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# Feasibility and Acceptability Study of Preparing Corn Soy Blend with Fortified Vegetable Oil in Malawi: Formative Research

## A Report from the Food Aid Quality Review

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## Acronyms

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BMC	Beneficiary Mother/Caregiver
CHW	Community Health Worker
CSB	Corn Soy Blend
FAQR	Food Aid Quality Review
FBF	Fortified Blended Food
FDP	Food Distribution Points
FFP	Office of Food for Peace
FGD	Focus Group Discussion
FVO	Fortified Vegetable FVO
MAM	Moderate Acute Malnutrition
MoH	Ministry of Health
PIHDC	Pakachere Institute of Health and Development Communication
SBCC	Social Behavior Change Communication
SFP	Supplementary Feeding Program
USAID	United States Agency for International Development
WALA	Wellness and Agriculture for Life Advancement

## EXECUTIVE SUMMARY

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This report documents the steps used to develop a social and behavior change communication (SBCC) strategy focused on the preparation of fortified blended foods with the purpose of treating moderate acute malnutrition (MAM) in children age six to 59 months old. The strategy targeted several layers of communication within a preexisting United States Agency for Internal Development (USAID), Office of Food for Peace (FFP) program called “Wellness and Agriculture for Life Advancement (WALA),” an integrated food security and supplementary feeding program (SFP) for children with MAM in four districts in southern Malawi.

The overall aim was to change mothers/caregivers behavior in preparing a Corn Soy Blend (CSB) and fortified vegetable oil (FVO) porridge used to treat children with MAM. The goal was to change their behavior so that they were preparing the CSB porridge with a ratio of 30 g FVO:100 g CSB, a higher ratio that is commonly used. The SBCC materials developed were: training modules and manuals developed for community healthcare workers who gave nutrition education to the lead mothers and beneficiary mothers/caregivers (BMC); picture pamphlets for use by lead mothers in training the BMCs, and banners and CSB package messaging aimed at the BMCs.

Focus groups were conducted with community healthcare workers, lead mothers, and BMCs to identify key messages needed. Recipe testing sessions were held to develop an acceptable recipe to include in the SBCC materials. Printed materials needed to comply with USAID branding and Malawi Bureau of Standards requirements. A design team developed and tested the layout, content, and appearance of the materials. Printed messages were graphical and included pictures showing the quantities to be used in local measures. The process of developing all the materials took about four months. After the materials were developed, community health workers were trained on their content and how to use them for communicating the messages.

This study found that by providing sufficient FVO and strong SBCC, it is possible to get BMCs to prepare porridge with high ratios of FVO:CSB (publication forthcoming). The study also concluded that repackaging CSB in individual, sealed packets with messages (one component of the SBCC strategy) did not achieve greater compliance with the recommended FVO:CSB ratio. Programmers introducing a new specialized nutritious food or a new way of using a specialized nutritious food should consider developing a SBCC strategy to support beneficiary compliance and to achieve program objectives.

## SECTION I: Introduction

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The Food Aid Quality Review (FAQR) is a project of Tufts University with collaboration and funding from United States Agency for International Development (USAID) and the Office of Food for Peace (FFP), assessing the nutritional quality of food aid products used in the prevention and treatment of moderate acute malnutrition (MAM) in children.

In order to achieve the nutritional goals of Maternal and Child Health and Nutrition, Phase I of FAQR recommended that programs using fortified blended foods (FBFs), such as Corn Soy Blend (CSB), for the treatment of MAM should increase the caloric density and improve the absorption of fat-soluble vitamins in porridge prepared by caregivers. The FAQR Phase I report recommended that CSB porridge be prepared and consumed with Fortified Vegetable Oil (FVO) in the ratio of 30 g FVO: 100 g CSB<sup>1</sup>. In FAQR Phase II, a study was conducted to assess the feasibility of reaching this target ratio with regard to both the awardee (procurement and distribution) and beneficiary (preparation and consumption).

