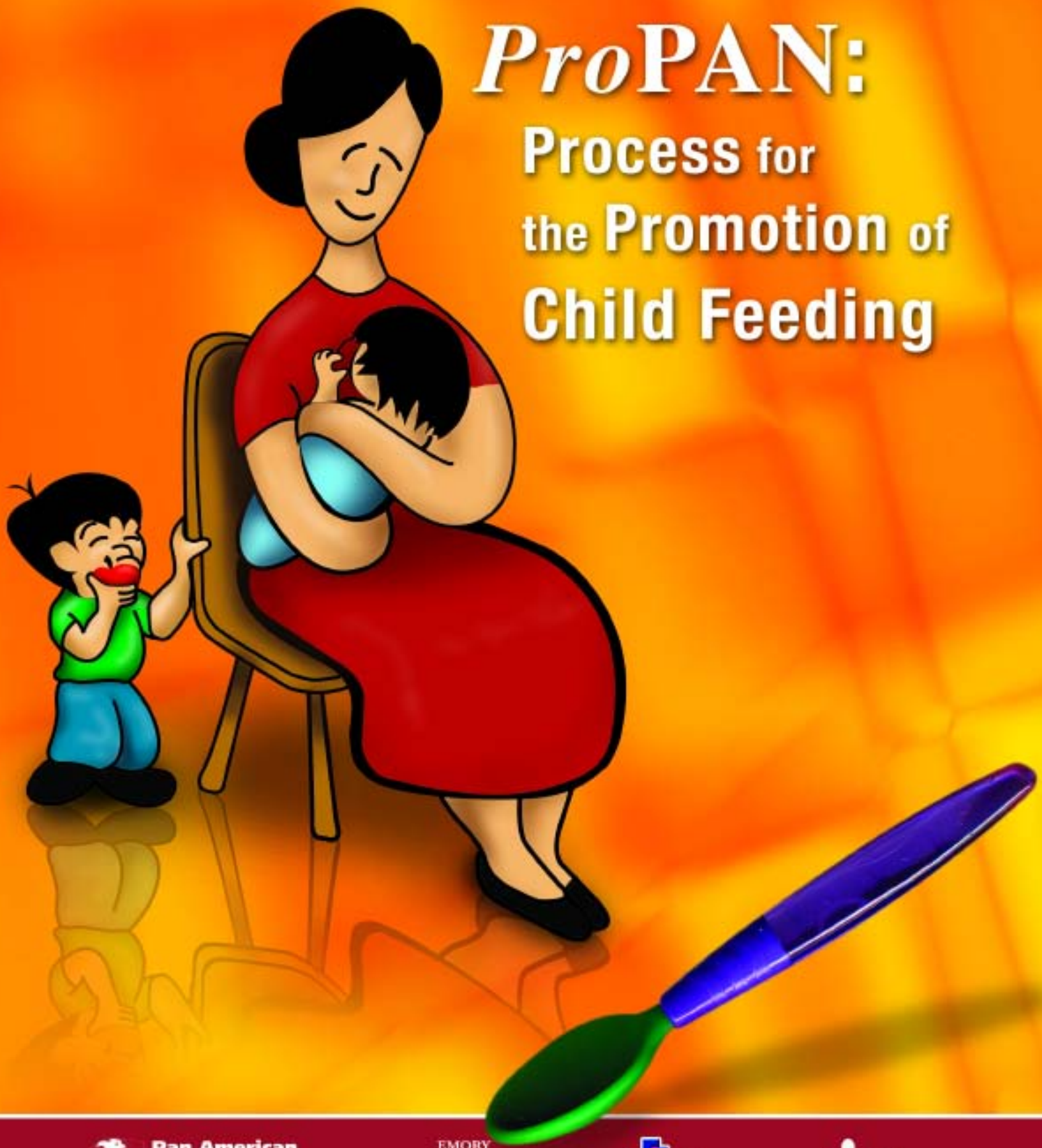
*Pro*PAN: Process for the Promotion of Child Feeding



Pan American Health Organization
Regional Office of the World Health Organization
Nutrition Unit/Family and Community Health,

EMORY ROLLINS SCHOOL OF PUBLIC HEALTH
Emory University, EEUU

National Institute of Public Health, México

iIN
Nutrition Research Institute, Peru

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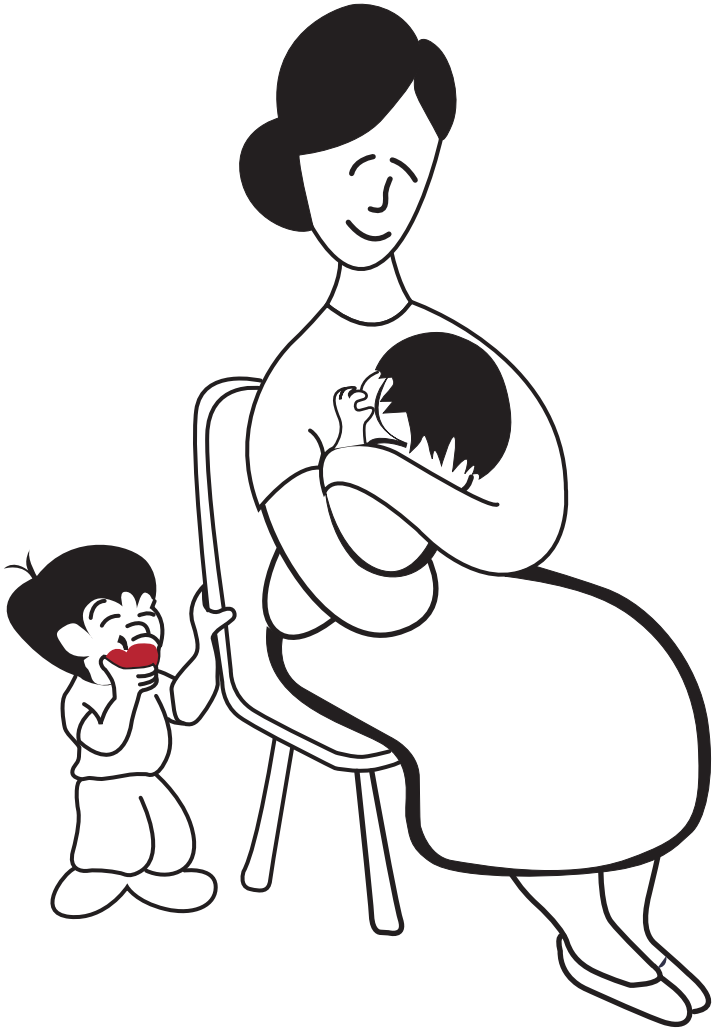

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2. CHILD WELFARE

3. CHILD CARE

4. NUTRITION PROGRAMMES AND POLICIES

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OVERALL COORDINATION

Chessa Lutter, Pan American Health Organization, Washington DC

Helena Pachón, Elena Hurtado, Dirk Schroeder, and Reynaldo Martorell, Emory University, Atlanta, GA

Juan Rivera Dommarco, National Institute of Public Health, Cuernavaca, Mexico

Hilary Creed-Kanashiro, Institute for Nutrition Research, Lima, Peru

COUNTRY-LEVEL COORDINATION

Juan Rivera Dommarco and Guadalupe Rodríguez Oliveros, National Institute of Public Health, Cuernavaca, Mexico

Hilary Creed-Kanashiro, Tula Uribe Chincha, and Graciela Respicio Torres, Institute for Nutrition Research, Lima, Peru

SUPERVISION AND IMPLEMENTATION

Beth Ann Yeager and Claudia Cuba, Institute for Nutrition Research, Lima, Peru

Raúl Borbolla González (deceased), María de Lourdes Flores López, Cecilia Cortés Borrego, Nicté Castañeda Camey, María Angeles Villanueva Borbolla, Nohemi Figueroa Vázquez, and Homero Martínez Salgado, National Institute of Public Health, Cuernavaca, Mexico

DEVELOPMENT OF SOFTWARE

Kevin Sullivan, Helena Pachón, Dirk Schroeder, Vanessa Conrad Dickey, Grace Hall, Cherie Stauffer, and Rachel Woodruff, Emory University, Atlanta, GA

DEVELOPMENT OF FOOD COMPOSITION TABLE

Margarita Safdie, Sonia Rodríguez, Noemí Figueroa, Eric Monterrubio, and Juan Espinoza , National Institute of Public Health, Cuernavaca, Mexico

PROCESS EVALUATION

Irma Yolanda Núñez, Emory University, Atlanta, GA

DATA COLLECTION

Silvia Angeles Cerroblanco, María Cristina Vázquez Arellanos, María Trinidad Espíndola Elizalde, María Nelva Estrada Jaimes, Fanny I. Farfán Castillo, María del Rosario Flores Medina, Amparo Flores Portugal, Maricela Gallardo Estrada, Alejandra Gutiérrez Moctezuma, Simona Pastor Morales, Arelí Rodríguez Rubio, Angélica Espíndola Elizalde, Liliana Eguiza Tamayo, Gabriela Eguiza Tamayo, Lourdes Campero Cuenca, Yunuen Baez Equigua, Blanca E. Medina Carranza, Miguel Rodríguez Oliveros, Carlos Cruz Barrera, and Adriana Osorno Robles, National Institute of Public Health, Cuernavaca, Mexico

Lizette Ganoza Morón, Maria Elena Arazamendi, Katia Murillo, Elvira Rivera, Frida Sanchez, Aida Miranda, Verónica Godoy, and David Martínez, Institute for Nutrition Research, Lima, Peru

FIELD TEST IN BOLIVIA

José Antonio Pagés, María del Carmen Daroca, María Teresa Reynoso, Olga de la Oliva, Patricia Chávez, Elizabeth Vargas, Amanda Campero, Viviana Arraya Zegada, Bonie Arevillca Molina, María Angélica Cachi Salcedo, Rebecca Cuti Anti, Beatríz Herrera C., Gladys Mena Sarco, María Meléndres, Mónica Cordero Aranda, Mónica Huarín Zuleta, and Susana Rodríguez, Pan American Health Organization, Bolivia

Jaime Tellería, Miriam López, María Eugenia Lara, Sara Arnés, Jazmín Herrera, Edgar Aranda, Magaly Vega, Dina Isabela Condori, Juana Poma, Olga Achá, Petrona Angélica Cachi, Elva Flores Gonzales, Dorian Claudia Guamal, Carmen Rosa Siñani, Julia Siñani Miranda, and Sonia Tarquino, Municipality of El Alto, Bolivia

Magdalena de Guzmán, Universidad Mayor de San Andrés, Bolivia

APPLICATION IN PAHO'S MULTI-CENTER STUDY ON INFANT AND YOUNG CHILD FEEDING

BRAZIL

Cora Luiza Araújo, Country-level coordination. Marilda Borges Neutzling, Fernanda dos Santos Iturriet Mendonça, Helen Denise Gonçalves, Wilian Trindade, Lorena Barbosa Macedo de Oliveira, Maria Angélica Brandão Ribeiro, Josiane Soares Katrein, Verina Buchweitz e Silva, Gisele Munhoz do Sacramento Boeira, Mirian Hellwig Franz, Cynthia dos Anjos Leal, Samanta Madruga, Anna Sofia Schuch, Roque Palochi, Tatiane Raquel dos Santos Pereira, Márcia Silveira, and Eliane Baez

JAMAICA

Fitzroy Henry and Pauline Samuda - Country-level coordination. Pauline Johnson, Mary Beda Andourou, Lorna Edwards, Michael Ennis, Eddia Copeland, Rudene Betton, Herolin Fearon, Siana Foster, Robin Payne, LaTanya Richards, Jacinth Waugh, Audrey Morris, Janice Tai, Jacqueline Brown, Sharon Locke, Kimberley Stanley, Sandra Goulbourne, Valerie Gayle, Tanisha Francis- Facey, Marion MacFarlane, Veronica Rodney, Jenice MacKenzie, and Paulette Parchment

MÉXICO

Juan Rivera Dommarco, and María Ángeles Villanueva, Country-level coordination. Amaranta Vega, Araceli Coronel, Maribel Porcayo, Tonatiuh Vásquez, Esteban Martínez, Yamanqui Blanco, Angélica Urdapilleta, Flavia Mendoza, Magdalena Ortiz, Jovita Rogel, María Luisa Olivares, Verónica García, Magnolia Olascoaga, Eugenia Sánchez, Raquel García Feregrino, Ivonne Ramírez, Eric Monterrubio, Mario Flores, Patricia Chico, Araceli Monjé, and Ernestina Gallegos

PANAMÁ

Eira de Caballero, and Victoria E. Valdés, Country-level coordination. Rina de Barba, Ana Maria de Rodríguez, Julieta Minetti, Marta Prado, Lorena de León, Marisol Reina, Carmen Pérez, Nuvia Cárdenas, Alberto Amaris, and Roberto Caballero

EDICIÓN Y TRADUCCIÓN

Chessa Lutter, Natalia León-Cava, Patricia Carrera, Cintia Lombardi, and Jessica Escobar-Alegría, Pan American Health Organization, Washington DC. María Angeles Villanueva Borbolla, National Institute of Public Health, Cuernavaca, Mexico

REVISIÓN

Anne Swindale, FANTA/Academy for Educational Development, Washington DC

Judiann McNulty, Mercy Corps, Eugene, OR

Grace Marquis, Iowa State University, Ames, IA

Marcia Griffiths,The Manoff Group, Washington, DC

Karen van Roekel, The Basics Project, Arlington, VA

Laura Caulfield, Johns Hopkins University, Baltimore, MD

Roberta Cohen, University of California, Davis, CA

Katherine Tucker, Tufts University, Boston, MA

FINANCIAMIENTO

The International Association of Infant Food Manufacturers, Paris, France

CARÁTULA

Raúl Borbolla González (deceased), National Institute of Public Health, Cuernavaca, Mexico

GLOSSARY

The definitions contained in this glossary are not general. They are given within the context of the application of ***Pro*PAN** and are specific to its use.

24-hour Dietary Recall

Methodology used to assess the amount of foods consumed and time of consumption. The mother[1] is asked to remember the amounts of all foods and liquids the child consumed the day before. Breastfeeding episodes are noted but the amount of breastmilk not quantified.

Actual Practices

Infant and young child feeding practices that mothers carry out daily. In ***Pro*PAN**, actual practices are assessed against the defined **ideal practices** to identify suboptimal feeding practices which could potentially be targeted for improvement.

Audience Segmentation

Differentiation of communication strategies for diverse population subgroups. Since audiences are often diverse, it is possible to separate them into smaller sub-audiences, taking into account their specific characteristics, such as geographic region, urban/rural residence, ethnicity, or language. Also, communication strategies may differ for mothers who work within versus outside the home, who have children of different age groups, who are single, etc.

Behavior

Also called practices in the ***Pro*PAN**, refers to mother's observable actions related to preparing food and feeding the child.

Behavior Change

A process of change in practices that follows steps such as awareness, approval, intention, trial, and advocacy.

1 The vast majority of young children are likely to be cared by their mothers. However, we used "mother" throughout ***Pro*PAN** to denote mothers and other caregivers.

Behavior Change Communication	Systematic process to plan an intervention to influence the behaviors of a specific group of people (e.g. mothers) through several channels and media.
Communication Channels	Methods through which recommendations and/or messages reach the intended audience. These may be interpersonal, through the use of mass media such as television or radio, or through printed material and may differ for diverse **audience segments**.
Community	Multilevel concept ranging from local, politically or geographically defined entities, such as villages, to cities, nations and international entities. Also refers to an issue-related group of people.
Community Participation	Involvement of the community in a social-change strategy in addition to an individual behavioral one.
Complementary Feeding	Period of time when foods or liquids in addition to breast milk and/or formula are included in the child's diet. Ideally, this period starts at six months, but often starts too early or too late, depending on when complementary foods are first introduced.
Complementary Foods	Foods and liquids that are introduced into the diets of infants and young children in addition to breast milk and/or formula. Often these foods are specially prepared for young children but can also include family foods.
Counseling	Process of dialogue, information sharing, mutual understanding and agreement between two people. In infant and child feeding the counselor advices the mother about options to improve child feeding and well-being and helps her reach a decision about what she can and will do.
Energy Density	The amount of energy (expressed in kilocalories) in one gram of food.
Focus Group	A qualitative methodology, considered optional in ***Pro*PAN**, in which a group of 6 to 8 mothers with similar characteristics are brought together with a facilitator to discuss a specific subject. In focus groups, the participants' views, beliefs, and opinions are solicited and recorded. It is a good way to obtain spontaneous opinions and views from the participants.
Food Attributes Exercise	Research technique where the mother is shown pictures of 20-30 foods with the objective of eliciting beliefs about the qualities of each food and its adequacy for young children.

Food Intake

The amount of food consumed by a child in a determined period of time. It does not include breast milk.

General Survey

A questionnaire provided in ***Pro*PAN** to assess breastfeeding and complementary feeding practices, socio-economic characteristics of the family and mother's access to mass media.

Ideal Practices

A series of 12 breastfeeding and complementary feeding practices that are defined as optimal in ***Pro*PAN** and against which the actual practices, identified through the application of Module I, are compared. The gap between the ideal and actual practices is used to identify suboptimal practices which, if modified, are likely to have a major impact on nutritional status.

Interpersonal Communication

Also called face-to-face communication; involves sharing information and feelings about a topic of discussion between two people. Counseling is a form of interpersonal communication.

Intervention

Strategies and activities of projects or programs that are designed, planned, and implemented to modify feeding practices and improve the nutritional status of young children. In ***Pro*PAN**, an intervention is designed in Module III.

Intervention Plan

Detailed description of the strategies and activities to carry out the intervention.

Market Analysis

Technique used by commercial marketing to evaluate a product in relation to its competitors. In an intervention to improve infant and young child feeding, this technique may be useful to evaluate a program's or project's proposed recommendations.

Market Survey

A questionnaire applied to market sellers and retail stores in the target community that aims at identifying those foods that provide the greatest amount of energy and nutrients for the least cost. It also collects information on their availability throughout the year.

Matrix

A rectangular arrangement of columns and rows used to organize and summarize information collected through the use of different qualitative or quantitative methods.

Nutrients

Chemical substances contained in foods that, after digestion, travel throughout the blood to different areas and which fulfill different functions in the body.

Nutritional Intake	Amount of macro- and micronutrients contained in the foods that each individual consumes in a determined period of time. In ***Pro*PAN**, software is provided for the analysis of the intake of energy, fat, carbohydrate, protein, iron, zinc, calcium, vitamin A and vitamin C.
Observation	In nutrition research, it is a technique that consists of observing people, foods, utensils, places, behaviors, or other child-feeding aspects. The observation is documented with a narrative as well as with more structured methods.
Opportunistic Observation	Observation of infant and young child feeding practices in which field-workers take advantage of their proximity to mothers to observe them preparing food, feeding, and/or interacting with their infants and young children.
Positioning	The position or place a product, message, or recommendation has in the mind of the target audience.
Primary Audience	Those persons who are expected to carry out the recommended practices. In the case of child and infant programs, these are the children's mothers or caregivers.
Problem Practices	Actual practices that deviate, in the negative sense, from the ideal practices.
Products	In ***Pro*PAN**, the outcomes of the application of research instruments and methodologies described in each module.
Recipe Creation Exercise	Methodology used to create new or improved recipes from available, accessible, and acceptable foods for infants and young children through the active participation of their mothers.
Secondary Audience	Persons who influence the primary audience in their infant and young child feeding practices. These include family members, friends, and neighbors and health workers. The secondary audience may teach, support, and reinforce the recommended practices to the primary audience.
Semi-structured Interview	A conversation with mothers that follows a general guide of open-ended questions designed to elicit information on the perceptions, beliefs and opinions regarding child-feeding practices.
Study Communities	Selected communities where an assessment of infant and young child feeding practices using ***Pro*PAN** is made.

Target Population	The population of a country, region, or geographical area where interventions to improve infant and young child feeding will be conducted.
Tertiary Audience	Decision makers, sponsors, strategic allies, and other influential persons that contribute to a program's success through advocacy, funding, and the creation of an appropriate environment.
Test of Recommendations	Methodology used in ***Pro*PAN** to evaluate the feasibility and acceptability of carrying out specific recommended feeding practices under typical conditions in the home over a one- to two-week period.

*Pro*PAN: Process for the Promotion of Child Feeding

INTRODUCTION

PURPOSE AND OVERVIEW

***Pro*PAN** is a manual aimed at Ministries of Health, non-governmental organizations, and bi-lateral and international organizations interested in improving infant and young child feeding to prevent early childhood malnutrition. It describes a step-by-step process, which begins with the quantitative identification of nutritional and dietary problems, and also with the collection of qualitative information on why these problems occur, and ends with the design of and evaluation plan for an intervention to address the problems identified.

The key distinguishing feature of ***Pro*PAN** is its comprehensiveness. It includes steps on how to collect, analyze, and integrate both quantitative and qualitative information, provides guidance on how to design an intervention, and reviews evaluation strategies. In addition, ***Pro*PAN** contains software in an EPI INFO format developed specifically for the quantitative analysis of infant and young child diets. Other unique characteristics of ***Pro*PAN** are as follows:

- It leads to the identification of specific nutritional and dietary problems.
- It allows for an understanding of the context in which these problems occur.
- It presents a method for identifying, ranking and selecting practices to promote that are practical, feasible and accepted by the community and potentially effective if adopted.
- It distinguishes between the practices that are to be promoted and recommended and the messages that are to be disseminated in an intervention.
- It provides data collection forms in an electronic format.
- It includes a module on monitoring and evaluation.
- It has a focus on Latin America and the Caribbean though is likely to be suitable for other Regions.
- It addresses essential elements necessary to design and evaluate interventions to improve breastfeeding and complementary feeding.

BACKGROUND

An important, recent advance in nutrition is the recognition that the intrauterine period and the first two years of life are when malnutrition is most common and severe, and when its adverse effects on child survival and development are of greatest concern. Women in poor areas of Latin America and the Caribbean often enter pregnancy in a compromised nutritional state, which frequently worsens as the additional demands of pregnancy are not met. As a result, intrauterine growth retardation is all too common. Infants and young children have high nutritional requirements, are highly susceptible to infections, and require special and time-consuming care. Unfortunately, many families do not have access to an adequate quantity and quality of food, basic sanitation, and health care. In many situations, these inadequacies are exacerbated by poor feeding and care practices. As a result, a large proportion of infants and young children suffer from protein-energy malnutrition and from micronutrient deficiencies, such as iron, vitamin A and zinc, resulting in marked growth failure. The consequences of malnutrition at formative stages of life place a great burden on affected individuals and on society. In the preschool years, these include poor resistance to infection, significant morbidity and mortality, and delayed mental and motor development. In the long term, consequences include deficient learning at school, impaired intellectual performance, small body size, reduced work capacity in adults, and in women, increased risk of delivery complications and of low birth weight in their children.

Recognition of the importance of adequate nutrition at the early stages of life has led to the re-orientation of many programs to focus on women during pregnancy and breastfeeding, and on their infants and young children. Improving infant and young child nutrition requires improving prenatal nutrition and care as well as feeding practices. ***Pro*PAN** focuses on improving the diet and feeding practices of infants and young children from birth to 24 months of age.

Improving breastfeeding and complementary feeding practices is a direct and effective strategy for preventing child malnutrition. There is evidence linking exclusive breastfeeding with significantly reduced incidence of diarrheal disease and respiratory infections and mortality. There is also evidence linking improvement in the dietary intakes of infants and young children, whether through efficacy or effectiveness research, with significantly better growth.

*Pro*PAN MANUAL

The ***Pro*PAN** manual consists of four modules (Figure 1). In Module I, quantitative and qualitative methods are applied to identify specific dietary problems, the practices that lead to these problems, and the context in which these problems occur. The quantitative methodologies that are used include a *General Survey, 24-hour Dietary Recall and Market Survey*. The qualitative methodologies include *Opportunistic Observation, Mothers' Semi-structured Interview and Food Attributes Exercise*. A software package is provided to aid in the analysis of the dietary data required by Module I; specifically, it serves to identify the key nutrient problems and the relative importance and cost of local foods as sources of these nutrients. Through Module I, users will be able to generate a list of potential practices and of foods and preparations that could be promoted to improve the feeding problems identified.

In Module II, users will be able to test the acceptability and feasibility of the potential practices and of foods and preparations identified in Module I through household behavior and recipe trials. The outcome of Module II will be the identification of feasible options for change, that is, practices that the community can and is willing to adopt and foods and recipes that it is willing to prepare and give to young children.

In Module III, guidelines are provided for the design of the intervention plan, to be crafted around the options selected in Module II. The steps recommended lead to the strategies, activities, materials, and messages that can promote the desired changes in practices.

Module IV involves the development of the monitoring and evaluation plan. It includes the design of indicators to monitor the impact of the intervention as well as the selection of appropriate evaluation designs. The grand outcome is, then, the joint implementation of the intervention plan and its monitoring and evaluation plan.

In ***Pro*PAN**, a series of *ideal breastfeeding and complementary feeding practices* are identified and used to guide the analysis of quantitative and qualitative feeding data (Table 1). These practices were developed from a series of recent documents on the scientific basis for optimal infant and young child feeding (WHO/UNICEF, 1998; Daelmans et al., 2003; PAHO/WHO, 2003). The definition of the ideal breastfeeding practices benefited from previous work on indicator development and the universality of their application (WHO, 1991). The definition of ideal complementary feeding practices was guided by the "Guiding Principles for Complementary Feeding of the Breastfed Child" (PAHO/WHO, 2003). When possible, operational definitions for these Principles were developed for use in ***Pro*PAN**.

The scientific information that forms the basis for the assessment of the *ideal practices* also stems from previous work (WHO, 1998; Dewey and Brown, 2003). For nutrients, the recommended daily intake and complementary food density are provided in Table 2. The recommended daily energy intake and recommended energy density of complementary foods are provided in Tables 3 and 4, respectively.

Ideal infant feeding begins with exclusive breastfeeding for 6 months and then with continued breastfeeding for two years or more and appropriate complementary feeding. ***Pro*PAN** describes methodologies for identifying problematic practices in both areas. However, because less is known in regards to promoting optimal complementary feeding than breastfeeding, ***Pro*PAN** places greater emphasis on identifying options for improving complementary feeding between 6 and 23[1] months of age than is the case for breastfeeding.

1 For the purpose of simplification, 23 months is used to indicate 23.9 months, 11 to indicate 11.9, and 8 to indicate 8.9.

Figure 1. Conceptual model of *Pro*PAN

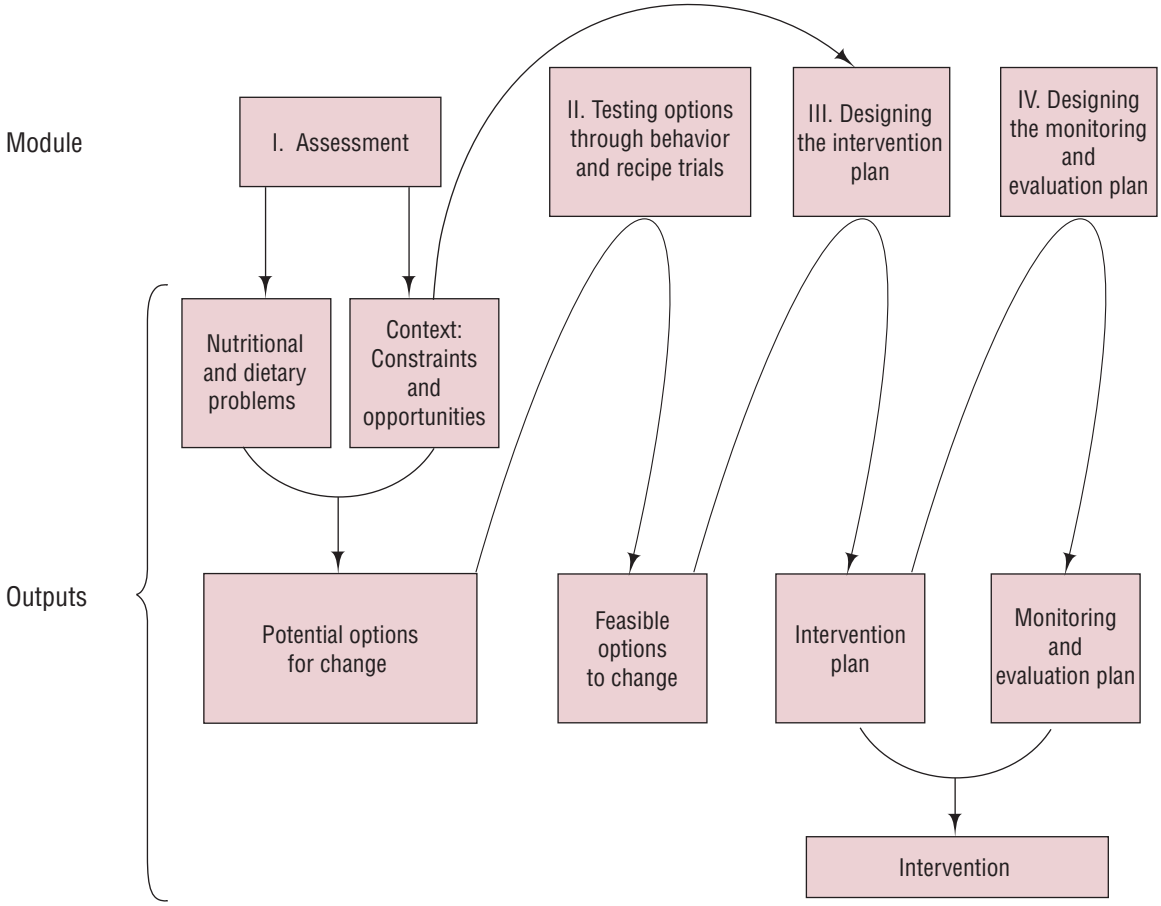

Table 1. Ideal breast feeding and complementary feeding practices

Ideal practice	Definition	Source	Calculation
1. That all infants are breastfed for the first time within the first hour after birth.	Percentage of children who were breastfed for the first time within the first hour after birth.	General Survey: How many hours after birth did you breastfeed your child for the first time?	**Numerator:** Children 6 to 23.9 months whose mothers reported breastfeeding the infant for the first time within the first hour after birth. **Denominator:** All children 6 to 23.9 months whose mothers were interviewed.
2. That all infants are not fed with pre-lacteals.	Percentage of children who were not fed with pre-lacteals (those liquids or foods administered to the newborn before breast feeding is initiated).	General Survey: What was the first liquid or food the infant consumed after birth? If the interviewee did not answer "breast milk," the answer was classified as a pre-lacteal.	**Numerator**: Children 6 to 23.9 months whose mothers reported first feeding breast milk after birth. **Denominator**: All children 6 to 23.9 months whose mothers were interviewed.
3. That all infants are fed colostrum.	Percentage of children who were fed colostrum.	General Survey: Did you feed the child your first milk (colostrum)?	**Numerator**: Children 6 to 23.9 months whose mothers reported feeding them colostrum. **Denominator**: All children 6 to 23.9 months whose mothers were interviewed.
4. That all infants and young children are breastfed on demand, during the day and nigh..	Percentage of children who are breastfed on demand.	General Survey: Do you breastfed your child when he wants to or on a fixed schedule? If the interviewee answered "when the child wants to" the answer was classified as breastfeeding on demand.	**Numerator** Children 6 to 23.9 months whose mothers reported breastfeeding them "when the child wants to." **Denominator**: Children 6 to 23.9 months who were breastfeeding at the time of the survey and whose mothers were interviewed.

Continue

Ideal practice	Definition	Source	Calculation
5. That all infants are exclusively breastfed until 6 months of age.	Percentage of children who consumed breast milk and no other liquids or foods before six months of age.	General Survey: At what age (in months) did you give your child liquids other than breast milk for the first time? And at what age (in months) did you give your child her first food? The age when the child received her first drink or food was considered the age when exclusive breastfeeding stopped.	**Numerator**: Children 6 to 23.9 months whose mothers reported stopping exclusively breastfeeding between 6 and 6.9 months of age. **Denominator**: All children 6 to 23.9 months whose mothers were interviewed.
6. That no children are weaned before 24 months of age.	Percentage of children who were weaned before 24 months of age.	General Survey: At what age (in months) did the child stop breastfeeding?	**Numerator**: All children 6 to 23.9 months whose mothers were interviewed. **Denominator**: All children 6 to 23.9 months whose mothers were interviewed[1].
7. That all infants are fed semi-solid complementary foods beginning at 6 months of age.	Percentage of children who began complementary feeding with semi-solid foods between 6 and 6.9 months of age. Non-compliance was considered if the child: 1) began complementary feeding with liquids or foods before 6 months of age; 2) began complementary feeding with liquids or foods after 6.9 months; or 3) began complementary feeding between 6 and 6.9 months but only with liquids.	General Survey: At what age (in months) did you give your child liquids other than breast milk for the first time? And at what age (in months) did you give your child her first food? If the interviewee answered "foods between 6 and 6.9 months" and "no liquids before 6 months" then the answer was classified as complementary feeding initiated at 6 months with semi-solid foods.	**Numerator**: Children 6 to 23.9 months whose mothers reportedinitiating complementary feeding between 6 and 6.9 months of age with semi-solid foods. **Denominator**: All children 6 to 23.9 months whose mothers were interviewed.

Continue

1 This calculation follows the convention used in the "Indicators for assessing breast-feeding practices" (WHO, 1991). However, since children in the sample could be subsequently weaned before 24 months of age, it will not give a true prevalence of weaning.

Ideal practice	Definition	Source	Calculation
8. That all infants and young children meet their recommended daily energy requirements.	Percentage of children in the previous 24 hours who consumed the daily energy requirement from non-breast milk sources based on age and breastfeeding status. At least 50% of children must meet their energy requirement to consider this ideal practice met[2].	24-hour Dietary Recall: **Energy intake:** calculated from kilocalorie content of non-breastmilk foods and liquids consumed.	**Numerator:** Children 6 to 23.9 months whose energy intake met or surpassed their energy requirement. **Denominator:** All children 6 to 23.9 months whose mothers were interviewed.
9. That all infants and young children are fed nutrient- and energy-dense foods.	Percentage of children whose mean nutrient and energy density from all non-breastmilk foods and liquids consumed in the previous 24 hours met or surpassed the recommended nutrient- and energy density of foods based on their age and breastfeeding status.	4-hour Dietary Recall: **Mean nutrient density:** calculated by summing nutrient intake from all non-breastmilk foods and liquids consumed and expressing the total per 100 kcals of foods and liquids consumed. **Mean energy density:** calculated by summing energy intake from all non-breastmilk foods and liquids and expressing per 1 gram of foods and liquids consumed.	**Nutrient and energy density:** **Numerator:** Children 6 to 23.9 months whose mean nutrient density (for energy, protein, iron, zinc, vitamin A, vitamin C and calcium calculated separately) met or surpassed their nutrient density recommendation. **Denominator:** All children 6 to 23.9 months whose mothers were interviewed. This provides separate measures of density for each nutrient and for energy.

Continue

2 Unlike recommendations for nutrients, which are set at 2 standard deviations above the average requirement to ensure that the needs of virtually all the population are met, the recommendation for energy is set at the median to discourage excess intake. Therefore, if 50% of the population meets or exceeds this requirement energy intake is considered to be adequate.

