Arm D	Arm E	All	Control
Mothers interviewed at home	(n=18) 3 (17%)	(n=15) 6 (40%)	(n=15) 3 (20%)	(n=16) 3 (19%)	(n=18) 4 (22%)	(n=82) 19 (23%)	(n=28) 4 (14%)
Mothers interviewed at prenatal visits	(n=8) 2 (25%)	(n=6) 2 (33%)	(n=6) 0 (0%)	(n=8) 3 (38%)	(n=7) 5 (71%)	(n=35) 12 (34%)	(n=16) 3 (19%)
Mothers interviewed at GMP visits	(n=8) 0 (0%)	(n=6) 2 (33%)	(n=6) 0 (0%)	(n=8) 1 (13%)	(n=8) 1 (13%)	(n=36) 4 (11%)	(n=15) 2 (13%)

[a] Numbers are n (%).

3.2.3 Summary of the Results along the Knowledge–Use of Preventive Health Services Pathway

About half of the EBS staff interviewed associated with beneficiary CCs had received training from PROCOMIDA. Most of the educators (who are largely supported by PROCOMIDA) and members of the institutional EBS team (nurses and institutional facilitators), a majority of the community facilitators and half of the community health workers had also received some training from PROCOMIDA, while only one midwife had received such training. As expected according to the program design, the training sessions reportedly focused on how to measure children and how to identify malnourished children and women with at-risk pregnancies.

Results from the knowledge tests given to the EBS staff and health commission leaders indicated that they could benefit from receiving further training related to danger signs during pregnancy and childhood illness and related to optimal child feeding practices, both in general and when children are sick or recovering from illness. Health commission leaders could also benefit from receiving training related to optimal breastfeeding and complementary feeding practices for children. The limited knowledge related to washing hands before feeding a child and after cleaning a child who had defecated, among both EBS staff members and health commission leaders, should also be addressed as these are common routes through which children get exposed to infectious agents. It is essential that the institutional EBS staff, community-based EBS staff, and the health commission leaders be well trained in all of the health and nutrition practices promoted by PROCOMIDA, both to increase their general knowledge related to these topics and to reinforce the messages received by the beneficiary population through other program channels. Provision of training to those based in the communities may be even more important than to the institutional EBS staff, as they are more likely to have regular contact with the beneficiary population than the institutional EBS staff.

Nearly all of the beneficiary women and all women in the control group reported that they had attended the recommended four prenatal visits during their last pregnancy. They explained that it was important to attend these visits, and, although many stated that attending their prenatal visits interfered with their other activities, all of the women interviewed following the observed prenatal visits (with the exception of the two women who were going to give birth within the month) planned to attend their next prenatal visit. Adherence to the recommendation to take their children to monthly GMP visits was reportedly better among beneficiary women than among control women. This may be a reflection of the conditionality of attendance at preventive health visits to receive the food provided by PROCOMIDA and/or the encouragement provided through other program channels for women to take their children to their GMP visits.

While the provision and use of the LNS and MNP for pregnant women and women with children under 6 months of age and for children between the ages of 6 and 24 months appears to be good, the provision and use of the MSPAS-distributed micronutrient supplements could use some improvement. For example, the provision and use of iron and folic acid supplements among pregnant women appears to be suboptimal. Although our sample sizes of pregnant women interviewed at home and at the observed prenatal visits were small, the fact that fewer than three-quarters of the women at the observed prenatal visits received iron and/or folic acid supplements and an even smaller proportion of those interviewed at home reported having used these

supplements in the past 4 months indicates that this is an area that could be improved. Given that the MSPAS is responsible for the distribution of iron and folic acid for pregnant women, this area would need to be addressed by the MSPAS in Guatemala and falls outside of the scope of PROCOMIDA's responsibilities.

The provision of prenatal services as well as GMP services could be improved. Although the basics of weighing pregnant women at prenatal visits and children at GMP visits seem to be routinely done, limited time seems to be spent on talking to women at either type of visit, although this was somewhat more apparent at prenatal visits as compared to GMP visits. This shortcoming is likely due to the fact that these services are provided only once per month at any given CC and thus there is likely a large volume of people needing services and limited time in which to provide them. Nevertheless, this is something that should be addressed. Although it is outside the scope of PROCOMIDA, the potential that the promotion of attendance at preventive health services may place increased demand on an already stretched health system should be considered. Ways to address this potential challenge is something that should be considered in the design phase of similar programs.

Another aspect of the provision of preventive health services that deserves attention is the language barrier that was reported by women using these services, as well as by the EBS staff who provide these services. In both cases, a little fewer than one-quarter of respondents stated that there were some problems in the provision and use of these services due to language barriers. Specifically, they explained that the women speak and understand Q'eqchi' and that sometimes the health staff providing the services rely heavily on Spanish to communicate with these women who in turn do not understand what is being said. A few respondents said that translation can help, but that it does not always happen or work well. Providing a designated translator for nurses or other key health staff that do not know the local language, in this case Q'eqchi', could help improve the provision and use of the preventive health services and the associated advice or counseling that is provided.

3.3 The Knowledge–Adoption of Optimal Health and Nutrition Practices Pathway

This section evaluates PROCOMIDA's third program impact pathway: the **knowledge–adoption of optimal health and nutrition practices pathway**. To realize this pathway, PROCOMIDA began by using formative research (Olney et al. 2011) to create a BCC strategy and to develop the associated training materials. PROCOMIDA hired fieldworkers fluent in the local language and trained them in adult education techniques, as well as in the technical material contained in the BCC strategy. In addition, PROCOMIDA fieldworkers received training in nonviolent communication and in gender-related issues.

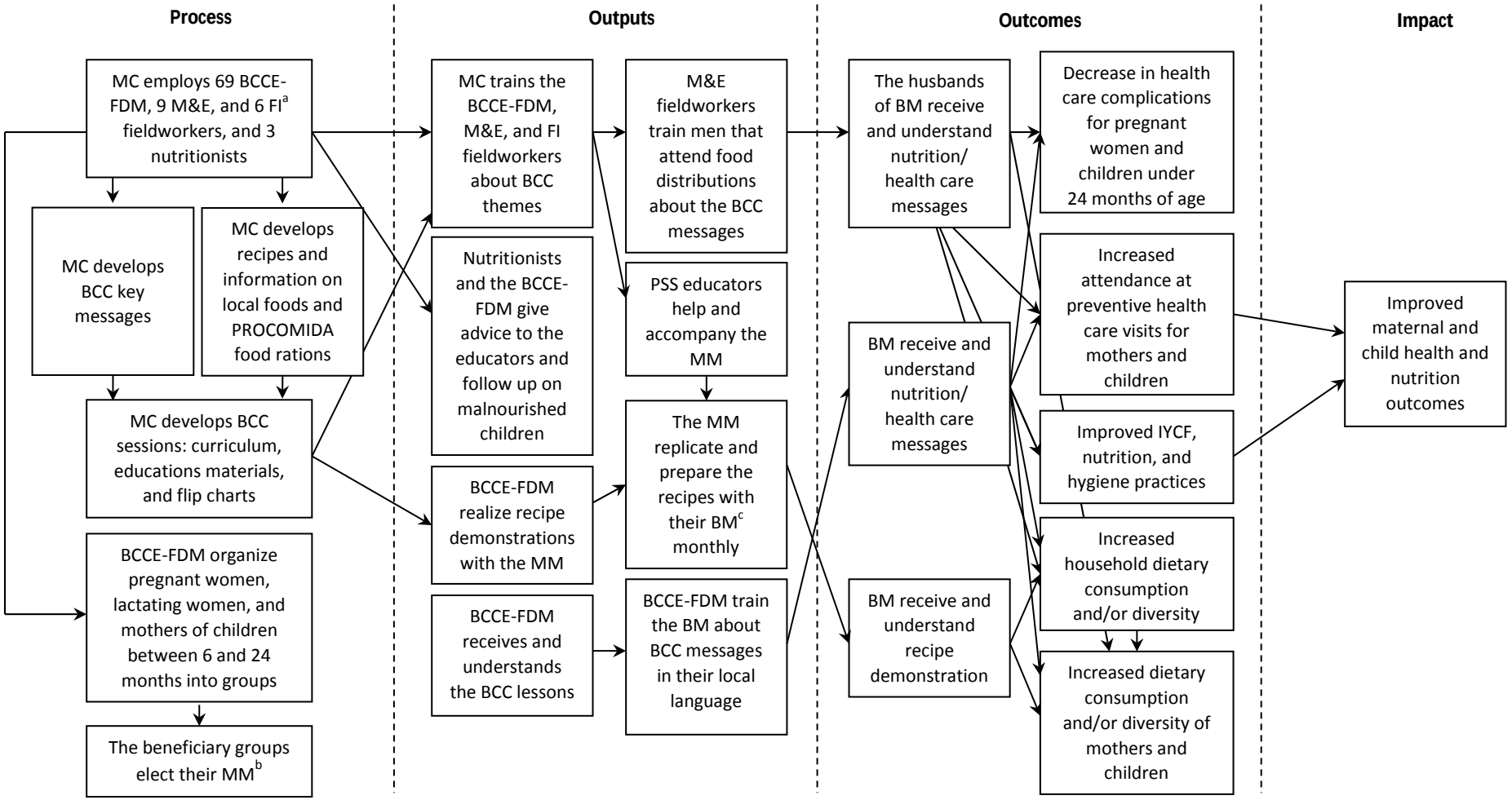
PROCOMIDA fieldworkers provided monthly BCC sessions at the CCs for beneficiary women before the beneficiaries collected their food rations. Recognizing the key role men have in household decision making, the PROCOMIDA M&E fieldworkers provided BCC sessions to the men that accompanied beneficiary women to collect their monthly food rations. In addition, PROCOMIDA fieldworkers provided recipe demonstrations to model mothers (who were themselves program beneficiaries), following the BCC sessions and food distribution activities,

that utilized the PROCOMIDA household and individual rations. The model mothers were then expected to conduct the same recipe demonstration for their assigned beneficiary women within the month following their own participation in the initial demonstrations. As a final dimension to the BCC strategy, PROCOMIDA fieldworkers conducted home visits of beneficiaries that had low attendance at BCC sessions, had a malnourished child, or were experiencing a high-risk pregnancy. The provision of BCC sessions to both beneficiary women and to men, recipe demonstrations for beneficiary women, and home visits for selected beneficiaries by PROCOMIDA fieldworkers and EBS educators are all expected to improve health- and nutrition-related knowledge and the adoption of practices among the beneficiary population. Ultimately, these positive changes are expected to contribute to improvements in maternal and child health and nutrition outcomes (**Figure 3.4**).

The process evaluation focused on assessing the implementation and utilization of the BCC sessions and on the use of recipe demonstrations by beneficiary women, in addition to the provision of home visits by PROCOMIDA fieldworkers. Furthermore, health- and nutrition-related knowledge covered in the BCC sessions was assessed among PROCOMIDA personnel who provide BCC sessions (nutritionists, M&E fieldworkers, and institutional strengthening fieldworkers), PROCOMIDA fieldworkers, beneficiary women, and their husbands. Some other key health- and nutrition-related practices were also assessed among beneficiary mothers.

In this section, brief descriptions of the primary program components along this pathway that were included in the process evaluation are provided. These are followed by the primary results from the process evaluation related to the primary program components. Lastly, both successful and problematic program components are identified and summarized, including suggestions on possible modifications to improve their contribution to positive impacts on maternal and child health and nutrition outcomes.

Figure 3.4. Program theory framework for the *knowledge–adoption of optimal health and nutrition practices pathway*



[a] *fortalecimiento institucional* (institutional strengthening); [b] *madres monitoras* (model mothers); [c] beneficiary mothers

3.3.1 Description of PROCOMIDA's Primary Program Components along the Knowledge–Adoption of Optimal Health and Nutrition Practices Pathway

BCC Strategy and Materials

The BCC strategy was developed from formative research conducted prior to the start of PROCOMIDA (Olney et al. 2011). This research helped PROCOMIDA tailor key BCC messages to address specific barriers and facilitators to adoption of key practices noted by women in Alta Verapaz, Guatemala. Mercy Corps (MC) took great care in developing illustrations to convey the main messages that were culturally specific and appropriate. These pictures were used in their BCC sessions and were displayed in flip charts and on the ration bags distributed by the program.

The overall curriculum contained five BCC modules, each with between 9 and 16 key messages. Each lesson was developed by PROCOMIDA with detailed illustrations to explain the core messages. The first module, "PROCOMIDA Food Commodities," contained 15 lessons on the type of food commodities and supplements distributed by the program and their proper preparation and utilization in the home. The second module, "Exclusive Breastfeeding," had eight lessons on the importance of exclusive breastfeeding and immediate breastfeeding, the use of colostrum, proper hygiene for breastfeeding mothers, and the benefits of breastfeeding for the nursing mother and child. The third module, "Pregnancy and Breastfeeding Mothers," contained 16 lessons on the importance of antenatal care services, developing a birthing plan, ensuring proper maternal nutrition, taking micronutrients, and danger signs during pregnancy and birth. The fourth module, titled "Feeding and Care of Children 6–24 months of age," had 16 lessons largely focused on nutrition, including complementary feeding for children between 6 and 8 months of age, between 9 and 11 months of age, and between 12 and 23 months of age. The fifth module, "Feeding and Care of a Sick and/or Malnourished Child," contained 12 lessons related to the signs and dangers of child dehydration, dehydration prevention using oral rehydration salts (ORS), proper feeding of sick children, dysentery and persistent diarrhea, and pneumonia prevention.

Provision of BCC Sessions for Beneficiary Women and Men

As stated above, BCC sessions were provided monthly for beneficiary women and men who joined the beneficiary women to collect their monthly food rations. The BCC sessions for the women were provided by the PROCOMIDA fieldworkers. In contrast, BCC sessions for men were ad hoc. These sessions were provided by M&E fieldworkers for men who happened to be at the CC on the day of the BCC sessions and the food distribution activities for beneficiary women.