This study assessed the effectiveness of the following programmatic changes on caregivers' compliance with the recommended target ratio: (1) increased amount of FVO provided to beneficiaries (2.6 L FVO and eight kg CSB per month, compared with the standard ration of one L FVO and eight kg CSB) along with social and behavior change communication (SBCC) emphasizing the importance of preparing porridge at the recommended FVO:CSB ratio; (2) adding to the first intervention, repackaged CSB into two-kg packets (four, two-kg packets per ration) with printed preparation messaging.

This study was conducted in the setting of the preexisting USAID/FFP Wellness and Agriculture for Life Advancement (WALA) program, an integrated food security and supplementary feeding program (SFP) for children with MAM in four districts in southern Malawi. Prior to the study, the WALA program distributed monthly rations at the Food Distribution Points (FDPs). The rations consisted of one L FVO and eight kg CSB to beneficiary mothers/caregivers (BMCs) of children six to 59 months of age who were diagnosed with MAM.

This study was designed and implemented as a collaboration among Tufts University, Catholic Relief Services, Project Concern International, Save the Children, Africare and the Malawi Ministry of Health (MoH). The Center for Social Research (CSR), a research institution with the Faculty of Social Science of the University of Malawi in Zomba, conducted the data collection, and Pakachere Institute of Health and Development Communication (PIHDC) helped implement the SBCC component of the study, referred to as the SBCC team. The SBCC team was comprised of the Tufts University field research coordinator and three behavioral specialists from PIHDC with nutrition expertise.

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<sup>1</sup> Webb, Patrick, Beatrice Lorge Rogers, Irwin Rosenberg, Nina Schlossman, Christine Wanke, Jack Bagriansky, Kate Sadler, Quentin Johnson, Jessica Tilahun, Amelia Reese Masterson, Anuradha Narayan. 2011. Improving the Nutritional Quality of US Food Aid: Recommendations for Changes to Products and Programs. Boston, MA: Tufts University.

The SBCC team was tasked to provide technical support in developing the SBCC materials targeting community health workers (CHWs), lead mothers, and BMCs of children under five years of age enrolled in the MAM treatment program. This report documents the processes followed in the development of the SBCC materials and the outcomes achieved under each activity. It is intended for use by other researchers and programmers planning to implement SBCC related to the use of specialized nutritious foods.

## SBCC COMPONENT OBJECTIVE

The SBCC component objective was to develop relevant SBCC messages that would be disseminated through training sessions aimed at both community health workers, lead mothers and BMCs, training modules for the community health workers, pamphlets for lead mothers, banners to be displayed at the FDP, and back-of-packet messaging on the packaging that promotes compliance among BMCs in using the CSB and oil.

**Table 1** outlines the SBCC trainings completed and materials developed. The entire process, from formative research to settling on the final design of the materials, took four months.

**Table 1. Summary of SBCC Outputs**

I. Formative Research Activities	Purpose	Participants	Frequency
I.1 Focus Group Discussions (FGDs)	Three focus group discussions were conducted to collect qualitative data on BMCs' current knowledge, attitudes, and practices surrounding MAM treatment program and the CSB and FVO ration. The results informed the development of the SBCC materials.	BMCs	Three FGDs
I.2 Recipe-Testing Trial Sessions	Recipe-testing trial sessions were conducted during FGDs with BMCs, CHW trainings, and at individual BMC households. The trial testing helped create the recipe instructions developed for the preparation of CSB porridge.	BMCs, lead mothers, and CHWs	Three sessions during FGDs with BMCs and lead mothers  15 demonstrations during CHW trainings  Two trial sessions at households