Ideal practice	Definition	Source	Calculation
10. That all infants and young children are fed the recommended number of meals daily	Percentage of children who in the previous 24 hours consumed at least this number of meals: breastfed, 6-8 months: 2 breastfed, 9-11 months: 3 breastfed, 12-23 months: 3 non-breastfed, 6-8 months: 2[3] non-breastfed, 9-11 months: 3 non-breastfed, 12-23 months:3	24-hour Dietary Recall: **Frequency:** All caregiver-defined meals (e.g. breakfast, lunch, dinner)	**Numerator:** Children 6 to 23.9 months whose feeding frequency met or surpassed their minimum frequency recommendation.. **Denominator:** All children 6 to 23.9 months whose mothers were interviewed.
11. That all infants and young children are fed meat, fish or poultry daily	Percentage of children who ate at least one food source from meat, fish or poultry in the previous 24 hours.	24-hour Dietary Recall: **Meat, fish, poultry:** foods and liquids in the food composition table are coded as being a "meat, fish or poultry" and preparations/dishes are coded as containing "some meat, fish or poultry." If the child consumed at least one food coded as "meat, fish or poultry" or "some meat, fish or poultry," the child was classified as having consumed at least one food source from meat, fish or poultry.	**Numerator:** Children 6 to 23.9 months who consumed at least one food source from meat, fish or poultry. **Denominator:** All children 6 to 23.9 months whose mothers were interviewed.
12. That all infants and young children are supported and motivated to eat to satiety during meal times	Percentage of children whose caregiver reported offering support and motivation to eat during meal times.	General Survey: If your child stops eating, and you think she is still hungry or did not eat enough, what do you do? The answer is classified by the Field Worker as "motivates the child" or "does not motivate the child."	**Numerator:** Children 6 to 23.9 months whose mothers reported motivating the child to eat. **Denominator:** All children 6 to 23.9 months whose mothers were interviewed.

3 WHO/UNICEF recommends that children are breastfed for two years or beyond, and ideally all children are breastfed during the target age range of ***Pro*PAN**. However, inasmuch as data show that in Latin America and the Caribbean many children are prematurely weaned, the ***Pro*PAN** software includes programs for the analysis of diets of non breastfed children. The meal frequency for non breastfed children assumes that another source of milk has completely replaced breastmilk.

Table 2. Recommended daily intake and complementary food density for nutrients, by age group and breastfeeding status

	Recommended Daily Intake		Recommended Complementary Food Density (per 100 kcal)[4,5]	
PROTEIN (g)	**Breastfed**[1,2]	**Not breastfed**[3]	**Breastfed**[1]	**Not breastfed**
6-8.9 mo	2	9.1	1.0	1.5
9-11.9 mo	3.1	9.6	1.0	1.4
12-23.9 mo	5	10.9	0.9	1.2
IRON (mg) [6]				
6-8.9 mo	10.8	11	5.3	1.8
9-11.9 mo	10.8	11	3.5	1.6
12-23.9 mo	5.8	6	1.1	0.7
ZINC (mg)				
6-8.9 mo	2.2	2.8	1.1	0.5
9-11.9 mo	2.3	2.8	0.7	0.4
12-23.9 mo	2.4	2.8	0.4	0.3
VITAMIN A (µg ER)				
6-8.9 mo	13	350	6	57
9-11.9 mo	42	350	14	51
12-23.9 mo	126	400	23	45
VITAMIN C (mg)				
6-8.9 mo	0	25	0	4.1
9-11.9 mo	0	25	0	3.6
12-23.9 mo	8	30	1.5	3.4
CALCIUM (mg)				
6-8.9 mo	336	525	166	85
9-11.9 mo	353	525	115	77
12-23.9 mo	196	350	36	39

1 Assuming average breast milk intake.

2 WHO/UNICEF (1998) (Table 26).

3 WHO/UNICEF (1998) (Table 25).

4 Nutrient density per 100 kcal calculated as follows: "daily intake requirement for nutrient" X 100 / "daily intake requirement for energy."

5 Source for daily energy requirement: Dewey and Brown (2003).

6 Assuming medium iron bioavailability.

Table 3. The recommended daily energy intake from complementary foods, by age group and breastfeeding status

	Recommended Energy Intake (kcal)[1]		Recommended Energy Intake (kcal / kg)	
	Breastfed	**Not breastfed[3]**	**Breastfed[2, 3]**	**Not breastfed[3]**
6-8.9 mo	202	615	25.3	77.0
9-11.9 mo	307	686	34.7	77.5
12-23.9 mo	548	894	43.3	81.3

1 Dewey y Brown, 2002. (Table 2)
2 Calculated as follows:
Ideal weight = (kcal/day recommendation for non-breastfed children) / (kcal/kg/d recommendation for non-breastfed children)
Kcal/kg recommendation = (kcal/day recommendation for breastfed kids) / ideal weight
3 Dewey y Brown, 2003. (Table 1)

Table 4. Recommended energy density of complementary foods, by age group and breastfeeding status

	Energy Density (kcal / g)	
Consuming 1 meal per day	**Breastfed**[1,2]	**Not breastfed**[2,3]
6-8.9 mo	1.43	3.09
9-11.9 mo	1.68	3.01
12-23.9 mo	2.24	3.24
Consuming 2 meals per day		
6-8.9 mo	0.71	1.54
9-11.9 mo	0.84	1.51
12-23.9 mo	1.12	1.62
Consuming 3 meals per day		
6-8.9 mo	0.48	1.03
9-11.9 mo	0.56	1.00
12-23.9 mo	0.75	1.08
Consuming 4 meals per day		
6-8.9 mo	0.36	0.77
9-11.9 mo	0.42	0.75
12-23.9 mo	0.56	0.81

1 Assuming average breast milk intake.
2 Dewey y Brown, 2003. (Table 3)
3 Calculated as follows:

Recommended energy density when consuming 1 meal per day:

$$\frac{\text{Total energy requirement + 2 SD (kcal/d)}}{\text{Gastric capacity}}$$

Recommended energy density when consuming 2 meals per day:

$$\frac{\text{Recommended energy density when consuming 1 meal per day}}{2}$$

Recommended energy density when consuming 3 meals per day:

$$\frac{\text{Recommended energy density when consuming 1 meal per day}}{3}$$

AUDIENCE FOR *Pro*PAN

***Pro*PAN** is designed for a broad range of users. Those wishing to design a new program or to add a component about infant and young child feeding to an existing program will need to use all the modules. In cases where a program already exists, users may find specific modules to be of greater interest e.g., Module II to test the feasibility and acceptability of new recipes and practices that are to be promoted within a program and Module IV to design an evaluation where one is missing.

DEVELOPMENT AND FIELD TESTING

***Pro*PAN** was developed by a team of nutritionists, anthropologists, epidemiologists, and statisticians at the Nutrition Unit of the Pan American Health Organization (PAHO), the Rollins School of Public Health at Emory University, the National Institute of Public Health in Mexico, and the Institute for Nutrition Research in Peru. ***Pro*PAN** was developed through extensive fieldwork over a two-year period in Mexico and Peru. The final draft was field tested in Bolivia (Pachón and Reynoso, 2002). An additional field test of the software was conducted in Ecuador. Following modifications resulting from the field tests, the English translation of ***Pro*PAN** was further tested in Jamaica and the final Spanish version further tested in Brazil, Mexico, and Panama. For use in Brazil, all research instruments were translated into Portuguese. ***Pro*PAN** also benefited from an extensive review process by academicians and program managers.

The development of ***Pro*PAN** benefited from earlier manuals on aspects of infant and young child feeding. In particular, "Designing by Dialogue" by Dickin, Griffiths and Piwoz of the Academy for Educational Development and the Manoff Group (Dickin *et al*., 1997) and "Tools to Measure Performance of Nutrition Programs" (Levinson *et al*., 2000) contributed toward many of the concepts used in Modules II and IV, respectively.

In addition, many ideas, such as the *Food Attributes Exercise* and the methodologies used in the semi-structured interviews and focus groups, were borrowed from "Culture, Environment, and Food to Prevent Vitamin A Deficiency " (Kuhnlein and Pelto, 1997).

STRUCTURE OF THE *Pro*PAN MANUAL

The ***Pro*PAN** manual is structured in the following manner. It begins with a **Glossary** of the concepts, an **Introduction** to the process, background, and overview of the technical content of the manual, and the **Logistics** to follow in implementation. Subsequently, it describes the ***Pro*PAN** process in detail in four modules: (I) **Assessment**, (II) **Recipe creation exercise and test of recommendations**, (III) **Design of the intervention plan**, and (IV) **Monitoring and evaluation**. Each module has two parts. The first part defines the purpose, products, steps, and development of the application of the module; it also presents a brief description of the instruments and the techniques to be applied during fieldwork for the collection of the data and

its analysis. The second part presents the annexes of the module and includes the data collection forms, guidelines for their use, the matrixes for data analysis, instructions for the training of personnel, and examples of filled out forms and matrixes.

A complementary publication to this manual presents the ***Pro*PAN** software. This software can be used for entering and analyzing data from the *General Survey, 24-hour Dietary Recall*, and *Market Survey*. The software is based on the English version of Epi Info (Dean et al., 1995), a program developed by the World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC), Atlanta, USA. The ***Pro*PAN** food composition table, embedded in the software, is used for analysis of the *24-hour Dietary Recall*.

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LOGISTICS
Introduction

This chapter will give a brief overview of the resources needed to adequately apply ***Pro*PAN** (including time, personnel, equipment, and trainers) and guidelines for developing a budget.

TIME

The process of quantitative and qualitative data collection and analysis, and selection and test of recommendations will take a minimum of three months. This projection is based on having a four-person central-level team and at least one eight-person field team. Increasing the size of the field team and/or applying fewer modules will decrease the length of time it will take to apply the manual. The length of time it will take to use specific data collection instruments in ***Pro*PAN** will obviously depend on the instruments used and the training involved (see Table 5 for time estimates).

If the program has distinct, multiple target populations (for example, rural and urban groups, indigenous and ladino groups), the activities described in Modules I and II should be carried out with communities that represent each of these unique populations. In other words, if there is strong evidence that these target populations are very different from each other in important ways, then the added expense of data collection in communities representing each is justified. Information gathered during the document review (i.e. identification of the general nutrition situation) will help the team to make this decision. Factors to be considered include the following: dietary patterns, culture/ethnicity, and the population's resources.

Different modules of the manual can be used independently from the rest. For example, if the team has an implementation plan but not a monitoring and evaluation plan, it can use the guidelines described in the Monitoring and Evaluation Module (Module IV) to design one that is well suited to its program. If the team would like to use some of the methodologies and forms described in the first module for the baseline survey or for formative research, this is also possible.

Table 5. Time and personnel needed to apply *Pro*PAN

Module	Minimum Time	Personnel Needed
Module I	8 - 12 weeks	Coordinator Administrator Supervisors Field workers Data Analyst Data Entry person
Module II	3 - 4 weeks	Coordinator Supervisors Field Workers Data Analyst Data Entry person
Modules III y IV	Variable	Coordinator/Program Manager Supervisors Field Workers Data Analyst

PERSONNEL

To apply ***Pro*PAN**, it will be necessary to hire individuals for both a coordinating and supervisory role, and to conduct the fieldwork. Once the program is designed, these same staff members can implement the intervention.

At the coordinating level, it will be necessary to have a Coordinator, an Administrator, a Data Analyst, and a Data Entry person. These may be either part-time or full-time depending on the needs of the project. The field staff will consist of eight-person teams including two Supervisors and six Field Workers. The suggested background and main tasks of team members are summarized in Table 6. If Modules I and II are going to be applied in two target populations, two teams may work concurrently in communities representing each target population, or one team may work over a longer period of time in all communities representing the two target populations.

EQUIPMENT

The minimum equipment necessary for the application of ***Pro*PAN** (excluding equipment that may be necessary during program implementation) is as follows:

Coordination and supervision

- Access to computers for data entry and analysis
- Access to a printer
- Access to a photocopier
- Reliable transportation to and from communities (public transportation, hired drivers, rented or purchased vehicles)

Field work

- Food scales
- Watches
- Clipboards
- Pens/pencils
- Bags/backpacks to carry materials for the survey
- Measuring cups and spoons for the *24-hour Dietary Recall* and *Recipe Creation Exercise*
- Reliable transportation to and from communities

Table 6. Suggested experience and main tasks of team members

Position	Experience	Tasks
Coordinator	Management and community work	• Coordinate and supervise the work completed by the Administrator, Data Analyst, and Supervisors • Mobilize and manage resources to ensure the timely completion of program activities
Administrator	Accounting experience	• Oversee the budget • Draw up and execute contracts • Ensure the timely payment of salaries, per diems, reimbursements, and purchase of equipment and materials
Data Analyst	Programming in EPI INFO	• Install the ***Pro*PAN** software program and make any necessary adjustments to ensure its proper functioning • Modify, as needed, the data entry screens and analysis programs for information collected during the application of ***Pro*PAN** • Supervise the Data Entry person

Continue →

Position	Experience	Tasks
Data Entry	Experience entering data	• Enter data using the ***Pro*PAN** software • Review outputs to detect data entry errors or suspicious values • Bring to the attention of the Supervisors any suspicious data points
Supervisor (one Nutritionist per field team)	Field work experience in nutrition programs	• Modify dietary assessment forms by incorporating local terminology, feeding practices and locally consumed foods • Train and supervise the Field Workers applying dietary assessment methods during the application of the ***Pro*PAN** manual • Interpret the results from these methods • Provide nutritional expertise during the development of behavioral recommendations (Module I), interpretation of behavioral and recipe trials (Module II), intervention design (Module III) and monitoring and evaluation design (Module IV)
Supervisor (one Social Scientist per field team)	Field work experience in nutrition programs	• Train and supervise the Field Workers applying qualitative research methods during the application of the ProPAN manual • Train and supervise Field Workers in the analysis of qualitative data and provide expertise in the interpretation of the results • Provide guidelines on incorporating qualitative methods into the monitoring and evaluation design
Field Workers (six per field team)	Experience in field work and in nutrition, nursing, social work, or other health field	• Collect, analyze and interpret information in the communities using the forms and methods described in Modules I and II • Present the community members' points of view during the development of potential behavior recommendations (Module I) • Consider community strengths and weaknesses during the development of the intervention plan (Module III)

TRAINERS

In some cases, central-level program staff will have prior experience in applying the methods described in ***Pro*PAN**. However, in other cases, it will be necessary to hire a trainer from outside of your organization to train in methods that are new to staff. The Pan American Health Organization can assist the Coordinator in finding qualified persons to provide the team with the training necessary to implement any step of ***Pro*PAN**.

BUDGET

The line items to be considered when drafting a budget for the application of ***Pro*PAN** are listed in Table 7. In addition, there will be costs associated with the implementation and evaluation of the intervention program.

Table 7. Budget items

Line item	Description
Personnel	• Salary • Benefits
Equipment	• Computer and computer supplies (disks, surge protector, back-up power source) • Printer and printer supplies (toner, paper) • Paper (for photocopies, for printing, for faxes) • Office expenses (office rental, electricity and other utilities, custodial and security services, filing cabinets and other storage space, office furniture, telephone service, mail service, fax machine) • Food scales with two-gram precision and batteries • Aids for estimating serving sizes (measuring cups and utensils, food models) • Watches • Miscellaneous (backpacks, clipboards, notebooks, pens)
Training sessions	• Trainer (transportation, housing, meal per diem, honorarium) • Trainees (transportation, housing, meal per diem) • Training location (rental) • Materials (flip charts, markers, notebooks)
Field expenses	• Field office (rental, furniture, supplies) • Meal per diems • Transportation (public transportation fares, gasoline for motor vehicles, vehicle rental, vehicle insurance) • Housing allowances

MODULE I
ASSESSMENT

PURPOSE

The purpose of this module is to identify the main problems in the diets and feeding practices of children less than two years of age and the social, economic, and cultural factors that influence them. Although the sampling techniques describe target infants and young children 6 to 23 months of age, questions about breastfeeding are used to gather retrospective data on breastfeeding practices in the first 6 months of life.

The quality of the field work is critical as the success or failure of the intervention to be implemented depend to a great extent on the accuracy of the assessment made. The integration of quantitative and qualitative research methodologies permits a detailed and thorough assessment of the typical infant and young child feeding practices, the reasons behind them, and the factors that are facilitators of or barriers to compliance with the ideal practices defined in ***Pro*PAN** (see Table 1 in the Introduction). The final analysis of the data will provide information on how the actual infant and young child feeding practices can be modified using available resources.

In addition to the ideal practices described in the Introduction, there may be other practices that the team would like to consider evaluating and promoting. These could include, for example, practices related to hygiene and food preparation, and to feeding a sick child. Questions about other practices can be easily added to the research instruments available in ***Pro*PAN** and included in the analysis.

PRODUCTS

The application of Module I will enable the team to identify:

- suboptimal breastfeeding and complementary feeding practices;
- the social, economic, and cultural factors that influence these practices; and
- the opportunities for improving these practices

STEPS

This module includes four steps:

Step 1: Identification of the General Nutrition Situation

In this step, existing data about the characteristics of the country and target population(s) are analyzed. The information will be used to identify the main nutrition problems, institutions providing health and nutrition services, and if there are important cultural, demographic and socio-economic differences among the target population.

Step 2: Preparation for the field work

Application of ***Pro*PAN** requires good organization and logistics in preparation for fieldwork. Among the logistics activities that need to be carried out are the following: hiring personnel, selecting study communities, establishing contacts in the study communities, preparing the computer software program, adapting the research instruments to the local context, obtaining ethical approval and preparing consent and presentation letters, and preparing a work schedule.

Step 3: Data collection

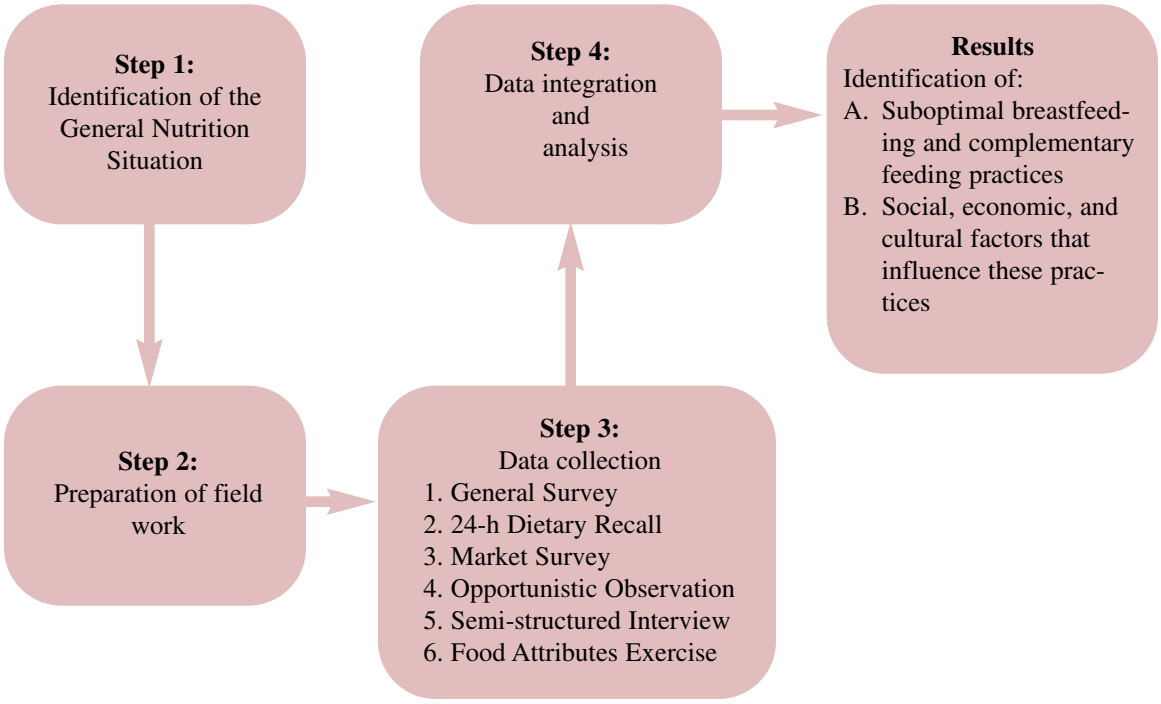
This step refers to the application of quantitative and qualitative data collection methodologies to obtain information on the nutritional intake and feeding practices of infants and young children, as well as on the cultural and socio-economic characteristics of the families and communities.

Step 4: Data integration and analysis

This step refers to the integration of both the quantitative and qualitative data so that the main nutrition problems can be identified and potential recommendations to be tested in Module II, developed. Analysis matrices have been developed to aid in the systematic organization of the data collected.

These steps are described in detail below and Figure I-1 shows how they are interrelated.

Figure I-1 Relationship among steps 1, 2, 3, and 4 of Module I.



DEVELOPMENT

Step 1: Identification of the general nutrition situation

The objectives of this step are to:

- Obtain an overall vision of the main infant and child nutrition and feeding problems in the country and target population.
- Identify the general problems related to availability of and accessibility to foods in the target population.
- Determine if the target population contains subgroups with cultural, demographic and socioeconomic differences that are significant enough to require separate representative samples.
- Identify the main ongoing health and nutrition programs, and the organizations involved in these programs.
- Identify the main Ministry of Health norms and policies regarding infant and child feeding and nutrition.

To obtain information on the nutrition programs and activities being carried out in the country or target population, meetings with two or three of the main organizations (governmental or not) involved in nutrition and health programs will be held.

Annex I-1 contains a list of topics that should be included in the analysis of the general nutrition situation and that, once collected, should be summarized in writing by the coordinator. After reviewing the summary, the team should review the ***Pro*PAN** research instruments, decide which ones to apply, and make adaptations, if needed. For example, if the information reviewed about the target population(s) clearly identifies the existing nutritional deficiencies, then it may not be necessary to apply the *24-hour Dietary Recall.*

Once the review of the general nutrition situation is finished, the team will be able to:

- Define the number and type of target populations that need to be represented in the Assessment.
- Define the number of communities per target population.
- Avoid repeating the collection of data already available through other sources.
- Identify the existing information gaps that will need further research.
- Identify infant and young child feeding norms of the Ministry of Health.
- Select the methodologies and research instruments to be used in Module I and II. The final selection should be done according to time, personnel, and other resources.
- Identify the persons or institutions that could assist in the interpretation of data as well as potential users of the results of the application of ***Pro*PAN**.

This step should not take more than one week to complete.

Step 2: Preparation for the field work

2.1. HIRING PERSONNEL

As described in the Logistics chapter, at the central level, a Coordinator, an Administrator, a Data Analyst, and a Data Entry person are needed. At the field level, two Supervisors and six Field Workers are recommended.

2.2. SELECTING STUDY COMMUNITIES

The information obtained in the identification of the general nutrition situation should provide the necessary information to select the target population(s). The next activity is the selection of the communities within each target population to be studied.

To ensure that sample size requirements for the various research instruments are met, two or more communities of similar characteristics will need to be selected to represent each target population. The communities selected should represent the general characteristics of the target population. The selection should be based on the knowledge and experience of the Coordinator and should be done in cooperation with institutional counterparts of the project.

The communities selected for each target population should have, combined, at least 200 mothers[1] of children 6 to 23 months of age to ensure that sample size requirements are met. This is because the required sample size for two of the instruments is 80 per instrument, and it is preferable to apply only one or at most two instruments to each mother to avoid fatigue or rejection.

2.3. ESTABLISHING CONTACTS IN THE TARGET COMMUNITIES

It is important to obtain the approval and support of well-respected community leaders, since they can facilitate entrance into the communities and provide assistance in motivating the population to participate in the study. Community leaders will most likely be local authorities, teachers, midwives, health personnel, health volunteers and religious leaders.

After choosing the study communities, a visit should be organized to identify the community leaders and request a meeting with them. During the meeting, they should be informed of the study objectives, the possible benefits to the community, and the support that will be needed from them. In addition, they should be asked about the best way to gain access to the community and ensure its participation and support, which might include a general assembly and distribution of flyers, for example.

2.4. PREPARING THE COMPUTER SOFTWARE PROGRAM

Information obtained with the *General Survey, 24-hour Dietary Recall*, and *Market Survey* can be analyzed using the ***Pro*PAN** computer software program. This program contains a food composition table based on the USDA Table Release 13, and foods and variables compiled by the National Institute of Public Health of Mexico for use in the 1999 National Nutrition Survey[2]. Subsequently, additional foods were added by the Caribbean Food and Nutrition Institute (CFNI/PAHO) in Jamaica, the Institute for Nutrition for Central America and Panama (INCAP/PAHO), the Federal University of Pelotas in Brazil, and The Ministry of Health and PAHO country office in Panama. More details about software and the food composition table are available in the ***Pro*PAN** software manual.

2.5. ADAPTING THE RESEARCH INSTRUMENTS TO THE LOCAL CONTEXT

It is important to adapt the instruments to the local language and context. Before starting the training of Field Workers, the research instruments should be carefully reviewed by the Coordinator and Supervisors

1 The vast majority of young children are likely to be cared by their mothers. However, we used "mother" throughout ***Pro*PAN** to denote mothers and other caregivers.

2 Safdie K M, Barquera C S, Porcayo M M, Rodríguez R SC, Ramirez S CI, Rivera J (2004) Base de Datos del Valor Nutritivo de los Alimentos. Cuernavaca, Morelos, México: Compilación del Instituto Nacional de Salud Pública.

and, where necessary, modified. Questions that are not relevant should be deleted and others of interest added. The new version should then be pretested with a few mothers of young children and further modified, if necessary.

In addition, it may be necessary to make some additional changes during the training period. All the terms that the Field Workers and interviewees do not understand should be systematically written down. The team should then meet and decide if any terms need to be modified.

If the ***Pro*PAN** software will be used to analyze the *24-hour Dietary Recall*, *General Survey* and *Market Survey*, care must be taken not to eliminate data that may be necessary for the software to function properly (for example, information on the weight of retail units sold for foods in the *Market Survey*).

2.6. OBTAINING ETHICAL APPROVAL AND PREPARING A CONSENT AND PRESENTATION LETTER

Before field work begins, ethical approval from the institutions involved in the application of ***Pro*PAN** should be obtained. Each institution is likely to have its own guidelines for how to request such approval. An example of PAHO's guidelines for ethical approval can be found at www.paho.org.

Before the application of the first questionnaire, it is important to explain to the mothers why they are being interviewed and request their permission to interview them. The request can be verbal or written, through a letter of consent. It is important that the Field Workers carry identification and a letter of presentation explaining their presence in the community. An example of a consent and presentation letter can be found in Annex I-2.

2.7. PREPARING A WORK SCHEDULE

The time this study will take will depend on the number of target populations and the number of communities that will be studied per target population. It is estimated that the application of Module I will take approximately 8-12 weeks (based on a 5-day work week), including training, data collection, and data entry and analysis (see Table I-1).

The several activities of Step 2 (described above) are not included in the work schedule because the time they will take depends on factors such as, for example, the previous experience of the Coordinator and Supervisors, and the administrative procedures necessary for hiring personnel and purchasing equipment.

Table I-1. Work schedule and sequence of activities suggested for the completion of Module I with two supervisors and six field workers in one site

Activity/Method[3]	Weeks							
	1	2	3	4	5	6	7	8
Step 1. Identification of the general nutrition situation								
Identification of the general nutrition situation	X							
Step 3: Data collection								
Training of Field Workers and Supervisors for the *General Survey, 24-hour Dietary Recall, Market Survey, Semi-structured Interview, and Opportunistic Observation*		X						
General Survey and 24-hour Dietary Recall			X					
Market Survey				X				
Rapid analysis of the *24-hour Dietary Recall* and *Market Survey* to define a *Key Foods List*				X				
Training for the *Mothers' Semi-structured Interview* and *Food Attributes Exercise*					X			
Opportunistic Observation	To be carried out at the oportune time							
Semi-structured Interview						X		
Food Attributes Exercise including summary						X		
Step 4. Data integration and analysis								
Training							X	
Completion of analysis matrices							X	
Definition and prioritization of recommended practices								X

Step 3: Data collection

The main objectives of the nutritional assessment are:

- To identify suboptimal feeding practices in children 6-23 months of age as well as the levels of dietary inadequacy of the nutrients of main interest as, for example, vitamin A and iron.
- To determine the main institutional, community, social, cultural, familiar, and individual factors influencing breastfeeding and complementary feeding practices.
- To identify the existing factors, opportunities, and resources that might facilitate the improvement of the practices and problems identified.

3 It does not include Step 2 (Preparation for the field work) because the time it takes to complete may vary greatly.

A combination of quantitative and qualitative data collection methodologies in six data collection instruments will be used for the nutritional assessment: *General Survey, 24-hour Dietary Recall, Market Survey, Opportunistic Observation, Semi-structured Interview, and Food Attributes Exercise.*

Table I-2 presents a summary of the six instruments, the number of mothers to whom each instrument should be applied, and the type of information that will be obtained with each one.

Data collection will be comprised of two activities:

1. Selecting participants from the study communities; and

2. Applying the data collection instruments

Table I-2. Information to be obtained and respondents needed for each research instrument

Research Instrument	Information to be obtained	Minimum number of respondents needed
General Survey	• Breastfeeding and complementary feeding practices • Information to be used in the design of intervention strategies	40 mothers of children 6-11 months old and 40 mothers of children 12-23 months old
24-hour Dietary Recall	• Dietary intake and complementary feeding practices	40 mothers of children 6-11 months old and 40 mothers of children 12-23 months old
Market Survey	• Reasons why families can or cannot comply with the ideal practices • Information to be used in the design of intervention strategies	5 owners/staff of grocery stores/markets
Opportunistic Observation	• Actual complementary feeding practices • Reasons why families can or cannot comply with the ideal practices	10 mothers of children aged 6 to 23 months
Semi-structured Interview	• Actual breastfeeding and complementary feeding practices • Reasons why families can or cannot comply with the ideal practices	10 mothers of children aged 6 to 23 months
Food Attributes Exercise	• Reasons why families can or cannot comply with the ideal practices • Information to be used in the design of intervention strategies	10 mothers of children aged 6 to 23 months

3.1. SELECTING THE PARTICIPANTS

The selection of participants for the quantitative instruments (*General Survey and 24-hour Dietary Recall*) should be random to ensure that they are statistically representative of the population. For the qualitative research instruments (*Opportunistic Observation, Semi-structured Interview, and Food Attributes Exercise*), participants will be selected based on convenience.

Other important criteria to be considered are:

- The child's age to ensure that 40 children are in the 6-11 months age group and 40 are in the 12-23 months age group.
- Gender representativeness (both boys and girls should be equally represented).
- Geographical representativeness (the different areas in the community should be well represented, i.e., children from furthest places in the community or from poor sectors should be equally included).

Generally, health personnel working in the area or community leaders have information on the approximate number of children between 6 and 23 months of age. If the number of children in the selected communities is not enough, neighboring communities with similar characteristics will need to be visited until reaching the recommended number. For most research instruments the mothers of children less than two years of age are the informants; however, some research instruments could be applied to either the mother or another family member, such as the grandmother.

3.2. APPLYING THE DATA COLLECTION INSTRUMENTS

The objectives and products of each of the data collection instruments are described below. Annexes I-3 through I-9 include a copy of each instrument and detailed guidelines for its use in the field and its analysis. All data collection instruments are also available electronically in Word and PDF format in the ***Pro*PAN** software accompanying this manual.

3.2.1. General Survey (Annex I-3)

Objectives:

- To identify breastfeeding and complementary feeding practices.
- To compare the practices with the ideal practices defined in Table 1 in the Introduction and determine the adequacy of the practices.
- To collect information that will help understand the context in which the breastfeeding and complementary feeding practices occur.
- To collect data to be used in the design of the intervention plan, such as sources of information on child feeding, communication channels that reach mothers the most, and use of health services by mothers.

Products:

- The percentage of children who were breastfed within the first hour after birth.
- The percentage of children who were not fed pre-lacteal substances.
- The percentage of children who were fed colostrum.
- The percentage of children who are breastfed on demand, day and night.
- The percentage of children who were breastfed exclusively until the child's sixth month of life.
- The percentage of children who were weaned before 23 months of life.
- The percentage of children who began complementary feeding with semi-solid foods at 6 months of age.
- The percentage of children who received support and were motivated to eat during meal times.
- Results of questions regarding the context in which feeding occurs, such as socio-demographic characteristics of the families, housing conditions, reach of the main communication channels, consumption of micronutrient supplements, and use of health services.

3.2.2. 24-hour Dietary Recall (Annex I-4)

Objectives:

- To identify complementary feeding practices.
- To compare practices with the ideal practices defined in Table 1 in the Introduction, and determine the adequacy.
- To determine the adequacy of energy, protein, iron, zinc, vitamin A, vitamin C, and calcium intakes.
- To identify other complementary feeding practices that will help to interpret inadequate macro and/or micronutrient intake.
- To obtain information that will be used to develop the *Key Foods List*.

Products:

- The percentage of children consuming foods with the recommended nutrient and energy density.
- The percentage of children consuming at least the recommended daily number of main meals.
- The percentage of children meeting their energy requirements
- The percentage of children meeting their protein, iron, zinc, vitamin A, vitamin C, and calcium requirements.
- The percentage of children consuming at least one animal source food daily.
- The average energy and nutrient intakes.
- The percentage of foods consumed from animal sources.

- The percentage of energy consumed from animal source food.
- The percentage of energy consumed at each meal time.
- The nutrient and energy density of the foods consumed.
- The percentage of food served that was consumed.
- A list of foods consumed by children.
- The sample's socio-demographic and morbidity profile.
- Information to be used in the development of the *Key Foods List.*

3.2.3. Market Survey (Annex I-5)

Objectives:

- To identify the foods that provide the greatest amount of energy and nutrients for the least cost (nutrient/cost ratio).
- To determine the seasonality and availability of specific fruits and vegetables.
- To obtain information that will be used to develop the *Key Foods List*.

Products:

- Lists in decreasing order of those local foods that provide the greatest amount of energy, protein, iron, zinc, vitamin A, vitamin C, and calcium for the least cost.
- A calendar with the months of the year in which certain fruits and vegetables can be found locally.
- Information to be used in the development of the *Key Foods List*.

3.2.4. Definition of the Key Foods List (Annex I-6)

This is an intermediate activity before applying the *Food Attributes Exercise*. Once data collection with the *24-hour Dietary Recall* and the *Market Survey* is finished, it will be necessary to perform a rapid analysis of the results to define the *Key Foods List*.

Objectives:

- To define the foods most frequently consumed by children 6-23 months of age in the target population.
- To identify foods that will be potentially important to promote in an intervention.

Product:

- A list with the 25-30 key foods (including foods growing in the wild and those produced in the home or commercial sector, particularly those that are enriched or fortified). Thus should include energy-rich foods, animal sources foods, sources of protein and/or micronutrients (iron, zinc, vitamin A, vitamin C, and calcium) and others that can be considered potentially important. The resulting list will be used in the *Food Attributes Exercise*.

3.2.5. Opportunistic Observation (Annex I-7)

Objectives:

- To identify the context of feeding behaviors and to observe the interaction between the mother and the child during the child's meal time.
- To identify facilitators of and barriers to the ideal practice of supporting and motivating the child to eat to satiety during meal times.
- To look into other aspects of food preparation and feeding such as, for example, hygiene and the use of bottles, spoons and other utensils.

Product:

- A list of the facilitators of and barriers to the ideal practice of supporting and motivating the child to eat to satiety during meal times.

3.2.6. Semi-structured Interview (Annex I-8)

Objectives:

- To identify the breastfeeding and complementary feeding practices.
- To understand the reasons behind these practices.
- To identify the facilitators of and barriers to the ideal breastfeeding and complementary feeding practices.
- To identify practices that could potentially be improved so that mothers' behaviors more closely resemble the ideal practices.

Products:

- Summary of breastfeeding and complementary feeding practices.
- Summary of facilitators of and barriers to each ideal breastfeeding and complementary feeding practice.