The BCC sessions for women were supposed to be provided to three groups of women:

- Pregnant women
- Women with children under 6 months of age
- Women with children between the ages of 6 and 24 months

This was done so that the women could receive lessons that corresponded to their particular needs. All BCC sessions were delivered in the local language of the beneficiary population

(Q'eqchi') and were intended to cover two to three key messages per session. Furthermore, the key messages that were printed on the bags for the commodities that were distributed that month were also explained at the monthly BCC sessions.

Recipe Training, Strategy, and Materials

For the recipe demonstrations, the PROCOMIDA nutritionist developed a cookbook of recipes made with the foods and micronutrient supplements provided in PROCOMIDA's monthly household and individual rations. Each month, PROCOMIDA fieldworkers were taught by these nutritionists how to prepare these recipes and how to explain their preparation to the model mothers. PROCOMIDA fieldworkers taught model mothers the recipes with food and supplies donated by the model mothers and/or purchased with money received via the voluntary contributions. Model mothers in turn trained the other beneficiary mothers over the course of the month following the training they received.

Home Visit Strategy

After conducting the BCC session, PROCOMIDA fieldworkers selected one or two beneficiary women for a home visit. Beneficiary women were chosen for visits because they had low attendance at BCC sessions or a sick or malnourished child or were experiencing a high-risk pregnancy. During home visits, fieldworkers were instructed to reinforce BCC lessons and to provide advice to the beneficiary woman visited regarding the care of her child and/or herself.

3.3.2 Results Related to the Primary Program Components along the Knowledge–Adoption of Optimal Health and Nutrition Practices Pathway

Background of PROCOMIDA Fieldworkers

Qualifications to be a PROCOMIDA fieldworker. The PROCOMIDA fieldworkers were interviewed as part of the process evaluation. Fieldworkers highlighted capacity and previous experience as qualifying them for their current positions. For instance, all respondents had previous experience in health and/or maternal and child nutrition or in adult education. While most fieldworkers had held other governmental or nongovernmental positions, previous employment varied greatly, with the most noted areas being adult training (9/26, 35%), reproductive health (7/26, 27%), and food security (6/26, 23%).

However, only half of the fieldworkers had previous food distribution experience with an NGO before becoming a PROCOMIDA fieldworker, including, among others, Vitacereal distribution (6/26, 23%) and food distribution provided by CARE (4/26, 15%).

Languages spoken. All of the fieldworkers interviewed speak both Q'eqchi' and Spanish and also read Spanish well. One fieldworker said he could also speak English. All fieldworkers interviewed thus emphasized that they had not faced any language-related difficulties in terms of being able to understand the trainings that are given to them by PROCOMIDA, conducting the BCC sessions, or carrying out their other program-related responsibilities. All interviewed fieldworkers further explained that language problems had not affected beneficiary participation in the PROCOMIDA program, as they could communicate fluently in Q'eqchi', the mother tongue of the program beneficiaries.

Reasons for becoming a PROCOMIDA staff member. Prior experience (19/26, 73%) was the main driving force behind the decision to become a PROCOMIDA fieldworker, followed by knowledge (9/26, 35%) and qualification evidenced through the application test (6/26, 23%). Overall, fieldworkers explained their individual capacities in a positive light, as preparing them for this position, emphasizing both previous capacities/knowledge (e.g., bilingual language abilities) and capacities/knowledge gained through their own training in PROCOMIDA. As one fieldworker explained, "I have experience and I am acquiring more in every BCC session."

PROCOMIDA Fieldworkers Receive and Understand Health- and Nutrition-Related Training

Trainings provided by PROCOMIDA. According to program design, fieldworkers were supposed to receive monthly trainings on health- and nutrition-related topics. All fieldworkers interviewed had received training from PROCOMIDA and had received an average of 20 training sessions each related to health and nutrition topics, as well as in the use of adult education techniques. These trainings were provided most often by the BCC/PROCOMIDA unit (19/26, 73%), followed by a nutritionist (10/26, 38%) and/or Doctor Rafael Carranza, who is part of the BCC/PROCOMIDA unit (8/26, 31%). All fieldworkers interviewed felt that the training they received was either good or very good. They explained that these training sessions help them replicate knowledge in the communities in which they themselves later train. In this manner, sessions provided new and/or reinforcing health and nutrition-related knowledge. "They serve us so we can do a good job in the communities."

Health and nutrition topics reportedly covered in training sessions. According to the fieldworkers interviewed, the themes covered in these trainings included child health, child nutrition, breastfeeding, women's health, women's nutrition, and other health and nutrition topics. Overall, 38 percent (10/26) of the fieldworkers felt that the most important training received regarded the nutrition of children 6–24 months of age and exclusive breastfeeding. Twenty-three percent (6/26) felt that the most important training they had received regarded family planning, and 27 percent (7/26) said pregnancy/birth dangers. Furthermore, 23 percent (6/26) believed training received on general health and nutrition topics had been the most important. A vast majority of fieldworkers felt that the training quality was good (10/26, 38%) or very good (15/26, 58%), with only one reporting that it was of bad quality (1/26, 4%).

Suggestions to improve the training sessions they receive. A majority of fieldworkers (21/26, 81%) felt that they could be better prepared to carry out their work as PROCOMIDA fieldworkers. Many explained that they would like to receive more training and training on new themes (8/26, 31%) and more material and technical support (8/26, 31%).

PROCOMIDA's fieldworkers' perceived capacity to conduct BCC sessions. Despite the stated interest by fieldworkers in acquiring further skills, a majority reported feeling sufficiently prepared to complete their technical work (16/26, 62%). According to the fieldworkers, gaining experience and knowledge, as well as building individual capacity, had also prepared them to complete their work. The fieldworkers noted that a combination of knowledge (including that gained in the program and prior experience), support (team and commission support), the role of beneficiaries (specifically, confidence of the community), and preparation facilitated their

capacity to do their jobs. All fieldworkers reported feeling motivated to conduct BCC sessions. Fieldworkers stated being motivated by knowledge (monthly trainings and the ability to share knowledge, and in improving life opportunities for mothers) and results—in particular, changes in attitude, behavior, and food security. Fieldworkers explained, "I like to strengthen people in order for them to have a better future" and "I like to be a person who generates changes."

All of the fieldworkers stated that they felt that they had been able to manage their work well, given their training, experience, capacity, programming, and enjoyment of the job. The fieldworkers interviewed all explained that they liked their work with PROCOMIDA. When describing their own experiences in giving BCC sessions, interviewed fieldworkers cited two primary reasons underlying their positive experiences: having the opportunity to exchange ideas with mothers (10/26, 38%) and the enjoyment of teaching/helping other people (9/26, 35%).

PROCOMIDA fieldworkers conduct BCC sessions for beneficiary mothers. PROCOMIDA fieldworkers were expected to provide monthly BCC sessions for PROCOMIDA's beneficiary mothers. And as expected, all of the fieldworkers interviewed had conducted BCC sessions for beneficiary mothers, and had conducted at least one BCC session each month over the past 4 months.

Participation in BCC sessions among beneficiary mothers interviewed at home. Nearly all of the beneficiaries interviewed at home (81/82, 99%) had attended at least one BCC session since joining the program. Given that participation in the BCC sessions is a conditionality for receipt of the monthly food rations, it is not surprising that most of the beneficiary mothers interviewed reported that they had attended all four of the last four monthly PROCOMIDA BCC sessions (67/81, 83%). Most of the beneficiaries interviewed felt that the duration of the BCC sessions was good (76/81, 94%). However, a few people said that they would prefer either longer (3/81, 4%) or shorter (2/81, 2%) BCC sessions. A majority of fieldworkers interviewed (83%) also felt that the length of the day's BCC session was ideal, providing enough time to cover the daily theme, keep the attention of mothers, and prevent boredom among the children.

Beneficiaries reported participating in the BCC sessions in order to learn about caring for their families (58/81, 72%), specifically, to learn new recipes (32/81, 40%) and about hygiene practices for their families (20/81, 25%). Some beneficiaries interviewed mentioned that they participate in BCC sessions in order to receive food rations (17/81, 21%). Mothers overwhelmingly noted the negative repercussions of missing sessions: no receipt of foods the following month (31/81, 38%), loss of knowledge covered on that day (27/81, 33%), potential removal from the program (23/81, 28%), and/or being scolded by program fieldworkers (19/81, 23%). Multiple beneficiaries explained that "the fieldworkers will not explain the themes covered to me later." Relatedly, many noted that they lost not only material but also knowledge-based benefits of the program if they missed BCC sessions. This phenomenon was explained by one beneficiary: "I would lose the training that serves me in the care of my family."

Venues for the BCC sessions. Most of the fieldworkers felt that the location of BCC session was adequate (22/26, 85%) because it was large (20/26, 77%), ventilated (8/26, 31%), and/or clean (7/26, 27%). A majority of beneficiary mothers agreed with this assessment (47/54, 87%). In defining the space as good or adequate, beneficiary mothers specifically emphasized the size

of the space being large (24/54, 44%), that there was sufficient space for sitting (15/54, 28%), and the cleanliness of the space (9/54, 17%). In addition, good ventilation (5/54, 9%) and other construction-related characteristics (lighting, shade, ceilings, cement floors) contributed to the positive evaluation of the space by most beneficiary mothers. High temperatures can make the venue uncomfortable for the mothers, as one mother noted, appreciating the fact that "the day was still cool enough to receive the training and finish to return home." Problems with the space varied, with mothers noting small size (1/26, 4%), need for remodeling (1/26, 4%), a lack of another space (1/26, 4%), and interruptions during the session (1/26, 4%). However, no beneficiary mother felt that there was a better place for these types of meetings. Although a majority of fieldworkers thought the space was adequate for conducting the BCC sessions, they also cited some of the same problems highlighted by the beneficiaries. However, a vast majority could not think of a better place to hold the meetings (25/26, 96%), with three fieldworkers suggesting holding the sessions inside of a CC.

Time that the BCC sessions are held. A majority of fieldworkers (23/26, 88%) felt that the time of day was good for holding the BCC session. Beneficiary mothers agreed, with nearly all of those interviewed stating that the time of day that the BCC sessions and food distribution activities took place worked well for them (49/54, 91%). Many felt that they still had time to do their housework/fulfill other responsibilities (15/54, 28%). However, some noted that the session was held far away (4/54, 7%), and three mothers from study arm C (6% of all mothers interviewed) said that the CC was closed when they arrived. "The distance does not permit us to arrive early at the CC," explained one mother. Of the mothers who would prefer another time of day, 60 percent would prefer early morning (before 8am) and 40 percent would prefer to hold training during the morning (from 8am to 10am). They explained that these times would allow them to get home earlier, since they live far from the CC.

Quality of observed BCC sessions. In general, the quality of the observed BCC sessions was good. The fieldworkers almost exclusively used Q'eqchi' to explain the lessons. All fieldworkers used the flip charts, and most ensured that all of the participants could see the pictures (17/18, 94%) (**Table 3.30**). About two-thirds of the fieldworkers tried to make the BCC sessions more dynamic and interactive by limiting lecturing and creating dialogue (12/18, 67%). A majority were observed encouraging mothers to participate by asking questions and otherwise engaging them in the session (17/18, 94%). In general, mothers in attendance appeared comfortable (17/18, 94%) and appeared bored at only one of the observed BCC sessions (1/18, 6%). Although the BCC sessions were generally found to be implemented with good quality by the PROCOMIDA fieldworkers, there were distractions for both the fieldworkers and the mothers, including side conversations among mothers (8/18, 44%) and disruptive children (11/18, 61%). Some suggestions for dealing with the distractions (by both fieldworkers and beneficiaries) were to provide care for the children during the sessions or to not allow them to attend.

Table 3.30. Quality of education provided at BCC sessions

	Arm A (n=4)	Arm B (n=3)	Arm C (n=3)	Arm D (n=4)	Arm E (n=4)	All (n=18)
Played game at beginning	3	2	2	2	3	12 (67%)
Took attendance	4	3	3	3	3	16 (89%)
Used the flip chart	4	3	3	4	4	18 (100%)
Ensured that all participants could see the flip chart	3	3	3	4	4	17 (94%)
Encouraged the mothers to participate	4	2	3	4	4	17 (94%)
Limited lecture style and tried to create a dialogue	3	2	2	3	2	12 (67%)
Mothers had distracting side conversations	3	1	0	1	3	8 (44%)
Children were distracting the mothers	2	2	1	2	4	11 (61%)
Mothers appeared bored	0	0	0	1	0	1 (6%)
Mothers appeared comfortable	4	3	3	4	3	17 (94%)

According to the fieldworkers interviewed, the observed techniques, such as the use of flip charts and games, and the encouragement of mothers' participation facilitated the mothers' ability to learn and understand lessons. The importance of using the flip charts also relates to the illiteracy in the communities served by PROCOMIDA. Fieldworkers explained, "Because if we demonstrate through writing, the women won't understand. . . . There are people who don't know how to read or write, so pictures are used." Many fieldworkers also reported using direct questions as a method to encourage participation. Fieldworkers interviewed emphasized the importance not only of their own input, but also that of the mothers to facilitate understanding and learning. One fieldworker explained the approach as "we give space to the women so that they participate."

As explained by the fieldworkers, beneficiaries also noted that the ability to easily understand themes or lessons depended greatly on the methods employed in the training. A majority of beneficiary mothers (33/54, 61%) felt that the use of the flip chart in particular facilitated understanding. Some mothers (21/54, 39%) also noted the fieldworkers' general demonstrations/explanations as facilitating understanding. The ability to replicate practices at home also helped the beneficiary mothers. In the words of one mother interviewed, "I learn through the ability to practice or carry it out in my household."