<b>1.3</b> Message Design Workshop	A workshop was completed with key stakeholders (e.g. WALA health promoters and staff members) to develop SBCC messages based on results from the FGDs. Stakeholders also provided insight into the types of materials they thought would be most effective.	Key Stakeholders	One workshop
<b>1.4</b> Creative Workshop	The SBCC held an internal workshop to create the layout and final content of SBCC materials.	SBCC team	One workshop
<b>2. Materials and Trainings</b>	<b>Purpose</b>	<b>Audience</b>	<b>Frequency</b>
<b>2.1</b> CHW Training and Training Modules	Every CHW took part in a detailed training and refresher session on how to educate lead mothers and BMCs on FVO and CSB preparation and consumption. They were also given a training module to use while educating their groups.	CHWs	194 CHWs trained over four training events  300 training modules printed
<b>2.2</b> Lead Mothers Pamphlet	The pamphlets were designed for lead mothers to use while training BMCs during care group sessions.	Lead Mothers	1200 pamphlets printed
<b>2.3</b> Food Distribution Point Banners	Banners were designed to include key messages about the CSB porridge preparation. Banners were displayed at during each food distribution.	All inclusive (everyone who was present at an FDP)	14 banners printed
<b>3. Monitoring</b>	<b>Purpose</b>	<b>Audience</b>	<b>Frequency</b>
<b>3.1</b> FDP Monitoring	The SBCC team conducted visits to each FDP to monitor message dissemination.	All inclusive (everyone who was present at an FDP)	12 monitoring visits



## SECTION II: Formative Research Process

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In July 2013, the SBCC team conducted formative research to inform the development of messages and print materials to be produced as part of the larger SBCC intervention in the study. The SBCC collected qualitative and quantitative data to identify and understand the study population characteristics—interests, behaviors and needs—which influence their decisions and actions. From this information, the team developed effective strategies, communication messages, and channels for influencing behavior change, which was an integral part of the SBCC intervention study. The formative research evaluation aimed to:

- Better understand the target audience’s (BMCs, beneficiary children, lead mothers, mothers, and CHWs) practices, knowledge, and attitudes surrounding current CSB porridge preparation and feeding practices
- Develop messages that address key barriers to behavior change (compliance to recommended use, preparation, CSB porridge consumption patterns)

The process also explored preferred messaging and communication channels among the target population.

### **I. Focus Group Discussions**

The formative research involved 36 BMCs: from Chisitu FDP in Mulanje District, Mpira FDP in Chiradzulu District, and Chembera FDP in Balaka District. Three Focus Group Discussions (FGDs) and recipe-testing trial sessions were conducted, each session consisting of 12 participants randomly selected in the three study districts.

#### **I.1 FGD Data Collection**

Two experienced FGD facilitators were recruited to conduct the FGDs. They were trained on the study objectives and study tools. During each FGD, one team member served as the facilitator while the other was the note taker and recorder. All FGDs were conducted in the local language of Chichewa and were recorded on digital voice recorders. Each FGD included recipe-testing trial sessions (explained in Section III: CSB Porridge Recipe Development) which involved cooking and eating the CSB porridge, with the aim of developing the recipe instructions.

#### **I.2 FGD Data Management and Analysis**

The FGD notes and audio recordings were transcribed by hand in Chichewa language (the language used to conduct the FGDs). A trained typing assistant typed the transcripts into Microsoft Word documents and trained translators to translate transcripts into English. During the transcription process, all data were de-identified. The typed, translated Word documents were analyzed and coded based on themes.

#### **I.3 FGD Key Findings**

Results were presented to relevant stakeholders at a message design workshop in order to formulate group consensus on priority areas of messages which should be communicated to the target population.

The qualitative research revealed that across all FGDs, the majority of respondents generally had positive perceptions and attitudes toward the CSB porridge. Another key finding was that most participants indicated that they did not use the complementary FVO in the CSB porridge. They indicated that they used the FVO in relish, which means as a condiment rather than an additive. There was a general lack of understanding of how the FVO adds nutritional value to the CSB porridge when used together. This emerged as one of the key issues which needed to be addressed in the SBCC materials.

Findings also indicated that four main behaviors should be highlighted as a key message area in the development of the SBCC materials. The behaviors included:

- Measurement of ingredients when preparing CSB porridge with FVO;
- Length of CSB porridge cooking time;
- Use of FVO for purposes other than its intended use in CSB porridge preparation; and
- Sharing of CSB porridge with other family members.