3.2.7. Food Attributes Exercise (Annex I-9)

Objectives:

- To identify the positive and negative characteristics that mothers attribute to key foods.
- To determine which key foods are fed to children and why.
- To identify at what age key foods were offered to the child for the first time, how they were prepared, and how they are prepared now.
- To explore the conditions and changes necessary so that mothers can offer foods that are currently not offered to infant and young children.

Products:

- A summary of key foods that are offered to children and those that are not, and the reasons why.
- For each food, the positive and negative characteristics attributed by the mothers.
- For each food, information about the age at which it was offered for the first time, how it was prepared, and how it is prepared now.
- For each food that is not being offered to infant and young children, the conditions and changes necessary for it to be offered.

Step 4: Data integration and analysis

The objectives of this step are:

- To summarize the familiar and community context and the cultural concepts around breastfeeding and complementary feeding practices.
- To identify the main problems in achieving the ideal breastfeeding and complementary feeding practices.
- To identify the facilitators of and barriers to compliance with the ideal practices.
- To formulate recommendations to improve suboptimal breastfeeding and complementary feeding practices that would be feasible given the family, community, and cultural context.
- To prioritize the recommendations developed by evaluating the possible impact and feasibility of each.

4.1. DATA INTEGRATION

The data on breastfeeding and complementary feeding practices (collected primarily through the *General Survey* and the *24-hour Dietary Recall*) will be integrated with the data on the facilitators and barriers (identified mainly in the *Opportunistic Observation, Semi-structured Interview, Food Attributes Exercise and Market Survey*).

To summarize the information, a master matrix will be developed using the format provided in Annex I-10.1. In this matrix, information collected about each one of the ideal breastfeeding and complementary feeding practices investigated is summarized. One practice per form should be analyzed to ensure that all relevant information collected with the different instruments is included. Each page heading will include the ideal practice being summarized. For each ideal practice, the actual practices (whether similar to the ideal ones or not) should be written down in the second row, under the heading "actual practice." Thus, this row should include both positive and negative findings.

The first two columns of the third row should include all the obstacles identified for the compliance with the ideal practice. For example, one common reason why mothers administer water or other liquids early to their infants is because they think their infants are thirsty even if they are breastfed. In this case, the fact that the mothers do not believe that breast milk quenches thirst is an internal barrier to exclusive breastfeeding that could possibly be addressed in a future intervention. All the important barriers should be identified.

The third and fourth columns of the third row are used to identify the facilitators, internal and external, of the ideal practice. One example of an internal facilitator would be the fact that mothers consider breast milk the best food for their infants. This would be a motivating factor to be used in the design of messages. An example of a completed master matrix is provided in Table I-3.

Module II will provide more information about the barriers and facilitators, but it is important to start identifying them at this stage.

In addition, a matrix of foods can also be completed using the form provided in Annex I-10.2. The advantage of completing this matrix separately is that the key foods and the way in which specific ones could be incorporated in the recommended practices are identified. An example of a completed matrix of foods is provided in Table I-4.

Table I-3. Example of a completed master matrix (Form I-10.1).

Ideal Practice # 11: That all children are fed meat, fish or poultry daily			
Actual practice: of the children interviewed, 26.5% were fed meat, fish or poultry daily			
Barriers		**Facilitators**	
Internal	**External**	**Internal**	**External**
Child does not like fish or liver.	Meat is expensive for the family.	Mothers believe that meat makes children strong.	Chicken liver is cheaper than beef

Table I-4. Example of a completed matrix of foods (Form I-10.2).

Food	Positive attrib-utes	Negative attrib-utes	Consump-tion fre-quency	Age when first given to child	Contribu-tion to diet	Cost-benefit	Seasona-lity	Way of prepar-ing or feeding
Chicken liver	It's good for the child, it's some-thing spe-cial for the small child	Doesn't like it, tastes bit-ter, hurts child's stomach	Once a week	5 to 6 months of age	10% of children consumed it	$0.50 for 10 mg of iron	All year round	• Fried • In pasta soup • With refried beans

4.2. DATA ANALYSIS

In the data analysis, the feeding practices of mothers and the reasons behind these practices are examined in detail with respect to facilitators and barriers. To perform this analysis, the process described below should be followed.

For each of the problem practices found (see Glossary), new behaviors or recommended practices should be proposed in the matrix of problem practices and recommended practices (using the form provided in Annex I-10.3). These recommended practices can refer to new practices or to modifications of existing practices. It is possible that the same recommended practice may improve two or more problem practices simultaneously. For example, the recommendation to "combine one or more food of animal origin with tortillas during each meal " can address the following problem practices: "children are served small quantities" and "children are served foods of animal origin infrequently".

The identification and wording of these recommendations are very important. They should clearly express what the mother should do in relation to infant and child feeding and not what she should know. (Confusing what a mother should know with what she should do is the most frequent error when formulating recommendations.) An example of a completed matrix of problem practices and recommended practices is provided in Table I-5.

Not all the recommended practices that appear promising in theory are useful in reality. Almost always, behaviors are far more complex than apparent at first glance. What can seem a simple practice (for example, "combine foods such as rice, beans, noodles, or eggs with tortillas at each meal") can in reality represent a series of behaviors or steps, some of which require new skills, or additional time and economic resources.

The data analysis can also help to identify some possible positive consequences that would result from compliance with the recommended practices as well as some possible negative consequences. In addition, it can provide suggestions to minimize or avoid negative consequences.

To systematically evaluate potential recommended practices in terms of their impact on nutrition, feasibility and observability, a set of criteria has been developed and is explained below.

Table I-5. Example of a completed matrix of problem and recommended practices (Form I-10.3)

Problem practices (actual practices)	Recommended practices
• Small portions of food with low energy density are served to children 12-23 months old.	• Feed 3 meals per day to breastfed toddlers between 12-23 months old. • Combine one or more basic foods (rice, beans, noodles or eggs) with tortillas in each meal. • Give sweet bread or banana as snacks • Blend in beans with the broth after straining.

Impact criterion

The first criterion to consider in the selection of recommended practices is that of nutritional impact. The team needs to analyze the *potential for impact on nutrition* of each recommended practice. Since the analysis should be based on existing clinical or epidemiological information, it may be necessary to consult with a specialist to score the nutritional impact of each recommended practice.

1. Potential for impact on nutrition

What impact would the adoption of the recommended practice have on the nutritional problem to be addressed?

0. Would not have an impact on the problem

1. Would have some impact on the problem

2. Would eliminate the problem

If the answer is "0", the recommended practice can be eliminated from the list. If the answer is "1, but the score in any of the feasibility criteria is low, the team should analyze if there is an intermediate point between the ideal and actual practices that can be recommended and would still have an impact on the nutritional problem that is to be addressed. The recommended practices selected for the intervention should be the most *feasible* to adopt and with the greatest *potential for impact on nutrition*.

Feasibility criteria (potential for compliance or change)

A set of feasibility criteria can be used to evaluate the probability that each proposed recommended practice will result in improved practices.

To score the recommended practices, a meeting should be organized with an interdisciplinary team composed of a meeting Facilitator (someone who knows the project and the methodology but will only participate as a discussion moderator), the Coordinator, both field Supervisors, and Field Workers who participated in the data collection. All the recommended practices should be scored for each feasibility criteria by each member of the team, using the matrix provided in Annex I (Form I-10.4). Each participant should explain to the rest of the team what score was given and why. It is important to record the reasons and the discussion. Once all the scores from all the team members regarding one specific recommended practice and the reasons why have been expressed, an average for each recommended practice should be calculated. When finished, the scores for each recommended practice for all the feasibility criteria should be added. The recommended practices with the highest score will be, in theory, the most feasible for mothers to adopt.

2. Positive consequences

In your assessment, does the recommended practice have positive consequences (pleasant or favorable) that are immediate and perceivable by the mother who will adopt it?

0. None (or even some unpleasant consequence)

1. Very few or some

2. Has many or significant positive consequences

3. Compatibility with beliefs and knowledge

Do mothers have beliefs or knowledge that support or motivate them to comply with the recommended practice?

0. The mothers' beliefs are incompatible with the recommended practices

1. The mothers' beliefs are somewhat compatible with the recommended practices

2. The mothers' beliefs are compatible with the recommended practices

4. Cost in resources and/or money

What are the monetary or material resource costs required to comply with the recommended practice?

0. Requires significant additional resources

1. Requires few additional resources

2. Requires no additional resources or requires resources that are already available to the mother

5. Cost in time and/or effort

What is the cost in time and effort required from the mother to comply with the recommended practice?

0. Requires significant time or effort, it is not realistic

1. Requires some time or effort

2. Requires very little time or effort

6. Complexity

From the mothers' point of view, how complex is the recommended practice? Does it require a few or several steps?

0. Too complex, it requires too many steps (five or more)

1. Requires several steps (three to four)

2. Requires a few steps (one or two)

Observability criterion

Finally, the possibility of having a Field Worker observe compliance with a recommended practice can be evaluated during data analysis. This analysis is optional and it can be performed as part of Module IV (monitoring and evaluation design).

7. Observability

Could the compliance or non-compliance with the recommendation by mothers be observed by Field Workers in the environment in which it would occur?

0. Cannot be observed

1. Can be observed, although it would be somewhat difficult to observe

2. Can be easily observed

Table I-6 presents a matrix with an example of scores given by the members of an interdisciplinary team to two recommended practices, using the feasibility and impact criteria. The lower scores in some criteria indicate the main barriers for each recommended practice. For example, recommended practice # 2 is more costly in money and effort than recommended practice #1. Recommended practice # 1 has the highest total score suggesting it is more feasible to adopt than the other is. However, the potential impact of both recommended practices was similar. Therefore, if a choice had to be made between both recommended practices, the first one would be chosen.

Table I.6. Example of a completed matrix for the impact, feasibility and observability analysis (I-10.4).

Recommended practices	Impact (1)	Positive consequences (2)	Compatibility with beliefs and knowledge (3)	Cost in resources and money (4)	Cost in time and/or effort (5)	Complexity 6)	Feasibility (2-6)	Observability (7)	Total (1-7)
When preparing soup, give the child the solid ingredients and not only the broth.	4	3	3	5	5	5	21	3	28
Starting at 6 months of age, give the child a piece of smashed chicken liver at least 3 times a week.	3	2	2	1	1	4	10	3	16

4.3. SELECTING THE POTENTIAL RECOMMENDED PRACTICES

The final result of this exercise should be a list of the recommended practices that are considered to have potential for improving the nutritional situation of young children. This list of recommended practices should include those which will be tested in Module II as well as those identified as important but which cannot be tested in the homes, such as putting the child to the breast within the first hour after birth or exclusively breastfeeding for six months.

Annex I-10.5 contains a matrix to summarize this information and Table I-7 shows an example of a completed matrix. The matrix's first column shows the problem practices that should be addressed; the second column, the selected recommended practices that will be tested in Module II; and the last column the recommended practices that cannot be tested but that might help reduce the problem practice and that should probably be promoted in an intervention.

After completing this matrix, the process of testing the recommendations in the homes, as described in Module II, can be started.

Table I-7. Example of a matrix for the summary of possible recommended practices (Form I-10.5).

Problem practice	Recommended practices to be tested in Module II	Recommended practices that will not be tested but will be promoted
• Small amount of animal source foods in the diet of young children	• Feed one source of fish, chicken or beef daily • Combine a meat source with one or more staples (rice, beans, potatoes or noodles) at lunch and dinner	• Wash hands before preparing food and feeding child • Wash child's hands before feeding him

Module I
ANNEXES

Annex I-1

Identification of the General Nutrition Situation

OBJECTIVES

- Obtain an overall vision of the main infant and child nutrition and feeding problems in the country and target population(s).
- Identify the general problems related to the availability of and accessibility to foods in the target population(s).
- Determine if the target population contains subgroups with cultural, demographic and socioeconomic differences that are significant enough to require separate representative samples.
- Identify the main ongoing health and nutrition programs, and the organizations involved in these programs.
- Identify the main Ministry of Health norms and policies regarding infant and child nutrition.

STEPS

The basic idea is to perform a general review of available information through review of documents and informal meetings with people or organizations who work in nutrition and to prepare a summary of the main findings.

In many countries there is little dissemination of information about the nutrition situation of the population. The reports of projects or studies that have been carried out tend to stay in the libraries of the organization who carried them out or financed them, or at the Ministry of Health. Thus, a good starting point in the search for information in many cases is the Ministry of Health, other organizations such as UNICEF, PAHO, non-governmental organizations (NGOs) and Universities.

To focus the information search, find out where the following items can be obtained:

- Ministry of Health reports, protocols, and norms on infant and child nutrition (for example, the closest clinic).
- Lists of people and organizations who are currently working in the area of nutrition.
- Project or program reports, protocols and norms for projects or programs (for example, the program headquarters).

- Monographs (for example, nutrition departments and medical universities, national health libraries, and PAHO and UNICEF libraries).
- National, regional, and local surveys on nutrition and health, health providers, micronutrient status, and anthropometry (for example, Ministry of Health's main office)

Demographic and Health Surveys (DHS) can be used as a source of data on nutrition in certain countries. Information on how to obtain datasets for secondary analysis can be found at www.macroint.com.

All documents which may contain information about the topics listed in the Guide for the Identification of the General Nutrition Situation (Form I-1.1) should be reviewed and the most important findings should be summarized. In the end, there should be one-paragraph summaries for each topic listed in the Guide.

The information search and writing of the summary should not take too long. Only general data are needed to better guide the research and the methods that will be used. An exhaustive analysis of the nutrition situation is not needed.

GUIDE FOR THE IDENTIFICATION OF THE GENERAL NUTRITON SITUATION FORM I-1.1

STATISTICS

1. Overall mortality, morbidity, immunization rates.
2. Children's height-for-age, weight-for-age, and weight-for-height indicators.
3. Iron, iodine, vitamin A and other specific nutrient deficiencies.
4. Prevalence of low birth-weight rates.
5. Main childhood health and nutrition problems.

NORMS

6. The Ministry of Health's norms regarding:
   - Well-baby visits
   - Growth monitoring and development visits.
   - Food distribution
   - Distribution of Vitamin A capsules, iron and other micronutrients
   - Newborn feeding
   - Feeding of children less than two years of age

RESOURCES AND SERVICES

7. Organizations (indigenous, governmental, and non-governmental) working in health and nutrition.
8. These organizations' norms regarding well-baby visits and other issues listed in topic 7 above.
9. Health services available to the community

CHARACTERISTICS OF THE TARGET POPULATION(S)

10. Demographic, cultural, economic, and social characteristics of the target population(s).
    - Family size
    - Ethnic group
    - Beliefs about infant and child health and nutrition

- Health seeking behaviors
- Infant and child feeding behaviors
- Income
- Housing conditions
- Employment
- Percentage of women in the workforce

Annex I-2

Consent and identification letter

(city) _____, (month) / (year) .

Dear Ms. _____(name of the mother)_____

You are cordially invited to participate in a study in which we are developing and testing a guide with recommendations to improve the feeding practices of infants and young children. If you decide to participate, an interviewer will visit you in your home to ask a series of questions about your child,_____(name of the child)_____. For example, she will ask about the age at which she/he was first offered foods other than breast milk, how many times a day your child eats, how much of each food your child eats, which foods your child prefers, how you prepare the foods for your child, and what is the normal consistency of the foods you offer to your child.

Participation in this study is completely voluntary. You have the right to decline to participate and if you decide to participate, you have the right to leave the study at any time. The information you will provide during the interviews is strictly confidential, will only be available to the project investigators, and will not be provided to anyone else.

SIf you decide to participate you will be collaborating with the (institution) in its mission to investigate and find solutions to the nutrition and health problems of our children. If you have any questions, comments, or complaints about the study, you can contact (name of the Study Coordinator) , Study Coordinator, by calling (telephone number) .

Sincerely,

(name and title of the Study Coordinator)

(institution)

.....

I AGREE TO PARTICIPATE IN THIS STUDY YES ( ) NO ( )

NAME . . . . . .

SIGNATURE AND/OR FINGER PRINT . . . . . .

DATE . . . . . .

FIELD WORKER'S NAME AND CODE . . . . . .

FIELD WORKER'S SIGNATURE . . . . . .

Please give a copy of this letter to the mother

Annex I-3
General Survey

OBJECTIVES

- To identify actual breastfeeding and complementary feeding practices.
- To compare the actual practices with the ideal practices defined in Table 1 in the Introduction and determine the adequacy of the actual practices.
- To collect information that will help understand the context in which the actual breastfeeding and complementary feeding practices occur.
- To collect data to be used in the design of the intervention plan, such as sources of information on child feeding, media communication channels that reach mothers the most, and use of health services by mothers.

STEPS

1. Previous work

Adapt the survey to the local context.

- Prior to data collection, it is important to critically review the forms that will be used. This includes adding or deleting questions and changing terminology (for example, health clinic instead of health center); modifying answer options; defining what is "best", "average" or "worst" regarding floor, roof, and wall materials in the housing section; and any other adaptation deemed necessary by the Coordinator. Because of the changes made, it will be necessary to test the new forms. If possible, this should be done prior to the training of Field Workers.
- Visit the community and contact leaders. Become familiar with the layout of the community. Obtain maps, where available. If a map is not available, the team should develop one and indicate the location of the houses to be visited (if known). The map does not have to be drawn to scale; general sketches of the community where the neighborhoods and/or blocks are identified are fine.

2. Selection of the participants

In the selected communities, all children between 6 and 23 months of age should be identified. A number should be assigned to each child. Using these numbers, the random selection of the children that will participate in the study can be done using a computerized program or other technique. If there is more than one child between 6 and 23 months of age in the household, only the youngest one should be included in the sample. If there are twins aged 6 to 23 months, only the one who was born last (the youngest) should be included in the study.

Alternatively, the team can decide for a systematic random sampling technique. For example, in Brazil, in each study community, a number of blocks thought to have enough children to complete the sample are chosen. A specific block and corner are randomly chosen as a starting point. After identifying block and corner, the interviewer assumes a position facing the selected corner and begins visits by her left side, continuing until she reaches the starting point again. After visiting all the houses in that block to check for children aged 6-23 months, she proceeds to the next randomly selected block. This process continues until the sample is completed.

A total of 80 families with children between 6 and 23 months of age will be selected. In order to have a similar number of children in each age group (6-11 and 12-23 months), approximately 40 children should be selected per age group.

3. Materials

- Copies of the registration form for the *General Survey* (Form I-3.1)
- Copies of the consent letter (Annex I-2)
- Map of the area (if available), indicating the location of the houses or blocks to be visited
- Pencils/pens
- Clipboard
- Identification card

4. Personnel and time

This *General Survey* will be carried out at the beginning of the field work activities and, if possible, combined with the *24-hour Dietary Recall*.

All of the Field Workers will participate in the application of the *General Survey*.

5. Description and procedures

The *General Survey* is divided in sections and each section contains a series of questions that, for the most part, have been pre-coded. The Field Worker only has to find the answer according to what the interviewee responds and write the appropriate code in the space provided to the right of each question. Some questions are open-ended and the Supervisor will code the responses. In those cases where option 77 (other) is chosen, the space provided next to this option should be used to write out the mother's actual response. Later, the Supervisor will write in a code for that response in the space where it says *Supervisor to fill in*.

The *General Survey* instrument will be applied to the mother. If the mother is not at home, a second attempt should be made to find her. If the mother is not located in the second attempt, it will be necessary to find an adult relative who is often in the care of the child. To verify the information given and to obtain missing information, it may be necessary to revisit the home up to two times more.

6. Analysis

Data analysis will be comprised of:

- Creating frequency tables (tables containing a list of the number and percentage of answers for each of the categories) for the categorical variables (those which only contain distinctive categories for answers, such as sex, which can only be masculine or feminine), using the ***Pro*PAN** software; and
- Calculating the average, standard deviation, and median values for continuous variables (those which can have an unlimited number of answers, such as age which can be from 0 onward), using the ***Pro*PAN** software.

PRODUCTS

- The percentage of children who were breastfed within the first hour after birth.
- The percentage of children who were not fed pre-lacteal substances.
- The percentage of children who were fed colostrum.
- The percentage of children who are breastfed on demand, day and night.
- The percentage of children who were breastfed exclusively until the child's sixth month of life.
- The percentage of children who were weaned before 23 months of life.
- The percentage of children who began complementary feeding with semi-solid foods at 6 months of age.

- The percentage of children who received support and were motivated to eat during meal times.
- Results of questions regarding the context in which feeding occurs, such as socio-demographic characteristics of the families, housing conditions, reach of the main communication channels, consumption of micronutrient supplements, and use of health services.



GUIDELINES FOR COMPLETING THE FORM FOR THE GENERAL SURVEY (FORM I-3.1)

For the entire survey, option 77 corresponds to "other," option 88 corresponds to "does not apply," and option 99 corresponds to "does not know/remember/answer."

Header

Write the child's unique code in the upper right corner of *all sheets of the survey form*. This will help to identify them in order in case a sheet should become unstapled.

Each Field Worker should have a list of four-digit codes that will be assigned, sequentially, to every child that enters the study. The list of codes should be provided by the Supervisor, who should verify that no codes are repeated. As children enter the study, their name and code should be noted on a master list kept by the Supervisor.

I. Introduction

Upon arriving at the home, identify yourself, show your identification card, and read the text at the top of the first page. Ask if there is a child from 6 to 23 months of age living in the home. If there is, apply the survey, if not, go to another home.

If there is more than one 6 to 23 months old child living in the same home, choose the youngest one to participate in the study. In the case of twins aged 6 to 23 months, choose the one that was born last (the youngest) to participate in the study.

In cases where consent has been given but the mother is not present in the home but an adult relative, like the child's grandmother or aunt, is present, ask only questions in sections **II (Identification)**, **VIII (Family Information)** and **IX (Housing)**. Ask about the most convenient time to find the mother at home and make an appointment. Return up to two times more to interview the mother. If by the third visit you have not been able to find her, confer with your Supervisor to choose a new home to apply the survey.

Request the mother's consent to apply the survey (read the consent form and leave a copy). Clearly explain the objectives of the study and emphasize that the information provided will be strictly confidential.

II. Identification

1. Date	Write in the date the survey is applied in the following order: day, month, and year. This information can be filled in ahead of time. The first nine days of the month should be preceded by a zero. For example: day 2 = 02. The months should be indicated by two digits, starting with 01 for January and ending with 12 for December. .
2. Field Worker's name and code	Write down your name and the first letter of your last name. Write your code in the space provided to the right (the code will be assigned by the Supervisor).
3. Survey results	After the interview is concluded, select from among the following options: 01= Complete. All sections of the form have been filled out. 02= Pending. Mother was not found, hence it is necessary to revisit the family. If on the next visit you complete the survey, erase option 02 and write in option 01 (complete). If the survey is not completed on the second visit, leave option 02 until the home is visited for a third time. 03= Incomplete. Write this code if you have visited the home at least **three times** and were not able to find the mother.
4. Child's code	Write down the child's **unique** code here and at the top right corner of each page.
5. Mother's name	Write the mother's name, clearly, in the following order: paternal last name, maternal last name and first name.
6. Child's name	Write the child's name, clearly, in the following order: paternal last name, maternal last name and first name.
7. Address	Write the street name where the home is located, clearly. If a street address is not available, in the Observations section (at the end of the form), write any specific signs and/or reference points that will facilitate finding the home in case it is necessary to return for another visit. Later, the Supervisor should write the study site code in the space provided.
8. Supervision	This question should be answered by the Supervisor. Supervisor: Write down your name, the first letter of your last name and the corresponding code in the space provided to the right. Write the date the survey was reviewed in the following order: day, month and year. The first nine days of the month should be preceded by a zero. For example: day 2 = 02. The months should be indicated by two digits, starting with 01 for January and ending with 12 for December.

III. Screening

9. Child's sex	Write the code corresponding to the child's sex: 01= Male (boy) 02= Female (girl)
10. Date of birth	Ask for the child's immunization records or birth certificate and write the date of birth in the following order: day, month and year, as in question 1.
11. Child's age	Register the child's age in **months completed**. Based on the date of birth and the survey date, **verify** that the child is 6 months or older and 23.9 months or younger. If the child is younger than 6 months or 24 months or older, **stop the survey**. If the informant does not know the child's age and cannot show you any documents indicating the date of birth, **stop the survey** and inform the Supervisor.
12. Is the child's mother present?	Ask if the child's mother is present and write the corresponding code (01 = Yes, 02 = No). If the mother is not present it will be necessary **to return to the home up to two more times**. Ask when is the best time to find the mother at home and make **an appointment**.

IV. Breastfeeding *Apply this section to the mother.*

13. How many times did you visit a health care center for a prenatal visit during your pregnancy with the child in the study?	This question refers to the number of times the mother visited any health unit for a prenatal visit, i.e., to make sure the pregnancy was going well and have her blood pressure, height, and weight measured, and to have her questions answered. This question refers to her pregnancy with the child listed in question 6. Write the number of times according to the corresponding code. If the mother did not go a health care unit for at least one prenatal visit, write the code 00. If she does not remember the number of visits, write the code 99.
14. Where did you give birth to the child?	Register the code corresponding to the birthing place. If the answer is not listed, write the code 77 (other) and specify the place. Later, the Supervisor will fill in a code corresponding to the "other" response in the space provided (14.1).
15. What was the first liquid the child consumed after birth?	Write the code corresponding to the first liquid the child received after birth. If the first liquid the child received was colostrum, i.e. breast milk, skip to question 17. If the mother does not remember or does not know, write the code 99 and go to question 16. This can occur if the child was separated from the mother after birth.
16. Did you ever breastfeed your child?	If the child was ever breastfed (at least one time), write code 01. If since birth to the time of the interview the child has never been breastfed, write code 02 and skip to question 24. If the mother does not remember or does not know the answer, write option 99 and skip to question 24.

Continue →

17. How many hours after birth did you breastfeed your child for the first time?	Write the code corresponding to the category. For example: if the mother breastfed the child 2 1/2 hours after birth, write code 02 (1-3 hours after birth). If she does not know or remember the number of hours, write code 99.
18. Did you feed colostrum (the first milk) to your child?	Please clarify that this question specifically refers to colostrum or the mother's **first breast milk** (this is the breast milk of the first days after birth, it tends to be more yellow, more liquid and less thick than mature breast milk). Write code 01 if the mother fed colostrum to the child and 02 if she did not. If she does not know or remember feeding colostrum to the child, write code 99.
19. Are you currently breastfeeding your child?	This question is very **important** since it will allow the classification of the child as breastfed or not-breastfed. Write code 01 if the child is currently breastfeeding. If the child is not breast-feeding, write code 02 and skip to question 24.
20. Do you breastfeed whenever the child asks or on a fixed schedule?	This question will help to determine if the child is being breastfed "on demand", i.e., whenever the child asks, or following a fixed schedule. Write the corresponding answer. If the mother cannot answer, write code 99.
21. Generally, when the child is healthy, how many times does she/he breast-feed during the day?	Chose the code corresponding to the number of times the mother reports to breastfeed her healthy child during the day. If the mother thinks it is difficult to estimate because the child breastfeeds all the time, ask if she thinks the child breastfeeds 10 or more times during the day. If the answer is yes, write code 04. If the child does not breastfeed during the day, write code 00. If the mother does not know or remember, write code 99.
22. Generally, when the child is healthy, how many times does she/he breast-feed during the night?	Chose the code that corresponds to the number of times the mother breastfeeds her healthy child during the night. If the mother thinks it is difficult to estimate because the child breastfeeds all the time, ask if she thinks the child breastfeeds 10 or more times during the night and if the answer is yes, write code 04. If the child does not breastfeed during the night, write code 00. If the mother does not know or remember, write code 99. If the answer is 00 – 04 (the child is still breastfeeding), write code 88 in question 23, and skip to question 24.
23. How old (in months) was the child when she/he stopped breastfeed-ing?	Write the age (in months) of the child when she/he stopped breastfeeding alto-gether. If the child was less than one month old, write code 00. If the mother does not remember or know, write code 99.

V. Child feeding	*Apply this section to the mother and, if present, also to the person who normally feeds the child.*
24. Who usually feeds the child?	Write the code corresponding to the answer given. If the answer is not mentioned in the first six options, write code 77 (other) and specify what relation this person has to the child. Later, the Supervisor will write the code (in 25.1) corresponding to the "other" answer that was written in the space provided.
25. Is this person present?	It is possible that the person who usually feeds the child is not the mother. If this is the case, ask if this person could help the mother to answer some of the questions related to feeding practices. Even if this person is present, most of the survey should be applied to the mother. Write the code corresponding to whether or not they are present (01 = Yes, 02 = No).
26. Who decides what the child should and should not eat?	Write the code corresponding to the answer. If the answer is not mentioned in the first six options, write code 77 (other) and specify who decides what the child should and should not eat. Later, the Supervisor will write the code (in 26.1) corresponding to the "other" answer in the space provided.
27. At what age did you give the child liquids (juice, tea, etc.) other than breast milk for the first time?	Please note that this question refers to the **first time** the child received any liquid other than breast milk. Mention some examples to the mother (such as juice and tea) and write the child's age (in months) when liquids other than breast milk were given to the child for the first time. This question does NOT refer to pre-lacteal substances, but rather to liquids introduced after the mother has breastfed the child, and that were or are given on a regular basis. A taste does not count. If the child's age was less than one month, write code 00. If the mother has not given the child any liquids other than breast milk, write code 88 and skip to question 31. If the mother does not remember, write code 99 and skip to question 31.
28. What was the first liquid other than breast milk that you gave to the child?	Write the first liquid the mother mentions she gave to her child. Later, the Supervisor will write the code (in 28) corresponding to this answer. If the mother does not remember, write code 99 and continue with question 29.
29. What (utensil) did you use to give this first liquid to the child?	Write the answer corresponding to the utensil used to administer the first liquid to the child. If the answer is not included in the first five options, write code 77 (other) and specify the type of utensil used by the mother to give the liquid to the child. Later, the Supervisor will write the corresponding code in the space provided (29.1).

Continue →

30. Since this time yesterday, has (child) had anything to eat or drink from a bottle with a nipple?

This question refers to whether or not the child was fed with a bottle with a nipple in the previous 24 hours. If the answer is yes, write code 01. If the answer is no, write code 02.

31. At what age did you feed the child her/his first food (porridge, cereal, etc.)?

Please note that this question refers to the **first time** the child received any **solid or semi-solid food**. Mention some examples (such as porridge, cereal and mashed fruit) to the mother and write down the answer that corresponds to the child's age (in months) when she was first given any solid or semi-solid food.
Please note that the liquid part of soups or broths is NOT considered a solid or semi-solid food. Soup with mashed vegetables is considered a semi-solid food. If the mother mentions soup, verify if the child ate the solid or semi-solid ingredients or only the broth.
This question applies to foods that were given on a regular basis. As in question 27, a taste does not count.
If the child's age was less than one month, write code 00. If the child has never received any solid or semi-solid foods, write code 88 and skip to question 35. If the mother does not know or remember, write code 99 and skip to question 35.

32. What was the food or preparation that you first gave to your child?

Select the group of the first solid or semi-solid food the child consumed for the first time, specifying the name of food. For example:

[x] 01 Fruit [ ] 02 Vegetable [ ] 03 Cereal [ ] 04 Legume

[ ] 05 Meat [ ] 06 Organs [ ] 07 Egg [ ] 08 Dairy productos

32.A Specify: apple

Confirm that the food the mother mentions corresponds to the age of the child that she gave in the previous question. The Supervisor will write the code corresponding to the name of the food 77 in the space provided (32.A).

If the mother mentions an option that does not correspond to codes 01 to 08 or a preparation that includes numerous foods, write code 77 and write the name of the preparation and its ingredients without specifying quantities in the space provided. Later, the Supervisor will write the code corresponding to 77 in the space provided (32.1).

Continue

33. Generally speaking, how is the child's appetite when she/he is healthy?	Please note that this question refers to the child's appetite when she/he is **healthy**. Clarify with the mother that "appetite" refers to the child's consumption of solid or semi-solid foods. To facilitate understanding of the question, read the options aloud.
34. If your child stops eating, and you think she is still hungry or did not eat enough, what do you do[1]?	Do not read the answers aloud. Listen to the mother's response and then select the option that most closely resembles her response. Write code 01 if the mother motivates the child with, for example, gestures, games, or words. Write code 02 if she does not motivate the child at all, if she, for example, stops feeding the child and takes the food way.

VI. Health services

Apply this section to the mother and ask her to show you the immunization card to ease answering the questions.

35. In the past three months, since ___ (month), to what hospital, health center, mobile unit or any other health service have you taken your child?	Please note that this question refers to the last three months. Tell the mother the month when the three months period started (for example, "since last December") to help her remember. Write the code corresponding to the health service where the child was taken. If during this period the child was not taken to any health service (private or public), write code 05 and skip to question 37. If the answer does not correspond to options 01 to 05, write code 77 (other) and specify. Later, the Supervisor will write the code corresponding to option 77 in the space provided (35.1).
36. Is the hospital, clinic or doctor's office where you took your child private or public (government owned)?	Write the option that indicates if the child was seen in a public (government) or private health service center.
37. Has the child been weighed in the past three months?	Please note that this question refers to the **last three months**. If during this period of time the child was weighed, write code 01. If she was not, write code 02 and skip to question 39.

Continue →

1 This question has not yet been validated, despite recognition of the importance of "responsive feeding" by the scientific community.

38. Where was the child weighed?	Write the answer corresponding to the place where the child was weighed. If the answer does not correspond to any of the options, write code 77 (other) and specify the place where the child was weighed. If the child was weighed in the home or school as part of some program, write code 77 and specify. Later, the Supervisor will write the code corresponding to option 77 in the space provided (38.1).
39. During the past 6 months, since _____(month), did your child ever take iron supplement or syrup?	Please note that the question refers to the **past six month**s. Tell the mother the month when the six months period started. See if there is any indication of having taken any iron supplements in the immunization card or if there is a doctor's prescription for any other type of vitamin and mineral supplement. If the mother knows the child took a supplement or syrup, but does not remember its specific content, write code 01 (yes) in question 43.
40. ¿From where did you get the iron supplement or syrup?	Choose the code corresponding to the place the mother mentions she received the supplement or syrup. If the place she mentions is not among the options, write code 77 (other) and specify the place. Later, the Supervisor will write the code corresponding to option 77 in the space provided (40.1). If the child has not taken iron supplement or syrup in the past six months, write code 88.
41. During the past 6 months, since _____ (month), did your child ever take vitamin A supplement or syrup?	Please note that the question refers to the **past six months**. Tell the mother the month when the six months period started. See if there is any indication of having taken vitamin A supplements in the immunization card or if there is a doctor's prescription for any other type of vitamin and mineral supplement. If the mother knows the child took a supplement or syrup, but does not remember its specific content, write code 01 (yes) in question 43.
42. From where did you get the vitamin A supplement or syrup?	Choose the code corresponding to the place the mother mentions she received the supplement or syrup. If the place she mentions is not among the options, write code 77 (other) and specify the place. Later, the Supervisor will write the code corresponding to option 77 in the space provided (42.1). If the child has not taken vitamin A supplement or syrup in the past six months, write code 88.

Continue

43. During the past 6 months, since _____(month), did your child ever take vitamin or mineral supplement or syrup?	Please note that the question refers to the **past six months**. Tell the mother the month when the six months period started. See if there is any indication of having taken any supplements in the immunization card or if there is a doctor's prescription for any other type of vitamin and mineral supplement. If the mother knows the child took a supplement or syrup, but does not remember its specific content, write code 01 (yes).
44. From where did you get the vitamin or mineral supplement or syrup?	Choose the code corresponding to the place the mother mentions she received the supplement or syrup. If the place she mentions is not among the options, write code 77 (other) and specify the place. Later, the Supervisor will write the code corresponding to option 77 in the space provided (44.1). If the child has not taken vitamin A supplement or syrup in the past six months, write code 88.