As observed in BCC sessions, beneficiary mothers interviewed after such trainings commented on their ability to participate, with a vast majority stating that they felt free to participate in the day's session (53/54, 98%). Time to participate and express their own ideas was also emphasized by the mothers (25/54, 46%), as was asking questions for fieldworkers to answer (20/54, 37%). "It gives me confidence to ask her about the themes," explained one mother. Some mothers (9/54, 17%) felt that their own understanding of the topic evidenced that they had felt

comfortable participating in the day's session. Mothers found sharing their own experiences, having the opportunity to respond to questions, and feeling respected when the fieldworkers provided answers as particularly motivating factors. Mothers noted that they got joy out of giving their opinions. As one mother described, "I gave my opinion about the picture on the bag of rice and it made me happy." Another recounted that the fieldworkers "gave me the opportunity to share my ideas about the previous themes." Mothers stressed that the BCC session environment was positive and characterized by "constant participation." They also expressed trust in the knowledge of the fieldworkers. As one mother said, "I ask my questions without problems because they know how to respond correctly." None of the mothers had experienced any problems with the PROCOMIDA BCC personnel in the BCC session on the day of the interview.

Beneficiary mothers interviewed at home echoed these sentiments, with nearly all of them also stating that they felt free to ask questions, give answers, or comment in the BCC sessions that they attended as part of PROCOMIDA (77/81, 95%). Most noted that they simply were free to ask questions and have their confusion clarified (56/81, 69%). About one-quarter of the beneficiary mothers cited experiences of participation, having shared experiences, ideas, and /or opinions with other mothers in this forum. "I have shared my experiences with the other mothers through comments." Some noted that the fieldworkers asked questions that they then answered (8/81, 10%). One described of the fieldworkers: "His objective is to know that what we have learned stays within us."

Topics taught at observed BCC sessions. All of the fieldworkers learned teaching methods that they used to deliver the BCC lessons from the trainings they received from PROCOMIDA. Some also utilized knowledge gained through working in other organizations and/or through their own creativity or initiative to inform the sessions. Themes covered in the session varied both across and within the study arms, from child nutrition to breastfeeding, child health, mother's health, hygiene, and other health/nutrition topics. On the day of the interview, more than one-third of the fieldworkers (9/26, 35%) had covered the topic of not giving bottles.

Likewise, beneficiary mothers interviewed about the BCC session reported receiving training on a wide array of topics, most regarding health and nutrition. Mothers had been trained on child feeding practices (35/54, 65%) and household hygiene (23/54, 43%). Some had specifically been trained not to use bottles (10/54, 19%) and on topics in child hygiene (8/54, 15%). Interestingly, four beneficiary mothers from study arm C also stated learning about gender equality, which according to MC had recently been included in trainings for their fieldworkers. Equality within the training sessions is a theme that runs throughout the interviews—in topics taught and in both relations between beneficiaries and within fieldworker/beneficiary or model mother/beneficiary relations.

Beneficiaries' perceived understanding of topics covered during BCC sessions. A majority of beneficiary mothers interviewed (47/54, 87%) did not encounter difficulty in understanding the themes, lessons, or messages of the day's BCC session. Those cited as difficult to understand (each by an individual mother) were: how to communicate with a midwife during birth, getting to the hospital for birth, taking a child to the CC when ill, care of the recently born, birth control, discussion with the husband about family planning, and developing an emergency plan for the

family. Difficulties with understanding themes, lessons, or messages primarily arose from a lack of previous knowledge of the theme (3/6, 50%).Additionally, individual mothers explained that they felt too many themes were presented simultaneously or that practices were unfamiliar. Beneficiary mothers who cited these difficulties explained that longer sessions or better explanations, as well as their own experience, could help assuage these challenges. Almost all mothers (53/54, 98%) felt that the messages/lessons from the day were useful to them. Beneficiary mothers particularly highlighted new knowledge gained as useful, specifically relating to health advice (16/54, 30%), hygiene practices (14/54, 26%), and how to care for children (11/54, 20%).

A majority of fieldworkers interviewed echoed the beneficiary mothers' perceived understanding of the lessons, emphasizing that beneficiary mothers did comprehend the themes, lessons, or messages of the day's BCC session (71%). Fieldworkers explained that these themes—in particular that bottles cause infections (9/26, 35%) and that handwashing is important for hygiene (5/26, 19%)—were easy for mothers to understand. However, some areas of difficulty were noted (all by a single fieldworker in each respective group, with the exception of study arm C): receptive feeding, how to feed malnourished children, ORS administration, birth planning, adult obesity, and food bag messages.

Beneficiaries' belief and confidence in what the PROCOMIDA fieldworkers taught them. Most fieldworkers thought that mothers believed what they taught related to health and nutrition practices, and that they could see the subsequent positive impacts. Fieldworkers noted as evidence the attention, active participation, and interest shown by mothers in the training topics. The few fieldworkers who did not think that the mothers believed what they taught noted that the mothers had too many things to do at home. One fieldworker explained that mothers may forget what they are taught, and another that disinterest or the existence of previous custom was the underlying cause for this lack of belief. Some mothers asserted that they "already have customs" or were resistant to learning new content "because of the customs that they have lived."

Beneficiaries validated the fieldworkers' perceptions, with a majority stating that they believed all of what the fieldworkers had taught them on the day of the interview (29/54, 54%). Another 31 percent (17/54) of mothers believed most of what the fieldworkers had taught and an additional 15 percent (8/54) some of what he/she taught. Nearly all beneficiary mothers interviewed felt that the fieldworkers taught things that are important to raise a healthy family and/or child (49/54, 91%), with some emphasizing that the teachings reflected reality (7/54, 13%). "[The fieldworker] teaches the most important things that we desire to learn," noted one mother. A few of the beneficiary mothers also stated that they believed what they were taught because of the effective teachings methods used by the fieldworkers (5/54, 9%) and that they believed that the content was practical and applicable in their households (5/54, 9%). Barriers to believing what the fieldworkers taught included that the content was sometimes difficult to understand (2/54, 4%) and the lack of time by mothers to carry out the advice at home (2/54, 4%).

Interactions between PROCOMIDA fieldworkers and beneficiary mothers. The fieldworkers cited interpersonal relationships as extremely important to the success of PROCOMIDA, both among PROCOMIDA staff and between themselves and the beneficiary

mothers. This overarching structure of mutual understanding and support is undoubtedly the backbone on which the program is functioning. “In short, I respect the mothers and they respect me.”

The fieldworkers overwhelmingly described their relationships with the beneficiary mothers as positive, specifically highlighting strong communication (7/26, 27%) and confidence (7/26, 27%). The fieldworkers interviewed further emphasized respect shown to them by the mothers (13/26, 50%) as a solidifying factor of these relationships. The mutuality of respect was underscored by the fieldworkers time and again throughout the interviews. All but one of the fieldworkers interviewed explained that mothers also feel respected, highlighting fieldworkers’ abilities to speak Q’eqchi, taking the mothers’ suggestions/opinions seriously, and encouraging voluntary participation. The ability to speak in the “local dialect,” “local language,” or “mother tongue” was repeatedly highlighted as vital to communication. As one fieldworker noted, “I create trust through the maternal language.”

Beneficiary mothers interviewed following the BCC sessions described their relationships with the PROCOMIDA fieldworkers who conducted the day’s session in positive terms. Of the beneficiary mothers who participated, 44 percent (24/54) described the fieldworkers on the day as friendly or kind, while 31 percent (17/54) emphasized that their relationship is good and/or the fieldworkers did their job well. An additional 17 percent (9/54) of participating mothers highlighted the respective fieldworker’s skills in communicating information. Many noted “good human relations” between the respective fieldworkers and beneficiaries at the day’s BCC session. Similar responses were echoed by beneficiary mothers interviewed at home.

All beneficiary mothers interviewed following the BCC session felt respected by the PROCOMIDA fieldworkers in the day’s BCC session. Mothers (21/54, 39%) explained a kind, friendly demeanor of the fieldworkers, and 22 percent (12/54) said that the fieldworkers gave them time to participate and to respect what they say. Gestures, greetings, and equality of treatment all are demonstrative of this respect, according to the beneficiaries. In particular, 13 percent (7/54) of beneficiaries noted an initial greeting as evidence of respect, 13 percent (7/54) in good communication, and 13 percent (7/54) in advice given. “It gives me confidence to ask [the fieldworker] about the themes,” explained one mother. “It makes us happy to be present in the session with all of the respect that that is granted to us,” noted another. Beneficiary mothers interviewed at home also felt respected by the PROCOMIDA BCC staff and expressed similar sentiments as those interviewed on the day of the observed BCC session.

Only 2 percent (2/81) of the mothers had experienced a problem with the PROCOMIDA personnel in any of the BCC sessions attended, with 98 percent (79/81) citing no problems encountered. The problems described by the two beneficiary mothers interviewed included being scolded publicly, questions about additional foods for monthly rations being ignored, and being asked to leave the session for talking.

Interactions among beneficiary mothers. Beneficiary mothers interviewed on the day of the observed BCC session described positive relationships with the other beneficiary mothers present. Mothers said that the relationships were good because of mutual respect (18/54, 33%), with 19 percent (10/54) citing good communication among beneficiary mothers. Another

17 percent (9/54) said that treatment of the mothers is fair and equal, citing the positive implications of this dynamic. In the words of one mother, "We treat each other in an equal manner." Sharing with each other also breeds positive relations among the beneficiaries. As the mothers explained, "We all are able to share and give our opinions" and "We have a lot of trust between us." Beneficiary mothers interviewed at home had similar opinions regarding the relationships among the beneficiary mothers.

Beneficiary mothers' overall opinions about participating in BCC sessions. All of the beneficiary mothers interviewed enjoyed participating in the BCC session and in the distribution of foods on the day of the interview. Most cited knowledge gained as the reason underlying their appreciation of the day's session (42/54, 78%). Specifically, mothers appreciated learning new things (19/54, 35%) and receiving advice (7/54, 13%), and 50 percent (27/54) were happy to have received foods at the distribution of the day. "They help us and this makes me content," explained one mother. "I want to help my family with the good advice that they give," explained another. Some (9/54, 17%) of the beneficiary mothers described presentation characteristics—including games used in the session and participation—as underlying their appreciation of the day's session.

Beneficiary mothers' perceptions of their husbands' opinions of participation in the BCC session. The mothers explained that their husbands/partners generally gave them permission to participate in the program (24/51, 47%), were content with their participation (12/51, 24%), or had not shared their opinions on participation (12/51, 24%). Some mothers were also motivated to participate by their husband's support (4/51, 8%) or explained that their husbands were particularly happy about the help/food given through the program (4/51, 8%).

Beneficiary mothers' opinions to improve BCC sessions. As was observed at the BCC sessions, about one-third of the beneficiary mothers interviewed stated that they had experienced interference with their participation in the day's BCC session due to distractions (17/54, 31%). A majority of these distractions related to children (13/17, 76%), in particular children crying or whining (9/17, 53%). Among those who provided suggestions to deal with these distractions, half suggested that someone be responsible for watching the children during the BCC session (8/16, 50%). "Bring someone to watch the children. That way you avoid crying in the sessions," suggested one mother. This sentiment was echoed in the response of many others. Other mothers said that children should be left at home (2/16, 13%), and one each (1/16, 6%) thought that the session should be held earlier in the day so that children don't get bored or that only young children should attend the session with their mothers. Another participant suggested that health commission members could themselves be responsible for watching the children. Furthermore, there was an issue with the noise of conversation, including women outside or within the room, and mothers suggested closing the door to the room during sessions to ameliorate this problem.

Aside from limiting the distractions present at the BCC sessions, a majority of mothers (51/54, 94%) did not believe anything in the BCC session could have improved their experience. Of the small percentage of mothers (3/54, 6%) who believed that something could have improved their

experience, all focused on additional foods or products that could be given. One mother noted the desire for sugar and oil, another that the CSB had been taken from them,[7] and the third the general desire for more foods.

Plans to attend the next BCC session. All but one of the beneficiary mothers planned to attend the next BCC session and food distribution (53/54, 98%). A majority of the women interviewed explained that they were motivated to attend to receive foods (39/54, 72%) and to gain new information (34/54, 63%). One mother described her desire to learn as "I need to come to the sessions so I do not miss out on any of the information." Some also said that they planned to attend to participate in recipe demonstrations following the BCC sessions (7/54, 13%). The recipe demonstrations following the BCC sessions were generally given for the model mothers who in turn taught the beneficiary mothers later in the month what they had learned.

Recipe Demonstrations for Model Mothers

PROCOMIDA fieldworkers conduct recipe demonstrations for model mothers. About half of the fieldworkers[8] interviewed (15/36, 42%) had conducted cooking demonstrations following the day's BCC session as part of their typical day/responsibilities (11/15, 73%) and to provide mothers with knowledge (7/15, 47%). Most who did not conduct cooking demonstrations cited other responsibilities and/or that a colleague was in charge of this. In most cases, fieldworkers reported that only model mothers were expected to attend the cooking demonstrations that they themselves gave following the BCC sessions (13/15, 87%). Only two fieldworkers felt that model mothers and, more broadly, beneficiary mothers should both attend the cooking demonstrations.

During the cooking demonstrations following the observed BCC sessions, a variety of recipes were prepared across the groups, with 20 percent (3/15) preparing creole beans. Thus, ingredients for the recipes also differed. Most reported that they had received a list from the PROCOMIDA nutritionists specifying which recipes to prepare on the day of the cooking demonstration (12/15, 80%). Most fieldworkers (12/14, 86%) felt that the beneficiary mothers would not have previously prepared the day's recipe at home. They thought that having the necessary ingredients at home (10/14, 71%) and ease of preparation (6/14, 43%) would encourage mothers to prepare these recipes at home. Two fieldworkers further explained that having a home garden could facilitate recipe replication at home. Access to ingredients and/or ingredient cost could act as a barrier to recipe preparation at home, according to 36 percent (5/14) of the fieldworkers interviewed.

Participation in recipe demonstrations among model mothers. The model mothers interviewed following the observed BCC sessions overwhelmingly expressed the belief that they had received sufficient training to teach the beneficiary mothers how to prepare the PROCOMIDA recipes learned (17/18, 94%), explaining that they have been trained well

[7] Beneficiary from study arm D where LNS replaced CSB.
[8] Half of the team of fieldworkers were supposed to conduct recipe demonstrations, while the other half of the team met with the health commission, according to the design of the program.

themselves (15/18, 83%). They noted that fieldworkers teach patiently (1/18, 6%) and that they can practice the recipes at home (1/18, 6%), leading to knowledge attained (4/18, 22%). Only one model mother from study arm D felt that she had not received sufficient training, explaining that she has just begun in her role as a model mother (1/18, 6%).