## **2. Recipe-Testing Trial Sessions**

### 2.1 Participatory Group Recipe-Testing Trial Sessions

During the formative research FGDs, the SBCC team conducted three participatory group recipe-testing trial sessions. These involved 36 BMCs or lead mothers (12 in each session) who were further divided into three smaller groups of four persons per group.

The recipe-testing trial session began with a discussion on current CSB porridge preparation practices. This included: ingredients used, order of adding ingredients, length of cooking time, time of day cooking was done, and cooking materials used. The SBCC team took detailed notes and recorded the discussion.

After the discussion, each group was given a sample CSB and a sample of FVO and asked to cook the porridge as they normally do, but to use the designated amounts of CSB and FVO (predetermined by the SBCC team in accordance to the 30:100 FVO:CSB ratio). The SBCC team observed and documented each group's cooking procedures. The cooking session was followed by a tasting session, which involved mothers tasting the porridge and also feeding it to their children. There was then an opportunity for the mothers to share their views on the CSB porridge, including the preparation process and taste. The mothers were asked to identify how the cooking sessions differed from their current way of preparing CSB at home. The discussion further explored a generic CSB porridge recipe which would be convenient for the target population.

The outcome of this process was development of a Chichewa preliminary recipe for dissemination through the SBCC materials.

### 2.2 Pretesting Of Developed Recipe with Community Health Workers

The developed recipe was further tested by the CHWs over the course of six training sessions. There are four types of CHWs: **1) Health Facilitator**—Employed by the PVO, there is one health facilitator per FDP. Each health facilitator oversees two to three health promoters. The health facilitator is trained

on SBCC messages.; **2) Health Promoter**—Employed by the PVO, there are two to three health promoters per FDP. Each health promoter oversees five to 10 Care Group Lead Mothers. The health promoter is also trained on SBCC messages.; **3) Health Surveillance Agent**—These MoH employees collaborate with health promoters and are trained on SBCC messages.; and **4) Resource Persons**—Volunteers not associated with the PVO or MoH, trained on SBCC, they may guide beneficiary mothers or lead mothers on the ration and use of porridge and may participate in health talks.

At each of the training sessions, at least three recipe demonstrations were conducted. Through the pretesting of the recipe, the following issues were raised:

- Simplify the cooking time from the range of 30-45 minutes to a maximum of 30 minutes cooking time.
- Standardize water measurement for CSB-FVO porridge, and limit water volume to prevent over-watery porridge.
- Highlight the fact that cooking the porridge needs moderate heat/fire to ensure proper cooking and prevent potential sickness from contamination.

### 2.3 Household Recipe-Testing Trial Sessions

The SBCC team also facilitated two household recipe-testing trial sessions. The aim of this process was to test the additional recommendations made by the CHWs (including appropriate water measurement). This process led to the final recipe development. Below is the final recipe which was developed, including measurements specified using locally available tools/utensils.

**Table 2. Final Recipe**

<p><b>Recipe Ingredients for Preparing CSB-FVO Porridge</b></p> <ul style="list-style-type: none"> <li>• 1/3 of a 500ml cup of <b>Corn Soy Blend (CSB)</b> (100g of CSB)</li> <li>• 6 tablespoons (or 6 plastic spoons or 6 ‘sobo’ or water bottle tops) <b>of Fortified Vegetable Oil</b> (30g of FVO)</li> <li>• 1 500ml cup of water plus 6 tablespoons of water/<i>fill 2 Coca-Cola bottles with water (600ml)</i></li> </ul> <p><b>Preparation</b></p> <ul style="list-style-type: none"> <li>• Start by pouring the measured CSB in a clean, small pot (don’t put it on fire yet)</li> <li>• Add in the measured 6 full tablespoons of oil</li> <li>• Stir until the two mix thoroughly</li> <li>• Then slowly add in clean water to the mixture and continue to stir</li> <li>• When the mixture is properly stirred to your liking, put the pot on a moderate fire while you continue to stir</li> <li>• When the mixture begins to boil, cover it and leave it to cook</li> <li>• Stir the porridge frequently</li> <li>• Cook the porridge for 30 minutes (you should get a nice smell from the pot by now)</li> <li>• Take off the pot from the cooking stove and serve it warm to your baby (Porridge is best served warm; babies like it and it’s safe from germs)</li> </ul>
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### 3. Message Design Development

A message design workshop and a creative workshop were conducted in Blantyre. There were a total of 13 participants, including the SBCC team, research assistants, health promoters and health surveillance agents, and stakeholders from the partner implementing PVOs. The message design workshop was a full day workshop to review the formative research findings and final recipe, and to develop messages for the SBCC materials.