VII. Health communication

Apply this section to the mother.

45. Is there a radio in the home?	Write code 01 if there is a radio in the home, whether it belongs to the mother or not. If there is no radio in the home, write code 02.
46. Do you ever listen to the radio?	If the mother listens to the radio at home or anywhere else, write code 01 and continue with question 47. If she never listens to the radio or does not know, skip to question 51.
47. How often do you listen to the radio?	Write the code that corresponds to the frequency with which the mother listens to the radio. Code 06 means the mother "rarely" or occasionally listens to the radio, for example once every two months. If the answer does not correspond to the first six options, write code 77 (other) and specify the answer. Later, the Supervisor will write the code corresponding to option 77 in the space provided (49.1).
48. What radio stations do you listen to the most?	Write the name of the two radio stations the mother listens to the most often, in the order she mentions them. When the Survey is completed the Supervisor will generate a list with the codes corresponding to each of the different radio stations mentioned. Then, the Supervisor will write the code corresponding to options A and B in the spaces provided (48A and 48B).
49. What kind of radio programs do you listen to most often?	Write the code corresponding to the answer. If this is not included in any of the first seven options, write code 77 (other) and specify the type of radio program to which the mother listens most often. Later, the Supervisor will write the code corresponding to option 77 in the space provided (49.1). If the mother does not know or cannot specify the type of program to which she listens most often, write code 99.

50. Generally, when do you listen to the radio?	Write the code to the answer that includes the time when the mother listens to the radio. For example, if the mother listens to the radio from 6 am to 8 am and turns the radio on again from 1 pm to 4 pm (13 hours to 16 hours), write code 01 in options 50B and 50C, and code 02 in options 50A and 50D. It is important to verify that **none** of the options (A-D) are left **unanswered**.
51. Do you ever watch television?	If the mother watches television at home or any other place, write code 01 and continue. If she never watches television, write code 02 and skip to question 56.
52. . How often do you watch television?	Write the code corresponding to the frequency with which the mother watches television. Code 06 means she "rarely" or occasionally watches television, for example, every two months. If the answer does not correspond to the first six options, write code 77 (other) and specify the answer. Later, the Supervisor will write the code corresponding to option 77 in the space provided (52.1).
53. What television channels do you watch most often?	Write the name of the two channels the mother watches most often in the order that she mentions them. When the survey is completed, the Supervisor will generate a list with the codes corresponding to each of the different television channels mentioned. Then, the Supervisor will write the code corresponding to options A and B in the spaces provided (53A and 53B).
54. What type of television program do you watch most often?	Write the code corresponding to the answer given. If this does not correspond to any of the first seven options, write code 77 (other) and specify the type of television program the mother watches most often. Later, the Supervisor will write the code for the answer to option 77 in the space provided (54.1). If the mother does not know the answer or cannot specify the type of television program she watches most often, write code 99.
55. Generally, at what time do you watch television?	Write the code to the answer that includes the time when the mother watches television. For example, if the mother says she watches television from 5 am to 7 am, write code 01 in options 55A and 55B and write code 02 in options 55C and 55D. It is important to verify that **none** of the options (A – D) are left **unanswered**.
56. Do you remember ever having heard or read messages on television, radio, newspaper, or magazine about how to feed your child, including breastfeeding?	This question refers to any messages the mother heard or read in any of the media channels such as radio, television, newspaper or magazine. If the mother heard or read any messages, write code 01 and continue with the next question. If the answer is no, write code 02 and skip to question 60. If she cannot remember, write code 99 and skip to question 60.

Continue

57. Where did you hear it(them) or read it(them)?	Write the answer corresponding to the media channel(s) where the mother heard or read the message(s). Write all the answers the mother provides. If the answer does not correspond to the first four options, specify the answer in the line assigned to question 57E. Later, the Supervisor will write the code corresponding to option 57E in the space provided (57E). It is important to verify that **none** of the options (A – D) are left **unanswered.**
58. Do you remember what the message(s) said?	If the mother remembers the message(s) write code 01 and continue with the next question. If the mother does not remember, ask her to try to remember and if she cannot do it, write code 02 and skip to question 60.
59. What did the message(s) say?	Write the mother's answer using her own words. Do not interpret or abbreviate the answer. If more space is needed, use the space provided in the "Observations" section at the end of the form to write her answer, indicating the question number. When the survey is completed, the Supervisor will generate a list with the codes corresponding to each of the messages mentioned. Then, the Supervisor will write the code corresponding to the question in the space provided (59).
60. Do you remember if a relative, friend or health worker talked to you about child feeding?	This question refers to a message regarding child feeding that the mother heard through **people**, as opposed to question 56 that refers to communication channels. If the mother quickly says no, **insist**. Ask her to try to remember if during her pregnancy or after the baby was born someone talked about child feeding. If the mother says no one ever talked to her about child feeding, write code 02 and skip to question 65.
61. Who has talked to you the most about child feeding?	Write the answer corresponding to the person who has **talked the most** about child feeding. If the answer does not correspond to any of the first five options, write code 77 (other) and specify the answer. Later, the Supervisor will write the code corresponding to option 77 in the space provided (61.1). If the mother does not remember who talked to her, write code 99.
62. Where did they talk to you about this?	Write the code corresponding to the place where the person mentioned in question 61 talked to the mother about child feeding. If the answer does not correspond to any of the first four options, write code 77 (other) and specify the answer. Later, the Supervisor will write the code corresponding to option 77 in the space provided (62.1). If the mother does not remember the place, write code 99.
63. Do you remember what they said?	If the mother remembers what they said, write code 01 and continue with the next question. If the answer is no, ask her to remember, if she cannot remember, write code 02 and skip to question 65.

Continue

64. What did they say	Write the mother's answer **using her own words**. Do not interpret or abbreviate the answer. If more space is needed, use the space in the "Observations" section at the end of the survey to write what the mother's words, indicating the question number to which the comments refer. When the survey is completed, the Supervisor will generate a list with the codes corresponding to each of the answers mentioned. Then, the Supervisor will write the code corresponding to this question in the space provided (64).
65. Do you (the mother) participate in any community organizations, such as (examples)?	Mention examples of different organizations. You should become informed of the different organizations present in the community before applying the survey. Participation in religious organizations should also be considered. If you notice that the mother feels uncomfortable talking about this, do not insist, write code 99 and skip to question 67. If the mother does not participate in any community organization, write code 02 and skip to question 67.
66. In which organizations do you participate?	Write all the organizations that she mentions. When the survey is completed, the Supervisor will generate a list with the codes corresponding to each of the answers mentioned. Then, the Supervisor will write the code corresponding to this question in the spaces provided (66A, 66B, 66C and 66D).
VIII. Family information	***Apply this section to the child's mother, or any adult in the family, such as the father, an aunt or grandmother.*** ***If the informant is not the child's mother or caregiver, write the person's name and relation to the child.***
67. How many people live in the home?	Write the number of family members who live in the same home and share the same expenses. Remind the respondent to include young children as well as the elderly.
68. How many of them are less than five years of age?	Count only the children **less than five years of age** who live in the home. If they have already turned five, do not count them.
	Questions 69 to 77 assume the child's mother is the respondent. If another informant is answering the questions, please substitute the mothers name in the question. For example, question 69 should read "How old is _____ (the child's name) mother?
69. How old are you (the child's mother)?	Ask the mother's age and write the number.

70. Are you…? (read the marital status options)	Ask the mother if she is single, married, living with a partner, separated, widowed, or divorced and write the corresponding code. If she is single, separated, divorced or widowed, skip to question 74. If the mother does not want to respond, write code 99.
71. Do you live with your husband or partner?	This question refers to the mother. If she lives with her partner, write code 01. If he works in another town, write code 02. If the mother does not live with her husband or partner, write code 03 and skip to question 74.
72. What does your husband or partner do for a living?	Write the corresponding code. If the husband or partner is not his own boss, write code 02 (hired worker), if he is his own boss, write code 03 (independent worker). If the answer does not correspond to any of the first four options, write code 77 (other) and specify the answer. Later, the Supervisor will write the code corresponding to option 77 in the space provided (72.1). If the mother does not know what he does for a living, write code 99.
73. How many years of school did your husband or partner complete?	Write the number of years of education her husband or partner completed. If the mother does not know the answer, write code 99.
74. Do you know how to read and write?	This question refers to the mother. If she knows how to read and write, write code 01. If she does not know how to read or write, or only knows how to read but not write, or vice versa (only knows how to write but not read), write code 02.
75. How many years of school did you complete?	Write the number of years of education the mother completed. If she does not remember, write 99.
76. Are you involved in any income-generating activities?	This question refers to any activity with which the mother earns money, like washing clothes for others, doing agricultural wage labor, selling food, etc. If the mother seems uncomfortable answering this question, try to clarify that neither the amount nor the frequency of her work are important. If she does not want to answer, write code 99.
77. When you are working or away from home, who takes care of (child)?	Write the corresponding code, if this is not found in any of the first four options, write code 77 (other) and specify the answer. Later, the Supervisor will write the code corresponding to option 77 in the space provided (77.1). If the mother does not want to answer, write code 99.

Continue →

IX. Housing

Coordinator: When designing the survey, inquire about the material most frequently used in the study area to build homes (roof, floor and walls) and classify them in the following three categories: among the best, intermediate, among the worst.
If when applying the survey a material not listed on the form is mentioned, write it in "other material." The Supervisor will then classify it into one of the three categories.

78. What material is the home's roof made of?	**Observe** the type of material with which most of the roof is built and write the corresponding code.
79. What material is the home's floor made of?	**Observe** the type of material with which most of the floor is built and write the corresponding code.
80. What material are the home's walls made of?	**Observe** the type of material with which most of the walls are built and write the corresponding code.
81. Throughout most of the year, what is your main source of water?	This question refers to the water source used throughout **most of the year**. Option 02 refers to a water truck and option 03 refers to a public faucet for use by several families. If the answer does not correspond to any of the first five options, write code 77 (other) and specify the answer. Later, the Supervisor will write the code corresponding to option 77 in the space provided (81.1).
82. How long does it take to travel the distance necessary to obtain water?	Write the code corresponding to the amount of time (to go and return) that it takes to obtain water. Write 88 if water is piped into the home or yard, or brought by truck.
83. Do you have a toilet or "latrina" in your home?	When asking this question, use local terminology. Write the corresponding code.
84. Does your home have a sewer connection or septic tank?	Use the local terminology to describe a sewer system. If the home has sewer connections, write code 01. If has a septic tank, write code 02. If does not have either, write code 03.

Continue

85. What type of fuel do you use to cook?	Write the corresponding code: 01= wood; 02=gas; 03 electric. If a fuel not listed is mentioned, write it in 77 (other fuel) and specify the answer. Later, the Supervisor will write the code corresponding to option 77 in the space provided (85.1).
86. Do you have electricity at home?	Write the corresponding code. It is possible that during the interview you observe a light bulb or electronic item turned on, in this case, you can avoid asking this question and can write code 01. If the home does not have electricity, write code 02.
87. Do you have a refrigerator at home?	Anote la respuesta que corresponda. Si hay un refrigerador (o más) en la casa aunque éste no sea de la madre anote el código 01. Si no hay refrigerador, anote el código 02.
88. Do you have a blender at home?	Write the corresponding answer. If there is a blender (or more than one) in the home, even if it does not belong to the mother, write code 01. If there is no blender in the home, write code 02.
89. Do you have a television at home?	Write the corresponding answer. If there is a television (or more than one) in the home, even if it does not belong to the mother, write code 01. If there is no blender in the home, write code 02.
90. In what stores or markets do you buy food?	This information will help to identify the places where community mothers most frequently buy food. Write the name of the store(s) and/or market(s) and their approximate location. Write information for up to 5 places.
End of the survey	Thank the mother and ask if it is possible to ask her some questions about what the child ate yesterday (*24-hour Dietary Recall*) or when would be a better time to come back and ask her those questions.
Observations	Write any information that you consider important to clarify or facilitate the interpretation of any answer given. In addition, write any facts that might have impeded carrying out the survey. Use this space in case you need to explain an answer given to any of the preceding questions.

FORM I-3.1
CHILD'S CODE_____

REGISTRATION FORM FOR THE GENERAL SURVEY (FORM I-3.1)

I. Introduction

Good morning/afternoon, my name is _____ and I'm working for the _____ in an infant and child feeding project. Could you please tell me if there are any children less than two years of age but older than six months living in this home? **If there are no children between the ages of 6 months and 2 years of age, thank the mother and continue on to the next home**.

Could I ask you some questions regarding the feeding of the child less than two years of age living in the home? The information that you provide will be 100% confidential. **Read the consent letter and give the mother a copy**.

II. Identification

1. Date survey is applied __ __/ __ __/__ __ __ __
   day month year

2. Field Worker's name and code 2. ___ ___

   _____

3. Survey results 3. ___ ___
   01= Complete
   02= Pending
   03= Incomplete, reason: _____

4. Child's code: 4. ___ ___ ___ ___

5. Mother's name:

_____
Paternal last name Maternal last name First name

6. Child's name:

_____
Paternal last name Maternal last name First name

7. Address: 7. ___ ___

(Supervisor to fill in)

Address: _____

_____
Street, avenue, mile/kilometer, alley, street number, neighborhood, section, etc.

FORM I-3.1
CHILD'S CODE_____

Supervisor's name and code _____ 8. ___ ___

Review date __ __/ __ __/__ __ __ __
day month year

III. Screening

9. Child's sex 9. ___ ___
01= Male
02= Fema

10. What is the child's birth date? __ __/ __ __/__ __ __ __
(ASK FOR THE CHILD'S IMMUNIZATION RECORD OR BIRTH CERTIFICATE) day month year

11. How old is the child? (WRITE THE NUMBER OF MONTHS) 11. ___ ___
(Verify in the office)

(If the child is not yet 6 months old or has already had her/his 24 month birthday, STOP THE SURVEY. If the informant does not know the child's age and does not show any documentation, STOP THE SURVEY.)

12. Is the child's mother present? 12. ___ ___
01= Yes
02= No (REVISIT THE HOME UP TO 3 TIMES)

(If the child's mother is not present and there is no other adult who might provide information, STOP THE SURVEY and return to the home at a later date).

IV. Breastfeeding

(*Apply this section to the mother*)

Now **I am going to ask you some questions regarding your pregnancy, the birth of** _____ (*mention the child's name*), **and her/his feeding patterns**.

13. How many times did you visit a health care center for a prenatal visit during your pregnancy with _____ (CHILD'S NAME)? 13. ___ ___
00= did not visit
99= Does not know/remember/answer

14. Where did you give birth to _____ (CHILD'S NAME)? 14. ___ ___
01= In the hospital
02= In the health center, doctor's office, private clinic
03= In the home
04= In the midwife's home
77= Other, specify._____ 14.1 ___ ___
99= Does not know/remember/answer (Supervisor to fill in)

FORM I-3.1
CHILD'S CODE_____

15. What was the first liquid the child consumed after birth? 15. ___ ___
01= Breast milk (SKIP TO QUESTION 17)
02= Tea
03= Water
04= "Mate"
77= Other, specify._____ 15.1 ___ ___
99= Does not know/remember/answer (Supervisor to fill in)

16. Did you ever breastfeed _____ (CHILD'S NAME? 16. ___ ___
01= YES
02= NO (SKIP TO QUESTION 24)
99= Does not know/remember/answer (SKIP TO QUESTION 24)

17. How many hours after birth did you **breastfeed** your child **for the first time?** 17. ___ ___
01= Less than 1 hour after birth
02= From 1 to 3 hours after birth
03= More than 3 hours after birth
88= Does not apply
99= Does not know/remember/answer

18. Did you feed colostrum (the first breast milk) to your child? 18. ___ ___
(EXPLAIN TO THE MOTHER THAT COLOSTRUM IS THE BREAST MILK THE FIRST FEW DAYS AFTER BIRTH, IT IS MORE YELLOW AND TENDS TO BE MORE LIQUID AND LESS THICK THAN MATURE BREAST MILK)
01= YES
02= NO
88= Does not apply
99= Does not know/remember/answer

19. Are you **currently** breastfeeding your child? 19. ___ ___
01= Yes
02= No (SKIP TO QUESTION 2)
88= Does not apply
99= Does not know/remember/answer (SKIP TO QUESTION 23)

20. Do you breastfeed whenever the child asks or on a fixed schedule? 20. ___ ___
01= When the child asks, whenever the child wants
02= On a fixed schedule
88= Does not apply
99= Does not know/remember/answer

21. Generally, when the child is healthy, how many times does she/he breastfeed during the **day**? 21. ___ ___
00= 0 times
01= 1 to 3 times
02= 4 to 6 times
03= 7 to 9 times
04= 10 or more times
88= Does not apply
99= Does not know/remember/answer

FORM I-3.1
CHILD'S CODE_____

22. Generally, when the child is healthy, how many times does she/he breast-feed during the **night**? 22. ___ ___
    00= 0 times (SKIP TO QUESTION 24)
    01= 1 to 3 times (SKIP TO QUESTION 24)
    02= 4 to 6 times (SKIP TO QUESTION 24)
    03= 7 to 9 times (SKIP TO QUESTION 24)
    04= 10 or more times (SKIP TO QUESTION 24)
    88= Does not apply
    99 = Does not know/remember/answer

23. How old (in months) was the child when she/he stopped breastfeeding? 23. ___ ___
    _____ months
    00= less than one month
    88= Does not apply/still breastfeeding
    99= Does not know/remember/answer

V. Child feeding

24. Who usually feeds the child? 24. ___ ___
    01= The mother
    02= A grandmother
    03= A sibling
    04= An aunt
    05= A neighbor/friend
    06= The father
    77= Other, specify:_____ 24.1 ___ ___
    (Supervisor to fill in)

25. Is this person present? 25. ___ ___
    01= Yes
    02= No

(If the person who normally feeds the child is present, and is not the mother, ask her/him to help the mother to answer the following questions)

26. Who decides what the child should and should not eat? 26. ___ ___
    01= The mother
    02= A grandmother
    03= A sibling
    04= An aunt
    05= A neighbor/friend
    06= The father 26.1 ___ ___
    77= Other, specify._____ (Supervisor to fill in)

FORM I-3.1
CHILD'S CODE_____

27. At what age was the child given liquids **other than breast milk for the first time**? _____ months
00 =Less than one month
88= Never gave any other liquid, only breast milk (SKIP TO QUESTION 31)
99= Does not know/remember/answer (SKIP TO QUESTION 31)

27.___ ___

28. What was the first liquid other than breast milk that was given to the child on a regular basis? (WRITE ONLY THE FIRST LIQUID THE MOTHER GAVE TO THE CHILD)_____
88=Does not apply
99 = Does not know/remember/answer

28. ___ ___
(Supervisor to fill in)

29. What (utensil) did you use to give this first liquid to the child?
01= Spoon
02= Bottle
03= Dropper
04= Cup
05= Syringe
77= Other, specify._____
88= Does not apply
99= Does not know/remember/answer

29. ___ ___

29.1 ___ ___
(Supervisor to fill in)

30. Since this time yesterday, has _____ (CHILD'S NAME) had anything to drink from a bottle with a nipple?
01 = Yes
02 = No

30. ___ ___

31. At what age did you feed the child her/his first food (solid or semi-solid)?
(PLEASE NOTE THAT THE LIQUID PART OF SOUPS OR BROTHS IS NOT CONSIDERED A SOLID OR SEMI-SOLID FOOD. SOUP WITH MASHED VEGETABLES IS CONSIDERED A SEMI-SOLID FOOD.)
_____ months
00= Less than one month
88= Has never given the child any solid or semi-solid food (SKIP TO QUESTION 35)
99= Does not know/remember/answer

31. ___ ___

32. What was the food or preparation that you **first** gave to your child?
☐ 01 Fruit ☐ 02 Vegetable ☐ 03 Cereal ☐ 04 Legume
☐ 05 Meat ☐ 06 Organs ☐ 07 Egg ☐ 08 Dairy products
32.A Specify: _____
77= Other, specify _____
88= Does not apply (Does not give solid food)
99= Does not know/remember/answer

32. ___ ___

32.A ___ ___
(Supervisor to fill in)

32.1 ___ ___
(Supervisor to fill in)

ANNEXES
MODULE I

33. Generally speaking, how is _____ (CHILD'S NAME) appetite when she/he is healthy? (READ THE FIRST FIVE OPTIONS) 33.___ ___
    01= Eats too much
    02= Eats well
    03= Eats a little
    88= Does not apply (does not give solid foods)
    99= Does not know/remember/answer

34. If your child stops eating, and you think she is still hungry or did not eat enough, what do you do? (DO NOT READ THE OPTIONS) 34. ___ ___
    01= Motivate the child (with gestures, games, words)
    02= Does not motivate the child
    88= Does not apply (does not give solid foods)
    99= Does not know/remember/answer

VI. Health services

(Apply this section to the mother and ask her to show you the immunization card to ease answering the questions.)

35. In the **past three months**, since _____ (MONTH), to what hospital, health center, mobile unit, or any other health service have you taken your child? 35.___ ___
    01= Hospital
    02= Health center, clinic
    03= Mobile unit
    04= Doctor's office
    77= Other, specify _____ 35.1 ___ ___
    88= Has not taken child (SKIP TO QUESTION 37) (Supervisor to fill in)
    99= Does not know/remember/answer

36. Is the hospital, clinic or doctor's office where you took your child private or public (government owned)? 36.___ ___
    01= Government owned
    02= Private
    88= Does not apply (has not taken the child to any health services)
    99= Does not know/remember/answer

37. Has the child been weighed in the **past three months**? 37.___ ___
    01= Yes
    02= No (SKIP TO QUESTION 39)
    99= Does not know/remember/answer (SKIP TO QUESTION 39)

38. Where was the child weighed? 38.___ ___
    01= Hospital
    02= Community health center
    03= Mobile unit
    04= Private doctor's office or clinic
    77= Other, specify _____ 38.1 ___ ___
    88= Does not apply (Supervisor to fill in)
    99= Does not know/remember/answer

FORM I-3.1
CHILD'S CODE_____

39. During the **past 6 months**, since _____ (MONTH), did your child ever take iron supplement or syrup? (For example, ferrous sulfate) — 39. ___ ___
    01= Yes
    02= No (SKIP TO QUESTION 41)
    99= Does not know/remember/answer

40. From where did you get the iron supplement or syrup? — 40. ___ ___
    01= Hospital
    02= Community health center
    03= Mobile unit
    04= Private doctor's office or clinic
    05= Bought with prescription
    06= Bought without prescription
    77= Other, specify _____ — 40.1 ___ ___
    88= Does not apply (did not give any in the past 6 months) — (Supervisor to fill in)
    99= Does not know/remember/answer

41. During the **past 6 months**, since _____ (MONTH), did your child ever take vitamin A supplement or syrup? — 41. ___ ___
    01= Yes
    02= No (SKIP TO QUESTION 43)
    99= Does not know/remember/answer

42. From where did you get the vitamin A supplement or syrup? — 42. ___ ___
    01= Hospital
    02= Community health center
    03= Mobile unit
    04= Private doctor's office or clinic
    05= Bought with prescription
    06= Bought without prescription
    77= Other, specify _____ — 42.1 ___ ___
    88= Does not apply (did not give any in the past 6 months) — (Supervisor to fill in)
    99= Does not know/remember/answer

43. During the **past 6 months**, since _____ (MONTH), did your child ever take vitamin and mineral supplement or syrup? — 43 ___ ___
    01= Yes
    02= No (SKIP TO QUESTION 45)
    99= Does not know/remember/answer

44. From where did you get the vitamin and mineral supplement or syrup? — 44.. ___ ___
    01= Hospital
    02= Community health center
    03= Mobile unit
    04= Private doctor's office or clinic
    05= Bought with prescription
    06= Bought without prescription
    77= Other, specify _____ — 44.1 ___ ___
    88= Does not apply (did not give any in the past 6 months) — (Supervisor to fill in)
    99= Does not know/remember/answer

(Pause briefly to indicate a change in the topic to be discussed.)

FORM I-3.1
CHILD'S CODE_____

VII. Health Communication

(Apply this section to the mother.)

45. Is there a radio in the home? 45. ___ ___
01= Yes
02= No

46. Do you ever listen to the radio? 46. ___ ___
01= Yes
02= No (SKIP TO QUESTION 51)
99= Does not know/remember/answer (SKIP TO QUESTION 51)

47. How often do you listen to the radio? 47. ___ ___
01= Daily (7 days a week)
02= 2 to 6 days a week
03= Once a week
04= Once every two weeks
05= Once a month
06= Rarely 47.1 ___ ___
77= Other, specify _____ (Supervisor to fill in)
88= Does not apply
99= Does not know/remember/answer

48. What radio stations do you listen to the **most**?
(WRITE THE TWO MOST IMPORTANT ONES) 48A. ___ ___
48A. _____ (Supervisor to fill in)
48B. _____ 48B. ___ ___
88= Does not apply (Supervisor to fill in)
99= Does not know/remember/answer

49. What kind of radio programs do you listen to **most often**? 49. ___ ___
01= News
02= Music
03= Children's program
04= Religious program
05= Sports
06= Soap opera
07= Health/disease programs
77= Other, specify:_____ 49.1 ___ ___
88= Does not apply (Supervisor to fill in)
99= Does not know/remember/answer

50. Generally, when do you listen to the radio?
(MULTIPLE ANSWERS, CHOOSE ALL THAT APPLY)
50A= 0:00 - 5:59 hrs. 01= Yes 02= No 50A. ___ ___
50B= 6:00 - 11:59 hrs. 01= Yes 02= No 50B. ___ ___
50C= 12:00 - 17:59 hrs. 01= Yes 02= No 50C. ___ ___
50D= 18:00 - 23:59 hrs. 01= Yes 02= No 50D. ___ ___
88= Does not apply
99= Does not know/remember/answer

FORM I-3.1
CHILD'S CODE_____

51. Do you ever watch television? — 51.. ___ ___
01= Yes
02= No (SKIP TO QUESTION 56)

52. How often do you watch television? — 52. ___ ___
01= Daily (7 days a week)
02= 2 to 6 days a week
03= Once a week
04= Once every two weeks
05= Once a month
06= Rarely
77= Other, specify _____ — 52.1 ___ ___
88= Does not apply — (Supervisor to fill in)
99= Does not know/remember/answer

53. What television channels do you watch **most often**?
(WRITE THE TWO MOST IMPORTANT ONES)
53A. _____ — 53A ___ ___
53B. _____ — (Supervisor to fill in)
88= Does not apply — 53B. ___ ___
99= Does not know/remember/answer — (Supervisor to fill in)

54. What type of television program do you watch **most often**? — 54. ___ ___
01= News
02= Music
03= Children's program
04= Religious program
05= Sports
06= Soap opera
07= Health/disease programs
77= Other, specify:_____ — 54.1___ ___
88= Does not apply — (Supervisor to fill in)
99= Does not know/remember/answer

55. Generally, at what time do you watch television?
(MULTIPLE ANSWERS, WRITE ALL THAT APPLY)
55A= 0:00 - 5:59 hrs. 01= Yes 02= No — 55A. ___ ___
55B= 6:00 - 11:59 hrs. 01= Yes 02= No — 55B. ___ ___
55C= 12:00 - 17:59 hrs. 01= Yes 02= No — 55C. ___ ___
55D= 18:00 - 23:59 hrs. 01= Yes 02= No — 55D. ___ ___
88= Does not apply
99= Does not know/remember/answer

56 Do you remember having ever heard or read a message on **television, radio, newspaper**, or **magazine** about how to feed your child, including breasteeding? (IF THE MOTHER SAYS NOW, INSIST ASKING HER TO TRY TO REMEMBER IF… REPEAT THE QUESTION) — 56.___ ___
01= Yes
02= No (SKIP TO QUESTION 60)
99= Does not know/remember/answer (SKIP TO QUESTION 62)

FORM I-3.1
CHILD'S CODE_____

57. Where did you hear it or read it?
(MULTIPLE ANSWERS, WRITE ALL THAT APPLY)

57A= Radio	01= Yes 02= No	57A. ___ ___
57B= Television	01= Yes 02= No	57B. ___ ___
57C= Newspaper	01= Yes 02= No	57C. ___ ___
57D= Magazine	01= Yes 02= No	57D. ___ ___
57E= Other communication channel, specify_____		57E. ___ ___
88= Does not apply		(Supervisor to fill in)
99= Does not know/remember/answer		

58. Do you remember what the message(s) said — 58.___ ___
(IF THE MOTHER ANSWERS NO, ASK HER TO TRY TO REMEMBER, REPEAT THE QUESTION AND WAIT FOR A REASONABLE AMOUNT OF TIME)
01= Yes
02= No (SKIP TO QUESTION 60)
88= Does not apply (SKIP TO QUESTION 60)

59. What did the message(s) say? (WRITE EVERYTHING THE MOTHER SAYS) — 59A.___ ___ (Supervisor to fill in)
_____ 59B.___ ___ (Supervisor to fill in)
_____ 59C.___ ___ (Supervisor to fill in)
_____ (Supervisor to fill in)
_____
88= Does not apply

60. Do you remember if a relative, friend or health worker **talked** to you about child feeding? — 60. ___ ___
01= Yes
02= No (SKIP TO QUESTION 65)
99= Does not know/remember/answer (SKIP TO QUESTION 65)

61. Who has talked to you the most about child feeding? — 61. ___ ___
01= A family member
02= A neighbor
03= Health personnel (doctor, nurse, health promoter, etc.)
04= Midwife, healer
05= Teachers
77= Other, specify:_____ — 61.1 ___ ___
88= Does not apply — (Supervisor to fill in)
99= Does not know/remember/answer

62. Where did they talk to you about this? — 62. ___ ___
01= At home
02= At the hospital, clinic, health center, doctor's office or mobile unit
03= At school
77= Other, specify:_____
88= Does not apply
99= Does not know/remember/answer — 62.1 ___ ___ (Supervisor to fill in)

FORM I-3.1
CHILD'S CODE_____

63. Do you remember what they said? 63. ___ ___
(IF THE MOTHER SAYS NO, ASK HER TO TRY TO REMEMBER, REPEAT THE QUESTION AND WAIT FOR A REASONABLE TIME)
01= Yes
02= No (SKIP TO QUESTION 65)
88= Does not apply

64. What did they say? (WRITE EVERYTHING DOWN) 64. ___ ___
(Supervisor to fill in)

_____
_____
_____
_____
_____
_____

88= Does not apply

(Make a short pause in the survey to indicate change of subject.)

65. Do you (the mother) participate in any community organizations? 65. ___ ___
(MENTION EXAMPLES: COMMUNITY KITCHENS, PARENT ASSOCIATIONS, CREDIT ASSOCIATIONS, HEALTH COMMITTEES, ETC.)
01= Yes
02= No (SKIP TO QUESTION 67)
99= Does not know/remember/answer (SKIP TO QUESTION 69)

66. In which organizations do you participate?
(WRITE ALL THE ORGANIZATIONS THE MOTHER MENTIONS)

66A. _____ 66A. ___ ___ (Supervisor to fill in)
66B. _____ 66B. ___ ___ (Supervisor to fill in)
66C. _____ 66C. ___ ___ (Supervisor to fill in)
66D. _____ 66D. ___ ___ (Supervisor to fill in)
88= Does not apply

FORM I-3.1
CHILD'S CODE_____

VIII. Family information

If the mother is not available, this section may be applied to another adult informant, but the information should refer to the mother.

Informant's name:_____

Relation to the child: _____

Now, _____ (informant's name) I will ask you some questions regarding your (the child's mother) family and home:

67. How many people live in the home, counting young children and elderly? (WRITE THE NUMBER) — 67. ___ ___

68. How may of them are **less than five years** of age? (WRITE THE NUMBER) — 68. ___ ___

69. How old are you (the mother)? — 69. ___ ___
99= Does not know/remember/answer

70. Are you (the mother)_____? (READ THE FOLLOWING OPTIONS) — 70. ___ ___
01= Single (SKIP TO QUESTION 74)
02= Married/has a partner
03= Separated/divorced/widowed (SKIP TO QUESTION 74)
99= Does not know/remember/answer

71. Do you (the mother) live with your husband or partner? — 71. ___ ___
01= Yes
02= No because he works in a differente city
03= No (SKIP TO QUESTION 74)
88= Does not apply
99= Does not know/remember/answer

72. What does your husband or partner do for a living? — 72. ___ ___
01= Does not work
02= Employed/hired worker (not his own boss)
03= Works independently (his own boss)
77= Other, specify _____
88= Does not apply — 72.1 ___ ___
99= Does not know/remember/answer — (Supervisor to fill in)

73. How many years of school did your husband or partner complete? — 73. ___ ___
00= Did not study
88= Does not apply
99= Does not know/remember/answer

74. Do you (the mother) know how to read and write? — 74. ___ ___
01= Yes
02= No

75. How many years of school did you complete? — 75. ___ ___
00= Did not study
99= Does not know/remember/answer

FORM I-3.1
CHILD'S CODE_____

76. Are you involved in any income-generating activities? 76. ___ ___
01= Yes
02= No
99= Does not know/remember/answer

77. When you (the mother) are working or away from home, who takes care of _____ (child)? 77. ___ ___
01= Mother takes the child with her
02= A family member
03= A friend/neighbor
04= The child stays alone, no one takes care of child 77.1 ___ ___
77= Other, specify:_____ (Supervisor to fill in)
88= Does not work away from home
99= Does not know/remember/answer

IX. Housing

If the mother is not available, this section may be applied to another adult informant.

78. What material is the home's ROOF made of? (OBSERVE) 78. ___ ___
01= Among the best materials
02= Intermediate materials
03= Among the worst materials
Other material _____(SUPERVISOR SHOULD CLASSIFY AS 01, 02 OR 03)

79. What material is the home's FLOOR made of? (OBSERVE) 79.___ ___
01= Among the best materials
02= Intermediate materials
03= Among the worst materials
Other material _____(SUPERVISOR SHOULD CLASSIFY AS 01, 02 OR 03)

80. What material are the home's WALLS made of? (OBSERVE) 80. ___ ___
01= Among the best materials
02= Intermediate materials
03= Among the worst materials
Other material _____(SUPERVISOR SHOULD CLASSIFY AS 01, 02 OR 03)

81. Throughout most of the year, what is your main source of water? 81. ___ ___
01= Water piped into the home/yard (SKIP TO QUESTION 83)
02= Water truck
03= Public/outdoor faucet for multiple families
04= River, lake, creek or spring
05= Well
77= Other, specify _____ 81.1 ___ ___
(Supervisor to fill in))

FORM I-3.1
CHILD'S CODE_____

82. How long does it take to travel the distance necessary to obtain water? 82. ___ ___
    01= Less than 5 minutes
    02= 5 to 14 minutes
    03= 15 to 30 minutes
    04= More than 30 minutes
    88=Does not travel to obtain water

83. Do you have toilet or latrine in your home? 83.___ ___
    01= Yes
    02= No

84. Does your home have a sewer connection or septic tank? 84.___ ___
    01= Sewer connection
    02= Septic tank
    03= Neither

85. What type of fuel do you use to cook? (MENTION EXAMPLES) 85. ___ ___
    01= Wood
    02= Gas
    03= Electric
    77= Other fuel, specify _____ 85.1 ___ ___

86. Do you have electricity at home? 86. ___ ___
    01= Yes
    02= No

87. Do you have a refrigerator at home? 87. ___ ___
    01= Yes
    02= No

88. Do you have a blender at home? 88.___ ___
    01= Yes
    02= No

89. Do you have television at home? 89. ___ ___
    01= Yes
    02= No

FORM I-3.1
CHILD'S CODE_____

90. In what store or markets do you buy food?
(WRITE THE NAME AND APPROXIMATE LOCATION)

1. _____
_____
2. _____
_____
3. _____
_____
4. _____
_____
5. _____
_____

Thank the mother and ask her if it is possible to continue the interview with some questions about what the child ate yesterday (24-hour Dietary Recall). If not, ask if it would be possible to return another day (at her convenience). If she agrees, ask what would be the most convenient day and time, and write in Observations below.