Model mothers replicate and prepare the recipes with their beneficiary mothers every month; model mothers conduct recipe demonstrations. The model mothers conducted a vast majority of recipe demonstrations within a month following when they had participated in the demonstration provided by the PROCOMIDA fieldworkers (17/18, 94%). They held the recipe demonstrations at the CC (7/17, 41%), at the model mother's house (4/17, 24%), at a beneficiary mother's neighbor's house (3/17, 18%), at the school kitchen (2/17, 12%), or at a non-beneficiary mother's neighbor's house (1/17, 6%).

Supplies for the recipe demonstrations were obtained by a majority of model mothers through collaboration, in which each mother brought her own ingredients to the demonstration (11/17, 65%). In some cases, the model mother bought ingredients herself with contributions from others (3/17, 18%) with or money from the health commission or other source given to buy ingredients (2/17, 12%). For a vast majority of model mothers, this had always been the form in which supplies and foods were obtained for the cooking demonstrations (16/17, 94%). The model mothers cited no problems with the way that ingredients for the recipe demonstrations were attained (6/17, 35%), with 24 percent (4/17) explaining that this system of attaining supplies was good because everyone collaborates. In fact, positive perceptions of this system were expressed by all of the model mothers interviewed (17/17, 100%).

A majority of model mothers explained that it was important to teach other mothers the recipes that they had learned (10/18, 56%), with the three model mothers interviewed from study arm B explaining that learning better themselves motivates them to demonstrate the recipes learned to the broader group of beneficiary mothers that they are responsible for (3/3, 100%).

Beneficiary mothers attend recipe demonstrations. All but two of the beneficiary mothers interviewed (80/82, 98%) had attended at least one cooking demonstration as part of their participation in PROCOMIDA. Only two from study arm B had not (2/82, 2%). A majority (63/80, 79%) had attended four cooking demonstrations over the past 4 months, as intended by program design. Twenty-nine percent (23/78) of the beneficiary mothers interviewed had missed a PROCOMIDA cooking demonstration at some point in time. Of those who had ever missed a recipe session, most had missed one cooking demonstration (15/23, 65%), two beneficiaries (9%) had missed two demonstrations, and about one-quarter (6/23, 26%) had missed none over the past 4 months. Only beneficiaries from study arm C had not missed any cooking demonstrations in the past 4 months. A majority (14/17, 82%) had not sent a representative to participate in the demonstration in their name when they missed it. Reasons cited for missing the demonstration were illness (3/17, 18%), work responsibilities (2/17, 12%), and other reasons (9/17, 53%), including not knowing the time of the demonstration and birth of a new baby. Of the beneficiary mothers who did attend recipe demonstrations, a majority of mothers (56/74, 76%) participated to learn to make foods at home (this includes learning new recipes, how to use CSB, and food diversification); others also cited that this is a program requirement (16/74, 22%).

Model mothers and beneficiary mothers prepare the recipes at home. When asked which of the recipes that they learned at the recipe demonstrations that they most commonly prepared at home, beneficiary mothers mentioned a variety of different recipes. Fifteen percent (8/53) stated that they prepared rice and beans most frequently at home; however, others prepared a wide array of rice, bean, meat, egg, vegetable, and potato dishes. According to the beneficiary mothers, those who ate the recipe included the beneficiary mother herself (74/77, 96%), children 6–23 months of age (62/77, 81%), children under 6 months of age (5/77, 6%), children 2–5 years of age (34/77, 44%), other members of the household (63/77, 82%), and all members of the family (2/77, 3%). Mothers have prepared their favorite recipe learned from the PROCOMIDA recipe demonstrations between 0 and 40 times over the past 4 months, most having prepared it between 1 and 6 times (49/77, 64%). The last time they prepared it at home, beneficiary mothers themselves (74/77, 96%), children under 6 months of age (4/77, 5%), children 6–23 months of age (63/77, 82%), children 2–5 years of age (39/77, 51%), and other household members (67/77, 87%) had eaten the dish. Thirty-five percent of mothers (27/77) explained that access to all ingredients in the community and/or at a reasonable price, as well as ingredients provided by PROCOMIDA (22/77, 29%), made it possible to prepare this recipe at home. In the words of one mother, “I have the rice and beans that PROCOMIDA gives me and the herbs I find in my land.” About a quarter (19/77, 25%) further explained the importance of learning the recipes.

The most significant barrier to preparing the favorite recipe was a lack of money (21/57, 37%), followed by time constraints (8/57, 14%). Twenty-one percent (12/57) of beneficiary mothers also cited a lack of ingredients or difficulty of finding ingredients in the community. Many mothers noted that having money for the foods and having ingredients for the recipe at home would help them prepare the favorite recipe more often at home. The reasons given for continuing to prepare the recipe at home included its perceived nutritional content (60/76, 79%) and because family members like the recipe (29/76, 38%). Receiving or being able to find ingredients in the community were also reasons cited by (13/76, 17%). Only one beneficiary no longer prepared this recipe at home because she no longer participated in PROCOMIDA.

Interactions between beneficiary mothers and model mothers. Beneficiary mothers interviewed at home described their relationships with the model mothers in their respective groups in positive terms, as good or problem free (72/76, 95%). About half of the beneficiary women interviewed found the model mother to be good at teaching/fulfilling her responsibility (42/76, 55%). However, a few of the beneficiary mothers did cite problems with the model mothers (4/76, 5%). One beneficiary reported that her model mother did not come on time and others cited problems with demeanors (3/4, 75%) (not being communicative, getting angry, being impatient, not caring). However, the overall sentiments were positive. “She speaks to us with respect,” explained one mother, “so we feel like we are with family.”

The beneficiary mothers interviewed on the day of BCC session also described their relationships with the model mothers as positive, with a little fewer than half of the mothers citing her ability to teach (23/54, 43%), 39 percent (21/54) that she is kind or good-natured, and 35 percent (19/54) that they have a respectful relationship. A few of the mothers interviewed also said that the model mother’s ability to communicate well leads to positive relations (5/54, 9%).

In the words of two beneficiary mothers, “She teaches us with patience the recipes that she has to teach” and “She treats all of us with care.”

PROCOMIDA fieldworkers provide trainings on BCC messages for men at food distributions. A majority (17/26, 65%) of fieldworkers had conducted a BCC session for men as part of their PROCOMIDA responsibilities. Approximately half of the fieldworkers had conducted BCC sessions for men over the past 4 months (9/17, 53%). The fieldworkers had conducted a varied number of sessions for men, from 0 to 32 in total, over the past 4 months. The number of men in attendance ranged across the groups, from an average of 6 in study arm C and 20 in study arm E, with an overall average of 14. A majority of fieldworkers emphasized the importance of men gaining knowledge and being aware of program content (9/17, 53%). Fieldworkers stressed that this helped create peaceful coexistence and a supportive atmosphere at home. The involvement of fathers was important for changing behaviors and carrying out health/ nutrition messages at home and so that fathers felt that they had been taken into account in the program. All of the fieldworkers who trained men believed that men and/or their families benefited from the BCC sessions given to men. These men benefited because they could support wives in making changes at home. By taking responsibility and acquiring knowledge, these men could help put the key messages into practice in their households.

Men attend BCC sessions. Among the husbands/partners of the beneficiary women interviewed, about half stated that they had attended a BCC session (28/63, 44%). Among those who had participated, they explained that they accompanied their wives to the sessions (5/28, 18%) and that they enjoyed learning about the different topics presented (14/28, 50%). Some also explained that they had attended in place of their wives when they were sick or had recently given birth (6/28, 21%) and a few that they had attended because they were members of the health commission (2/28, 7%). Those who had never attended a BCC session primarily cited not having time (14/35, 40%) or having to work (18/35, 51%) as the reasons. About one-quarter of male respondents stated that either the sessions were intended for women or that it was the responsibility of their wives to attend the BCC sessions (9/35, 26%). A few others simply stated that they did not know that they were supposed to attend or had never been invited (5/35, 14%). There was no mention of sessions given specifically for men. Those who had attended seemed to have described attending the primary BCC sessions given before the food distributions.

PROCOMIDA fieldworkers conduct home visits. A majority of the fieldworkers interviewed (17/26, 65%) undertook or assisted in home visits for children 0–24 months of age. The most important aspects to be covered during a domestic visit included: general hygiene (10/17, 59%), observing child feeding practices (10/17, 59%), growth monitoring (including identification and follow-up of children who are underweight or malnourished) (7/17, 41%), and verifying that mothers apply what they have learned in the BCC sessions (7/17, 41%).

Beneficiaries receive home visits from PROCOMIDA fieldworkers. In the last 4 months, 31 percent (25/81) of the beneficiary mothers received a home visit. Of the 31 percent who received a home visit, 60 percent (15/25) received the visit from a PROCOMIDA fieldworker, but none from a PROCOMIDA nutritionist. All but one of the beneficiary mothers who had received a home visit (24/25, 96%) received a visit from a nutrition educator associated with the EBS, from a model mother (3/25, 12%), or from other PROCOMIDA personnel (3/25, 12%).

Mothers also experienced visits by others (6/25, 24%), including a midwife (one mother), a community facilitator (one mother), an FC (one mother), and a community health worker (three mothers).

Health and Nutrition Knowledge among the PROCOMIDA Fieldworkers

As stated above, PROCOMIDA fieldworkers should receive health- and nutrition-related trainings on a monthly basis from PROCOMIDA. Fieldworkers reported having received an average of 20 trainings. It is therefore expected that they would be well versed in the key messages included in the BCC strategy for PROCOMIDA. In addition to the fieldworkers who provide BCC sessions, we interviewed key PROCOMIDA staff members who should provide training to the fieldworkers or to the husbands of beneficiary women. It was therefore expected that these staff members would also be well versed in the key messages included in the BCC strategy. In this section, we highlight the results of some of the knowledge questions related to key messages included in PROCOMIDA's BCC strategy.

A majority of the PROCOMIDA fieldworkers interviewed as well as the Cobán-based staff correctly identified vaginal bleeding as a danger sign in pregnancy (**Table 3.31**). PROCOMIDA fieldworkers also correctly listed severe headaches, severe stomachaches, and swollen hands or feet as danger signs during pregnancy. While all of the Cobán-based PROCOMIDA staff members interviewed correctly identified persistent back pain as a danger sign in pregnancy, only one-third of the fieldworkers made the same observation. Other danger signs that were less commonly mentioned included amniotic fluid discharge, contractions before 37 weeks of gestation, and no fetal movement after 5 months.

Table 3.31. Prenatal care knowledge among PROCOMIDA fieldworkers and Cobán-based staff[a]

	PROCOMIDA fieldworkers (n=26)	PROCOMIDA staff (Cobán) (n=18)
Danger signs of pregnancy; % that said:		
Vaginal bleeding	21 (81%)	18 (100%)
Severe headaches	23 (88%)	13 (72%)
Severe stomachaches	24 (92%)	10 (56%)
Persistent vomiting	0 (0%)	0 (0%)
Persistent back pain	8 (31%)	0 (0%)
Amniotic fluid discharge	13 (50%)	1 (6%)
Swollen hands, feet, body	20 (77%)	6 (33%)
Contractions before 37 weeks	7 (27%)	2 (11%)
No fetal movement after 5 months	4 (15%)	0 (0%)

[a] Numbers are n (%).

Knowledge related to danger signs during childhood illness was even more limited among both PROCOMIDA fieldworkers and the Cobán-based staff members than that of danger signs during pregnancy. Fever was the most commonly mentioned danger sign during childhood illness; with

approximately two-thirds of the fieldworkers and a little more than one-third of the Cobán-based staff correctly mentioning this danger sign (**Table 3.32**). The other danger signs during childhood illness (inability to drink/breastfeed, intensified symptoms, rapid breathing, trouble breathing, or bloody stools) were correctly identified by fewer than half of the PROCOMIDA fieldworkers. None of the Cobán-based staff listed intensified symptoms, rapid breathing, or bloody stools as danger signs during childhood illness. It should be noted that while the PROCOMIDA fieldworkers who were interviewed were directly asked these questions by an interviewer and were asked if there were further responses, until the interviewee did not list any more responses, the Cobán-based staff were given a self-administered questionnaire and were asked to list all danger signs but were not probed to provide more answers. This difference in how the questions were administered for the two groups could account for some of the differences in the responses.

A majority of the PROCOMIDA fieldworkers interviewed correctly stated that children who are ill and recovering from illness should be given more food, liquids, and breast milk as compared to their usual intake. On the other hand, only about one-third of the Cobán-based staff correctly answered these questions.

Table 3.32. Knowledge of child health care practices PROCOMIDA fieldworkers[a]

	PROCOMIDA fieldworkers (N=26)	PROCOMIDA staff (Cobán) (N=18)
Danger signs of childhood illness; % that said:		
Cannot drink/breastfeed	9 (35%)	1 (6%)
Symptoms intensify	10 (38%)	0 (0%)
Fever	18 (69%)	7 (39%)
Rapid breathing	10 (38%)	0 (0%)
Trouble breathing	12 (46%)	5 (28%)
Bloody stools	8 (31%)	0 (0%)
Treating diarrhea; % who knew:		
The purpose of ORS	23 (88%)	10 (56%)
Feeding a sick child; % who knew:		
To give more food	20 (77%)	6 (33%)
To give more liquids	19 (73%)	7 (39%)
To give more breast milk	21 (81%)	7 (39%)
Feeding a child immediately following recovery; % that knew:		
To give more food	20 (77%)	9 (50%)
To give more liquids	19 (73%)	6 (33%)
To give more breast milk	19 (73%)	6 (33%)

[a] Numbers are n (%).

A majority of PROCOMIDA fieldworkers and Cobán-based staff correctly stated that a baby should begin breastfeeding within the first hour of birth, that both liquids other than breast milk and semi-solid foods should be first introduced at 6 months of age, and that children between 6 and 8.9 months of age should be given at least 2 meals per day (**Table 3.33**). Although a majority of respondents correctly answered this series of questions, reinforcement is needed of the importance of introducing semi-solid foods at 6 months of age, rather than after 6 months of age. The importance of immediate breastfeeding after birth should also be reinforced among the Cobán-based staff.