The message development process involved using the formative research findings to identify key message areas, desired behaviors, and the barriers of change. Collectively, this formed the communication strategy. This process enabled the SBCC team to develop messages which directly addressed barriers of behavior change and which clearly communicated the benefit of adapting the desired behavior.

The main themes identified for SBCC materials included:

- **Preparing CSB porridge**
  - Prepare as instructed
  - Add oil as instructed
  - Cook porridge fresh each time
  - Cook no longer than 30 minutes
  - Use local measuring tools
- **Feeding CSB porridge**
  - Feed to the beneficiary child in recommended quantities
  - Feed only to target child
  - Feed two to three times per day
  - Feed for the duration of the four-month program
- **Storage and handling of ration**
  - Store ration in a clean, dry place
  - Keep the ration covered
- **Non-sharing and non-diversion**
  - Do not give the ration to non-target children or other family members
  - Do not sell the ration
- **Purpose of the SFP and definition of malnutrition**
  - Definition of malnutrition
  - Food is a medicine for the child
- **Seek information from sources and share information with other mothers**
  - Learn preparation and feeding CSB porridge techniques by teaching

SBCC materials incorporated these themes into messages, and were translated into the Chichewa language.

## SECTION III: Development of SBCC Materials

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The SBCC messages and a CSB porridge recipe were disseminated through various print materials and training sessions. To ensure that the key messages in the print materials reached the intended audience, the intervention adopted the Care Group Model<sup>2</sup> to allow a successive flow of information. Information flowed from the **SBCC team** to the **CHWs** to the **Lead Mothers/Volunteers** to the **Households/BMCs** in the communities. Information materials were developed for each level of information flow. Please refer to

**Annex** Figure I for more details.

Below is a summary of the print materials which were developed for each category of participants in the Care Group Model.

### **a. Community Health Workers' Training and Training Manual**

The SBCC team conducted 'training of trainer' workshops with CHWs from the 12 research study FDPs. Other participants included PVO staff members and District health representatives. Six, two-day workshops were held with 35 participants in each training session. Participants were briefed on the research study and main objectives, trained on the key CSB porridge messages, and trained on preparing the recipe properly. They also observed a CSB porridge cooking demonstration. At the end of each workshop, CHWs developed work plans which outlined the activities which they would carry out for information dissemination to the households.

The SBCC team developed manuals to use as tools while training the CHWs. The training manual for the SBCC team was translated into Chichewa and revised as a handout for CHWs. The handout was designed to be a handbook to aid CHWs when training lead mothers and BMCs.

### **b. Pamphlet for Lead Mothers**

The pamphlet focused on the main themes: preparing CSB porridge, feeding CSB porridge, storage and handling of ration, non-sharing and non-diversion, purpose of the SFP, and definition of malnutrition. In order to ensure understanding of key messages, the pamphlet was designed based on the literacy level of lead mothers and focused on messaging through pictures/illustrations. A graphic designer was engaged to work on the presentation and overall appearance of the pamphlet. As part of the design process, a photography session was organized with some beneficiaries and their caregivers to illustrate the

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<sup>2</sup> "A Care Group is a group of 10-15 volunteer, community-based health educators who regularly meet together with project staff for training and supervision. They are different from typical mother's groups in that each volunteer is responsible for regularly visiting 10-15 of her neighbors, sharing what she has learned and facilitating behavior change at the household level. Care Groups create a multiplying effect to equitably reach every beneficiary household with interpersonal behavior change communication." Perry H, Morrow M, Davis T, Borger S, Weiss J, DeCoster, Ernst P. 2014. Care Groups—An Effective Community based Delivery Strategy for Improving Reproductive, Maternal, Neonatal and Child Health in high-Mortality, Resource-Constrained Settings: A Guide for Policy Makers and Donors. CORE Group: Washington, DC.

recommended cooking and feeding process. All consent procedures were followed for the photography session.