If you have any observations regarding how to locate the home or about the answers given by the informant, please write them also in the space provided below.

Observations:.....

.....

.....

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Annex I-4
24-hour Dietary Recall

OBJECTIVES

- To identify actual complementary feeding practices.
- To compare the actual complementary feeding practices with the ideal practices defined in Table 1 in the Introduction, and determine the adequacy of the actual practices.
- To determine the adequacy of energy, protein, iron, zinc, vitamin A, vitamin C, and calcium intakes.
- To identify other complementary feeding practices that will help to interpret inadequate macro and/or micronutrient intake.
- To obtain information that will be used to develop the *Key Foods List*.

STEPS

1. Previous work

Before starting the training, find out if these are available for the country or study population:

- List of Edible Portion of Foods (Appendix 1)
- List of Cooked to Raw Conversion Factors (Appendix 2)
- List of Weights and Measurements of Foods and Preparations (Appendix 3)
- List of Abbreviations of Household Measurements (Appendix 4)
- List of Densities (Appendix 5)

If none of these are available, the team will need to develop these lists with the most common foods in the study area. Examples of these lists and instructions on how to develop them are shown in the above mentioned appendices, which can be found at the end of this Annex.

2. Selection of participants

As for the *General Survey*, the *24-hour Dietary Recall* should be applied to 80 mothers of children between the ages of 6 and 23 months of age in their home. In order to have a similar number of children in each age group (6-11 and 12-23 months), approximately 40 children should be selected per age group.

The sample can be comprised of the same mothers to whom the *General Survey* was applied. The form should be applied to the person who fed the child the previous day, be it the child's mother or another caregiver.

3. Materials

Materials required for the home visits:

- Copies of the registration form for the *24-hour Dietary Recall* (Form I-4.1) printed on larger paper (for example, legal size)
- Copies of the consent letter
- Food scale with up to a 5-kilogram capacity
- Measuring cups (for liquid and dry ingredients)
- Samples of spoons, utensils and other food containers used in households in the study area (for example, cans, bags and bottles)
- Visual aids for helping caregivers with estimating portion sizes
- Map of the area (if available), indicating the location of the houses or blocks to be visited
- Pencils/pens
- Clipboard
- Identification card

Materials required for the calculation of raw grams of foods consumed (office work):

- Calculator
- List of Edible Portion of Foods. The edible portion of foods is the percent of the food that can actually be eaten. For example, only 67% of an apple is edible, since the core is not eaten (Appendix 1).
- List of Cooked to Raw Conversion Factors. When the interviewee gives information about the consumption of cooked foods and it is not possible to obtain a raw amount, the conversion factor should be used to calculate the raw grams of the foods consumed (Appendix 2).

- List of Measurements and Weights of Foods and Preparations. This refers to the most common foods and preparations in the country or target population. This list is generated by weighing different sizes of foods (and preparations) available in the community and should only be used when it is not possible to weigh a similar food (or preparation, or its ingredients) during the home visit portion of the *24-hour Dietary Recall* (Appendix 3).
- List of the Abbreviations of Household Measurements. This list helps to identify the utensils that the caregiver uses to offer foods or preparations to the child. All Field Workers should use the same abbreviations for each utensil. The list should be generated for the most commonly used utensils by the target population. Field Workers should be familiar with the utensils and their abbreviations. Ideally, Field Workers should be involved in generating the list and deciding how to abbreviate each utensil to best remember the abbreviation. The abbreviations should be as clear as possible to Field Workers and the Supervisor (Appendix 4).
- List of Densities. This list is used to convert liquid volumes expressed in milliliters to weight in grams. This is needed for those liquids where 1 ml does not weigh 1 gram (for example, with oil). The list is generated by weighing liquids in those household measures that are commonly used by the target population (for example, teaspoon, tablespoon, cup) (Appendix 5).
- List of food codes according to the ***Pro*PAN** food composition table. As its name indicates, this list contains the codes corresponding to the foods in the ***Pro*PAN** food composition table that will be used to calculate their nutrient and energy content.

Materials required for the data analysis:

- The ***Pro*PAN** software contains instructions for data analysis and a food composition table

4. Personnel and time

According to previous experience in the field with this manual, Field Workers should be able to apply at least three *24-hour Dietary Recalls* daily, including all the necessary calculations to be done in the office. It is recommended that the supervisor be a nutritionist with field work experience.

5. Description and procedures

The application of the *24-hour Dietary Recall* is divided into two parts: the data collection in the target communities (field work) and the calculations needed to obtain net grams consumed by the children (office work).

Before implementing the *24-hour Dietary Recall*, it is important to assign unique codes to the communities, the Field Workers, and the children who will be studied. Take care to ensure that the assigned codes are not duplicated.

In ***Pro*PAN**, different procedures are used for **FOODS** and **PREPARATIONS**, as defined below.

FOODS: Foods can be of either animal or vegetable origin and include both industrialized ready-to-eat foods as well as those consumed raw. Examples are apple, banana, lettuce, corn flakes, sweet bread, milk, and cola beverages. The foods are listed by name in the Food Composition Table.

PREPARATION: Preparation refers to the mix of various foods in one dish. Examples are chicken and rice soup, and vegetable and meat stew. You need to obtain information about the ingredients in the preparation and how much of these ingredients is used to be able to calculate its nutritional content. For example, a noodle soup (preparation) can have water, pasta, oil, tomato, onion, condiments and chicken broth (food ingredients). It is only possible to separate the preparation into its food ingredients when the recipe is available for making the preparation, including the ingredients and the amount used. In addition, there are recipes in which the individual foods can be easily separated, thus the ingredients can be handled as separate foods from the beginning. For example, in "corn flakes with fruit and milk," each of the foods used can be easily separated

It is important to carefully document the consumption of coffee, tea, and similar liquids because even though of limited nutritional value, are often consumed with sugar, they can also influence the absorption of other foods.

6. Analysis

The analysis will be made using the ***Pro*PAN** software from which will be obtained the products listed below.

PRODUCTS

- The percentage of children consuming foods with the recommended nutrient and energy density.
- The percentage of children consuming at least the recommended daily number of main meals.
- The percentage of children meeting their energy requirements.
- The percentage of children meeting their protein, iron, zinc, vitamin A, vitamin C, and calcium requirements.
- The percentage of children consuming at least one animal source food.
- The average nutrient and energy intakes.
- The percentage of foods consumed from animal sources.
- The percentage of energy consumed from animal source foods.
- The percentage of energy consumed at each meal time.
- The nutrient and energy density of the foods consumed.

- The percentage of food served that was consumed.
- A list of foods consumed by children.
- The sample's socio-demographic and morbidity profile.
- Information to be used in the development of the *Key Foods List*.

GUIDELINES FOR COMPLETING THE REGISTRATION FORM FOR THE 24-HOUR DIETARY RECALL (FORM I-4.1)

The application of the *24-hour Dietary Recall* form involves the collection of different kinds of information, as follows:

a. Preliminary information

b. Information about the consumption of a **FOOD**

c. Information about the consumption of a **PREPARATION**

d. Information about the consumption of a **PREPARATION NOT PREPARED BY THE CAREGIVER**

a. Preliminary information:

To begin the *24-hour Dietary Recall*, explain the project objectives and how the dietary intake data will be collected to the mother. Make sure that the informant is the person who fed the child the previous 24 hours. If more than one person fed the child during that period, ask if you can talk to all of them. If not possible, the person who fed the child most meals should be the one interviewed.

Request the mother's consent to apply the survey (read the consent form and leave a copy). Clearly explain the objective of the study and emphasize that the information provided will be strictly confidential. Once the caregiver agrees to participate, apply Form I-4.1 beginning with the general information described below:

Date form applied	Write the date the form was applied, beginning with the day (from 01 to 31), then the month (using two digits from 01 to 12), and ending with the year (using four digits).
Location	Write the code previously assigned by the Supervisor to identify the location of the house.
Field Worker's code	Write the code that was assigned by the Supervisor.

Child's name:	Write the child's complete name, starting with the paternal last name, maternal last name and continuing with the first name.
Mother's name:	Write the mother's (or caregiver's) complete name, starting with the paternal last name, maternal last name and continuing with the first name.
Child's code:	Write the unique four-digit code that identifies the child. The code should be assigned by the Supervisor.
Child's sex:	Write 1 for a boy and 2 for a girl.
Date of birth:	Write the child's date of birth, starting with the day (using two digits from 01 to 31), then the month (using two digits from 01 to 12), and the year (using four digits).
Child's age (in months):	Write the child's age in months (the digits used should be between 06 and 23). NOTE: If the child is less than 6 months of age or 24 months or more, the form should not be applied.
Is the child currently breastfeeding?	Write 1 if the answer is YES and 0 if the answer is NO.
Was yesterday a holiday (or Sunday) in the community?	Write 1 if the answer is YES and 0 if the answer is NO. Even if the previous day was a holiday or a Sunday, the *24-hour Dietary Recall* form should be applied.
Was yesterday a celebration in the family?	Write 1 if the answer is YES and 0 if the answer is NO. Even if the previous day was a family celebration, the *24-hour Dietary Recall* form should be applied.
Was the child sick with fever, cough or diarrhea yesterday?	Write 1 if the answer is YES and 0 if the answer is NO. Even if the child was sick, the *24-hour Dietary Recall* form should be applied.
Number of breastfeeds:	After the interview, add the number of breastfeeds the mother says the child received during the 24-hour period covered by this form and write the number in the box using two digits. For example, if the mother said the child breastfed 5 times, write 05.
Family socio-economic status:	If the house has been visited for the *General Survey*, write the number assigned to the quality of the roof, floor and wall materials of the home (where the minimum value is 1 and the maximum value is 3). If not, follow the guidelines and codes used to classify housing materials in the *General Survey*. Add the three values (minimum 3 and maximum 9). This value will be used as a gross measurement of the family's socio-economic status.

Child's weight and/or height:	Write the child's weight in kilograms and height in centimeters.

Before applying this recall, explain the form to the caregiver.

Helping the caregiver to remember:	Help the caregiver to remember the day before (from the moment the child woke up yesterday until the moment the child woke up today), according to the child's schedule and his/her activities. Go slowly. Begin by saying: *I would like you to tell me everything your child ate and drank yesterday, including breast milk. After he/she woke up, what was the first thing you gave him/her to eat or drink? Then, what other food did you give him/her*? Write all the foods, liquids or preparations consumed the day before that the caregiver mentions on the first page of the form. Do not forget to ask *what do you call that meal time*? Write what the mother says and later assign the appropriate code to each meal time (described in Table I-8).
Meal times:	Write 00 for breast milk, 10 for the main morning meal (breakfast), 20 for the main midday meal (lunch) and 30 for the main evening meal (dinner). See Table I-8.
Snack times:	Snacks should be coded as follows: a. The first snack given in the morning before the main morning meal: 01 b. The second snack given in the morning before the main morning meal: 02 c. The third snack given in the morning before the main morning meal: 03 A similar coding applies to the other snacks, as shown in Table I-8.

Table I-8. Codes of meal times.

Main meal	Snack	Code
	Consumed before the main morning meal	01, 02, 03….
Morning		10
	Consumed between the main morning and midday meals	11, 12, 13…
Midday		20
	Consumed between the main midday and evening meals	21, 22, 23….
Evening		30
	Consumed after the main evening meal	31, 32, 33….
Breast milk	Breast milk	00 (always)

Observe the following example:

Write all the foods or preparations consumed the day before that the mother and/or caregiver mentions.

Meal time	Name of food or preparation
Morning snack	Breast milk
Breakfast	Instant quinua
Breakfast	Banana
Mid-morning snack	Yogurt
Mid-morning snack	Sweet bread (concha)
Lunch	Fried egg
Lunch	Rice
Dinner	Chicken soup
Evening snack	Peanut atole
Evening snack	Cooked turnip

Once the mother has mentioned all the foods and preparations consumed the day before, transfer the information to the second page of the *24-hour Dietary Recall* form (in the columns titled "Meal time" and "Name of food or preparation") and ask about characteristics (such as size, color, and brand) specific to that type of food or preparation, how much was served to the child and how much the child ate.

What was the food that you served...(child's name) like? How much did you serve...(child's name)? Did...(child's name) eat everything that you served him/her?

The purpose of talking with the mother is to obtain the best possible approximation of what was served to the child and how much the child ate. Ideally, the amounts served and consumed will be obtained by weighing the foods in the home. If this is not possible, other methods (described below) can be used.

In addition, questions should be asked regarding the way in which foods were prepared (for example, fried or cooked) or served (for example, with or without bones) in order to take this into account when calculating how much in net grams of raw food or preparation ingredients was served to the child and how much the child ate.

b. When dealing with a FOOD, follow these steps:

1. After writing the food name in the "Name of food or preparation," write the food type (for example, brand and color) on the same row and in the column titled "Ingredients".

Remember that the main reason the *24-hour Dietary Recall* form is applied is to find out what quantities of food were served and ultimately eaten by the child. Points 2, 3, 4 and 5 below describe different ways to obtain these food quantities.

2. Ask the caregiver: *Can you show me, in the same plate (cup, bowl) that you used to serve this food to your child, how much you served him/her*? If she has in her home the same food she served the child and the plate (or cup or bowl) that she served it on, ask her to place the empty plate on the food scale. **Tare** the food scale, in other words, place the empty plate on the food scale and press the "weigh" button to make the food scale numbers return to zero so that the food scale will only weigh the food that is placed on the plate.

Then ask the mother to fill the plate with the same amount that she served to the child the previous day. Write the weight obtained in grams from the food scale in the column titled "Served" in "Measurements taken in the home."

If the caregiver did not serve the food on a plate (for example fruit), ask her to place the similarly sized food on the scale and write the number of grams in the column titled "Served" in "Measurements taken in the home."

It is possible that upon weighing the food, you will have to weigh it with skin/peel, bone, pits/seeds or other parts of the food that the child did not eat. Weigh the food and write the appropriate number in the column "Weighed" where 1 (gross) means you weighed the food with the non-edible portion (with skin/peel, bone, pits, seeds, etc.) and 2 (net) means you weighed it without the non-edible portion (without the skin/peel, etc.). Later on in the office you will need to calculate the edible portion for all those foods with a value of 1 in this column.

3. If some foods cannot be weighed in the home, several other options are possible. Before the home visits begin, the team can buy food models or make them from clay, playdoh or paper mache. Also, they can make two-dimensional silhouettes of food shapes (by tracing the outline of foods) or take pictures of different-size foods including a reference (such as a ruler or a person's hand). The purpose of these aides is to show them to the caregiver to help her estimate the approximate size of the foods served to the child.

It is important to generate identical sets of these aides for each Field Worker. It is also important that each model, silhouette or picture include the average weight in grams of the food of that particular size (for example, small = 22 g, medium = 32 g, and large = 41 g), and the weight range (for example, small = 20 – 25 g, medium = 31 – 39 g, and large = 42 – 53 g). To create the model, silhouette, or picture; a sample of different foods and different sizes of each food should be weighed in a kitchen or laboratory. If possible, the foods should be purchased in the study communities and the entire team should participate in identifying the foods, their different sizes and their average weights.

4. If the food cannot be weighed in the home, you can ask the mother to show you the plate, bowl or cup in which she served the food or the utensil she used to serve the food to the child (so you can identify it according to the "Measurements and Weight of Foods and Preparations" like in Appendix 3). Ask her how much of the food she served onto the plate/bowl/cup or using the utensil. Write the amount, including the household measure, in the column titled "Served" in "Measurements taken in the home." For example, if she served 3/4 cup and the abbreviation for cup is "C" in the column "Amount served in measurements taken in the home" you would write "3/4 C."

If (1) the volume of liquids consumed is estimated using household measures, (2) 1 ml of the liquid does not weigh 1 gram and (3) the weight of that volume of the liquid is not listed in "Measurements and Weight of Foods and Preparations", then write option 1 in the column "Weighed." Later in the office, you will need to calculate the number of grams in the volume of liquid using the List of Densities listed in Appendix 5 or created by the team.

5. Be sure to ask the caregiver if the food she served to the child was cooked or raw. In steps 1, 2, 3 and 4 the amounts served and consumed by the child should refer to the form in which it was served to the child, in other words, whether it was cooked or raw. For example, if **raw** food was served to the child, the food should be weighed **raw** or its weight should be estimated using models, silhouettes or photos of the **raw** food. Similarly, if **cooked** food was served to the child, the food should be weighed **cooked** or its weight should be estimated using models, silhouettes or photos of the **cooked** food.

If the food was cooked, write 1 in the column titled "Consumed." In the "Ingredients" column, make note of how the food was cooked (boiled, fried or baked) and approximately for how long. Later in the office, for those foods with 1 in the column "Consumed," in other words, for those foods served cooked to the child, that only have information in the food composition table for the raw form, you will need to convert them to their raw equivalents.

If the food was served raw, write 2 in the column titled "Consumed."

6. With the information you obtained in steps 2, 3, 4 and 5, you will have filled out these columns: "Amount served in measurements taken in the home," "Weighed," and "Consumed." Next, you will ask about what the child DID NOT eat in order to calculate what the child DID eat.

If you are weighing the food, ask the mother to leave in the plate/bowl/cup what the child did not eat. Weigh the amount the child did not eat and write the number obtained in grams in the column titled "Amount not consumed in measurements taken in the home."

If you are estimating amount served and consumed by using models/silhouettes/photos or household measures, ask how much the child left and write this amount in the column titled "Amount not consumed in measurements taken in the home."

7. Finally, calculate how much food the child ate by subtracting "Amount not consumed" in "Measurements taken in the home" from "Amount served" in "Measurements taken in the home." Write the difference in the column titled "Amount consumed" in "Measurements taken in the home."

Observe the following example:

Meal time		Name of food or preparation	Ingredients (specify characteristics)	Code (office)			Measurements taken in the home					Conversion to grams	NET GRAMS	
							Served	Not Consumed	Consumed	Weighed 1=Gross 2=Net	Consumed 1=Cooked 2=Raw		Served	Consumed
0	0	**Breast milk**												
0	1	**Quinua**	**Instant**				**1/2 C**	**0**	**1/2 C**	**2**	**1**			
0	1	**Banana**	**With peel**				**116 g**	**2/3**	**1/3**	**1**	**2**			
4	1	**Danonino**	**Strawberry, 1 portion**				**1 portion (226 g)**	**1/2**	**1/2**	**2**	**2**			
4	1	**Sweet bread**	**Concha (small)**				**32 g**	**1/2**	**1/2**	**2**	**2**			

In this example, different methods were used to estimate the amounts served, not consumed and consumed.

It is important to clarify that breast milk will always be coded 00 for the "Meal time" column, regardless of when it was consumed. For breast milk, no information is written in the "served", "not consumed" and "consumed columns."

The instant *quinua* was served cooked to the child (1 was written in "Consumed"). The cooked quinua was weighed and it did not have an inedible portion, in other words, it was all edible (2 was written in "Weighed"). The child was served _ cup (which was abbreviated as C) and she ate it all. Afterwards in the office, you will need to find out how many grams of cooked instant *quinua* there are in _ cup (using the "Measurements and Weight of Foods and Preparations" list, for example). If the food composition table does not have nutrition information on cooked *quinua*, you will need to calculate how many grams of raw *quinua* there were in the cooked amounts served and consumed.

In addition to the *quinua*, the child was served banana at breakfast (meal time 10). In the home, it was only possible to weigh a banana with the peel (in other words, with an inedible portion) so 1 was written in the column "Weighed." The banana with peel weighed 116 grams and the caregiver determined that the child left 2/3 and ate 1/3 of the banana. Later in the office you will need to calculate the edible portion of the banana.

Danonino is a processed dairy product that comes in a plastic container weighing 226 grams (according to the label). The child did not consume half of the container and ate half.

For sweet bread (*concha*), the amount was estimated with a medium-size model which has an average weight of 32 grams according to the kitchen work done by the team. The child left half and ate half of the bread during the first morning snack (meal time 11).

c. When dealing with a PREPARATION, follow these steps:

1. Write the name of the preparation in the column titled "Name of food or preparation". In the column titled "Ingredients" write each ingredient used in preparing that mixed dish. If salt was used, do not forget to ask what type of salt was used (iodized, sea salt, granulated, etc.).

2. If the mixed dish was prepared only for the child and only for one meal time (for example, lunch), you can list out the ingredients following the example below. The "Measurements taken in the home" for each ingredient should be obtained in the same way they were obtained for **FOODS**, following steps b1-7.

Observe the following example:

Meal time		Name of food or preparation	Ingredients (specify characteristics)	Code (office)			Measurements taken in the home					Conversion to grams	NET GRAMS	
							Served	Not Consumed	Consumed	Weighed 1=Gross 2=Net	Consumed 1=Cooked 2=Raw		Served	Consumed
0	**2**	**Fried egg**					**1**	**0**	**1**					
0	**2**		**Egg**				**1 large (52 g)**	**0**	**52 g**	**1**	**1**			
0	**2**		**Palm oil**				**1 teaspoon**	**0**	**1 teaspoon**	**1**	**2**			
0	**2**		**Iodized salt**				**1 g**	**0**	**1 g**	**2**	**2**			
0	**2**	**Rice**	**White, boiled 25 minutes**				**4 Ss**	**2 Ss**	**2 Ss**	**2**	**1**			

In the same row with the name of the preparation, in this case a fried egg, these columns should be filled in: "Meal time," "Name of food or preparation," "Served measurements taken in the home," "Not consumed taken in the home," and "Consumed taken in the home."

For each ingredient, these columns should be filled in: "Meal time," "Ingredients," "Served measurements taken in the home," "Not consumed taken in the home," "Consumed taken in the home," "Weighed" (1=Gross or 2=Net), and "Consumed" (1=Cooked or 2=Raw).

In this example, the caregiver served one fried egg ("Served measurement taken in the home") and the child ate all of it ("Not consumed measurement taken in the home" = 0 and "Consumed measurement taken in the home"= 1).

The fried egg was prepared for the child's lunch only (meal time 20) and had three ingredients: egg, oil and salt. Photos of several egg sizes were shown to the caregiver and she indicated that she served the large size to the child. On the back of the large egg photo it notes that a large egg weighs 52 grams on average. The child ate a cooked egg (1 was written in "Consumed") and the estimated weight of the egg included the inedible shell (1 was written in "Weighed"). The volume of palm oil was estimated at 1 teaspoon using household measures. Since (1) the volume of the palm oil was estimated using household measures, (2) 1 ml of palm oil does not weigh 1 gram and (3) the weight of that 1 teaspoon of palm oil is not listed in "Measurements and Weight of Foods and Preparations" that the team had available to them, 1 was written in the column "Weighed". The amount of iodized salt used was weighed (1 gram).

For lunch, the caregiver also prepared cooked rice without salt. The white rice was boiled for approximately 25 minutes (note this information in the "Ingredients" column). She served 4 soup spoons ("Served measurements taken in the home" = 4 Ss, using the abbreviation for soup spoons that the team agreed on) of cooked rice (1 was written in "Consumed"). The child did not consume half of what was served to her ("Not consumed measurements taken in the home" = 2 Ss) and thus ate half of what was served to her ("Consumed measurements taken in the home" = 2 Ss).

3. If a mixed dish was prepared for the family or was prepared to be served several times throughout the day to the child, use the lower part of the form to note what ingredients were used in the mixed dish (in the "Ingredients" column). Following steps 1-7 of the **FOOD** section (b), write how much of each ingredient was used in the preparation in the column titled "Quantity used." Note if the ingredient's weight (or estimated weight) was obtained in gross or net (in the column "Weighed" 1=Gross or 2=Net) and if the ingredient was cooked or raw when it was added to the preparation (in the column "Used" 1=Gross or 2=Net).

Observe the following example:

Preparation: **Goose soup** Ingredients	Quantity Used	Weighed 1=Gross 2=Net	Used 1=Cooked 2=Raw	Total weight of cooked ingredients: Conversion to cooked	Cooked grams			
Goose drumstick with bone	**1 kg**	**1**	**2**					
Vegetable oil	**30 g**	**2**	**2**					
White onion, large	**2 (144 g each)**	**2**	**2**					
Water	**2 liters**	**2**	**2**					
Bouillon with tomato flavor	**1 cube**	**2**	**2**					
Iodized salt	**5 g**	**2**	**2**					

In this goose soup prepared for dinner for the entire family, there was 1 kg of goose with bone, 30 g of vegetable oil, 2 large white onions weighing 144 grams each, 2 liters of water, 1 bouillon cube with tomato flavor (which was weighed later: 15 grams), and 5 grams of iodized salt.

4. Since the soup was prepared for many people or many meal times, it is necessary to determine how much was served to and eaten by the child for the meal time of interest. You can do this by weighing the preparation (if there were leftovers, for example), using models/silhouettes/photos (if you have them for preparations), or with the List of Weights and Measurements of Foods and Preparations. This information is written in the upper part of the form. See the example below.

Meal time		Name of food or preparation	Ingredients (specify characteristics)	Code (office)			Measurements taken in the home					Conversion to grams	NET GRAMS	
							Served	Not Consumed	Consumed	Weighed 1=Gross 2=Net	Consumed 1=Cooked 2=Raw		Served	Consumed
0	**3**	**Goose soup**					**80 g**	**0**	**80 g**					

d. When dealing with a PREPARATION NOT PREPARED BY THE CAREGIVER, follow these steps:

1. In this case, use the upper part of the form to fill in these columns: "Meal time," "Name of food or preparation," "Served measurements taken in the home," "Not consumed measurements taken in the home," and "Consumed measurements taken in the home." Below this row, leave several rows empty to write in the ingredients used in the preparation.

2. Find out where the preparation was bought or from whom it was obtained. After completing the home visit, you will want to visit the person who prepared the mixed dish to get the ingredient information noted in step c 3 for **PREPARATIONS**.

3. If you are unable to obtain the ingredient information, you could use an "average preparation" which lists the nutrient information for the preparation as a whole. The Food Composition Table included in the ***Pro*PAN** software contains some common preparations in Latin America and the Caribbean. It may be possible to find other "average preparations" in national food composition tables or to develop them in a kitchen or laboratory with the Field Workers.

If you use an "average preparation," it is not necessary to fill in the columns "Weighed" (1=Gross or 2=Net) or "Consumed" (1=Cooked or 2=Raw) since the nutrient information in the food composition table for the preparation will have taken these two factors into account.

Observe the following example:

Meal time		Name of food or preparation	Ingredients (specify characteristics)	Code (office)					Measurements taken in the home					Conversion to grams	NET GRAMS					
									Served	Not Consumed	Consumed	Weighed 1=Gross 2=Net	Consumed 1=Cooked 2=Raw		Served			Consumed		
5	**1**	**Atole**	**Peanut**						**1 C**	**0**	**1 C**	--	--							

In summary, the following information should be collected in the home visit:

1. Meal time

2. Name of food or preparation

3. Ingredients and their characteristics

4. Amount served to the child in measurements taken in the home

5. Amount not consumed by the child in measurements taken in the home

6. Amount consumed by the child in measurements taken in the home

7. Whether the food's weight was obtained with inedible portions (gross) or completely edible (net)

8. Whether the food served to the child was cooked or raw

It is important to get all of this information during the home visit so that you have all the elements necessary to calculate the net grams served and consumed (office work). If the above information is not complete, you will have to return to the home to obtain the missing information. It is preferable to weigh the foods and ingredients used, since this will help obtain more precise data.

FORM I-4.1

CHILD'S CODE _____

REGISTRATION FORM FOR THE 24-HOUR DIETARY RECALL (FORM I-4.1)

Good morning, my name is _____ and I'm working on a child feeding project for the _____.

Could I ask you some questions regarding what your child ate yesterday? The information that you provide will remain confidential.

Form: ☐☐☐ Date of interview: ☐☐ DAY ☐☐ MONTH ☐☐☐☐ YEAR Location: ☐☐☐☐

Field worker's code: ☐☐

Child's name: _____
Paternal last name Maternal last name First name

Mother's name: _____
Paternal last name Maternal last name First name

Child's code: ☐☐☐☐ Child's sex (1=M, 2=F) ☐ Date of birth: ☐☐ DAY ☐☐ MONTH ☐☐☐☐ YEAR

Age (months): ☐☐ (IF THE CHILD IS YOUNGER THAN 6.0 MONTHS OR 24.0 MONTHS OR OLDER, DO NOT APPLY THE FORM)

Are you currently breastfeeding? (0=No, 1=Yes) ☐
Yesterday, was it a holiday in the community? (0=No, 1=Yes) ☐

Yesterday, was there a celebration in the family? (0=No, 1=Yes) ☐
Yesterday, was the child sick with fever, cough or diarrhea? (0=No, 1=Yes) ☐

OFFICE WORK:

Add the number of times the mother reported in this form that she breastfeeds the child ☐☐

Add from the *General Survey*:

Roof material (1-3) ☐
Floor material (1-3) ☐
Walls material (1-3) ☐

Sum/socio-economic status (3-9) ☐

If anthropometric measurements were taken:

Child's weight in kilograms ☐☐.☐

Child's height in centimeters ☐☐☐.☐

REGISTRATION FORM FOR THE 24-HOUR DIETARY RECALL (FORM I-4.1)

FORM I-4.1

CHILD'S CODE _____

Explain the questionnaire to the mother before beginning.

Help her to remember the previous day, based on the times when the child woke up, the activities the child had, etc.

Go slowly.

Ask the mother: Please tell me all that your child age and drank yesterday.

After the child woke up, what was the first thing you gave him/her to eat or drink?

After that, what other food did you offer the child? Después ¿Qué otro alimento le sirvió?

Write all the foods or preparations consumed the day before that the mother/caregiver mentions.

Do not forget to ask: What is the name of that meal time (for example, breakfast, lunch, dinner, snack)?

MEAL TIME		NAME OF THE FOOD OR PREPARATION
DEFINED BY MOTHER	CODE	

FORM I-4.1

CHILD'S CODE _____

REGISTRATION FORM FOR THE *24-HOUR DIETARY RECALL* (FORM I-4.1)

Meal time		Name of food or preparation	Ingredients (specify characteristics)		Office: Code of food or preparation	Measurements taken in the home					Office: Conversion to grams	Office: NET GRAMS	
			Ingredient	Characteristic		Served	Not consumed	Consumed	Weighed 1 = Gross 2 = Net	Consumed 1 = Cooked 2 = Raw		Served	Consumed

Meal time:
Breastmilk: **00**
Main meals: **10** morning (breakfast) **20** midday (lunch) **30** evening (dinner)
Snacks: **01, 02, 03…** morning (before breakfast) **11, 12, 13…**: morning (after breakfast) **21, 22, 23…**: afternoon **31, 32, 33…**: evening

Preparation:				Total weight of cooked ingredients:		Preparation				Total weight of cooked ingredients:	
Ingredients	Quantity used	Weighed 1 = Gross 2 = Net	Used 1 = Cooked 2 = Raw	Conversion to cooked	Cooked grams	Ingredients	Quantity used	Weighed 1 = Gross 2 = Net	Used 1 = Cooked 2 = Raw	Conversion to cooked	Cooked grams

GUIDELINES FOR OFFICE WORK

The office work is separated into two steps. During the first, the food, ingredient, or preparation codes are noted. During the second, the measurements taken in the home of the amounts served to and consumed by the child are converted to grams. Both are described below:

1. Food codes

Using the "List of Food Codes According to the ***Pro*PAN** food composition table," write the code corresponding to each food and ingredient used in the preparation. The food codes in the list should coincide with those in the food composition table for the calculation of the nutrient and energy content of each food. For example, code 258 corresponds to "mango (raw)" in the ***Pro*PAN** food composition table.

In most cases, only the raw form of foods appears in the ***Pro*PAN** food composition table. In some cases, foods appear in their raw and cooked forms. For example, "beef, deer (raw)" is listed as code 425 in the table, and "beef, deer (roasted)" has code 424. In those cases where the child ate the cooked form of the food and the cooked form appears in the food composition table, use the food code corresponding to the cooked (NOT the raw) form.

Some mixed dishes have codes that are used in cases where the caregiver did not prepare the food or it was not possible to obtain information on the ingredients that made up the preparation. Examples of preparations in the ***Pro*PAN** food composition table are "pancakes"(623) and "pecan pie" (952). To reiterate, only fill in the column titled "Code" for a preparation if it was not possible to separate it into its multiple ingredients and the preparation is listed in the food composition table being used to estimate nutrient intakes.

Even if breast milk is listed in the ***Pro*PAN** food composition table, breast milk will not be coded (in the column titled "Code") nor will any information be written in the columns titled "Measurements taken in the home." The amount of breast milk consumed by children is usually obtained by weighing the child before and after breastfeeding and this method will not be followed during the *24-hour Dietary Recall*.

The food and preparation codes available in the food composition table included in the ***Pro*PAN** software can be observed on a computer screen and printed out for reference (see software manual).

2. Conversion to net grams

The purpose of this section is to carry out the necessary calculations to convert to raw net grams each food and preparation ingredient. In other words, the number of grams of food in its raw form and without the non-edible portion (seed, bone, or skin).

- If the food was weighed with the non-edible portion, this portion will need to be "removed" so as to leave only the edible portion (see "List of Edible Portion of Foods" in Appendix 1). This will be done using a factor that has a value from 0 (nothing is edible) to 1.0 (everything is edible).
- If (1) a food was served cooked to the child and (2) this food only appears in raw form in the food composition table, the grams served and consumed will need to be converted to their raw form using the "List of Cooked to Raw Conversion Factors" (see Appendix 2). This factor will have a value starting at 0. If it is less than 1, it means the food volume increases when cooked (for example, rice). If it is more than 1, it means the food volume decreases when cooked (for example, meat).
- If only the volume of a liquid was obtained in the home, the weight (in grams) of that volume of liquid needs to be estimated using the "List of Weights and Measurements of Foods and Preparations (Appendix 3)" or the "List of Densities (Appendix 5)."

The appendix contains examples of these lists. Remember that the Identification of the General Nutrition Situation (Annex I-1), which should be carried out before the 24-hour Dietary Recall, will help to determine if those lists that appear in the appendix are already available for foods consumed in your country or region.

3. Calculation of net grams

To calculate the NET GRAMS OF FOODS, the following steps should be followed:

1. To obtain the net grams, start with the weight (in grams) of the food which was obtained during the home visit. If the weight information is not written on the *24-hour Dietary Recall* form, it should be obtained from either the "List of weights and measurements," the back of any models/silhouettes/photos used, or by weighing a similar food in a community market or store.

2. Multiply the food weight by the conversion factor, if necessary. If the child consumed a cooked food and that food only appears in its raw form in the food composition table, use this formula:

> **Raw net grams** = Weight of the food X edible portion (if "Weighed 1=Gross 2=Net" is equal to 1) X liquid densities (if "Weighed 1=Gross 2=Net" is equal to 1) X conversion from cooked to raw (if "Consumed 1=Cooked 2=Raw" is equal to 1)

If the child consumed a cooked food and that food appears in its cooked form in the food composition table, it is not necessary to convert it to raw. Therefore, use this formula:

> **Net grams** = Weight of the food X edible portion (if "Weighed 1=Gross 2=Net" is equal to 1) X liquid densities (if "Weighed 1=Gross 2=Net" is equal to 1)

Observe the following example with the edible portion:

The caregiver served the child a banana which weighed 116 grams (with the peel).