Table 3.33. Breastfeeding and infant and young child feeding knowledge among PROCOMIDA fieldworkers[a]

	PROCOMIDA fieldworkers (n=26)	PROCOMIDA staff (Cobán) (n=18)
Breastfeeding		
Baby should be breastfed immediately (< 1 h) after birth	23 (88%)	13 (72%)
Age of introduction of liquids		
Before 6 months	0 (0%)	0 (0%)
At 6 months	25 (96%)	17 (94%)
After 6 months	1 (4%)	0 (0%)
Age of introduction of food		
Before 6 months	0 (0%)	0 (0%)
At 6 months	20 (77%)	11 (61%)
After 6 months	6 (23%)	7 (39%)
Meal frequency		
Children 6–8.9 months	3.3 (1.0)	4.1 (1.1)
2 or more meals	25 (96%)	18 (100%)

[a] Numbers are n (%) or mean (SD).

Handwashing knowledge was good among the PROCOMIDA fieldworkers. More than three-quarters of those interviewed correctly identified the most important handwashing times and mentioned that soap should be used to wash hands **(Table 3.34)**. While about three-quarters of the Cobán-based staff correctly listed after using the bathroom and before preparing or touching food as important handwashing times, only about half correctly listed before eating or after cleaning a child who had defecated. Only about one-quarter of respondents correctly listed before feeding a child another important handwashing time. Again it should be noted that it is possible that the administration of these types of multiple response questions may explain some of the differences between the two groups. Nearly all of the respondents in both groups correctly stated that water could be boiled or, alternatively, that chlorine could be utilized to purify water.

Table 3.34. Hygiene knowledge among PROCOMIDA fieldworkers[a]

	PROCOMIDA fieldworkers (n=26)	PROCOMIDA staff (Cobán) (n=18)
Timing for handwashing		
Before eating	20 (77%)	10 (56%)
After using the bathroom	26 (100%)	13 (72%)
Before feeding a child	22 (85%)	5 (28%)
After cleaning a child who defecated	23 (88%)	10 (56%)
Before preparing or touching food	25 (96%)	15 (83%)
Handwashing products		
Soap	20 (77%)	10 (56%)
Ash	14 (54%)	5 (28%)
Water purification methods		
Boiling	23 (88%)	16 (89%)
Chlorine	24 (92%)	16 (89%)
Filter	6 (23%)	7 (39%)

[a] Numbers are n (%).

Health and Nutrition Knowledge among Beneficiary and Non-Beneficiary Mothers

Knowledge related to the danger signs during pregnancy was low among beneficiary mothers as well as among women living in control communities, with the exception of a higher percentage of beneficiary women correctly citing severe headaches as a danger sign during pregnancy as compared to women living in control communities (59% versus 43%) (**Table 3.35**). Only about one-third of mothers mentioned vaginal bleeding, severe stomachaches, or persistent back pain as a danger sign, and only one-quarter of the women interviewed mentioned swollen hands, feet, or body. Amniotic fluid discharge, lack of fetal movements after 5 months, and contractions before 37 weeks of gestation were the least commonly mentioned danger signs during pregnancy reported by both beneficiary mothers and women living in control communities.

Table 3.35. A comparison of prenatal care knowledge between beneficiary mothers by study arm and control mothers[a]

	Arm A (n=18)	Arm B (n=15)	Arm C (n=15)	Arm D (n=16)	Arm E (n=18)	All (n=82)	Control (n=28)
Danger signs of pregnancy; % that said:							
Vaginal bleeding	9 (50%)	4 (27%)	5 (33%)	6 (38%)	7 (39%)	31 (38%)	9 (32%)
Severe headaches	10 (56%)	10 (67%)	7 (47%)	9 (56%)	12 (67%)	48 (59%)	12 (43%)
Severe stomachaches	7 (39%)	3 (20%)	1 (7%)	5 (31%)	8 (44%)	24 (29%)	11 (39%)
Persistent vomiting	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (6%)	1 (1%)	1 (4%)
Persistent back pain	7 (39%)	7 (47%)	2 (13%)	6 (38%)	6 (33%)	28 (34%)	10 (36%)
Amniotic fluid discharge	0 (0%)	6 (40%)	4 (27%)	2 (13%)	3 (17%)	15 (18%)	3 (11%)
Swollen hands, feet, body	6 (33%)	5 (33%)	2 (13%)	2 (13%)	3 (17%)	18 (22%)	7 (25%)
Contractions before 37 weeks	1 (6%)	2 (13%)	1 (7%)	0 (0%)	1 (6%)	5 (6%)	4 (14%)
No fetal movement after 5 months	1 (6%)	2 (13%)	1 (7%)	4 (25%)	2 (11%)	10 (12%)	1 (4%)

[a] Numbers are n (%).

Fathers' knowledge of danger signs during pregnancy followed a similar pattern, although an even smaller percentage of men correctly mentioned different danger signs. Severe headaches and persistent back pain were the dangers most commonly mentioned by fathers (**Table 3.36**). About one-quarter of the fathers interviewed correctly identified vaginal bleeding and severe stomachaches as danger signs during pregnancy. Similar to mothers, fewer fathers interviewed mentioned the other danger signs during pregnancy, including amniotic fluid discharge, contractions before 37 weeks of gestation, and no fetal movements after 5 months of gestation. As with the beneficiary and control women interviewed, there were no real differences in knowledge related to the danger signs during pregnancy between fathers living in communities served by the program and those living in control communities.

Table 3.36. A comparison of prenatal care knowledge between beneficiary fathers by study arm and control fathers[a]

	Arm A (n=16)	Arm B (n=15)	Arm C (n=13)	Arm D (n=14)	Arm E (n=13)	All (n=71)	Control (n=26)
Danger signs of pregnancy; % that said:							
Vaginal bleeding	4 (25%)	4 (27%)	4 (31%)	0 (0%)	4 (31%)	16 (23%)	6 (23%)
Severe headaches	2 (13%)	8 (53%)	5 (38%)	6 (43%)	5 (38%)	26 (37%)	10 (38%)
Severe stomachaches	5 (31%)	3 (20%)	4 (31%)	2 (14%)	4 (31%)	18 (25%)	6 (23%)
Persistent vomiting	0 (0%)	1 (7%)	0 (0%)	0 (0%)	0 (0%)	1 (1%)	0 (0%)
Persistent back pain	6 (38%)	9 (60%)	0 (0%)	5 (36%)	7 (54%)	27 (38%)	10 (38%)
Amniotic fluid	0 (0%)	4 (27%)	3 (23%)	0 (0%)	2 (15%)	9 (13%)	4 (15%)
Swollen hands, feet, body	5 (31%)	5 (33%)	1 (8%)	0 (0%)	4 (31%)	15 (21%)	5 (19%)
Contractions before 37 weeks	1 (6%)	1 (7%)	1 (8%)	0 (0%)	1 (8%)	4 (6%)	2 (8%)
No fetal movement after 5 months	1 (6%)	0 (0%)	1 (8%)	0 (0%)	1 (8%)	3 (4%)	2 (8%)

[a] Numbers are n (%).

A majority of mothers interviewed, both in PROCOMIDA and control communities, correctly stated that fever is a danger sign of childhood illness (**Table 3.37**). However, fewer than one-third of mothers correctly mentioned the other danger signs of childhood illness. As with recognition of danger signs during pregnancy, there were no clear differences between the knowledge of beneficiary mothers as compared to those living in control communities related to recognition of danger signs during childhood illness.

A majority of mothers interviewed also knew that ORS should be used to treat diarrhea. However, knowledge related to best practices for feeding children during illness was generally low. Only about one-third of the mothers correctly stated that children should be given more breast milk and liquids when they are ill, and only about 10 percent said that that they should be given more food. A slightly higher percentage of women living in communities served by the program correctly stated that children should be given more liquids when they are ill, although the percentage that answered correctly for the other two behaviors was similar between beneficiary mothers and those living in control communities. Knowledge related to best practices for feeding children during recovery was higher than that for feeding during illness. However, only about half of the mothers interviewed correctly stated that children should be given more breast milk, liquids, and food when they are recovering from illness. The percentage of women living in control communities who correctly responded to this series of questions was higher than that for women living in communities served by the program.

Table 3.37. A comparison of health care knowledge regarding childhood illness between beneficiary mothers by study arm and control mothers[a]

	Arm A (n=18)	Arm B (n=15)	Arm C (n=15)	Arm D (n=16)	Arm E (n=18)	All (n=82)	Control (n=28)
Danger signs of childhood illness; % that said:							
Cannot drink/breastfeed	3 (17%)	2 (13%)	2 (13%)	6 (38%)	3 (17%)	16 (20%)	6 (21%)
Symptoms intensify	4 (22%)	4 (27%)	4 (27%)	5 (31%)	1 (6%)	18 (22%)	8 (29%)
Fever	14 (78%)	13 (87%)	13 (87%)	13 (81%)	15 (83%)	68 (83%)	22 (79%)
Rapid breathing	4 (22%)	7 (47%)	1 (7%)	1 (6%)	3 (17%)	16 (20%)	6 (21%)
Trouble breathing	3 (17%)	5 (33%)	0 (0%)	3 (19%)	7 (39%)	18 (22%)	8 (29%)
Bloody stools	6 (33%)	3 (20%)	6 (40%)	4 (25%)	6 (33%)	25 (30%)	9 (32%)
Treating diarrhea; % who knew:							
The purpose of ORS	15 (83%)	14 (93%)	11 (73%)	10 (63%)	12 (67%)	62 (76%)	21 (75%)
Feeding a sick child; % who knew:							
To give more food	2 (11%)	1 (7%)	1 (7%)	0 (0%)	3 (17%)	7 (9%)	3 (11%)
To give more liquids	8 (44%)	4 (27%)	6 (40%)	5 (31%)	9 (50%)	32 (39%)	7 (25%)
To give more breast milk	9 (50%)	2 (13%)	5 (33%)	3 (19%)	10 (56%)	29 (35%)	9 (32%)
Feeding a child immediately following recovery; % that knew:							
To give more food	6 (33%)	6 (40%)	4 (27%)	9 (56%)	7 (39%)	32 (39%)	17 (61%)
To give more liquids	6 (33%)	6 (40%)	8 (53%)	8 (50%)	9 (50%)	37 (45%)	17 (61%)
To give more breast milk	9 (50%)	8 (53%)	6 (40%)	9 (56%)	12 (67%)	44 (54%)	17 (61%)

[a] Numbers are n (%).

The knowledge of fathers interviewed followed a similar pattern as the women. The most commonly mentioned danger sign during childhood illness was fever, with fewer than one-third of the fathers interviewed correctly mentioning the other danger signs during childhood illness (**Table 3.38**). However, in this case, a higher percentage of fathers living in communities served by the program as compared to those living in control communities correctly cited fever as a danger sign.

Knowledge related to the use of ORS was lower among fathers as compared to mothers. A little more than half of the fathers interviewed (58% and 62% living in communities served by the program and those living in control communities, respectively) correctly stated that ORS can be used to treat diarrhea and/or dehydration. Paternal knowledge related to the optimal practice of giving children more breast milk, liquids, and food during illness and recovery was similar to that of mothers, with the exception that a higher percentage of mothers as compared to fathers correctly stated that children should be given more breast milk than usual during illness. Overall, it was uncommon for fathers to correctly state that children should be given more breast milk, liquids, or food during illness. However, about half of the fathers interviewed correctly stated that children should be given more liquids and food during recovery, and about two-thirds of those interviewed correctly explained that children should be given more breast milk than usual when they are recovering from illness. As was found with the mothers interviewed, a higher percentage of fathers living in control communities than those living in communities served by the program correctly answered the questions related to best practices for feeding children when they are recovering from illness.

Table 3.38. A comparison of health care knowledge regarding childhood illness between beneficiary fathers by study arm and control fathers[a]

	Arm A (n=16)	Arm B (n=15)	Arm C (n=13)	Arm D (n=14)	Arm E (n=13)	All (n=71)	Control (n=26)
Danger signs of childhood illness; % that said:							
Cannot drink/breastfeed	4 (25%)	2 (13%)	2 (15%)	2 (14%)	0 (0%)	10 (14%)	5 (19%)
Symptoms intensify	4 (25%)	5 (33%)	2 (15%)	6 (43%)	4 (31%)	21 (30%)	6 (23%)
Fever	10 (63%)	13 (87%)	6 (46%)	11 (79%)	11 (85%)	51 (72%)	15 (58%)
Rapid breathing	2 (13%)	5 (33%)	1 (8%)	1 (7%)	2 (15%)	11 (15%)	5 (19%)
Trouble breathing	3 (19%)	4 (27%)	1 (8%)	4 (29%)	3 (23%)	15 (21%)	6 (23%)
Bloody stools	3 (19%)	3 (20%)	4 (31%)	4 (29%)	3 (23%)	17 (24%)	7 (27%)
Treating diarrhea; % who knew:							
The purpose of ORS	8 (50%)	11 (73%)	7 (54%)	8 (57%)	7 (54%)	41 (58%)	16 (62%)
Feeding a sick child; % who knew:							
To give more food	2 (13%)	2 (13%)	3 (23%)	2 (14%)	4 (31%)	13 (18%)	5 (19%)
To give more liquids	4 (25%)	3 (20%)	4 (31%)	5 (36%)	2 (15%)	18 (25%)	6 (23%)
To give more breast milk	5 (31%)	3 (20%)	3 (23%)	1 (7%)	2 (15%)	14 (20%)	7 (27%)
Feeding a child immediately following recovery; % that knew:							
To give more food	6 (38%)	5 (33%)	6 (46%)	5 (36%)	4 (31%)	26 (37%)	13 (50%)
To give more liquids	6 (38%)	5 (33%)	7 (54%)	9 (64%)	6 (46%)	33 (46%)	15 (58%)
To give more breast milk	9 (56%)	7 (47%)	10 (77%)	8 (57%)	6 (46%)	40 (56%)	19 (73%)

[a] Numbers are n (%).