After thorough review and pretesting, the final pamphlet was printed by a local professional print company, Kris Offset & Screen Printers. One pamphlet was distributed to each lead mother to be used in her interactions with beneficiary mothers during the care group sessions.

**Figure 1. Pamphlet Cover Page: “Your child’s nutrients (health) in CSB-Oil porridge”**



**c. Banner**

One banner measuring 2m x 4m was designed for distribution to all 12 study FDPs in the research area. The banner was developed to be displayed at the FDPs for all food distributions to remind beneficiaries of the key messages about CSB porridge preparation. The top message: CSB and Oil Porridge is a medical treatment for your child. “This porridge ought to be cooked following the following measurements:” Cup Message: “A third of the 500 ml cup.” Spoons messages: “6 aluminum tablespoons.”

Figure 2. Banner



#### d. Design & Printing: Message on 2 kg Packets

Throughout the WALA program, CSB has been packed and distributed in 25 kg bags. Every beneficiary child is entitled to eight kg CSB and one L of FVO per month. As part of study's intervention, the amount of FVO provided was increased to 2.6 L. In addition, in one of the two intervention groups, the CSB was repacked in two-kg packets; therefore every BMC was given four 2 kg packets of CSB along with 2.6 L of FVO.

Observations from formative evaluation revealed some challenges in the current distribution process. The WALA program normally distributes the CSB ration to the FDP in 25 kg sacks and the FVO ration in four liter containers. This requires BMCs to divide the ration in stages: first dividing the CSB among three BMCs (the PVOs must remove one kg, leaving the bag with 24 kg, so that it can be divided evenly among the three BMCs) and then dividing the FVO among four women. The BMCs are responsible for providing their own materials (e.g., a container) to transport the ration home. This approach has sometimes created conflicts because of unequal sharing and has multiple potential points of ration contamination.

In order to assess the effectiveness of the programmatic change of repackaging the CSB into two kg packets (four, two-kg packets per ration) with printed preparation messaging, the SBCC team developed repackaged versions of the two kg CSB packets. The team studied food packages which were available in Malawi and explored possible service providers to provide packaging in Malawi and beyond. They also engaged in planning and held creative meetings for conceptual designing of the packets, explored the selection of the correct type of packaging material, designed the behavioral change message, created easy-to-follow porridge preparation instructions, and illustrations on the package, and pretested the designs within the community in regard to color choices, message readability, and interpretations.

The SBCC team created several prototypes which were tested in three FGDs with BMCs. Results from pretests revealed that:

- i. The porridge-preparation recipe was extremely important, and therefore needed to occupy a large space in addition to being clear and easy-to-follow;
- ii. There was a strong need to show the instructions in graphic representation which utilized the local tools available (i.e., Coca-Cola bottles, bottlecaps);
- iii. The design needed to follow USAID marking and branding regulations in addition to observing Malawi Bureau of Standards requirements;
- iv. It was necessary to add language indicating that the CSB should be used together with FVO when preparing the porridge; and
- v. It was necessary to add information about the importance of following instructions on the preparation and consumption of CSB and FVO, which affect the results.

The team made some adjustments based upon the initial pretest and then did a final pretest in three different FGDs. Figure 3 shows the revised packaging for the CSB's two-kg packets, including information on proper use, handling and preparation on message stickers. **Annex Figure 1. SBCC Information Flow** shows the methods in which information was communicated to the SBCC team, community health workers, and lead mothers, and the methods in which training was carried out.

**Figure 3. Two kg CSB packets**





**Annex Figure 1. SBCC Information Flow**