- According to the ***Pro*PAN** food composition table, the code for a raw banana is 278 and the edible portion is 0.68 (in other words, when you have a banana with the peel, only 68% is consumed – the part without the peel). Accordingly, the following calculation is performed:

  116 g of banana (total weight) X 0.68 (edible portion of the banana) = 78.8 g

- Write "0788" in the box titled "Amount served in net grams."
- Since the child did not finish the banana and only ate 1/3 of it, then:

  78.8 g (edible portion of the banana) X 1/3 (amount the child ate) = 26.3 g

- Write "0263" in the box titled "Amount consumed in net grams."

Observe the following example with the conversion from cooked to raw:

- The caregiver served the child a piece of cooked turnip (bought in a cafeteria) that had an average weight of 43 grams.
- According to the ***Pro*PAN** food composition table, the code for turnip is 1052. According to the lists generated by the team, the conversion factor from cooked to raw is 1.17 (it is greater than 1, which means that it loses water when cooked). Based on this, the following calculations are made:

  43 g of turnip (cooked) X 1.17 (conversion from cooked to raw) = 50.3 g

- Write "0503" in the box titled "Amount served in net grams."
- The child did not eat the entire turnip and only ate half of the food, hence:

  50.3 g (raw turnip) X 1/2 (amount that was consumed) = 25.2 g

- Write "0252" in the box titled "Amount consumed in net grams."

Observe the following example with the conversion from liquid volume to grams:

- The caregiver served the child 1 small cup (abbreviated SmC) of apple juice (also bought in a cafeteria).
- In the office, the capacity of the small cup was estimated at 150 ml.
- According to the ***Pro*PAN** food composition table, the code for apple juice is 634. According to the lists generated by the team, apple juice's density is 0.92 g/ml. This means that every 1 ml of apple juice weighs 0.92 grams. Based on this, the following calculations are made:

  150 ml of apple juice X 0.92 g/ml (density) = 138.0 g

- Write "138" in the box titled "Amount served in net grams."
- The child only drank 1/4 of the cup of apple juice, hence:

  138.0 g (apple juice) X 1/4 (fraction that was consumed) = 34.5 g

- Write "0345" in the box titled "Amount consumed in net grams."

Observe the following table:

Meal time		Name of food or preparation	Ingredients (specify characteristics)	Code (office)					Measurements taken in the home					Conversion to grams	NET GRAMS	
									Served	Not Consumed	Consumed	Weighed 1=Gross 2=Net	Consumed 1=Cooked 2=Raw		Served	Consumed
0	1	Banana	Tabasco	**2**	**7**	**8**			116 g	2/3	1/3	1	2	**(116 g X 0.68) X 1/3**	**0 7 8 8**	**0 2 6 3**
6	1	Turnip	Bought	**1**	**0**	**5**	**2**		43 g	1/2	1/2	2	1	**(43 g X 1.17) X1/2**	**0 5 0 3**	**0 2 5 2**
6	1	Apple juice	Bought	**6**	**3**	**4**			1 SmC (150 ml)	3/4	1/4	1	2	**(150 ml X 0.92 g/ml) X 1/4**	**1 3 8 0**	**0 3 4 5**

To calculate the NET GRAMS OF PREPARATIONS, the following steps should be followed:

Since preparations are served and consumed cooked, preparation ingredients need to be converted to their net cooked weight, in other words, into their edible and cooked form. By doing this, you can calculate how much of each cooked ingredient was served to the child. Then, if these ingredients are only available raw in the food composition table, they are converted to raw (using the cooked to raw conversion factors).

1. In the lower part of the form, calculate the net **cooked** grams of the ingredients used in the preparation. Use the food's edible portion and the cooked to raw conversion factor, if necessary.

Observe the following example:

Preparation: Goose soup Ingredients	Quantity Used	Weighed 1=Gross 2=Net	Used 1=Cooked 2=Raw	Total weight of cooked ingredients: **2703.85 g** Conversion to cooked	Cooked grams			
Goose drumstick with bone	1 kg	1	2	**1000 g X 0.45 X 1/1.23= 365.85g**	**0**	**3**	**6**	**6**
Vegetable oil	30 g	2	2	**30 g**	**0**	**0**	**3**	**0**
White onion, large	2 (144 g each)	2	2	**2 X 144 g = 288 g**	**0**	**2**	**8**	**8**
Water	2 liters	2	2	**2 X 1000 g = 2000 g**	**2**	**0**	**0**	**0**
Bouillon with tomato flavor	1 cube	2	2	**15 g**	**0**	**0**	**1**	**5**
Iodized salt	5 g	2	2	**5 g**	**0**	**0**	**0**	**5**

The goose drumstick with bone has an edible portion of 0.45. The cooked to raw conversion factor for this food is 1.23. Because we are converting from raw to cooked, we use the inverse of the conversion factor: 1/1.23.

1000 g raw X 0.45 (edible portion) X 1/1.23 (inverse of cooked to raw conversion factor) = 365.85 g cooked

The oil used in the preparation weighed 30 grams. The white onion did not have an inedible portion. Because there were two onions used, the weight of one (144 g) was multiplied by 2. Two liters of water are equivalent to two kilograms of water (because for water, 1 ml = 1 g). The weight of a bouillon cube was weighed in the office and determined to be 15 grams. No conversions were necessary for the iodized salt; its weight remained at 5 grams.

2. To estimate how much of each ingredient was served **cooked** to the child:

First, add up the cooked grams for all of the ingredients and write this quantity in the space titled "Total weight of cooked ingredients" in the lower part of the form. For example:

365.85 g + 30 g + 288 g + 2000 g + 15 g + 5 g = 2703.85 g

Next, calculate what fraction each ingredient contributes to the preparation. For example:

Drumstick: 365.85 g / 2703.85 g = 0.135

Oil: 30 g / 2703.85 g = 0.011

Onion: 288 g / 2703.85 g = 0.1065

Water: 2000 g / 2703.85 g = 0.7396

Bouillon: 15 g / 2703.85 g = 0.0055

Salt: 5 g / 2703.85 g = 0.0018

Next, calculate how many cooked grams of each ingredient were served to the child. We know that the child was served 80 grams of the cooked preparation and we use this information as follows (NOTE: the following calculation can only be done when the preparation and its ingredients are in the same form, either both are in their raw form, or both are in their cooked form as in the example below):

Drumstick: 80 g cooked X 0.135 = 10.8 g cooked

Oil: 80 g cooked X 0.011 = 0.88 g cooked

Onion: 80 g cooked X 0.1065 = 8.52 g cooked

Water: 80 g cooked X 0.7396 = 59.168 g cooked

Bouillon: 80 g cooked X 0.0055 = 0.44 g cooked

Salt: 80 g cooked X 0.0018 = 0.144 g cooked

Another way to calculate these values is listed below:

Drumstick: $\frac{365.85 \text{ g cooked}}{2703.85 \text{ g cooked}} = \frac{X \text{ g}}{80 \text{ g cooked}}$ X = 10.8 g cooked

NOTE: These calculation methods do not take into account how much water has evaporated during cooking the preparation. Therefore, they will tend to overestimate the quantity of water consumed by the child and underestimate the quantity of other, solid, ingredients consumed.

If the ingredient is available in its cooked form in the food composition table, go to the top part of the form and write in the cooked grams of the ingredient in the "Amount in grams served" column. Subtract the quantity not consumed and note the grams consumed in "Amount in grams consumed." Be sure to write the food code for the cooked form in step 4, below.

3. To estimate how much of each ingredient, in its raw form, was served to the child:

If the ingredient only appeared in its raw form in the food composition table, you will need to convert the cooked quantity served (calculated in step 2) to its raw form. In this example, none of the goose soup ingredients appeared in cooked form in the ***Pro*PAN** food composition table. To convert to raw the amount of each ingredient served to the child, the cooked to raw conversion factor will be used. In this example, only the drumstick ingredient changes weight when cooked and its cooked to raw conversion factor is 1.23.

10.8 g cooked X 1.23 (cooked to raw conversion factor) = 13.3 g raw

For those ingredients that do not change weight when they are cooked, the cooked grams are considered equivalent to the raw grams.

Oil: 0.88 g raw

Onion: 8.52 g raw

Water: 59.168 g raw

Bouillon: 0.44 g raw

Salt: 0.144 g raw

In the top part of the form, write these grams in the column titled "Amount in grams served." Subtract the quantity not consumed and write the quantity consumed in "Amount in grams cooked" for each ingredient. Be sure to write the food code corresponding to the raw form in step 4, below.

4. Write the food code that is listed in the ***Pro*PAN** food composition table, being careful to choose either the raw or cooked form based on the calculations done in steps 2 and 3 above.

If the preparation is separated into its ingredients, do not assign a code to the name of the preparation in the column titled "Code" (in other words, the row corresponding to the preparation name, "goose soup," should be blank in the "Code" column).

Observe the following example:

Meal time		Name of food or preparation	Ingredients (specify characteristics)	Code (office)						Measurements taken in the home					Conversion to grams	NET GRAMS	
										Served	Not Consumed	Consumed	Weighed 1=Gross 2=Net	Consumed 1=Cooked 2=Raw		Served	Consumed
0	3	Goose soup								80 g	0	80 g					
0	3		Drumstick with bone	3	3	5									**365.85 g / 2703.85 g = 0.135 80 g X 0.135 = 10.8 g 10.8 g X 1.23 = 13.3 g**	**0 1 3 3**	**0 1 3 3**
0	3		Vegetable oil	4	8	5									**30 g / 2703.85 g = 0.011 80 g X 0.011 = 0.88 g**	**0 0 8 8**	**0 0 8 8**
0	3		White onion, large	1	1	8									**288 g / 2703.85 g = 0.1065 80 g X 0.1065 = 8.52 g**	**0 8 5 2**	**0 8 5 2**
0	3		Water	1	0	5	3								**2000 g / 2703.85 g = 0.7396 80 g X 0.7396 = 59.168 g**	**0 5 9 1**	**0 5 9 1**
0	3		Bouillon cube, tomato	1	0	5	4								**15 g / 2703.85 g = 0.0055 80 g X 0.0055 = 0.44 g**	**0 0 0 0**	**0 0 0 0**
0	3		Iodized salt	1	0	5	5								**5 g / 2703.85 g = 0.0018 80 g X 0.0018 = 0.144 g**	**0 0 0 0**	**0 0 0 0**

In summary, these are the procedures that should be performed in the office:

- Code the foods, ingredients, and preparations according to the "List of food codes" of the ***Pro*PAN** food composition table.
- Convert the foods and preparation ingredients to net grams using the necessary conversion factors (edible portion, cooked to raw, and/or densities).

If (1) a code that does not correspond to the food is erroneously used or (2) there are errors in completing the calculations, the wrong energy and nutrient values will be obtained when analyzing this information.

The coding and calculations should be completed the same day the survey is collected and then given to the supervising nutritionist for her review.



APPENDIX 1.
LIST OF EDIBLE PORTION OF FOODS

The edible portion of foods refers to the portion of the food that can actually be eaten. The value can range from 0 (nothing is edible) to 1.0 (everything is edible); or from 0 (nothing is edible) to 100% (everything is edible). For example, only 68% of a banana can be eaten, since the peel is not consumed; in this case, the edible factor is 68%.

Generating the edible factor:

It will be necessary to generate edible factors for foods consumed by children that are lacking this information.

To generate the edible factor, the food should be weighed with the inedible portion (such as pit, bone or peel) included. Then, all of the inedible portions are removed and the food is reweighed, this time measuring only the edible portion. The edible portion can then be calculated. Observe the following example:

Raw goose drumstick with skin and bone, 1 medium piece = 112 g

Raw goose drumstick without skin or bone, 1 medium piece = 72.8 g

If 112 g of goose drumstick including skin and bone is 100%, what is the percentage of the goose drumstick without skin or bones (without the inedible portion) that weighs 72.8 g?

$$\frac{\text{112 g goose drumstick with skin and bones}}{\text{72.8 g goose drumstick without skin or bones}} = \frac{\text{100 \%}}{\text{X edible portion}}$$

The edible portion is = X = 65 %

Since 65 % divided by 100 = 0.65, the edible portion of the raw goose drumstick is 0.65.

Applying the factor to calculations:

To apply the factor to calculations, the edible portion must first be obtained from either the variable "portion" in the food composition tables formatted per the ***Pro*PAN** software guidelines or the list generated in the country or by the team. Then, multiply the served (or consumed) grams of the food or preparation ingredient by the edible portion. Observe the following example:

75 g served of pork with bone with an edible portion of 0.66

75 g X 0.66 = 49.5 g pork without bones.

APPENDIX 2.
LIST OF COOKED TO RAW CONVERSION FACTORS

For the analysis of the *24-hour Dietary Recall*, the weight of the foods in net grams, either raw or cooked, is needed. The weight of some cooked foods varies considerably when compared to its raw weight; some retain water, such as rice, others lose water, such as meat. It is important to consider these changes and use the conversion factors to calculate net grams either raw or cooked, as needed.

Generating the conversion factor:

To generate the conversion factor, the raw food must be weighed. Then, the food is cooked following common cooking method(s) (for example, boiling, frying or grilling). The cooking method should be written down. Wait a short pre-determined amount of time (for example, 5 minutes) for each cooked food to cool and then weigh. The conversion factor is calculated in the following manner:

Raw rice weighs 85 grams

Cooked rice weighs 189 grams

$$\frac{85\ g}{189\ g} = X$$

X = 0.45 (cooked to raw conversion factor)

Observe the following examples of cooked to raw conversion factors:

Food	Factor
Boiled rice	0.45
Fried rice	0.30
Boiled beans	0.28
Refried beans	0.20
Boiled pasta	0.45
Fried beef	1.25

Applying the conversion factor to calculations:

The cooked to raw conversion factor can be used to convert a cooked food to its raw form or vice versa. When converting from cooked to raw, you multiply by the conversion factor. When converting from raw to cook, you divide by (or multiply by the inverse of) the conversion factor. Observe the following examples:

Cooked to Raw—multiplying by the factor

82 g boiled beans X 0.28 (cooked to raw conversion factor) = 22.96 g raw beans

82 g fried beef X 1.25 (cooked to raw conversion factor) = 102.5 g raw beef

Raw to Cooked—multiplying by the inverse of the factor

30 g raw beans X 1/0.28 (inverse of the cooked to raw conversion factor) = 107.14 g boiled beans

100 g raw beef X 1/1.25 (inverse of the cooked to raw conversion factor) = 80 g fried beef

Raw to Cooked—dividing by the factor

$$\frac{\text{30 g raw beans}}{\text{0.28 (factor)}} = \text{107.14 g boiled beans}$$

$$\frac{\text{100 g raw beef}}{\text{1.25 (factor)}} = \text{80 g fried beef}$$

APPENDIX 3.

LIST OF WEIGHTS AND MEASUREMENTS OF FOODS AND PREPARATIONS

This list is generated by obtaining the average weight of different sizes of foods and preparations available in the community. This list is used for those foods you are unable to weigh in the home or for those preparations for which you are unable to obtain the ingredients list. The Field Workers should be able to accurately and repeatedly identify different sizes of the same food. To do this, a standardization exercise should be carried out as follows. The Supervisors should buy foods of different sizes (for example, various small apples, various medium apples, and various large apples); the team should then decide which ones will be called "small, "medium" and "large;" they should then weigh each one according to their size category, compute an average, mix up the foods and ask the Field Workers to select one at random and identify its size. This activity can be completed at the same time that foods, their sizes, and average weights are being defined for the *Market Survey* (Annex I-5).

The following are examples of weights and measurements.

Food	Size	Average weight (g)	Range (minimum and maximum)
Bread, *marraqueta*	1 unit	80	73 – 83
Bread, *Redondo*	1 unit	57	55 – 58
Celery	1 bunch	9.5	6 – 12
Chard, leaves and stalk	1 small bunch	22	20 – 25
Chard, leaves and stalk	1 medium bunch	32	31 – 39
Chard, leaves and stalk	1 large bunch	41	42 – 53
Flour	1 cup, level	130	--
Flour	1 cup, heaped	164	--
Peapods, fresh	1 handful	70	67.7 – 72.1
Sausage and beans	1 teaspoon	6.8	--
Sausage and beans	1 soup spoon	13.7	--
Sausage and beans	1 *salsera* spoon	27.5	--
Sausage and beans	1 *pozolera* spoon	20.6	--
Sausage and beans	1 small serving spoon	48.2	--
Sausage and beans	1 large serving spoon	62	--
Sugar, granulated	1 soup spoon, level	10	--
Sugar, granulated	1 soup spoon, heaped	18	--
Tomato	1 small unit	77	80 – 84
Tomato	1 medium unit	126	118 – 140
Tomato	1 large unit	157	147 – 172

During one of the field tests of ***Pro*PAN**, the silhouettes of commonly consumed foods were drawn and cut out. If, for example, the caregiver reported that the tomato she served her child was "small" but bigger than the silhouette for "small" tomato and did not quite reach the size of the silhouette for "medium" tomato, the maximum range of weight for the small tomato was used (84 grams) instead of the average weight of the small tomato (77 grams).

APPENDIX 4.
LIST OF ABBREVIATIONS OF HOUSEHOLD MEASURES

The list of abbreviations of household measures helps to identify the utensils that caregivers use to offer foods or preparations to their children in case the amounts served cannot be weighed in the home. All of the Field Workers must use the same abbreviation to refer to a specific utensil.

Generating the list:

To generate the list, it is necessary to buy or obtain a set of the most common utensils used in the area. Ideally, the Field Workers will generate this list by deciding on the best way to abbreviate and remember each utensil. The abbreviations should be as clear as possible, both for the Field Workers as for the Supervisor.

These are some examples:

Utensil	Abbreviation
Cup	C
Serving spoon, small	cse1
Serving spoon, large	cse2
Tea spoon	Tsp
Table spoon	Tbsp

APPENDIX 5.
LIST OF DENSITIES

The densities of liquids are used to convert volumes (expressed in milliliters) to weight (expressed in grams). Densities themselves express the number of grams in 1 ml of the liquid. The densities are used if it is not possible to weigh the liquid in the home or if the weight of the liquid in the utensil or container in which it was served to the child does not appear on the "List of weights and measurements of foods and preparations" (Appendix 3).

Some examples of densities are:

Liquid	Density (g/ml)
Bean broth	0.64
Beer	0.90
Condensed milk	1.65
Diet colas	0.82
Ginger ale	0.82
Heavy cream	1.13
Honey	1.70
Maple syrup	1.40
Mineral water	0.82
Oil, cottonseed	0.91
Oil, coconut	0.91
Oil, sunflower	0.91
Oil, olive	0.91
Tomato juice	1.38

Generating densities:

Densities are generated by weighing a known volume of the liquid. The weight (in grams) is divided by the volume measured (in ml) to yield the density (expressed in g/ml). For example, if 10 ml of the liquid are weighed, the grams are divided by 10 yielding the density per 1 gram. Observe the following examples:

5 ml of olive oil weigh 4.55 grams

$$\frac{4.55\ g}{5\ ml} = \frac{X\ g}{1\ ml}$$

X = 4.55 g/ 5 ml = 0.91 g/ml

10 ml of honey weigh 17.0 grams

$$\frac{17.0\ g}{10\ ml} = \frac{X\ g}{1\ ml}$$

X = 17.0 g/ 10 ml = 1.70 g/ml

Applying densities to calculations:

If only the volume of the liquid is known, the liquid's density is multiplied by this volume to generate the weight (in grams). Observe the following examples:

15 ml of olive oil were served

15 ml X 0.91 g/ml (density) = 13.65 g

25 ml of honey were served

25 ml X 1.70 g/ml (density) = 42.5 g

Annex I-5
Market Survey

OBJECTIVES

- To identify the foods that provide the greatest amount of energy and nutrients for the least cost (nutrient/cost ratio).
- To determine the seasonality and availability of specific fruits and vegetables.
- To obtain information that will be used to develop the *Key Foods List*.

STEPS

1. Previous work

From the *24-hour Dietary Recall* and discussion with community leaders, select a list of foods from the different food groups normally used to feed children between 6 and 23 months of age, such as: cereals, legumes, tubers, fruits, vegetables, meats, eggs, fish, dairy products, industrialized products, and fats and oils. It is important to have a few foods in each category. Also, include foods sold in the retail locations that are of high nutritional value and that can potentially be consumed by the target population but that, according to data from the *24-hour Dietary Recall* or other information available, are not usually consumed by children. The list should have no more than 100 foods.

From this list, calculate the average weight of all foods that have a retail unit different from one kilogram or one liter. For example, the weight or volume of "bunches," "packets," "handfuls" and "scoops" should be transformed to measurements of the metric system. Weigh at least 5 samples of each size of interest (for example, 5 small, 5 medium, and 5 large "bunches") of each food from different retail locations. Calculate the average weight of each size in grams. When dealing with industrialized products, you will need to know the number of grams in the unit of interest; for example, if for canned tuna fish the unit of interest is "small can," you will need to obtain the weight of one "small can" (135 g). This work can be done while collecting information on food prices and availability at the different food locations.

Calculate the edible portion of foods. According to the description in Annex I-4 for the *24-hour Dietary Recall*, the edible portion of the retail unit must be calculated for those foods that are sold with an inedible portion (for example, with bone, peel, skin, seeds). For example, in a community in El Alto in Bolivia in which ***Pro*PAN** was tested, the retail unit for kale includes the stem. One large stem has an average weight

of 28 grams. According to the ***Pro*PAN** food composition table, kale has an edible portion of 0.85. Therefore, the number in grams must be multiplied by the edible portion factor to determine the edible grams in the retail unit of large kale: 28 X 0.85 = 23.8 grams. This number should be written in the "Net weight" column on the form, on the same row where the food code, food name, and retail unit of kale are noted.

Determine the characteristics of the foods for which price and availability information will be collected. For industrialized products, define the brand names. For other foods, define key characteristics such as, for example, loose or packaged rice. This information should be written in the "Food name" column on the form.

Train Field Workers in the proper identification and recognition of foods listed under "Food name." Practice with foods that have retail units different from one kilogram or one liter in order for them to learn how to identify the correct unit. These practice sessions should be carried out first in the office and then in the retail locations.

2. Selection of participants

Determine the **retail locations** (such as markets, grocery stores, and ambulatory kiosks) most frequently visited by the mothers. Information about retail locations can be found in the last question of the *General Survey* (Appendix I-3) or by talking with community leaders.

From those, select at least five retail locations where the information will be collected. The selection should be based on factors such as diversity of products and preference by mothers. It is recommended to include different types of retail locations in order to get a better representation of food availability and prices. If the location is a market, information on prices should be obtained from three different stalls.

3. Materials

- One copy of the registration form for the *Market Survey* (Form I-5.1) for each retail location selected, with the following columns pre-filled: food code, food name, retail unit and net weight
- Food scale (if the foods are weighed when information about their prices is being collected)
- Pencils/pens
- Clipboard
- Identification card

4. Personnel and time

The time required for each survey is approximately 2 hours. It is recommended that one Field Worker be assigned to each selected retail location.

5. Description and procedures

If the location is a grocery store or supermarket, for example, only one price per food item should be collected. If the location is a market with several stalls, three different prices per food item should be collected, and an attempt should be made to include both the highest and lowest prices. Per form, the ***Pro*PAN** software will allow you to enter up to three prices per food for each retail location.

Visits to the main retail locations at the beginning of data-collection activities associated with Module I. One visit per location will be sufficient.

6. Analysis

Average price and cost-benefit

1. From the main menu of the ***Pro*PAN** software, under "Analysis", select "Average cost of foods" to obtain the average price per retail unit of each food in each retail location. The software will only provide average price of each food per retail location and not average price for all the retail locations combined.

2. From the main menu, under "Analysis", select "Cost-benefit" to obtain the lists, in decreasing order, of those foods that provide the greatest amount of energy, protein, iron, zinc, vitamin A, vitamin C, and calcium for the least cost of nutrients for 1 unit of the local currency. For example, in Bolivia, for 1 Boliviano (local currency) you can buy 85.5 mg of iron in pasankalla, 72.6 mg of iron in dried lima beans and 71.4 mg of iron in lentils.

Seasonality

It is recommended that you hand-draw a calendar with the list of foods and months of the year in which these are available in the community. See the following example from Bolivia:

Food	J	F	M	A	M	J	J	A	S	O	N	D	All year
Turnip													X
Okra			X	X	X	X	X	X	X				
Papaliza (a type of potato)				X	X	X	X	X	X				
Papaya		X	X	X	X	X	X	X	X				

Key Foods List

To obtain data for the creation of the *Key Foods List*, the analysis will be performed by hand, using the matrix found in Annex I-6.

PRODUCTS

- Lists in decreasing order of those local foods that provide the greatest amount of energy, protein, iron, zinc, vitamin A, vitamin C, and calcium for the least cost.
- A calendar with the months of the year in which certain fruits and vegetables can be found locally
- Information to be used in the development of the *Key Foods List*.

GUIDELINES FOR COMPLETING THE FORM FOR THE MARKET SURVEY (FORM I-5.1)

The *Market Survey* form is comprised of the following sections::

Identification

- Include the name of the retail location from where the price and seasonality information will be obtained. Write the specific location and exact address, district and area or city to which it corresponds.
- Write the code the Supervisor assigned to each Field Worker.
- Write the date of the visit to the retail location (dd/mm/yyyy).
- The Supervisor should verify the information on the completed form and write her code and the date when she reviewed the form.

Food code

The codes to be written in the first column correspond to the codes of the "Food Composition Table" used for the calculation of nutrients. The Supervisor should fill in the code for each food while preparing the list of foods. Alternatively, the codes could be written on the form after the visit to the retail locations.

Food name

Write the entire name of the food, and its key characteristics, so it will be correctly identified at the retail locations. For example, "Red Delicious apple" means that only the food prices for this type of apple should be obtained. These key characteristics are determined by the team before the visits to the retail locations and are written down by the Supervisor in each form. In the case of industrialized foods, the brand names should be written down.

Retail unit

The third column refers to the retail unit of the food. For example, for foods sold by kilogram, the retail unit will be "kilogram" and the prices will be obtained for 1 kilogram of this food. For those foods sold by units such as, for example, bags, bottles and cans, it will be necessary to specify the size of the retail unit. If there is more than one unit, list all of them, using one row for each retail unit. Food prices should be recorded according to the retail unit in order to reduce errors in data analysis and interpretation. This column should be completed by the Supervisor.

Net weight

The fourth column corresponds to the net weight of the food's retail unit. As described earlier, this is the weight of the edible portion of the retail unit, that is, without peel, bone, seeds, or other non-edible portions. This column should be completed by the Supervisor.

Price

Up to three prices in local currency should be recorded, per retail location for each food item if the location is a market with several vending stalls. Otherwise, only one price should be collected per retail location for each food item.

The price should be written in local currency. Decimal points should be clearly written. For example, if the cost of a kilogram of mangoes is three soles and fifty cents (Peruvian currency), the number 3.50 should be written in the price column. This information should be completed by the Field Worker during the visit to the selected retail locations.

Months available (seasonality)

This information should only be collected for foods such as fruits and vegetables that are not available in the retail locations all year long. Write an "x" under the months in which the food is available (even if only a small amount is available). If the food is available all year long, write an "x" under the "All year" column. Note that this section considers the months in which the foods are available in the retail locations, not the months in which foods are sold in greatest quantities.



REGISTRATION FORM FOR THE MARKET SURVEY (FORM I-5.1)

Name of the retail location:			
Address/location (street, avenue, kilometer, neighborhood or section):			
Name of Field Worker:		Field Worker's code:	
Survey date (dd/mm/yyyy):			
Name of Supervisor:		Supervisor's code:	
Date of supervision (dd/mm/yyyy):			

Food code	Food name	Retail Unit	Net weight	Prices			Months available											
				1	2	3	J	F	M	A	M	J	J	A	S	O	N	D	All year

Annex I-6
Definition of the Key Foods List

OBJECTIVES

- To define the foods most frequently consumed by children 6-23 months of age in the target population.
- To identify foods that will be potentially important to promote in an intervention.

STEPS

To conduct the Food Attributes Exercise, the Field Worker will need a *Key Foods List*, which should be developed following the steps described below:

1. By hand or using the ***Pro*PAN** software (choosing the analysis option "Most Frequently Consumed Foods"), analyze the data of the *24-hour Dietary Recal*l. Using Form I-6.1, list, in descending order, those foods most frequently consumed by young children. Then, based on the Market Survey results, write the month(s) when the foods are available.
2. Based on the *Market Survey* results, add the foods sold in the study area that are not frequently consumed by children but have a high energy or nutrient value at a low cost. These can be obtained by using the ***Pro*PAN** software option "Cost-benefit".
3. To complete Form I-6.2, write the selected foods for each of three categories (highly consumed, nutrient-rich, fat-rich) in the first column. In the second column, indicate the reason why the food was chosen. In other words, specify if the food is frequently consumed or not, its seasonality (if any), and if it's a food with good potential for an intervention (because of its cost-benefit profile). An example is shown below in Table I-9.

Table I-9. Example of a completed matrix for the selection of key foods (Form I-6.2)

FREQUENTLY CONSUMED FOODS	REASON FOR CHOOSING
1. Tortilla	Frequently mentioned, provides energy.
2. Potato	Provides energy. Available in the market and can be bought in small amounts (1/2 kilo).
NUTRIENT-RICH FOODS NOT MENTIONED ABOVE	**REASON FOR CHOOSING**
1. Orange	Frequently mentioned. Inexpensive and available in winter. Produced at the home level. Good source of vitamin C.
2. Yogurt	Frequently mentioned and good source of calcium.
3. Carrot	Not mentioned often but inexpensive and available all year. Good source of vitamin A.
FAT-RICH FOODS NOT MENTIONED ABOVE	**REASON FOR CHOOSING**
1. Oil	Frequently mentioned and used in most preparations. Inexpensive and good source of fat and energy.

4. The resulting *Key Foods List* (Form I-6.2) should include approximately 25-30 foods, and the following criteria should be used for their selection:

   - Foods most frequently mentioned in the *24-hour Dietary Recall*.
   - Foods with low frequency in the *24-hour Dietary Recall*, but that are important sources of micronutrients, protein and energy, and have the potential to be used in preparations for children.
   - Foods that have high energy or nutrient value for a low cost.
   - Foods grown or produced at home.

5. Once the *Key Foods List* has been developed, cards, pictures, or models of each food should be created to be used in the *Food Attributes Exercise* (see Annex I-9).

PRODUCT

- A list with the 25-30 key foods (including foods growing in the wild and those produced in the home or commercial sector, particularly those that are enriched or fortified) which should include energy-rich foods, animal-source foods, sources of protein and/or micronutrients (iron, zinc, vitamin A, vitamin C, and calcium) and others that can be considered potentially important. The resulting list will be used in the *Food Attributes Exercise*.

LIST OF FOODS, FREQUENCY AND SEASONALITY (FORM I-6.1)

FOOD	FREQUENCY	SEASONALITY

MATRIX FOR THE SELECTION OF KEY FOODS (FORM I-6.2)

FREQUENTLY CONSUMED FOODS	REASONS FOR CHOOSING
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	
NUTRIENT-RICH FOODS NOT MENTIONED ABOVE	**REASONS FOR CHOOSING**
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	
FAT-RICH FOODS NOT MENTIONED ABOVE	**REASONS FOR CHOOSING**
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	

Observations: . . . . . .

. . . . . .

. . . . . .

. . . . . .

Annex I-7
Opportunistic Observation

OBJECTIVES

- To identify the context of feeding behaviors and to observe the interaction between the mother and the child during the child's meal time.
- To identify facilitators of and barriers to the ideal practice of supporting and motivating the child to eat to satiety during meal times.
- To look into other aspects of food preparation and feeding such as, for example, hygiene and the use of bottles, spoons and other utensils.

STEPS

1. Previous work

The *Opportunistic* Observation does not require any previous work by the Field Worker, who should always carry the observation guide with him/her and be prepared to observe any feeding episode during the home visits.

2. Selecting the participants

The *Opportunistic Observation* of anyone who is feeding or breastfeeding a young child can take place at any time. The Fieldworker should discretely observe mothers and children less than 2 years of age during home visits, walks around the community, visits to the market or stores, and any other situation where she has the opportunity to observe a child breastfeeding, eating or being offered food.

The sample should include approximately 10 feeding episodes, each one involving a different mother-child pair. From these, at least 5 should include a complete meal. The children should be distributed across two age groups (6-11 and 12-23 months).

3. Material

- Copies of the registration form for the *Opportunistic Observation* (Form I-7.1)
- One copy of the guidelines for the *Opportunistic Observation*
- Notebook
- Pencils/pens
- Clipboard
- Identification card

4. Personnel and time

All the Field Workers should be trained to carry out *Opportunistic Observations*.

The *Opportunistic Observation* could last from 15 minutes to one hour or more, depending on the feeding practice being observed and the family's acceptance of the Field Worker's presence.

5. Description and procedures

IIdeally, the Field Worker will observe a main meal (breakfast, lunch or dinner), beginning with food preparation and ending when the child finishes eating. If possible, this can be done when the Field Worker visits the mother for the *Semi-structured Interviews* or *Food Attributes Exercises*. If not, the Field Worker should ask the mother when the child is served the main meals and if she could visit the mother again during one of those meals. She should then return to the house and try to observe a meal.

The Field Worker should keep a neutral and cordial attitude, pay attention to specific situations or behaviors that may affect child feeding, and not intervene in the behaviors that are being observed. It is important to try to minimize the disruption of the mother's and family's daily activities.

6. Analysis

The analysis should be done by hand using Form I-7.2. For each ideal practice observed, write the actual or observed practice, and any factors observed that could facilitate or act as barriers to the ideal practice. Note this example from Bolivia:

Table I-10. Example of a completed matrix for the summary of opportunistic observations (Form I-7.2)

IDEAL PRACTICE	ACTUAL PRACTICE	BARRIERS	FACILITATORS
12. That all children receive support and are motivated to eat to satiety during meal times	*Most of the children did not receive support and were not motivated to eat*	• *Children being fed in their mothers' market stands* • *Mothers distracted with clients and other people*	• *Two people feeding the child*

PRODUCT

♦ A list of the facilitators to and barriers of the ideal practice of supporting and motivating the child to eat to satiety during meal times.

GUIDELINES FOR COMPLETING THE REGISTRATION FORM FOR THE OPPORTUNISTIC OBSERVATION (FORM I-7.1)

When the Field Worker is in the community and observes a young child being fed, he/she should write all that he/she observed on Form I-7.1. It is possible that not all the key behaviors regarding breastfeeding and complementary feeding will be observed in a single mother-child pair. However, it is important that as much information as possible is recorded each time the Field Worker has a chance to observe a breastfeeding or feeding episode.

I. Identification

- Date of observation (dd/mm/yyyy)
- Field Worker's name
- First and last name of the child being observed (if possible to obtain)
- Brief description of the place (for example, home, market, park, public transportation, etc.)
- Child's approximate age (in months)
- Child's sex
- Approximate age of the person feeding the child
- Sex of the person feeding the child
- Meal observed (breakfast, lunch, dinner, morning snack, afternoon snack, or evening snack)

II. Breastfeeding

1. Write if at any time during the observation the mother breastfed the child. Observe and record the interaction between the mother and the child during the breastfeeding episode.

- Does she pay attention to the child?
- Does she let the young child breastfeed to satiety?
- Does breastfeeding happens smoothly or are any difficulties observed? (for example, the child starts crying while breastfeeding)

III. Complementary feeding

During the meal time

2. Observe and record what the caregiver does when the food is served:
   - ♦ Does she wash the child's hands?
   - ♦ Who does she serve first?
   - ♦ Does anyone help her to serve the food to the child?
   - ♦ Record if the child eats by her/himself or with other family members, and specify who these are.
3. Record if the caregiver uses a spoon, a bottle or another utensil.
4. Who is the person who normally feeds the child (if more than one)? Identify the type of support the child or caregiver get from other family members during the feeding episode, if any.
5. Record the location of the child in relation to the caregiver (for example, seated next to the caregiver, in the caregiver's arms, or on the floor away from the caregiver) during most of the feeding episode.
6. Write the name of all the foods, preparations and drinks the caregiver serves the child.