One knowledge area that appears to be higher among beneficiary mothers than among those living in control communities relates to the optimal practices of initiating breastfeeding within the first hour after birth and introducing both liquids and semi-solid foods at 6 months of age. A majority of beneficiary mothers correctly explained these optimal practices as compared to only about three-quarters of the women living in control communities (**Table 3.39**). All of women interviewed correctly stated that children between the ages of 6 and 8.9 months of age should be given two or more meals per day.

Table 3.39. A comparison of breastfeeding and complementary feeding knowledge among beneficiary mothers by treatment group and control mothers[a]

	Arm A (n=18)	Arm B (n=15)	Arm C (n=15)	Arm D (n=16)	Arm E (n=18)	All (n=82)	Control (n=28)
Breastfeeding							
Baby should be breastfed immediately (< 1 h) after birth	17 (94%)	14 (93%)	12 (80%)	14 (88%)	17 (94%)	74 (90%)	21 (75%)
Age of introduction of liquids							
Before 6 months	1 (6%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (1%)	6 (21%)
At 6 months	17 (94%)	14 (93%)	14 (93%)	16 (100%)	18 (100%)	79 (96%)	20 (71%)
After 6 months	0 (0%)	1 (7%)	1 (7%)	0 (0%)	0 (0%)	2 (2%)	1 (4%)
Age of introduction of food							
Before 6 months	2 (11%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (2%)	2 (7%)
At 6 months	14 (78%)	13 (87%)	12 (80%)	14 (88%)	18 (100%)	71 (87%)	22 (79%)
After 6 months	2 (11%)	2 (13%)	3 (20%)	2 (13%)	0 (0%)	9 (11%)	3 (11%)
Meal frequency							
Children 6–8.9 months	3.5 (0.9)	3.3 (0.5)	3.7 (1.1)	4.0 (1.5)	3.6 (1.0)	3.6 (1.0)	3.4 (0.8)
2 or more meals	18 (100%)	15 (100%)	15 (100%)	16 (100%)	18 (100%)	82 (100%)	28 (100%)

[a] Numbers are n (%) or mean (SD).

Knowledge related to the optimal practices for complementary feeding was generally higher among beneficiary fathers (husbands/partners of the beneficiary women interviewed) than among those living in control communities (**Table 3.40**). Beneficiary fathers were more likely than control fathers to correctly state that breastfeeding should be initiated within the first hour after birth, that semi-solid foods should be introduced at 6 months of age, and that children between the ages of 6 and 8.9 months should be given two or more meals per day. Overall, however, paternal knowledge was lower than maternal knowledge related to these optimal practices.

Table 3.40. A comparison of breastfeeding and complementary feeding knowledge among beneficiary fathers by treatment group and control fathers[a]

	Arm A (n=16)	Arm B (n=15)	Arm C (n=13)	Arm D (n=14)	Arm E (n=13)	All (n=71)	Control (n=26)
Breastfeeding							
Baby should be breastfed immediately (< 1 h) after birth	12 (75%)	7 (47%)	11 (85%)	9 (64%)	10 (77%)	49 (69%)	15 (58%)
Age of introduction of liquids							
Before 6 months	4 (25%)	3 (20%)	2 (15%)	3 (21%)	4 (31%)	16 (23%)	5 (19%)
At 6 months	10 (63%)	12 (80%)	8 (62%)	8 (57%)	8 (62%)	46 (65%)	17 (65%)
After 6 months	1 (6%)	0 (0%)	2 (15%)	3 (21%)	1 (8%)	7 (10%)	2 (8%)
Age of introduction of food							
Before 6 months	2 (13%)	1 (7%)	0 (0%)	0 (0%)	0 (0%)	3 (4%)	4 (15%)
At 6 months	8 (50%)	13 (87%)	8 (62%)	9 (64%)	11 (85%)	49 (69%)	15 (58%)
After 6 months	6 (38%)	1 (7%)	5 (38%)	4 (29%)	2 (15%)	18 (25%)	7 (27%)
Meal frequency							
Children 6–8.9 months	3.4 (0.6)	4.1 (1.2)	3.9 (1.1)	3.5 (1.1)	3.5 (1.1)	3.6 (1.1)	3.4 (1.4)
2 or more meals	15 (94%)	15 (100%)	12 (92%)	13 (93%)	13 (100%)	68 (96%)	23 (88%)

[a] Numbers are n (%) or mean (SD).

Overall, handwashing knowledge among the women interviewed was adequate. Almost all of the women interviewed correctly stated that soap can be used to wash hands, and some also mentioned ash as an alternative (**Table 3.41**). A majority of women correctly stated that hands should be washed before eating, preparing or touching food, and after using the bathroom. Although less commonly mentioned overall, a higher percentage of beneficiary women than women living in control communities correctly explained that hands should be washed before feeding a child and after cleaning a child who had defecated. Most mothers were aware that boiling water is a means of purifying water, and many also correctly stated that chlorine could be used for this same purpose.

Table 3.41. A comparison of hygiene knowledge between beneficiary mothers by study arm and control mothers[a]

	Arm A (n=18)	Arm B (n=15)	Arm C (n=15)	Arm D (n=16)	Arm E (n=18)	All (n=82)	Control (n=28)
Timing for handwashing							
Before eating	16 (89%)	12 (80%)	12 (80%)	11 (69%)	15 (83%)	66 (80%)	25 (89%)
After using the bathroom	13 (72%)	11 (73%)	7 (47%)	10 (63%)	12 (67%)	53 (65%)	18 (64%)
Before feeding a child	10 (56%)	7 (47%)	4 (27%)	10 (63%)	11 (61%)	42 (51%)	10 (36%)
After cleaning a child who defecated	7 (39%)	6 (40%)	3 (20%)	4 (25%)	12 (67%)	32 (39%)	5 (18%)
Before preparing or touching food	13 (72%)	13 (87%)	9 (60%)	12 (75%)	13 (72%)	60 (73%)	22 (79%)
Handwashing products							
Soap	18 (100%)	15 (100%)	14 (93%)	16 (100%)	18 (100%)	81 (99%)	27 (96%)
Ash	6 (33%)	3 (20%)	2 (13%)	4 (25%)	1 (6%)	16 (20%)	5 (18%)
Water purification methods							
Boiling	16 (89%)	13 (87%)	12 (80%)	11 (69%)	16 (89%)	68 (83%)	22 (79%)
Chlorine	13 (72%)	6 (40%)	10 (67%)	13 (81%)	12 (67%)	54 (66%)	16 (57%)
Filter	6 (33%)	4 (27%)	2 (13%)	0 (0%)	4 (22%)	16 (20%)	12 (43%)

[a] Numbers are n (%).

Although almost all of the fathers interviewed correctly stated that soap can be used to wash hands and that hands should be washed before eating, they were less likely than women interviewed to correctly identify the other important times for washing hands or the use of ash (**Table 3.42**). A higher percentage of men living in control communities than those living in PROCOMIDA communities correctly stated that hands should be washed after using the bathroom and before touching or preparing food. Fewer than one-third of fathers interviewed mentioned that hands should be washed before feeding a child, and even fewer that hands should be washed after changing a child who had defecated. Men living in communities served by PROCOMIDA were more likely than those living in control communities to correctly explain water purification options such as the use of chlorine or boiling water.

Table 3.42. A comparison of hygiene knowledge between beneficiary fathers by study arm and control fathers[a]

	Arm A (n=16)	Arm B (n=15)	Arm C (n=13)	Arm D (n=14)	Arm E (n=13)	All (n=71)	Control (n=26)
Timing for handwashing							
Before eating	12 (75%)	15 (100%)	11 (85%)	14 (100%)	12 (92%)	64 (90%)	25 (96%)
After using the bathroom	8 (50%)	7 (47%)	5 (38%)	5 (36%)	6 (46%)	31 (44%)	14 (54%)
Before feeding a child	6 (38%)	5 (33%)	3 (23%)	2 (14%)	6 (46%)	22 (31%)	7 (27%)
After cleaning a child who defecated	4 (25%)	1 (7%)	2 (15%)	1 (7%)	3 (23%)	11 (15%)	2 (8%)
Before preparing or touching food	7 (44%)	5 (33%)	5 (38%)	5 (36%)	6 (46%)	28 (39%)	15 (58%)
Handwashing products							
Soap	16 (100%)	15 (100%)	10 (77%)	13 (93%)	13 (100%)	67 (94%)	25 (96%)
Ash	1 (6%)	0 (0%)	0 (0%)	0 (0%)	1 (8%)	2 (3%)	3 (12%)
Water purification methods							
Boiling	11 (69%)	13 (87%)	9 (69%)	7 (50%)	9 (69%)	49 (69%)	13 (50%)
Chlorine	11 (69%)	8 (53%)	9 (69%)	12 (86%)	12 (92%)	52 (73%)	15 (58%)
Filter	2 (13%)	3 (20%)	2 (15%)	1 (7%)	4 (31%)	12 (17%)	9 (35%)

[a] Numbers are n (%).

Beneficiaries' and Non-Beneficiaries' Comprehension of Food Bag Images

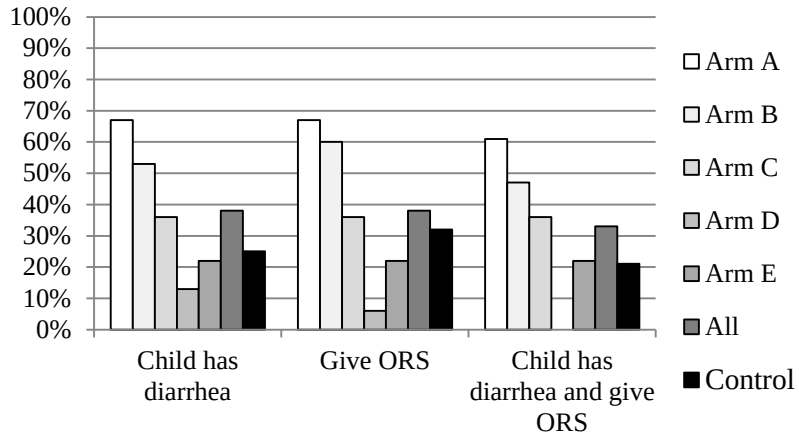
As part of the BCC strategy, PROCOMIDA printed pictures reflecting some of the key messages covered in the BCC sessions on the food bags that contained the rice, beans, and CSB distributed by the program. These pictures were meant to reinforce the messages taught in the BCC sessions. PROCOMIDA fieldworkers were supposed to show the bags with the pictures to the beneficiaries during the BCC sessions. To get a sense of how this part of the BCC strategy was working, we chose two pictures that should have been distributed prior to the time the interviews were conducted, and asked mothers to tell us if they had seen the pictures before and, if they had, where they had seen them. We then asked all mothers interviewed to explain what they thought the picture was illustrating.

Nearly all of the beneficiaries had seen the first picture presented (77/81, 95%) (**Figure 3.5a**). About half of beneficiaries reported seeing the image on a PROCOMIDA food bag (43/77, 56%) and about half on a PROCOMIDA flip chart at a BCC session (34/81, 42%). Although a majority of the beneficiary women said that they had seen picture, fewer than half correctly stated that it illustrated a child with diarrhea who should be given ORS (**Figure 3.5b**). Respondents from study arms A and B were most likely to respond correctly, whereas those in study arms D and E were least likely to respond correctly. Other responses for what the picture was illustrating included statements related to feeding children (37/81, 46%) and hygiene-related issues (12/81, 15%). A similar percentage of beneficiary women as control women thought that the picture

showed the use of ORS. However, a higher percentage of beneficiary women than control women stated that the child had diarrhea and correctly stated both that the child had diarrhea and should be given ORS.

Figure 3.5a. Picture depicting a child with diarrhea and should receive oral rehydration salts (ORS)

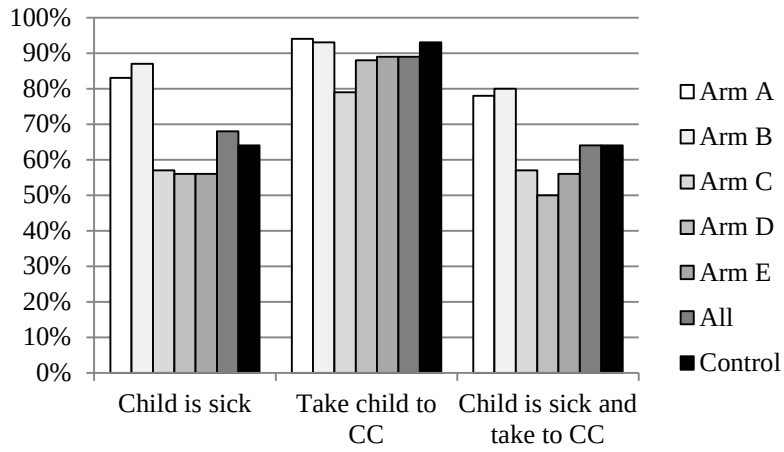
Figure 3.5b. Percent of women who stated that the picture in Figure 3.5a illustrated that a child had diarrhea and/or that he should receive oral rehydration salts (ORS)



A majority of the beneficiary mothers (74/81, 91%) had also seen the second picture (**Figure 3.6a**). Nearly all of the women interviewed thought the picture depicted taking a child to a CC/health center/hospital (72/81, 89%) (**Figure 3.6b**). About two-thirds of the women thought that the picture showed a child who was sick (55/81, 68%), and about the same percentage correctly explained that the picture illustrated both that the child in the picture was ill and that he/she should be taken to a CC/health center/hospital (52/81, 64%). Many saw the picture as depicting a mother or father taking the child for care. Other possible meanings discussed by mothers related to nutrition and hygiene. Beneficiary mothers explained that implementing the practice shown in the message is important, because when a child is sick you need to take him/her immediately to the health center or hospital and to avoid child/family illness. Many beneficiary mothers noted the importance of following this message to avoid the death of the child through illness.

Figure 3.6a. Picture depicting a child who is sick and needs to be taken to a medical facility (CC/health center/hospital)

Figure 3.6b. Percent of women who stated that the picture in Figure 3.6a illustrated a child that was sick and/or should be taken to a medical facility (CC/health center/hospital)



Health and Nutrition Practices among Beneficiary Mothers

PROCOMIDA fieldworkers' opinions and perceptions related to beneficiary mothers' ability to implement the lessons learned at the BCC sessions. Most fieldworkers (17/28, 61%) felt that a majority of mothers are capable of implementing the messages/lessons provided during BCC sessions, with only 7 percent (2/28) explaining that only a few mothers could implement the lessons learned. Fieldworkers cited nutrition, health, hygiene, and other practices as implementable by mothers—with 21 percent (6/28) specifically noting the implementation of no bottle usage, based on hygiene issues. Some fieldworkers felt that it would be difficult for mothers to implement the lessons taught on the day of the interview (7/28, 25%) because of existing customs, lack of water, or having received advice from people other than those working for PROCOMIDA. Existing customs were believed to interfere with the beneficiary mothers' ability to implement the lessons taught related to how to feed children, treating boy and girl

children equally, hygiene-related practices, and not using bottles to feed children. Lack of water was stated as a barrier to washing hands during the summer season. Receiving advice from people outside of PROCOMIDA was thought to potentially interfere with beneficiary mothers' ability to implement lessons related to breastfeeding.

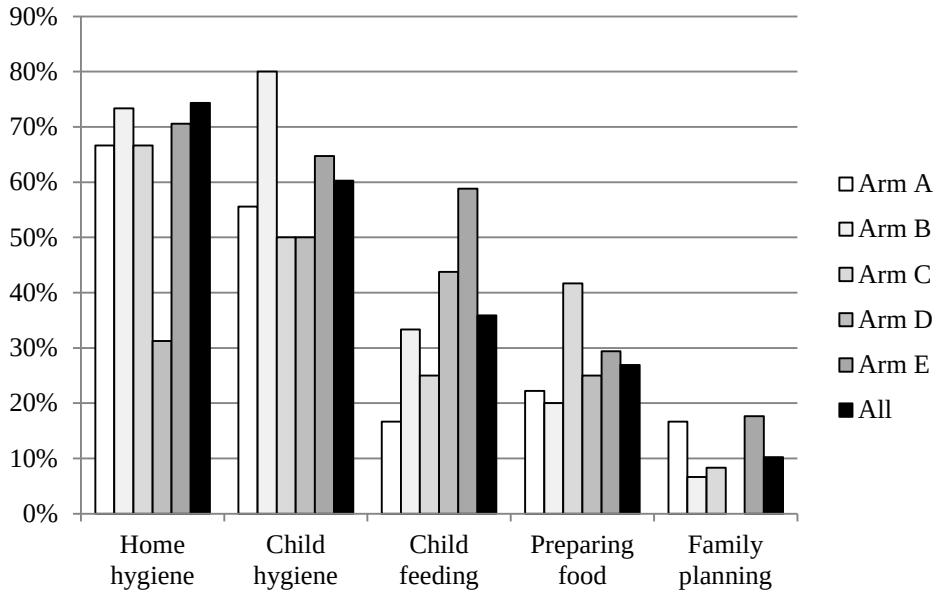
Beneficiary mothers' perceived ability to implement the BCC lessons learned. Among the women interviewed following the observed BCC sessions, almost all said that they would implement some of the lessons or messages learned that day at home (52/54, 96%). These messages included child nutrition (17/52, 33%), breastfeeding (8/52, 15%), and family planning (10/52, 19%). Half of the mothers said that they would implement household hygiene messages at home, with 15 percent (8/52) planning to implement messages related to child hygiene. "With today's messages we realize that through hygiene, children grow healthy," noted one mother.

Only three women (3/54, 6%) interviewed after the observed BCC session felt that it would be difficult for them to implement at home what they had learned that day. The topics cited as difficult to put in practice were related to feeding children (by one mother in study arm A and one in study arm D) and family planning (by one mother in study arm A). According to these mothers, lack of economic means in particular make implementing these practices difficult. The most cited facilitating factors for implementing lessons learned after the BCC session at home were: advice given in the session (14/53, 26%), followed by rations (6/53, 11%) and recognizing the importance of household hygiene (6/53, 11%). A few of the mothers additionally emphasized that teaching the family what they have learned facilitated the uptake of new practices (5/53, 9%).

Nearly all of mothers interviewed at home said that they have been able to implement at least some of the lessons/messages learned in the BCC sessions attended over the past 4 months (78/81, 96%). The messages most noted by mothers related to home hygiene and child hygiene, followed by child feeding and food preparation (**Figure 3.7**)."I should and I have the right to feed my child well," explained one mother. Most mothers have not found it difficult to implement at home any of the lessons/messages learned in the BCC sessions over the past 4 months. However, three women cited time constraints as barriers to preparing snacks or to cleaning the house.

Mothers interviewed at home cited BCC sessions as the main factor enabling them to implement lessons at home. Inputs such as soap and water to clean the house and for child hygiene were also cited as important to the success of implementation. Mothers explained that additional BCC sessions, as well as applying knowledge already learned in existing sessions, would help them with their practical application. Food availability was also noted as a necessary precondition for the successful implementation of the lessons learned at the BCC sessions, whether in terms of financial or environmental obstacles, such as a lack of water. A few of the women interviewed at home discussed implementing lessons learned related to family planning, one explaining these changes would be facilitated with her husband's help. Both time and money were factors noted by beneficiary mothers in facilitating (or inhibiting) the implementation of key practices.

Figure 3.7. Types of practices that beneficiary mothers interviewed at home reported that they had been able to implement



Assessed Feeding, Care, and Health Practices

Handwashing practices. Surprisingly, handwashing practices seemed to be slightly better than reported knowledge. It seems that when women were asked when they wash their hands as opposed to when they should wash their hands, they were more likely to report the most important handwashing times. Washing hands before eating was the most commonly reported time to wash hands, followed by before feeding a child and after using the bathroom (**Table 3.43**). Fewer than half of the beneficiary women interviewed at home reported washing their hands after cleaning a child who had defecated (37/82, 45%). However, this was more commonly reported by beneficiary women than by women living in control communities, where only 18 percent (5/28) reported washing their hands after cleaning a child who had defecated.

When asked if they had changed their handwashing practices since joining PROCOMIDA, a majority reported that they had changed these practices (49/82, 60%). Among those who had changed their practices, beneficiary women reported that they mostly either wash their hands more frequently now (14/49, 29%) or that they now use soap to wash their hands (28/49, 57%). One woman each said that she taught her children about handwashing now or were generally more careful about washing her hands since joining PROCOMIDA. The women who had changed their behaviors explained that they had done so because they learned about the importance of washing hands at the BCC sessions (24/49, 49%), and specifically that it was important to wash their hands to avoid illness for themselves, their children, and their families in general (16/49, 33%) and to have a healthy family (18/49, 37%). Among those who had not changed their handwashing practices since joining PROCOMIDA (32/82, 39%), a majority explained that they were already practicing good handwashing practices before joining the

program (29/32, 91%), while a few explained that they had not learned about handwashing practices at the BCC sessions (4/32, 13%).

Water purification practices. A majority of beneficiary and control women interviewed stated that they obtain their water primarily from natural sources, such as rain water and rivers (67/82, 82% and 25/28, 89%, respectively). Women in study arm A were more likely than women in the other study arms to report that they obtain their water from a tap. A large majority of beneficiary and control women interviewed reported that they boil their water to purify it and many also mentioned using chlorine as a means to purify water.

About half of the beneficiaries interviewed at home stated that they have changed their water purification practices since joining PROCOMIDA (46/82, 56%). Of those who reported having changed their practices, a majority stated that they now boil their water or boil it more often than they used to (30/46, 65%) and/or now use chlorine (14/46, 30%) to purify their water. One beneficiary explained it like this: “I boil water before giving it to my children in order to purify the water and to prevent my children from getting sick.” Another explained it like this: “Before no one explained how to purify water. Now that we are in the program we have been trained that water needs to be boiled before we drink it.” When asked why they had changed their water purification practices, half of the mothers explained that it was to avoid illness for themselves, their families, and/or their children (23/46, 50%). Some also said that they did this so that their family and/or children would be healthy (13/46, 28%), and one-third of the mothers specifically explained that they had learned about these practices at the BCC sessions they received from the program (15/46, 33%). Among those who had not changed their practices since joining PROCOMIDA (35/82, 43%), most said that they were already using water purification methods, such as boiling their water, before joining the program (21/35, 60%), while about one-third of the beneficiary mothers said they had not heard about water purification methods through their program participation (13/35, 37%), and one mother reported that she did not have the chlorine needed to purify her water (1/35, 3%).

Table 3.43. Water and hygiene practices among beneficiary and non-beneficiary children[a]

	Arm A (n=18)	Arm B (n=15)	Arm C (n=15)	Arm D (n=16)	Arm E (n=18)	All (n=82)	Control (n=28)
Timing for handwashing							
Before eating	16 (89%)	14 (93%)	15 (100%)	11 (69%)	15 (83%)	71 (87%)	27 (96%)
After using the bathroom	13 (72%)	9 (60%)	8 (53%)	9 (56%)	12 (67%)	51 (62%)	19 (68%)
Before feeding a child	12 (67%)	11 (73%)	9 (60%)	13 (81%)	12 (67%)	57 (70%)	17 (61%)
After cleaning a child who defecated	6 (33%)	8 (53%)	6 (40%)	6 (38%)	11 (61%)	37 (45%)	5 (18%)
Changed handwashing practices since joining PROCOMIDA	**12 (67%)**	**9 (60%)**	**6 (40%)**	**12 (75%)**	**10 (56%)**	**49 (60%)**	**–**
Method for obtaining water							
Tap water	7 (39%)	2 (13%)	1 (7%)	1 (6%)	2 (11%)	13 (16%)	2 (7%)
Natural sources (e.g., rain, river, lake)	11 (61%)	13 (87%)	14 (93%)	14 (88%)	15 (83%)	67 (82%)	25 (89%)
Water purification methods							
Boiling	16 (89%)	13 (87%)	14 (93%)	15 (94%)	17 (94%)	75 (91%)	26 (93%)
Chlorine	10 (56%)	6 (40%)	7 (47%)	11 (69%)	7 (39%)	41 (50%)	12 (43%)
Filter	5 (28%)	1 (7%)	2 (13%)	1 (6%)	3 (17%)	12 (15%)	5 (18%)
Changed water purification practices since joining PROCOMIDA	**9 (50%)**	**11 (73%)**	**7 (47%)**	**11 (69%)**	**8 (44%)**	**46 (56%)**	**–**

[a] Numbers are n (%).

Nutrition practices. Beginning breastfeeding within the first hour after birth, as is recommended, was more commonly reported by beneficiary women (60/64, 94%) than by those living in control communities (14/19, 74%) (**Table 3.44**). As a large majority of beneficiary women correctly reported that children should begin to receive liquids and semi-solid foods at 6 months of age, a large majority also reported having introduced liquids and semi-solid foods at 6 months of age. There were a few beneficiary women that reported introducing liquids either before or after 6 months, with one stating that she had given her child liquids at 1 month of age and the other reporting introducing liquids other than breast milk as late as 8 months of age. Beneficiary women were less likely than women living in control communities to report having given their children liquids other than breast milk before 6 months of age (5/69, 7% and 4/15, 27%, respectively). Only two beneficiary women said that they had given their children semi-solid foods before 6 months of age; both reported having started this practice at 4 months of age. Late introduction of semi-solid foods was more common than of liquids, with some beneficiary mothers explaining that they did not begin giving semi-solid foods to their children until between 7 and 12 months of age. Women living in control communities were as likely as beneficiary women to introduce semi-solid foods later than the recommended 6 months of age (2/15, 13%

and 11/68, 16%, respectively). However, no women living on control communities stated having introduced semi-solid foods before 6 months of age.

Table 3.44. Nutrition practices among beneficiary and non-beneficiary children

	Arm A (n=16)	Arm B (n=14)	Arm C (n=11)	Arm D (n=15)	Arm E (n=13)	All (n=69)	Control (n=19)
Began breastfeeding < 1 h after birth	**15 (94%)**	**14 (100%)**	**8 (89%)[a]**	**11 (92%)[b]**	**12 (92%)**	**60 (94%)[c]**	**14 (74%)**
Age of introduction of liquids							
Before 6 months	1 (6%)	0 (0%)	1 (9%)	1 (7%)	2 (15%)	5 (7%)	4 (27%)[d]
At 6 months	14 (88%)	13 (93%)	9 (82%)	12 (80%)	10 (77%)	58 (84%)	10 (67%)[d]
After 6 months	1 (6%)	1 (7%)	1 (9%)	2 (13%)	1 (8%)	6 (9%)	1 (7%)[d]
Age of introduction of food							
Before 6 months	1 (6%)	0 (0%)[a]	0 (0%)	1 (7%)	0 (0%)	2 (3%)[f]	0 (0%)
At 6 months	13 (81%)	12 (92%)[e]	8 (73%)	12 (80%)	10 (77%)	55 (81%)[f]	13 (87%)[d]
After 6 months	2 (13%)	1(8%)[e]	3 (27%)	2 (13%)	3 (23%)	11 (16%)[f]	2 (13%)[d]

[a] n=9, [b] n=12, [c] n=64, [d] n=15,[e] n=13, [f] n=68.

It is recommended that children who are ill or recovering from illness be offered more breast milk, liquids, and food. However, a majority of mothers in both beneficiary and control communities reported giving their children less breast milk, liquids, and food the last time that they were sick (**Table 3.45**). Beneficiary women were more likely to report giving their children more breast milk while they were ill compared to those living in control communities. However, beneficiary women were as unlikely as those in control communities to have given their children more liquids or food the last time that they were ill.