If the observation is conducted during a family meal:

7. Record if the caregiver serves any food, preparation or drink to the child that she does not serve to the rest of the family.
8. Record if the caregiver serves to the child only a portion of a food, preparation or drink that she serves to the rest of the family. For example, from a stew for the family, she serves only the broth to the child, or she selects a potato from the family preparation and mashes it for the child to eat. Record the name of the food, preparation or drink from which the caregiver selects a "special" portion for the child.
9. Record if the caregiver serves any food, preparation or drink to the rest of the family that she does not serve to the child. Write the name of the food, preparation or drink that the caregiver serves to the rest of the family but not to the child.

Caregiver-child interaction

10. Record if the caregiver ever <u>verbally encourages</u> the child to eat. Note the difference between "encourage" which is done with a pleasant and positive tone of voice and "hurry, threaten, or order" which is done with a scolding or threatening tone of voice. Observe and record all verbal and non-verbal interactions between the caregiver and the child.

11. Record if the caregiver encourages the child while she is eating well (that is, the child is not rejecting the food, refusing to eat, or is playing with the food) or if she only encourages the child when she is not eating well.

12. Observe and record if the caregiver ever motivates the child to eat more with gestures, games, or by demonstrating how to do so (for example, if the caregiver uses the child's spoon to feed a spoonful to herself, caregiver, from the child's plate; if the caregiver pretends the child's spoon is a plane full of food "flying" to the child's mouth, etc.). In case the caregiver does not encourage the child, make sure to record if this is because the child is eating well, or because the caregiver does not pay enough attention to the child, even though the child might need it.

13. Record if the caregiver ever physically forces the child to eat. Record if the mother touches the child in any way that forces her to eat (for example, by opening her mouth with a spoon full of food, pulling the child's hair or hitting her).

14. Observe and record if the caregiver serves more food to the child in addition to what was originally served, whether the same food/preparation or a different food/preparation.

15. Observe and record if the child eats all the food that was served. If not, record what the caregiver does with the leftovers (for example, puts them away for later use, throws them away or gives them to another family member).

16. Record what the caregiver does during most of the time the child is eating. Is she doing something else without paying attention to the child? Is she doing something else but also paying attention to the child? Does she dedicate most of her time and attention to the child while the child is eating?

17. Record other aspects related to the feeding time that you consider important and note if other forms were applied simultaneously.

18. Make general observations about the hygiene regarding food preparation.

Form I-7. 1
Site of observation _____

REGISTRATION FORM FOR THE OPPORTUNISTIC OBSERVATION (FORM I-7.1)

It is possible that not all the key points to be observed regarding breastfeeding and complementary feeding will be observed in a single mother-child pair or in a single home. However, whenever it is possible to observe the feeding of a child less than 2 years of age, refer to the key points below and record as much as possible.

TOPIC	OBSERVATION
I. Identification	
Date of observation (dd/mm/yyyy)	
Name of Field Worker	
First and last name of the child being observed (if possible)	
Place of observation (street, neighborhood, etc.)	
Child's age (even if it is only an approximation)	
Child's sex ( ) M ( ) F	
Age of person feeding child (even if it is only an approximation)	
Sex of the person feeding the child ( ) M ( ) F	
Meal time observed	
II. Breastfeeding	
1. Mother-child interaction: • Mother pays attention to the child? • Breastfed to satiety? • Difficulties?	

Form I-7. 1
Site of observation _____

TOPIC	OBSERVATION
III. Complementary feeding	
During the meal time	
2. When serving the food: • Wash the child's hands? ( ) Yes ( ) No • Serves the child first?_____ • Anyone helps her serve the food? ( ) Yes ( ) No • Child eats ( ) by herself ( ) with other family members: _____	
3. Own plate? Uses a spoon, bottle or other utensil?	
4. Who feeds the child? Support from family.	
5. Location of the child in relation to caregiver	
6. Foods, preparations and drinks served to the child.	
7. Any food, preparation or drink served to the child and not to the rest of the family?	

Form I-7. 1
Site of observation _____

TOPIC	OBSERVATION
8. Child served only a portion of a food, preparation or drink that is served to the rest of the family?	
9. Any food, preparation or drink served to the rest of the family but not to the child?.	
Caregiver-child interaction	
10. Caregiver verbally encourages the child to eat?	
11. Caregiver encourages the child while she/he is eating well?	
12. Caregiver ever motivates the child to eat more with gestures, games, or by demonstrating her/him how to eat?	

Form I-7. 1
Site of observation _____

TOPIC	OBSERVATION
13.Caregiver ever physically forces the child to eat?	
14. Caregiver ever serves more food to the child?	
15. Child eats all the food that is served? What caregiver does with leftovers?	
16. Caregiver pays attention to the child?	
17. General observations about hygiene in the home.	
18. Other aspects related to the feeding.	

MATRIX FOR THE SUMMARY OF OPPORTUNISTIC OBSERVATION (FORM I-7.2)

IDEAL PRACTICE	ACTUAL PRACTICE	BARRIERS	FACILITATORS

Annex I-8
Semi-structured Interview

OBJETIVES

- To identify the actual breastfeeding and complementary feeding practices.
- To understand the reasons behind the actual practices.
- To identify the facilitators of and barriers to the ideal breastfeeding and complementary feeding practices.
- To identify practices that could potentially be improved so that mothers' behaviors more closely approximate the ideal practices.

STEPS

1. Previous work

As with the other forms, it is important to adapt the interview guide to the local context. The suggested questions in this guide should be reviewed and improved with local terminology. The questions should be formulated in such a way that the women feel invited to answer them, instead of pressured or offended by them. A pilot study should be carried out to test the changes made.

2. Selection of participants

Approximately 10 mothers with children between 6 and 23 months of age should be interviewed. An attempt should be made to have approximately five children per age group (6-11 and 12-23 months). Selection should be purposeful and based on the mother's availability and willingness.

3. Materials

- One copy of the guide for the *Semi-structured Interview* (Form I-8.1), adapted to the local language
- Notebook to record replies and other notes
- Pencils/pens
- Clipboard
- Identification card

4. Personnel and time

If possible, Field Workers with knowledge of qualitative methods and nutrition should conduct the interviews since they have the necessary techniques to carry out an informative interview and they have the nutritional background necessary to know which topics need follow-up questions. If there is no one with these skills on the team, a nutritionist should be trained on the qualitative methodology and this person should carry out all of the interviews.

5. Description and procedures

The interview is not a survey. Rather, it is an informal conversation where the interviewee feels comfortable and information is shared about the topics of interest. The interview guide is a conversation guide. For this reason, the questions written on the guide should not be read verbatim, as they are in a survey. The Field Worker should be familiar with the topics and questions (adjusting the questions to the age of the child, as needed), so that the interview proceeds in the most fluid and natural way possible. Even though it is necessary to obtain some background information on the interviewee, questions should not be asked directly and abruptly.

If answers given to different questions seem to contradict each other, clarify with the mother the causes of the apparent contradiction before proceeding to another question.

Record all information obtained in a notebook. These notes should be reviewed at the end of the day while the information is "fresh." Make sure the handwriting is clear and expand the notes, filling in the gaps in the information and adding notes and comments about any issues observed that are considered relevant. If there are topics for which the information is not satisfactory, write them down and try to interview the mother a second time to discuss those items with her.

6. Analysis

The analysis will be done by hand using the matrices provided in Forms I-8.2 and I-8.3, which should be filled out with reference to the ideal practices (Table 1 of the introduction). First, the matrix for the summary of knowledge, reasons and attitudes toward the ideal practices (Form I-8.2) should be filled out for each ideal practice and each mother interviewed. Then, the matrix for the summary of the barriers to and facilitators of the ideal practices (Form I-8.3) should be completed with a summary of the results of all the interviews per ideal practice.

Form I-8.2 should be completed the following way:

Ideal Practice

In this space, write the ideal practice as described in Table 1 of Introduction.

Actual Practice

This column should list the feeding practices that the mother actually carries out. A direct quote of the mother's statement can be recorded to reinforce the affirmation or negation of the practice. A reference (for example, page of field notes) should be added to the quote.

Reasons, Knowledge and Attitudes

This column should be filled with the reasons given by mothers for the feeding practices listed in the first columns regardless of whether these practices are ideal or not. If they do not coincide with the ideal practices, then the reasons for not adopting the ideal practices should be listed. In addition, the knowledge and attitudes related to the practices listed in column should be recorded in column 2. The space provided is for recording the "whys" of each practice and to write the conditions under which mothers could change their practices. This information should be recorded for each actual practice discussed by the mother. An example is shown below.

Table I-11. Example of a completed matrix of the reasons for certain practices, and knowledge and attitudes towards the ideal practices, by mother (Form I-8.2)

IDEAL PRACTICE: That all infants are breastfed for the first time within the first hour after birth

ACTUAL PRACTICE	REASONS, KNOWLEDGE AND ATTITUDES
Took less than one hour to breastfeed the child for the first time after birth. "Then they brought him to me around a half hour later, and I breastfed him (p. 3). "	"I breastfed him because breastmilk is the first thing the baby should drink to be protected from illnesses that are dangerous for babies, it's the best thing to do (p. 4)."

Form I-8.3 should be completed the following way:

Ideal practice

The ideal practice should be specified, according to how it is written in Table 1 of Introduction.

Barriers – Internal and external

The first two columns will be used to record those factors that are barriers for the promotion of behavioral changes. These will be selected from those factors listed in the "Reasons, Knowledge and Attitudes" column of Form I-8.2 and will be those which will likely prevent mothers of adopting certain "Ideal Practices" .

Barriers will be divided into external and internal. External barriers refer to factors over which the mother has little (if any) control, such as, for example, availability of and access to certain foods, access to cooking equipment, utensils, and fuel, and institutional policies, such as separation of mother and infant after birth. Internal barriers refer to factors such as knowledge, attitude, skills, and psychological traits.

Facilitators – Internal and external

As for the barriers, the facilitating factors (those which may make behavior changes possible and even easier) will be selected from the mothers' "reasons, knowledge and attitudes" of Form I-8.2 and will be those which will likely help or facilitate behavioral changes. They will also be divided into internal and external. An example is shown below.

Table I-12. Example of a completed matrix for the summary of the barriers to and facilitators of the ideal practices (Form I-8.3)

IDEAL PRACTICE: That all infants are breastfed for the first time within the first hour after birth

BARRIERS		FACILITATORS	
INTERNAL	**EXTERNAL**	**INTERNAL**	**EXTERNAL**
	In the hospital, mothers receive their babies more than 2 hours after birth.	Some mothers breastfeed within the first hour because they consider that this practice protects the baby from infections and illnesses.	

PRODUCTS

- Summary of actual feeding practices.
- Summary of internal and external facilitators and barriers for each ideal breastfeeding and complementary feeding practice.

GUIDE FOR THE SEMI-STRUCTURED INTERVIEW (FORM I-8.1)

This is a conversation guide; thus, the questions should not be read as in a survey. To conduct a more fluid and natural interview, the Field Worker should know the topics and questions (adapting them to the child's age) to conduct the interview fluently.

Good morning (afternoon), my name is _____ and I come from _____. As you might remember, I come to talk with you about your child's eating patterns.

I. GENERAL INFORMATION

If possible, complete this section before the interview

1. Child's code
2. Child's name
3. Child's age (in months)
4. Mother/caregiver's name
5. Date of interview (dd/mm/yyyy)
6. Date notes completed (dd/mm/yyyy)
7. Field Worker's name and code

II. BREASTFEEDING

Ideal practice 1. Breastfeed for the first time within the first hour after birth

8. Where did you give birth?

- How long after birth did you breastfeed your baby for the first time?
- (IF TOOK MORE THAN 1 HOUR) Why did it take that long?
- (IF IT TOOK MORE THAN 1 HOUR) Would it have been possible to breastfeed within the first hour after birth?
- What would have needed to happen to make it possible for you to breastfeed for the first time within the first hour after birth?

Ideal practice 2. Do not feed with pre-lacteals

9. Was the baby given (by you or somebody else) anything to eat/drink before you first breastfed her/him?

- (YES) What was given to the baby?
- Why was it given to her/him.....? (ASK FOR EACH FOOD/DRINK THAT WAS GIVEN TO THE BABY)
- How did they give her/him this....? (UTENSIL USED. ASK FOR EACH FOOD/DRINK THAT WAS GIVEN TO THE BABY)
- Who advised you to give this to the baby? (ASK FOR EACH FOOD/DRINK THAT WAS GIVEN TO THE BABY)
- If a friend told you she was <u>not</u> going to give this (NAME ANY PRELACTEAL THAT SHE OR SOMEONE HAS GIVEN TO A BABY) to her baby before breastfeeding first, what advice would you give your friend?

Ideal practice 3. Feed colostrum

10. When did you first get your first milk (COLOSTRUM)?

- Did you give that first milk to your baby?
- (YES) Why?
- (NO) What did you do with that first milk?
- Why didn't you give it to your baby?
- If you knew that (the ideal practice) "to give the calostrum" would make that (benefit of the ideal practice) "the child gets sick less often", and that (the problem practice) "not to give calostrum" would make that (the consequence of sub-optimal practice) "the child gets diarrhea and cough more often"; would you be willing to change your practice if you had another child?

- Is there something that would make you carry out this change?
- How could this change be easier for you?

Ideal practice 4. Breastfeeding on demand, during the day and night.

11. Are you currently breastfeeding your baby?

- (YES) How often do you breastfeed?
- Do you breastfeed on a fixed schedule or each time your baby asks to be fed? Why?
- What conditions would be necessary for you to breastfeed only when your baby wants to feed and not on a fixed schedule?

Ideal practice 5. Exclusive breastfeeding until 6 months of age

12. What do you think about feeding a baby with only breastmilk (without water and other liquids) for the first 6 months of life?

- If you were to have another baby, would you be willing to only feed her/him with breastmilk for the first 6 months of life, that is, until she/he turns 6 months?
- Why? Why not?
- Is there anything that would convince/permit/help you to be able to feed you baby with only breastmilk for the first 6 months of life?

Ideal practice 6. Breastfeed until 24 months of age.

13. Until what age do you plan to breastfeed your baby?

- Why that age?
- Could you breastfeed until your baby turns 2 years old?
- Why? Why not?

14. At what age did you stop breastfeeding?

- Why did you stop at that age?
- Is there anything that would convince/permit/help you to be able to continue breastfeeding until your baby turns 2 years of age?

III. COMPLEMENTARY FEEDING

Ideal practice 7. Begin complementary feeding at 6 months of age with semi-solid foods

15. Have you given any food to your baby?

- What was the first thing you gave your baby to eat?
- Why did you decide to start with this particular food?
- How old was your baby when you gave her/him this particular food for the first time?
- (BEFORE 6 MONTHS) If you knew that (the ideal practice) "to exclusively breastfed for 6 months" would make that (benefit of the ideal practice) "the child gets sick less often and grows up more", and that (the problem practice) "to give other liquids and solid food before 6 months" would make that (the consequence of sub-optimal practice) "the child gets diarrhea and cough more often and he would remain small and thin"; would you be willing to change your practice?
- Is there something that would make you carry out this change?
- How could this change be easier for you?
- (AFTER 6 MONTHS) If you knew that (the ideal practice) "to exclusively breastfed for 6 months and to initiate semi-solid foods at that age" would make that (benefit of the ideal practice) "the child grows up more", and that (the problem practice) "to give other liquids and semi-solid until the child is older than 6 months" would make that (the consequence of sub-optimal practice) "the child remains small and thin"; would you be willing to change your practice if you had another child?
- Is there something that would make you carry out this change?
- How could this change be easier for you?

Ideal practice 8. Feed the child the amount necessary to meet her/his recommended daily energy requirements

16. If it were necessary to increase the amount of food that you give your child, would you be able to do this?

- Why? Why not?

Ideal practice 9. Feed the child with high energy and nutrient density foods

17. Do you prefer to feed your child more liquid or more solid (thicker) foods?

- IF PREFERS MORE LIQUID) When should thicker, more solid foods be given to a child?
- What would you say to a friend who is thinking of giving thicker, more solid foods to her 6 month old baby?

Ideal practice 10. Feed the child with the recommended daily frequency.

18. How many times a day do you feed your child? (ASK ABOUT MAIN MEALS AND SNACKS)?

- (IF THE FREQUENCY IS LESS THAN THAT RECOMMENDED) If a health professional asked you to increase the number of times you feed your child each day would you be able to do this? Why? Why not?
- (IF THE FREQUENCY IS MUCH MORE THAN THAT RECOMMENDED) If a health professional asked you to decrease the number of times you feed your child each day what would be your reaction?

Ideal practice 11. Feed the child meat, fish or poultry daily.

19. How many times a day do you feed your child meat, fish, or poultry?

- What conditions would have to be present for you to increase the number of times a day you serve these foods to your child?

Ideal practice 12. Support and motivate the child to eat.

20. If your child stops eating, and you think she is still hungry or did not eat enough, what do you do?

- How do you motivate her/him to eat?
- What could you do so that the child has someone to help her/him eat at every meal?

MATRIX FOR THE SUMMARY OF THE REASONS FOR CERTAIN PRACTICES, AND KNOWLEDGE AND ATTITUDE TOWARDS THE IDEAL PRACTICES, BY MOTHER
(FORM I-8.2)

Interviewee's name	
Date of interview	
Child's age (in months)	
IDEAL PRACTICE	

ACTUAL PRACTICE	REASONS, KNOWLEDGE AND ATTITUDE

MATRIX FOR THE SUMMARY OF THE BARRIERS TO AND FACILITATORS OF THE IDEAL PRACTICES (FORM I-8.3)

IDEAL PRACTICE:	

BARRIERS		FACILITATORS	
INTERNAL	EXTERNAL	INTERNAL	EXTERNAL

Annex I-9
Food Attributes Exercise

OBJECTIVES

- To identify the positive and negative characteristics of the key foods.
- To determine which key foods are fed to children and why.
- To identify at what age key foods were offered to the child for the first time, how they were prepared, and how they are prepared now.
- To explore the conditions and changes necessary so that mothers can offer foods that are currently not offered to children less than two years of age

STEPS

1. Previous work

The *Key Foods List* should be developed with the information obtained from the *24-hour Dietary Recall* and the *Market Survey* (see definition of the *Key Foods List* in Annex I-6). This list would include 25 to 30 foods identified as the most commonly given to children between the ages of 6 and 23 months or with the greatest potential to be used in an intervention.

Once this is done, a picture should be taken or a drawing made of each one of the key foods. It is important that the drawings or pictures stress the food characteristics and exclude accessories, such as baskets and tablecloth, that may distract the mother. The pictures should be uniform in terms of paper type and size, and other characteristics.

Once the drawings/pictures are completed, they should be validated in the study communities. The Supervisors should show the cards to approximately 10 mothers and ask them to identify each food. If the foods are identified by the majority of the mothers, the cards may be used.

A code corresponding to each food should be written on the back of each card, and the name of each food should be written clearly on the front of each card.

2. Selection of participants

To apply the *Food Attributes Exercise*, it will be necessary to obtain a sample of 10 mothers of children between the ages of 6 and 23 months. The sample does not have to be randomly selected and can be composed of mothers who already participated in the application of other research instruments.

3. Materials

- Set of cards/pictures with each key food
- Guide for the *Food Attributes Exercise* (Form I-9.1)
- Copies of the form for the consumption and attributes of key foods (Form I-9.2
- Pencils/pens
- Clipboard
- Identification card

4. Personnel and time

The *Food Attributes Exercise* should be applied by the Field Workers. Each Field Worker should be able to complete 2-3 forms per day.

5. Description and procedures

When interviewing mothers, it is important to explain that there are no wrong answers and that the information provided by them will contribute to the understanding of feeding practices of young children, which can be used to better help other mothers.

On Form I-9.2, record the codes and names of each one of the key foods. Show the first card and ask:

Do you feed (potato, for example) to your child?

Write YES or NO on Form I-9.2. Then ask:

If the answer is YES: ***Why or for what reason do you feed this to your child?***

How old was your child when you started

feeding this food to her/him?

If the answer is NO: ***Why don't you feed this to your child? Or,***

what happens if you feed this to your child?

At what age can you feed this to your child?

If the mother gives the food to the child, ask her:

How do you prepare this food when you feed it to your child?

How do you feed it to your child? Why?

How often do you feed it to your child? Why?

If the mother does not feed the food to her child, ask her questions to determine the possibilities for behavior change, for example:

You tell me that you don't feed your child beans because the skin will stick to her/his stomach. Can you think of a way to prepare beans so that your child can eat them without getting harmed (so the skin doesn't stick to her/his stomach)?

If the mother does not answer or does not think of anything, ask her:

If we could find a way to prepare beans so that they do not have the skin on them, would you feed them to your child?

Each one of the answers should be recorded next to the food. It is important to write everything the mother says, using her words. Additional exploratory questions (such as the one below) may be asked.

What else do you know about this food? What do other mothers in the community say about this food?

Proceed in the same manner with all the foods represented in the cards. It is possible that some mothers will hesitate or give little information about some foods. If this occurs, insist gently.

6. Analysis

The analysis should be done by hand by completing the matrix in Form I-9.3 (see an example in Table I-13 below). The foods should be listed in the first column. Then, for each food, write its positive and negative attributes (as stated by the mother), if the mother feeds it to the child, how she prepares the food, how the food was prepared the first time it was given to a child, how it could be prepared for a child 6 months old, and what conditions are necessary for the mother to feed the food to a child less than 2 years old.

Table I-13. Example of a completed matrix for the summary of attributes and preparation of key foods (Form I-9.3)

Key food	Positive attributes	Negative attributes	Do you feed it to your child now?	How do you prepare it for a child __ (child's age)?	How did you prepare it the first time you fed it to your child (child's age)?	How would you prepare it for a 6 month old infant?	Conditions necessary to feed it to a child less than 2 years of age?
Mango	It is good. It is tasty, children love it. It is nutritious, is a good food.	It is cold, it gives diarrhea. The skin is bad for their stomach.	YES. It is good for children 12-23 months of age. NO. Should not be eaten until child has more teeth, it should be fed after 9 months of age because of the "threads" (fibers), I start feeding it when he is 1 year old. ***¿If you strained it and took the threads out, would you feed it to your child?*** No, it would still give her diarrhea.	Just like it is, plain (13 m). They eat it like dessert (8 m).	Shredded (6 m)	Chopped and mashed. Blended with milk.	Available in the home.

PRODUCTS

- A summary of those key foods that are offered to children and of those that are not and the reasons why.
- For each food, the positive and negative characteristics attributed by the mothers.
- For each food, information about the age at which it was offered for the first time, how it was prepared, and how it is prepared now.
- For each food that is not being offered to children, the conditions and changes necessary for it to be offered to young children.

GUIDE FOR THE FOOD ATTRIBUTES EXERCISE (FORM I-9.1)

Good morning, my name is _____ and I come from _____. We are talking with families who have children less than 2 years of age. Would you have a little time to talk with me about the foods that you feed your child?

We are going to talk a little about the foods that I have here in these pictures. There is no right or wrong answer to the questions I will be asking, so I ask you to please be honest with me. The information you will provide will help us to try to improve the feeding of young children.

(Show the first picture/drawing):

Do you know what this food is?

NO: (tell her the name of the food) Do you recognize the food?

YES : Do you feed _____ (name the food) to your child?

YES: Why/for what reason do you feed this to your child?

How old was the child when you first gave her/him this food? Is there a reason why you started giving it a this age?

> 6 months: Could you give _____ (name food) to a 6 month old infant who is just beginning to eat? Why?

NO: If it were prepared in some special way, would you feed it to a 6 month old infant?

YES: Could you explain how it should be prepared to be fed to a 6 months old infant?

YES: How do you prepare this food when you feed your child? Or, How do you feed this to your child? Why?

NO: Why don't you feed this to your child? What happens if you do? At what age can a child start eating this? Why at this age?

You tell me you don't feed _____ (name food) because _____ (name reasons given by mother). Can you think of a way to prepare this food so you could give it to your child without _____ (name consequences/reasons expressed by mother)?

NO : If the food would be prepared this way (idea that occurs to you: thicker,with meats, with vegetables, etc.)… would you feed it to your child? Why?

What else have you heard about _____ (name the food)?

What do other mothers or people in the community say about feeding this food to young children like your daughter/son?

FORM FOR THE CONSUMPTION AND ATTRIBUTES OF KEY FOODS (FORM I-9.2)

Interview date:		**Child's name:**		**Page:**	
Informant's name:		**Child's age:**		**Of:**	
Informant's code:		**Field Worker's code:**			

FOOD CODE	KEY FOOD	CONSUMPTION AND ATTRIBUTES

MATRIX FOR THE SUMMARY OF CONSUMPTION, ATTRIBUTES AND PREPARATION OF KEY FOODS (FORM I-9.3)

Key food	Positive attributes	Negative attributes	Do you feed it to your child now? Why?	How do you prepare it for a child ____ (child's age)?	How did you prepare it the first time you fed it to your child (child's age)?	How would you prepare it for a 6 month old infant?	Conditions necessary to feed it to a child less than 2 years of age

Annex I-10
Forms for data integration and analysis

MASTER MATRIX (FORM I-10.1)

IDEAL PRACTICE

ACTUAL PRACTICE(S)

BARRIERS		FACILITATORS	
INTERNAL	EXTERNAL	INTERNAL	EXTERNAL

MATRIX OF FOODS (optional)
(FORM I-10.2)

Food	Positive attributes	Negative attributes	Frequency it is eaten by child	Age when first given to child	Contribution to diet	Cost-benefit	Seasonality	Way of preparing or feeding

MATRIX OF PROBLEM AND RECOMMENDED PRACTICES (FORM I-10.3)

PROBLEM PRACTICES	RECOMMENDED PRACTICES

MATRIX FOR THE IMPACT, FEASIBILITY AND OBSERVABILITY ANALYSIS (FORM I-10.4)

Total (1-7)											
Observability (7)											
Feasibility (2 – 6)											
Complexity (6)											
Cost in time and/or effort (5)											
Cost in resources and/or money (4)											
Compatibility with beliefs and knowledge (3)											
Positive consequences (2)											
Impact (1)											
Recommended practices											

MATRIX FOR THE SUMMARY OF POSSIBLE RECOMMENDED PRACTICES (FORM I-10.5)

PROBLEM PRACTICE	RECOMMENDED PRACTICES TO BE TESTED IN MODULE II	RECOMMENDED PRACTICES THAT WILL NOT BE TESTED BUT WILL BE PROMOTED

MODULE II
RECIPE CREATION EXERCISE AND TEST OF RECOMMENDATIONS

PURPOSE

After carrying out the data analysis described at the end of Module I, the team will have a list of the potential recommendations to improve infant and young child feeding in the target population. These recommendations can include changes in behavior, changes to traditional recipes to improve their nutritional quality, or the development of new recipes with commonly used foods. In Module II, the team will learn how to evaluate the acceptability and feasibility of these recommendations. In addition to providing the information needed to conduct a *Recipe Creation Exercise* and to field test the proposed recommendations, the module provides information needed to conduct *Focus Groups*. *Focus Groups* are offered as an optional activity if additional information is desired to confirm the findings about any recommendation.

PRODUCTS

After applying Module II, the team will:

- Have new or modified recipe(s) made with available and accessible ingredients, and which are likely to be deemed acceptable by the target population.
- Be able to prioritize the recommendations identified during the assessment (Module I).
- Have some knowledge regarding the feasibility of adopting the recommendations as well as the barriers to and facilitators for their adoption.
- Have information that, if needed, can be used to modify the recommendations so as to make their adoption more feasible.
- Have data to be used in the development of the strategies, activities, materials, and messages of an intervention to promote the recommendations (described in Module III).

OVERVIEW

The *Recipe Creation Exercise*, *Test of Recommendations*, and *Focus Groups* are methodologies that provide invaluable information through the exchange of ideas and experiences between mothers[1] of young children.

The *Recipe Creation Exercise* is used to develop new recipes or improve existing ones using available, accessible, and acceptable foods with the active participation of mothers. Some of the preparations that were described by mothers during the *24-hour Dietary Recall* may be chosen for this activity. It is not necessary to apply this methodology if recipe creation or modification is not being considered as part of the intervention plan. However, if recipe creation or modification is being considered, this activity should be implemented prior to the *Test of Recommendations*.

The *Test of Recommendations* is used to observe the way in which mothers carry out the proposed recommendations in their homes under typical conditions. If these recommendations are not pre-tested, there is a risk of refusal or poor compliance once the intervention has started. Therefore, the *Test of Recommendations* is not optional and should be carried out for all the recommendations that are being considered for inclusion in a future intervention.

The use of *Focus Groups* is optional, but should be carried out when changes to one or more recommendation, as a result of the *Test of Recommendations*, are significant and more information is needed to verify the acceptability and feasibility of the recommendation.

If all three methodologies are used, they should be implemented consecutively beginning with the *Recipe Creation Exercise* and ending with *Focus Groups*. As mentioned previously, the *Test of Recommendations* should always be applied and is a prerequisite to the execution of any intervention that will promote specific recommendations. The larger the intervention, the more time and resources should be devoted to ensuring the feasibility of the recommendations and their acceptability by the target population.

It is estimated that the *Recipe Creation Exercise*, including the training of the Field Workers, implementation and data analysis will take between one and two weeks. The *Test of Recommendations* will take another two weeks.

The time necessary to conduct *Focus Groups* will depend on the number of topics and of focus groups per topic: planning and implementation of a single *Focus Group* and topic may take two days, and the analysis of its results two or three additional days. However, if multiple focus groups are planned for the same topic, planning time will be reduced and it is likely that the analysis of the results will go more quickly.

1 The vast majority of young children are likely to be cared by their mothers. However, we used "mother" throughout ***Pro*PAN** to denote mothers and other caregivers.

Recipe Creation Exercise

When should it be applied?

The *Recipe Creation Exercise* should be carried out when the team has determined that none or only a few recipes identified in Module I have a high nutritional value or when something new is desired, such as a new preparation with available foods appropriate for small children. It can also be applied to add one or more ingredients to existing preparations to increase their nutritional value. Finally, it is useful to increase variety in the diet, since it allows the creation of numerous recipes using similar ingredients.

Objective

The main purpose of the Recipe Creation Exercise is to obtain nutritious recipes that might contribute to overcoming the dietary inadequacies found in the target population during the assessment (Module I). It is very important to note that this methodology is not designed to test or identify recipes that the mothers already prepare at home, but rather to create new recipes or modify existing ones.

In brief, the objectives of the Recipe Creation Exercise are to:

- Develop new recipes for small children through the active participation of mothers.
- Improve existing preparations for small children through the active participation of mothers (for example, increase the iron or vitamin A content by adding other foods, or modifying quantities or proportions of ingredients).
- Identify different food combinations and recipes that can be prepared with the same number of ingredients.

Methodology

The methodology is described in detail in Annex II-1.

Analysis

The nutritional content of the recipes can be analyzed using the ***Pro*PAN** software (see the annexes of the software manual for detailed instructions). The information about acceptability and adoption of the recipes by the mothers and children and any additional information related to the recipe creation obtained with this methodology should be analyzed by hand using the matrices provided in Annex II-1.

Products

The *Recipe Creation Exercise* will provide some or all of the following products:

- New recipes with higher nutritional value and which are appropriate for small children.
- Improved recipes that include a greater variety of foods and that are more nutritious than the ones from which they were created.
- Different combinations of foods and recipes that can be prepared with the same number of ingredients.

Test of Recommendations

When should it be applied?

The *Test of Recommendations* should be applied to test any recommendation that has the potential to impact positively the nutritional status of children and that will require a change in behavior by the mothers. Examples of potential recommendations are listed and illustrated below.

- A new practice: feed the child iron-rich foods each day; use a cup and spoon instead of a bottle.
- A modified practice: add one more ingredient to the common preparation; make a common preparation thicker.
- A recipe from the *Recipe Creation Exercise* described above: mashed potatoes and squash with chicken liver.
- Practices associated with international recommendations: if a snack is offered, a nutritious one should be offered.
- Recommendations associated with a tangible new product or a product not used regularly: offer the child a fortified complementary food.
- Recommendations that require observation to confirm their adoption: help the child to eat. Note that testing recommendations that need to be observed also requires more time and human resource than recommendations for which information can be obtained by recall.

All the recommendations considered important candidates to be promoted during an intervention should be tested, except for the following:

- Recommendations that are currently being promoted (for example, give animal source foods to young children daily).
- Recommendations that are too difficult or impossible to test in a short period of time (for example, exclusively breastfeed for the first six months of life).
- Recommendations that depend on events that cannot be planned with precision (for example, breastfeed immediately after giving birth).
- Recommendations that are already practiced by most mothers (for example, breastfeed on demand).

In contrast to the *Recipe Creation Exercise*, which is applied in a group setting and in which foods and materials are provided by the team, the *Test of Recommendations* is applied in the home and, therefore, under typical conditions. When suggesting the recommendations to the participating mothers, nothing (including ingredients, utensils, and fuel) should be provided to the mother as the purpose is to determine the likelihood that the recommendation will be carried out under the current conditions in which families live. The only exception is when the recommendation involves a fortified complementary food or any other product that will be provided through health or nutrition programs. In this case, the food or product should be provided and the *Test* applied to determine the extent to which it is adopted by the mothers and used properly.

Objectives

The main objectives of the *Test of Recommendations* are to:

- Determine the acceptability of the recommendations.
- Identify which aspects of the recommendations are adopted and which are not.
- Identify barriers to the adoption of recommendations, such as, for example, lack of skills or resources.
- Identify facilitating factors such as, for example, knowledge, family support and perceived benefits.
- Document changes and improvements that mothers make to the original recommendations.
- Obtain information needed to modify the recommendations to make their adoption more feasible.
- Identify strategies that can be used to reinforce the adoption of the recommendations.
- Help identify strategies for the intervention.

Methodology

The steps to be followed when applying the *Test of Recommendations* are described in detail in Annex II-2. The forms to be used are also provided in Annex II-2.

Analysis

Data collected with this methodology should be analyzed by hand using the matrices provided in Annex II-2.

Products

The advantage of the *Test of Recommendations* is that the mothers can test and evaluate the recommended recipes and behaviors in their homes and give their opinions about them. With this process, the following may be determined:

- The ease or difficulty of communicating with mothers regarding different practices or behaviors.
- The modifications that make recommendations more easily acceptable to mothers.
- The barriers to changes in behavior.
- The proportion of mothers who can adopt the recommended recipe or behavior without using substantial additional resources.

The final product will be a list of the most feasible recommendations.

Limitations of the Test of Recommendations

The main limitation of this methodology is the short time period in which the recommendations are tested (between one and two weeks) given that mothers should follow the recommendations for months or even longer. For this reason, the results of the application of this methodology should not be interpreted as a guarantee that the target population will adopt the recommendations in a sustainable manner but as an indication of which recommendations are more likely to be adopted by mothers. They might also suggest ways the recommendations can be most effectively promoted.

Another limitation of this methodology is that differences in degree of adoption of some recommendations may be related to differences in the interpersonal communication skills of the Field Workers and not to the characteristics of the recommendations or the mothers. In order to minimize the effect of this limitation, the Field Workers testing the recommendations need to be well trained and standardized in the application of the methodology.

Focus Groups (optional)

When should they be conducted?

This methodology can be used if there have been significant modifications to the recommendations evaluated in Module I during the *Recipe Creation Exercise* and *Test of Recommendations* and the team wishes to confirm these changes with groups from the study community. In this case, *Focus Group* may provide useful information on the recommendations without the need for structured interviews or other time-consuming data collection methods. *Focus Groups* can be conducted in the same study communities where the *Foods Attribute Exercise* and *Test of Recommendations* were carried out.