Feeding practices during recovery were better than those during illness, but could still use some improvement. About 62 percent of beneficiary women and those living in control communities reported having given their children more breast milk and about half reported giving their children more liquids the last time they were recovering from illness. Only 42 percent (26/62) of the beneficiary women interviewed reported giving their children more food the last time their children were recovering from illness, while more than half of the control women (8/14, 57%) reported using this ideal practice.

Table 3.45. Nutrition practices upon illness among beneficiary and non-beneficiary children

	Arm A (n=15)	Arm B (n=14)	Arm C (n=11)	Arm D (n=14)	Arm E (n=12)	All (n=66)	Control (n=16)
The last time the child was ill, the mother:							
Breastfed the child…							
Less than usual	6 (43%)[a]	7 (50%)	5 (45%)	10 (71%)	3 (25%)	31 (48%)[b]	10 (63%)
The same as usual	2 (14%)[a]	4 (29%)	2 (18%)	1 (7%)	1 (8%)	10 (15%)[b]	2 (13%)
More than usual	6 (40%)[a]	3 (21%)	4 (36%)	3 (21%)	8 (67%)	24 (37%)[b]	4 (25%)
Gave the child liquids…							
Less than usual	8 (53%)	10 (71%)	8 (73%)	9 (64%)	8 (67%)	43 (65%)	11 (73%)[c]
The same as usual	1 (7%)	3 (21%)	1 (9%)	1 (7%)	1 (8%)	7 (11%)	1 (7%)[c]
More than usual	6 (40%)	1 (7%)	2 (18%)	4 (29%)	3 (25%)	16 (24%)	3 (20%)[c]
Gave the child food…							
Less than usual	12 (86%)[a]	10 (71%)	7 (70%)[d]	12 (100%)[e]	6 (60%)[d]	47 (78%)[f]	11 (79%)[a]
The same as usual	1 (7%)[a]	4 (29%)	2 (20%)[d]	0 (0%)	2 (20%)[d]	9 (15%)[f]	2 (14%)[a]
More than usual	1 (7%)[a]	0 (0%)	1 (10%)[d]	0 (0%)	2 (20%)[d]	4 (7%)[f]	1 (7%)[a]
The last time the child was recovering from illness, the mother:							
Breastfed the child…							
Less than usual	4 (27%)	2 (14%)	3 (27%)	2 (14%)	1 (8%)	12 (18%)	4 (25%)
The same as usual	2 (13%)	3 (21%)	2 (18%)	1 (7%)	5 (42%)	13 (20%)	2 (13%)
More than usual	9 (60%)	9 (64%)	6 (55%)	11 (79%)	6 (50%)	41 (62%)	10 (63%)
Gave the child liquids…							
Less than usual	5 (33%)	4 (29%)	4 (36%)	3 (21%)	4 (33%)	20 (30%)	3 (20%)[c]
The same as usual	1 (7%)	2 (14%)	1 (9%)	2 (14%)	5 (42%)	11 (17%)	4 (27%)[c]
More than usual	9 (60%)	8 (57%)	6 (55%)	9 (64%)	3 (25%)	35 (53%)	8 (53%)[c]
Gave the child food…							
Less than usual	8 (57%)[a]	5 (36%)	5 (50%)[d]	5 (36%)	4 (40%)[d]	27 (44%)[g]	3 (21%)[a]
The same as usual	1 (7%)[a]	2 (14%)	1 (10%)[d]	2 (14%)	3 (30%)[d]	9 (15%)[g]	3 (21%)[a]
More than usual	5 (36%)[a]	7 (50%)	4 (40%)[d]	7 (50%)	3 (30%)[d]	26 (42%)[g]	8 (57%)[a]

[a] n=14, [b] n=65, [c] n=15, [d] n=10, [e] n=12, [f] n=60, [g] n=62.

3.3.3 Summary of the Results along the Knowledge–Adoption of Optimal Health and Nutrition Practices Pathway

A number of program components that were working well and some that could use some improvement were identified along the **knowledge–adoption of optimal health and nutrition practices pathway**. Overall, the PROCOMIDA fieldworkers had received the intended training from PROCOMIDA, and many had prior experience in the field of maternal and child health and nutrition and felt capable and prepared to do their jobs. The BCC activities for beneficiary women were taking place and were implemented with good quality, as assessed and perceived by

beneficiary women, although minimizing distractions at these sessions was identified by beneficiaries and fieldworkers alike as an area that could use improvement. BCC training sessions for men were more ad hoc, although this is how they were intended to be implemented.

In general, beneficiary women attended the required BCC sessions as well as the recipe demonstrations provided by PROCOMIDA. They enjoyed these sessions for the most part and explained that they learned new things from participating both in the BCC sessions and in the recipe demonstrations.

PROCOMIDA fieldworkers were expected to be well versed in the key messages disseminated through the BCC sessions, as they are the primary teachers of these messages to the beneficiary women. For the most part, this was true, although there were a few topic areas in which they could use additional training. According to the self-administered questionnaire given to the PROCOMIDA staff based in Cobán, there were a number of key BCC messages that could be reinforced during the training sessions provided to these staff members.

While beneficiary women appeared to be knowledgeable regarding some of the key BCC messages, there were others that could use substantial improvement.

Overall, the knowledge of men in beneficiary communities as compared to control communities was largely the same, indicating that there has been little effect of the program on improving their health- and nutrition-related knowledge thus far, despite some reported provision of BCC sessions to some of these men.

It appears that PROCOMIDA may be influencing some positive changes regarding a few key health- and nutrition-related practices. More than half of the beneficiaries interviewed explained that their handwashing and/or water purification practices had changed since joining PROCOMIDA and gave examples related to increasing the frequency of handwashing, using soap to wash hands, and boiling their water or using chlorine to purify their water to avoid illness. Furthermore, beneficiary women were more likely than control women to have reported that they began giving their children complementary foods at the recommended 6 months of age and to wash their hands after cleaning a child who had defecated. Although some potential positive changes were noted, further improvements are needed in the areas of feeding children during illness and recovery and washing hands, especially after cleaning a child who has defecated.

4 Recommendations

Overall, many aspects of PROCOMIDA were found to be working well. Both food distribution activities and BCC sessions for beneficiary women were being held on a monthly basis and few if any problems were reported or observed with the implementation of these activities. Beneficiary women, in turn, reported attending these program activities and appreciating both the food provided and the knowledge they were gaining through their participation in the program. They further emphasized the positive interactions that they had had with the PROCOMIDA personnel and the fact that they spoke Q'eqchi', making them feel respected at these activities. Somewhat surprisingly, the feedback given regarding the voluntary contributions requested when beneficiaries obtain their monthly food rations was largely neutral or positive, with some emphasizing the importance of these contributions to help their communities.

Overall, beneficiaries were generally satisfied with both the quantity and quality of the food rations at least some of the time, although some asked for oil to be distributed monthly and others complained about the reduction of the rations over the course of the program. In terms of quality, concerns generally related to the taste of the CSB or the beans not cooking well. Observations of the quality of the foods also revealed very few issues, with the exception of the oil being slightly past the "best if used by date" on the observed food distribution days at two different CCs.

Lastly, beneficiary women were reportedly attending their prenatal visits and taking their children for their GMP visits as encouraged by PROCOMIDA.

Although many of the primary program components assessed were found to be working well there were some program areas that were identified as needing improvement. These are discussed below, separated according to the three primary program impact pathways.

4.1 The Availability–Consumption Pathway

As the program components along the **availability–consumption pathway** were largely being implemented and utilized as planned, we have very few recommendations for this pathway. The three areas that we noted could use improvement were:

- To improve the accuracy of the beneficiary lists for the food distribution days
- To reevaluate the management of the oil distribution
- To improve the consumption aspect of this pathway, in terms of both continuing to encourage diverse diets among the beneficiary population and emphasizing the importance of the individual rations for the targeted beneficiaries

With regard to adherence to the recommended intake patterns, LNS intake appeared to be the best, followed by MNP and lastly by CSB.

Although a majority of PROCOMIDA fieldworkers felt that the food distribution activities were well managed, some did note problems with the beneficiary lists, and a few noted that despite the fact that PROCOMIDA satisfactorily dealt with these on a case-by-case basis, some of the problems were ongoing. They suggested that the data technicians be given assistants or that their

skills be improved, among other suggestions for improving this particular aspect related to the management of the food distribution activities.

Oil distribution was another area that seemed to be slightly problematic for two different reasons. One was that beneficiaries seemed to be slightly less likely to be satisfied with the quantity of oil they received, which may be related to the fact that they receive this particular food only every 2–4 months, rather than on a monthly basis. Some of the beneficiaries specifically asked that oil be provided on a monthly basis. It is possible that dividing the allocated quantity and providing it monthly would be perceived to be satisfactory, rather than increasing the absolute amount of oil distributed to beneficiaries. The other reason that oil distribution was identified as needing improvement was related to the "best by" dates on the oil bottles that were being distributed on the observed food distribution days. At the two CCs that were observed to be distributing oil on that day, the oil being distributed was past its "best by" date. Although it was not much past the "best by" date in either case, and no other problems were observed or reported related to the quality of the oil being distributed, this potential issue should be examined by PROCOMIDA and prevented in the future.

Lastly, continued emphasis needs to be placed on the importance of the intake of the individual rations and diverse diets by the targeted beneficiaries. CSB appears to be shared more widely than either the LNS or MNP, and daily intake of CSB is also less frequent than LNS or MNP. If these trends continue, it is possible that beneficiaries receiving CSB as their individual ration will not receive its full benefit. Although there was some indication that participation in PROCOMIDA may be contributing to more diverse diets among beneficiary women and children, as well as other household members, there is still room for some improvements in this area, especially among children between the ages of 6 and 24 months in study arm C, who only receive CSB from PROCOMIDA. It is possible that the provision of the family ration is largely responsible for the perceptions and assessments of more diverse diets among the beneficiary population.

4.2 The Knowledge–Use of Preventive Health Services Pathway

In general, the basic components related to the provision and use of the preventive health services appeared to be taking place. A large majority of beneficiary women had attended the recommended four prenatal visits and had taken their children for their monthly GMP visits, as recommended by the MSPAS and encouraged by PROCOMIDA. In addition, the basics of the preventive health visits seemed to be taking place, women and children alike were weighed at their respective visits, and this information was usually recorded on their health cards. In addition, pregnant women were give physical exams. Although the preventive health visits were taking place and seemed to be utilized by the beneficiary population, a few areas were identified as needing improvement. Among these were knowledge among health commission leaders and EBS staff regarding some key health and nutrition practices and the provision of health- and nutrition-related advice at prenatal and GMP visits.

Assessed health- and nutrition-related knowledge among health commission leaders and PROCOMIDA fieldworkers revealed some areas that could be strengthened among these two

groups of people who work closely with the beneficiary population. The specific knowledge areas that were identified as needing improvement among the two groups are as follows:

- Timing of the initiation of breastfeeding, introduction of liquids other than breast milk and complementary foods (health commission leaders)
- Feeding during illness and recovery (EBS staff; health commission leaders)
- Handwashing, especially related to cleaning a child who has defecated, before feeding a child, and before preparing food (EBS staff; health commission leaders)

One notable shortfall that appeared in the observations of prenatal and GMP visits was the provision of nutrition- and health-related advice/counseling. This was limited at the prenatal visits and rare at the observed GMP visits. Although this was likely due to time constraints, it is an area that could be improved. Despite the fact that this responsibility falls on the EBS staff and outside of PROCOMIDA's direct interventions, it may be possible for PROCOMIDA to support and encourage improvements in this particular area. PROCOMIDA already supports nutrition educators who could be used to further support the other EBS staff members in providing health- and nutrition-related advice/counseling during these visits. In addition, it was envisioned that the PROCOMIDA flip charts could be used at the CCs during these visits to help communicate key messages and reinforce those provided at PROCOMIDA's BCC sessions. During the observations of prenatal and GMP visits, the use of these flip charts was rarely seen and encouraging their use may increase the provision of health- and nutrition-related advice/counseling during prenatal and GMP visits.

Lastly, the distribution of MNPs and Macrovital at some CCs needs to be investigated. These two supplements should not be distributed to the same children. Although the mothers of the children who had reportedly given their children both types of supplements in the last 4 months did not report any problems with either of the supplements, this is a program area that needs to be examined and closely monitored.

4.3 The Knowledge–Adoption of Optimal Health and Nutrition Practices Pathway

The most important areas that were identified as needing improvement along the **knowledge–adoption of optimal health and nutrition practices pathway** had to do with improvements in specific knowledge areas among PROCOMIDA fieldworkers and other staff members, as well as among beneficiary women and their husbands. Overall, PROCOMIDA fieldworkers had received training from PROCOMIDA, as had the beneficiary women interviewed at home, as part of the process evaluation. The quality of these sessions was both observed and perceived to be good. However, there were still some areas where knowledge was relatively low across the board. The specific knowledge areas that were identified as needing reinforcement and the groups that should be targeted are as follows:

- Timing of the initiation of breastfeeding, introduction of liquids other than breast milk and complementary foods (PROCOMIDA technical staff; beneficiary fathers)
- Feeding during illness and recovery (PROCOMIDA technical staff; beneficiary mothers; beneficiary fathers)

- Handwashing, especially related to washing hands after using the bathroom or cleaning a child who has defecated and before feeding a child (PROCOMIDA technical staff; beneficiary mothers; beneficiary fathers)
- Use of ORS (PROCOMIDA technical staff; beneficiary mothers, especially in study arms D and E; and beneficiary fathers)

In addition, the understanding of the messages printed on the food ration bags should be reviewed, as this appears to not be working as well as it could be. Although this an innovative idea, it is not clear that people understand the messages that are intended to be conveyed by these pictures. Without understanding, the utility of providing and/or reinforcing key BCC messages through this channel may be limited. Further work should be done to understand what beneficiaries understand from these pictures and if and in what ways they use the information provided on these bags.

Lastly, although improvements in knowledge are important, changes in behavior and adoption of optimal health and nutrition practices are necessary to effect change in health and nutrition outcomes. Although there were indications that PROCOMIDA may be contributing to improvements in the adoption of some key health- and nutrition-related practices, more should be done to encourage optimal handwashing practices and feeding practices for children during illness and recovery.

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