The main purpose of *Focus Groups* at this stage is to have other mothers, fathers, grandmothers and other caregivers provide their opinion about the revised recommendations to ensure their acceptability in an intervention. The questions used in the group should be concise and focus mainly on any areas of doubt.

This activity is optional and depends on how confident the team feels about the feasibility and adoption of the recommendations that will progress to the intervention phase.

Objectives

The objectives of the Focus Group are to:

- Resolve doubts and/or inconsistencies regarding the information collected during the assessment (Module I) and *Test of Recommendations* (Module II)
- Confirm the feasibility of mothers following those recommendations that were modified after applying the *Recipe Creation Exercise* or *Test of Recommendations*

Methodology

The methodology is described in detail in Annex II-3.

Analysis

The information collected with this methodology should be analyzed by hand using the matrix provided in Annex II-3.

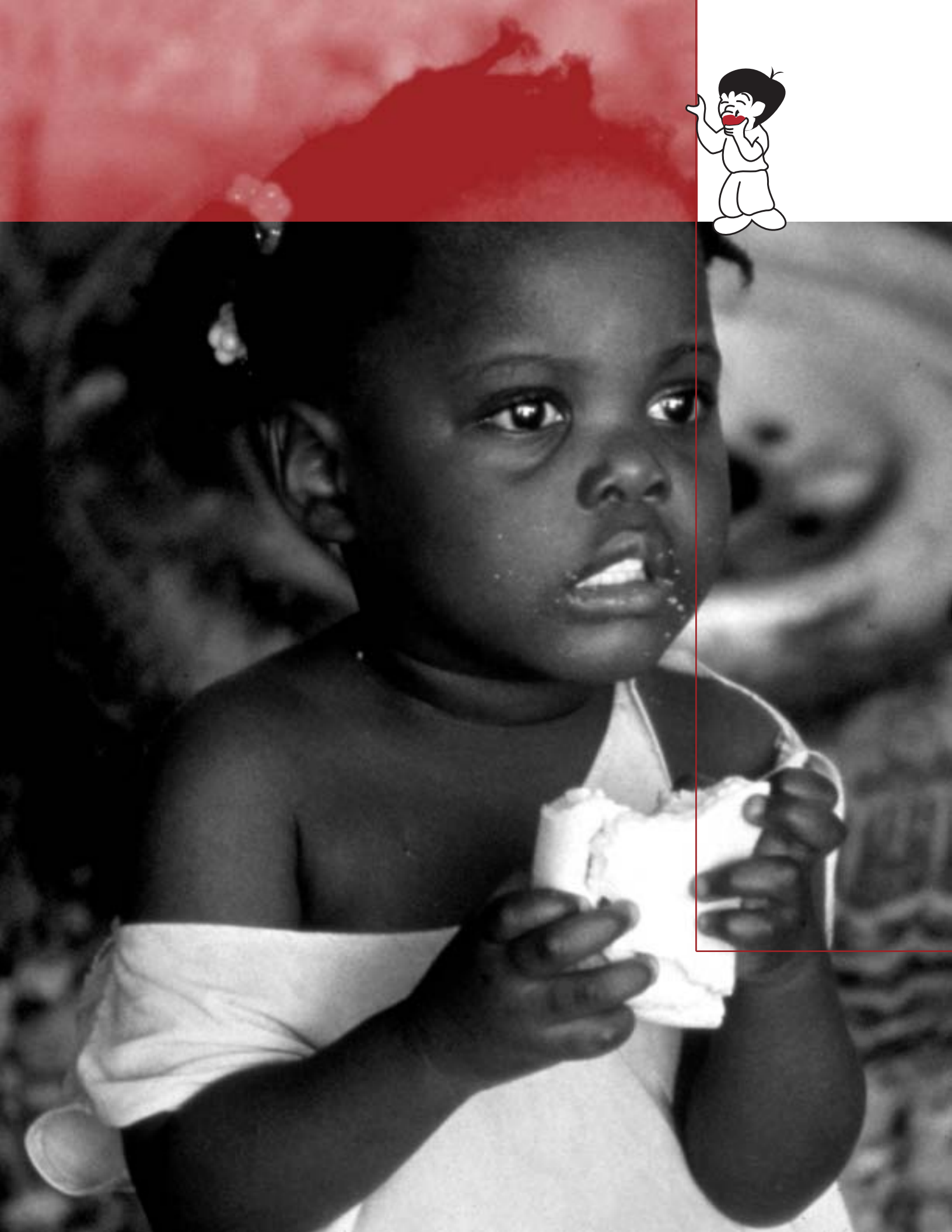
Product

The main product of the Focus Groups is:

- A better understanding of the acceptability of the recommendations that were modified during the *Recipe Creation Exercise* and/or *Test of Recommendations*.

— — —

In Module I, the team will have identified the recommendations that are considered to have the greatest potential impact on nutrition and dietary problems identified. After applying Module II, these recommendations are further streamlined based on their feasibility and acceptability by the target population. This final list, summarized on the Form II-4, should include no more than four recommendations. With the identification of specific recommendations, the process of designing the strategies for an intervention to promote these recommendations (Module III) can begin.



MODULE II
Annexes

Annex II-1
Recipe Creation Exercise

OBJECTIVES

- Develop new recipes for small children through the active participation of mothers
- Improve existing preparations for small children through the active participation of mothers (for example, increase the iron or vitamin A content by adding other foods, or modifying quantities or proportions of ingredients).
- Identify different food combinations and recipes that can be prepared with the same number of ingredients

STEPS

1. Previous work

Selection of potential foods

Based on the results of Module I, specific foods and food combinations will be selected for the recipe creation sessions (Creed-Kanashiro et al., 1991). These foods should be selected from the *Key Foods List* and from the information derived from the information collected in the *24-hour Recall*, *Food Attributes Exercise*, and/or *Market Survey* (Module I).

Some criteria for the selection of these foods are listed below:

- Availability: Refers to foods usually available in the home or sold in the community.
- Nutritional value: Refers to the selection of foods that are high in the nutrients found to be lacking in the diet.
- Cost per nutritional benefit: Refers to foods that are accessible to the target population and that have good nutritional value in relation to their cost.
- Actual use: Refers to foods commonly used by families and their method of cooking and preparation.
- Acceptability: Refers to the cultural acceptability of feeding these foods to small children.

Identification of the potential food combinations

Once the potential foods have been selected, the most nutritionally appropriate food combinations should be identified keeping in mind the dietary inadequacies found during the nutritional assessment carried out in Module I. These potential food combinations should be presented to mothers who would then be asked to create new recipes or modify existing ones. For example, in Peru mothers were given potatoes, squash, chicken liver, and oil as one combination and toasted wheat-flour, toasted pea-flour, carrots, oil, and sugar as another combination (Creed-Kanashiro et al., 1991). In Guatemala, mothers were given cooked black beans, corn meal, and a dark green leafy vegetable (Rivera et al., 1998).

Two sessions should be carried out for each combination of foods in order to obtain multiple recipes or preparations. If time is an issue, two or three different combinations of foods may be tried in the same session.

2. Selection of participants

The participants in the *Recipe Creation Exercise* should be the potential users of the recipes, i.e., mothers of infants and young children.

For each session, 8-10 mothers with similar characteristics (for example, from the same community or with similar economic conditions) should be identified. If it is likely that not all the mothers invited will be able to participate, it is recommended to invite approximately twice the total number required for each session (for example, 20 mothers invited for a session with 10 mothers). In addition, since these sessions require the participation of each mother, the team should try to form a group that is likely to work well together and avoid including participants that might intimidate others because of social status in the community or personality traits.

To further increase participation, the sessions should be held at a convenient time for mothers. In Mexico, it was observed that the main reason why many mothers did not participate was because the sessions were held in the mornings and many mothers needed to be at home at this time to prepare the main mid-day meal. Another way to motivate mothers to participate is to invite them to bring containers to take home the foods they will prepare during the sessions. This way, they will perceive added benefit from the sessions. Mothers might also be asked to bring their own cooking utensils to the sessions to make them more comfortable with the exercise and to give them an added sense of their contribution. However, in certain cultures this suggestion might seem offensive and counterproductive.

Mothers should be invited to a place with cooking facilities, such as a cafeteria, health center, or the home of one of the participants. Mothers should take their children to the sessions so the children can taste the final recipes and field workers can collect information on the mothers' opinions about their children's acceptability of the recipes. To ensure that mothers are able to participate fully in the session, it is recommended to have two or three people watching the children during the session.

3. Materials

- Copies of the registration form for the *Recipe Creation Exercise* (Form II-1.1)
- Pencils/pens
- Food scale with a capacity to 5 kg
- All ingredients expected to be used by mothers
- Potable water for cooking
- Clean water, soap and disinfectant for hand and food washing
- Cooking utensils (such as spoons, cups, pots, pans, knives, and cutting boards)
- Several tables to work on
- Aprons and kitchen rags to clean counter tops
- Blender or other kitchen appliance to grind foods if necessary
- Range, stove top or any other equipment where foods can be cooked or heated
- Eating and drinking utensils (such as dishes, spoons, cups, and napkins)

4. Personnel, site, and time

One session can be carried out per day. A single recipe creation session may last one and a half hours or more. If foods with extended cooking times are included and are not pre-cooked, the session will last longer. If several food combinations will be tested, the time required for the whole exercise, including the analysis of results, is one to two weeks.

The sessions should be carried out in a relatively controlled atmosphere, where mothers are provided with the ingredients, cooking utensils, and fuel, among other resources, for the recipe creation or modification. The place where the sessions are held should be a "neutral" area in which all the participants feel at ease cooking, tasting and feeding the preparations to their children, and discussing their impressions. This will increase the probability that they will participate actively and creatively.

The leader of the sessions should be the nutritionist supervising the field work, who should have the skills to easily guide the participants through all of the steps of a recipe creation session. In addition to the supervising nutritionist, two or three assistants should also be present at each session. Both the nutritionist and assistants should have excellent interpersonal communication and observation skills.

If the field workers that participated in Module I also participate in the recipe creation sessions, the training will take only two to three days as they should already be familiar with the communities, and the background and objectives of the project.

The supervising nutritionist and assistants should be responsible for the following tasks:

Supervising nutritionist

1) Select the ingredients that will be used and identify the food combinations that will be presented
2) Arrange for a place to cook, and the necessary cooking utensils, equipment and ingredients
3) Moderate the session: introduce the session, ask the mothers about the ingredients provided, give instructions, observe the food preparations, and guide the final discussion
4) Gather and complete notes taken on Form II-1.1 during the exercise
5) Coordinate the analysis of the food preparations

Assistants

1) Help to identify and prepare the place for the session
2) Identify the participants
3) Visit and invite the selected mothers
4) Take notes during the food preparations and discussion
5) Assist in the analysis of the food preparations

5. Description and procedures

Before the session

The team should clean and organize the place where the session will be held, making sure that the necessary food items, and cooking utensils and equipment are available and ready to be used. In addition, scales and forms to record the recipes and results of the session should be made available. In Mexico, it was useful to have "comales" or charcoal ovens available since in one of the session the electricity went out making the electric grills unusable.

During the session

At the beginning of each session, the objectives of the exercise should be clearly stated. Mothers should be asked to participate in the process of "making recipes that are even more nutritious to feed small children like yours." It is possible that some mothers will attend the sessions thinking that they will be taught how to prepare special foods or porridges. Therefore, in addition to telling them in advance the objectives of the session and what their expected role in it is, it will be necessary to remind them that they, not the members of the team, will be preparing the food combinations.

If the supervising nutritionist notices that some mothers are not feeling comfortable with the idea of preparing recipes with other mothers, she might use an "ice-breaker" activity, or encourage them with positive words.

To help the mothers prepare useful recipes, simple guidelines or criteria should be established depending on the objectives to be achieved. For example, if the objective is to create thick preparations that are acceptable to children, this should be clearly explained to the mothers first. If the objective is to use iron-rich foods, examples of these should be shown to mothers.

Mothers should be given clear directions, such as the ones listed below (Creed-Kanashiro et al., 1991; Dickin et al., 1997). Directions should be tailored to the specific objectives of the session.

- The recipes should be appropriate for children 6 months or older, who are just learning how to eat.
- The recipes should be appropriate for children 12 to 23 months old, who are already eating table foods.
- The recipes should use few ingredients, preferably three to five, and be easy to prepare.
- Specific combinations or proportions should be used (for example, two cereals servings for every bean or legume serving).
- The final preparation should have a specific consistency (for example, thick like mashed potatoes)
- The final preparation should always contain a particular ingredient (for example, a piece of meat, fish, egg, and/or poultry).
- The recipe should be easy to prepare at home (for example, it should not take too long to prepare, the ingredients and cooking utensils needed should be readily available, and it should be prepared based on foods cooked for the entire family).
- The recipes should include ingredients to improve the taste and/or make the recipe more attractive to children (for example, they should include spices or aromatic herbs).
- The mothers should give a name to each recipe.

In previous projects, giving examples of specific recipes obtained during the assessment in Module I helped the mothers to better understand these objectives.

Once the session objectives are clarified, the different foods with which the mothers will be working should be shown to them. Then, they should be asked: a) if they have access to them, and b) which preparations they would create with those foods. In trying to determine "access", both product availability in the community and the economic resources of mothers should be considered.

As an alternative to providing raw food, the assistants could provide some pre-cooked foods (for example, beans, lentils, chick peas, chicken or beef liver) to mothers. This would reduce the preparation time significantly. If pre-cooked foods are used, it is important to ensure that they are prepared and stored hygienically, and reheated in a safe manner.

Mothers should be asked to create "any recipe" with the foods or ingredients provided. Depending on the available resources and time, groups of three mothers could be formed to simultaneously prepare different recipes. It is recommended that the mothers be divided into groups according to the ages of their children. For example, groups of mothers of children aged 6-11 and 12-23 months could be formed.

If a mother would like to prepare or share more than one recipe and there is not time left in the session, she might describe it in detail to the assistant who can recreate the recipe at another time.

While the mothers are cooking, the supervising nutritionist and assistants should observe and record in Form II-1.1 "Registration form for the *Recipe Creation Exercise*" (included in this Annex), the information listed below. In Mexico it was very useful to tape and take extensive notes on the mothers' comments, explanations, and reactions during the session.

- The food amounts (in household measurements and in grams) and combinations used
- The steps followed in the preparation
- The preparation and cooking methods used
- The time it took to prepare and cook the recipe
- The final amount (weight in grams)
- Participants' comments regarding ingredients, cooking methods, and acceptability by the children.

Discussion about the recipes

Once the recipe preparation step is finished, the characteristics of the recipes should be discussed with the mothers. All the mothers and children should be invited to taste the recipes and give their opinions. During the discussion, the following should be recorded in Form II-1.1 (included in this Annex):

- Children's reactions (for example, if they eat it, if they like it, how much they eat)
- Whether it is possible for the mothers to prepare the recipes at home and under everyday circumstances
- Reasons why mothers chose particular ingredients and decided against other ingredients
- Mothers' opinion about the taste, smell, appearance and consistency of each preparation
- Mothers' suggestions to improve or modify the recipes prepared

Although ideally, mothers should be gathered together again after the cooking and tasting is completed to discuss their reactions, many times this is difficult to achieve. As an alternative, the assistants can instead listen to the mothers' comments while they are preparing the recipes, tasting them, and feeding their children. In Bolivia, mothers took approximately 15 minutes to feed the food preparations to their children and the assistants used this time to ask each mother questions about the food preparations, her opinions about them and how she thought her child responded to their taste and consistency. It is also important to observe the children when mothers are feeding them. The assistants should then take notes on the children's behaviors, such as, for example, if a child refused to eat, if a child ate but only while being motivated by the mother, and amount each child ate

On occasion, it might be necessary to use incentives to encourage mothers to attend the sessions, such as to give them animal-shaped dishes and spoons for their children.

6. Analysis

Three analyses should be carried out for each of the recipes prepared: nutritional analysis, cost analysis, and preparation acceptability and feasibility analysis.

Nutritional analysis

The information collected for the nutritional analysis of the recipe should be organized in two matrices. One matrix requires no nutritional calculations (see Form II-1.2, option 1) and one which does (see Form II-1.2, option 2). The matrix which requires no nutritional calculations is shown in Table II-1.

Table II-1. Example of a completed matrix for the nutritional and cost analysis of recipes (Option 1)

Food Preparation	Ingredients	Consistency (0=liquid 1=semi-liquid, 2=thick 3= solid)	Animal source foods present (number=0, 1, 2)	Vegetables present (number=0, 1, 2)	Additional energy source (0=No, 1=Yes)	Cost per 100 g
Mashed potatoes with squash and liver	Potatoes Squash Liver	2	1	1	0	1.25

Consistency: If, when a spoon is inserted into and removed from it, the preparation runs quickly off the utensil, it is liquid. If the preparation slowly drops off the spoon, it is semi-liquid. If when the spoon is removed the preparation does not run, it is thick. If the preparation can be cut with a knife, it is solid.

In Table II-1, for each recipe, the values in the middle 4 columns of the matrix can be summed (consistency, animal-source foods, vegetables, energy source), where a higher score suggests a more nutritionally dense recipe.

Alternatively, the energy and nutrient density of each recipe can be calculated (see Table II-2). Then, based on the nutritional objectives of the recipe, the recipes can be ranked. For example, in Mexico, recipes selected were those providing 1 kcal/g or more or those that met the WHO recommendations (see Table 2 in the Introduction chapter) regarding the iron and zinc density for complementary foods for children 6 to 8 months of age with an average breast milk intake

Cost analysis

Because the cost of a recipe will affect families' ability to prepare the recipe on a regular basis, the cost should be determined. To be able to compare prices among several recipes, calculate the price per 100 g of each recipe, as described in the formula below.

$$\frac{\text{100 grams x total price of the preparation}}{\text{Total weight of the preparation (grams)}}$$

Table II. 2. Example of a completed matrix for the nutritional and cost analysis of recipes (Option 2)

Food preparation	Ingredients	Energy density (kcal/g)	Iron density[1] (mg/100 kcal)	Zinc density[1] (mg/100 kcal)	Cost per 100 g (US $)[2]
Vegetable and liver soup	Tomato, potato, squash, carrot, "chayote", chicken liver.	1	3.69	0.90	0.112
Onion smothered liver with orange	Potato, onion, orange juice, beef liver.	1.29	2.88	1.41	0.169
Meat balls	Tomato, carrot, egg, ground beef meat.	1.27	1.03	1.21	0.188

Energy density: The number of kilocalories per gram of preparation (see Glossary). It is calculated using the following formula:

$$\frac{\text{Total kilocalories of preparation}}{\text{Total weight of preparation (grams)}}$$

***Nutrient density*:** The amount of a nutrient per 100 kilocalories of preparation (see Glossary). It is calculated using the following formula:

$$\frac{\text{100 kcal x total amount of nutrient in the preparation}}{\text{Total kilocalories in final preparation}}$$

The calculation of the energy and nutrient density of each recipe can be completed using the ***Pro*PAN** software. For detailed instructions, see the annexes of the ***Pro*PAN** software manual.

1 This table represents an example of recipes nutritional analysis for a community in which the assessment of the Module I allowed to identify iron and zinc as the nutrients deficient in the children's diet.

2 Prices can be entered in units of local currency for the software to make the analysis in these units.

Preparation acceptability and feasibility analysis

In addition to the nutritional and cost analyses, criteria regarding the acceptability and feasibility of adopting recipes should also be considered when selecting the potential recipes. Some of these criteria include:

- Acceptability by participating mothers and children
- Number of ingredients used in the preparation
- Time required for the preparation
- Equipment necessary for the preparation
- Availability of the foods used in the preparation (if they are seasonal or available during the entire year)

To analyze acceptability and feasibility, a matrix like the one presented in Table II-3 may be used (Form II-1.3).

Table II-3. Example of a completed matrix for the acceptability and feasibility analysis of the recipes

Food preparation	Number of ingredients	Ingredients	Amount	Preparation time (in minutes)	Mother's acceptability	Child's acceptability (including amount consumed)	Positive/ negative comments/ motivations	Suggested name
Mashed potatoes with squash and chicken liver	5	Potato, squash, chicken liver, oil, broth	1 lb. 1 lb. 1 lb. 3 tsp	5	Liked it	Liked it. Ate _ cup	Tasty Easy Smooth Nourishes Takes time to feed	Liver vitamin

Finally, a list should be developed with the information gathered during the *Recipe Creation Exercise* summarizing the barriers and facilitators that may occur when mothers are asked to follow the recommendations or new or modified recipes. This summary can also be used when developing the motivations (Form II-2.3) and solutions (Form II-2.4) guides for the *Test of Recommendations*. For example, in Mexico:

- Mothers felt their children preferred more liquid preparations, since they ate them faster and better. In addition, they felt that vegetables and meats "leak their essence" into the broth when cooking, and for this reason the broth is also considered nutritious.
- According to the mother's comments, some foods are classified as either cold (such as meat, squash, rice, beef broth) or hot (such as mango).
- Mothers used words such as "vitamins, energy, and nutritious". They felt that there is a relationship between proper feeding and the growth and development of their children.
- During the recipe exercises, mothers would breastfeed their children.

- Some mothers stopped feeding their children when the child said they did not want anymore, but other mothers insisted a little more until the plate was finished.
- For children to have something to drink with the preparations, some mothers made orange juice and provided it along with the recipes that they prepared.
- When the food was too hot, mothers waited for it to cool while giving rolled-up tortilla "tacos" soaked in broth.

PRODUCTS

When finished with the *Recipe Creation Exercise*, the following products will be available:

- New recipes with higher nutritional value and which are appropriate for small children.
- Improved recipes that include a greater variety of foods and that are more nutritious than the ones from which they were created.
- Different combinations of foods and recipes that can be prepared with the same number of ingredients.

To determine their degree of acceptance and adoption by children between 6 and 23 months of age and their mothers, the recipes selected should be included in the *Test of Recommendations* (see Annex II-2).

REFERENCES

Creed-Kanashiro H, Fukumoto M, Jacoby E, Verzosa C, Bentley M, Brown KH (1991) Use of Recipe Trials and Anthropological Techniques for the Development of a Home Prepared Weaning Food in the Central Highlands of Peru. Journal of Nutrition Education 23(1):30-35.

Dickin K, Griffiths M, Piwoz E (1997) Designing by Dialogue: A Program Planners' Guide to Consultative Research for Improving Young Child Feeding. Washington, DC: Academy for Educational Development/The Manoff Group.

Rivera Dommarco J, Santizo MC, Hurtado E (1998) Diseño y Evaluación de un Programa Educativo para Mejorar Las Prácticas de Alimentación en Niños de 6 a 24 Meses de Edad en Comunidades Rurales de Guatemala. Washington, DC: Pan American Health Organization.

GUIDELINES FOR COMPLETING THE REGISTRATION FORM FOR THE RECIPE CREATION EXERCISE (FORM II-1.1)

Form The code (II.1) is indicated in the upper-right corner of the form, corresponding to the recipe creation.

1. Meeting date	Write the date of the meeting, starting with the day, month and year. This information can be completed before the meeting. The first nine days of the month should be preceded by a zero. For example, day 2=02. The months should be indicated by two digits, starting with 01 for January and ending with 12 for December.
2. Meeting place	Write the name of the community where the meeting takes place.
3. Nutritionist's or assistant's name and code	Write down your name and the first letter of your last name. Record your code in the space provided at the right (this code will be assigned to you by the Supervisor).
4. Age group	Write the corresponding code according to the following options: 01= Mothers with children aged 6 to 8.9 months 02= Mothers with children aged 9 to 11.9 months 03= Mothers with children aged 12 to 23.9 months
5. Recipe's code	Later, the supervisor should assign a unique code to the recipe the mothers have prepared.
6. Mothers' names	Clearly write the names of the mothers in the following order: paternal last name, maternal last name, and first name.
7. Starting time	Write the time the preparation began, that is, from the time mothers begin washing/cutting/preparing the foods.
8. Weight of container	Record the weight of the container where the mothers will prepare the food, that is, the pan, pot or other where the final recipe will be cooked.
9. Name of preparation	Once the mothers have decided on what they will prepare, ask them the name of the recipe and record it.
10. Recipe content:	
10.1 Ingredients	Write the ingredients used during the preparation.
10.2 Amount used (household measure)	Record the household measure used by mothers for each ingredient. For example, 1 cup, 1 piece, 1/2 tablespoon, etc.

10.3 Amount used (grams)	Using a food scale, weigh the amounts used of each ingredient (and noted in 10.2) and write the total weigh in grams in 10.3. If the mother adds other ingredients (such as, for example, water to cool the food, spices or additional food) after cooking the food preparation, remember to weigh the ingredients and consider them as part of the preparation.
10.4 Edible portion	If the weight of the ingredient corresponds to the net weight of the food (for example, potato without skin, chicken without bone or skin, rice, or avocado without pit) write the answer "**Yes**". If the mother adds an ingredient with an inedible portion, such as skin, pit, bone, etc., write the answer "**No**". Remember to verify in the food composition table the percentage corresponding to the edible portion before performing any nutrient calculations.
10.5 Cooking	Specify if the food used by the mother was previously cooked or not. If the food was previously cooked, write "**Yes**". If the food was raw, write "**No**".
11. Preparation method	Carefully record the entire preparation procedure until the recipe is finished and ready to be fed to the children.
12. Observations during the preparation	Record all the comments made by the mothers during the preparation, their reactions, practices, and attitudes.
13. Finishing time	Always remember to write the time when the recipe preparation is finished (and the preparation is ready to be eaten).
14. Total preparation time	Calculate from the starting time (question 7), the time it took to prepare the recipe, from the moment the foods were washed/cut to the moment the recipe was ready to be eaten.
15. Final amounts of the recipe	
15.1 Total weight (grams)	When mothers have finished the preparation, weigh the final preparation inside the container in which it was prepared and record the total weigh in grams.
15.2 Weight of the container (grams)	Copy from question 8 the weight of the container used (pot or pan).
15.3 Net weight (grams)	Subtract the amount in column 15.2 (weight of container) from the amount in column 15.1 (total weight) and record the number. This is the net weight of the recipe.
15.4 Household measure	Record the final volume that the recipe occupies in the container. For example, 1 small pot or 3/4 of a large pot.

16. Amounts served and consumed

16.1 Weight of the dish (grams)	Before each mother serves the preparation to her child, weigh and record the total weight in grams of the dish where the mother will serve the food to her child.
16.2 Total weight served (grams)	Once served, weigh the dish with the food and record it in grams.
16.3 Net weight served (grams)	Subtract the amount obtained in column 16.1 (weight of the dish) from the amount obtained in column 16.2 (total weight served) and write the number. This is the net weight served.
16.4 Household measure	Record the household measure mothers use to serve the preparation to their children. For example, 4 tablespoons, 1/2 small dish, or 1 large soup bowl.
16.5 Left-over weight (grams)	Once the child has stopped consuming the food, weigh the dish with the left-over food and record it in grams.
16.6 Amount consumed (grams)	Subtract the amount obtained in column 16.5 (left-over weight) from the amount obtained in column 16.2 (total weight served) and write the number. This is the total amount consumed by the child.
17. Consistency of the final preparation according to the mothers	Once the mother serves her child, ask her about the consistency of the preparation, without suggesting an answer. If the mother's opinion coincides with any of the classifications on the form (liquid, semi-liquid, thick, or solid), write the corresponding code. If the mother provides a different classification, write code 77 (other) and specify the word she used. For example: write 77 and specify gooey. Questions 17 and 18 contain five different lines that should be completed. Each one corresponds to the answer of up to five mothers who are part of the group preparing a specific recipe.
18. Consistency of the final preparation according to the observer (field worker)	Write the consistency of the final preparation as estimated by you, the nutritionist or assistant, according to the following classification: 01 = liquid 02 = semi-liquid 03 = thick 04 = solid For this, it will be necessary to introduce a fork or spoon into the preparation and observe: • If when removing the utensil the preparation is runny, it is liquid = 01. • If when removing the utensil the preparation slowly drops off the spoon, it is semi-liquid = 02. • If when removing the utensil the preparation does not run, it is thick = 03. • If the preparation can be cut with a knife, it is solid = 04.

19. Observations while the children taste the recipes	While the mothers feed their children, observe and record the children's reactions, if they like it or not, if they finish it or not. Ask the mothers what they think about their children's acceptability of the new recipe or preparation.
20. Complementary information (discussion)	When finished observing the acceptability, the mothers should be gathered and asked about their opinions about the recipes. Find out • If it is possible that they will make the preparations in their homes under every-day situations. • The reasons why the mothers chose or not those foods/combinations. • Each mother's opinion about the taste, smell, appearance, and consistency of each food preparation. • The mothers' suggestions for the improvement/modification of the recipes prepared.
21. Additional recipe (optional)	There are some recipes that the mothers know and would have liked to prepare, but for lack of time were not able to do so. For this reason, it is important to ask each one personally, at the end of the meeting, if there is any other recipe (with the characteristics mentioned in the meeting) that they would like to have created with the same ingredients.

REGISTRATION FORM FOR THE RECIPE CREATION EXERCISE (FORM II-1.1)

1. Meeting date: . . . . . __ __/ __ __ /__ __ __ __

   day month year

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2. Meeting place:

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3. Nutritionist's or assistant's name and code:

   . . . . . 3. ___ ___

4. Age group:

   01= 6-11.9 months

   02= 12-23.9 months . . . . . 4. ___ ___

   . . . . . .

5. Recipe code: . . . . . 5. ___ ___

   . . . . . (Supervisor should complete)

6. Names of mothers:

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7. Starting time: _____ _____:_____ _____

8. Weight of the container where recipe will be prepared (grams):

   . . . . . .

9. Name of the preparation:

   . . . . . .

10. Recipe content:

Form II-1.1

Recipe code_____

10.1 Ingredients	10.2 Amount used (household measure)	10.3 Amount used (grams)	10.4 Edible portion (Yes or No)	10.5 Cooked (Yes or No)

11. Cooking method: (record all the steps taken by the mothers to prepare the recipe)

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Form II-1.1
Recipe code_____

12. Observations during the preparation: (reactions, comments, relevant actions):

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13. Finishing time: _____ _____:_____ _____

14. Total preparation time: _____ _____:_____ _____

15. Final amounts of the recipe:

15.1 Total weight (grams)	15.2 Weight of container (grams)	15.3 Net weight (grams)	15.4 Household measure

16. Amounts served and consumed:

Child	16.1 Weight of dish (grams)	16.2 Total weight served (grams)	16.3 Net weight served (grams)	16.4 Household measure	16.5 Weight of the left-over food (grams)	16.6 Amount consumed (grams)
1						
2						
3						
4						
5						

Form II-1.1
Recipe code_____

17. Consistency of the final preparation according to the mothers: 17.1. ___ ___

    01= liquid 17.2. ___ ___

    02= semi-liquid 17.3. ___ ___

    03= thick 17.4. ___ ___

    04=solid 17.5. ___ ___

    77=other, specify . . . . . .

18. Consistency of the final preparation according to the observant: 18. ___ ___

    01 =liquid

    02 =semi-liquid

    03= thick

    04= sólida

    77=other, specify . . . . . .

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19. Observations while the children taste the recipes. Acceptability:

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Form II-1.1
Recipe code_____

20. Complementary information (discussion after the tasting):

- Mothers' opinions about the recipes. Is it possible to prepare it at home?
- Reasons why mothers chose specific foods/combinations
- Opinions about taste, smell, appearance, consistency
- Suggestions to improve/modify the preparation

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21. Additional recipes recommended by the mothers (optional):

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MATRIX FOR THE NUTRITIONAL ANALYSIS OF THE RECIPES (FORM II-1.2)

Option 1

Food Preparation	Ingredients	Consistency (0=liquid 1=semi-liq. 2=thick 3= solid)	Animal source foods present (number=0, 1, 2)	Vegetables present (number=0, 1, 2)	Additional energy source (0=No, 1=Yes)	Cost per 100 g

Consistency: If, when a spoon is inserted into and removed from it, the preparation runs quickly off the utensil, it is liquid. If the preparation slowly drops off the spoon, it is semi-liquid. If when the spoon is removed the preparation does not run, it is thick. If the preparation can be cut with a knife, it is solid.

Option 2

Food Preparation	Ingredients	Energy density (kcal/g)	Specific nutrient density[1] (mg/100 kcal)	Specific nutrient density (mg/100 kcal)	Cost per 100 g

Energy density: is the number of kilocalories per gram of preparation (see Glossary). It is calculated using the following formula:

$$\frac{\text{Total kilocalories of preparation}}{\text{Total weight of preparation (grams)}}$$

Nutrient density: The amount of a nutrient per 100 kilocalories of preparation (see Glossary). It is calculated using the following formula:

$$\frac{\text{100 kcal x total amount of nutrient in the preparation}}{\text{Total kilocalories in final preparation}}$$

1 Refers to specific micronutrients identified as deficient, such as iron and zinc. If information on more micronutrients is desirable, more columns might be added.

MATRIX FOR THE ACCEPTABILITY AND FEASIBILITY ANALYSIS OF THE RECIPES (FORM II-1.3)

Food Preparation	Number of ingredients	Ingredients	Amount per ingredient	Cooking time (in minutes)	Mother's acceptability	Child's acceptability (including amount consumed)	Positive/negative comments/ motivations	Suggested name

Annex II-2

Test of Recommendations[1]

OBJECTIVES

- Determine the acceptability of recommendations.
- Identify which aspects of recommendations are adopted and which are not.
- Identify barriers to the adoption of recommendations, such as, for example, lack of skills or resources.
- Identify facilitating factors such as, for example, knowledge, family support and perceived benefits.
- Document changes and improvements that mothers make to the original recommendations.
- Obtain information needed to modify the recommendations to make their adoption more feasible.
- Identify methods that can be used to reinforce the adoption of the recommendations.
- Help identify strategies for the intervention.

STEPS

1. Previous work

Motivation scheme

During the *Test of Recommendations*, the team should work with the recommendations selected in Module I and the recipes selected in the *Recipe Creation Exercise* (Module II). For each recommendation or recipe to be tested, it will be necessary to develop a matrix of motivations with relevant information from the assessment (see model matrix in Form II-2.3). The form should be completed with the factors that motivate mothers to follow a recommendation or prepare a specific recipe, using arguments and terminology expressed by mothers during Module I.

1 This methodology also known as Trial of Improved Practices (TIPs) is developed in detail in Dickin K, Griffiths M, Piwoz E (1997) Designing by Dialogue: A Program Planners' Guide to Consultative Research for Improving Young Child Feeding. Washington, DC: Academy for Educational Development/The Manoff Group.

An example of how the matrix of motivations was used in Peru is presented in Table II-4. This recommendation was one of the top five recommendations selected after analyzing the data collected in Module I, as it had the highest score for both feasibility and potential impact on the nutritional problems of the target population.

Table II-4. Example of a completed matrix of motivations[1]

RECOMMENDATION	MOTIVATIONS
Feed your child mashed foods or thick preparations	• Thicker foods fill the child more and are more nutritious • One dish of mashed foods equals three dishes of soup • The child will be less hungry and will cry less, allowing the mother to carry on with her chores for longer periods of time • Since it is thick, it is good for them, it helps them strengthen their stomachs • It will help your baby to grow strong and healthy • Solid foods are more nutritious than broths • It is easy and inexpensive to make thicker mashed foods with foods cooked for the family, you do not have to cook special foods for the baby

PRESENTATION OF THE RECOMMENDATION

It is also important to develop specific messages for the presentation of the recommendation to the mothers during the first visit. The following example was used in Peru.

The recommendation that I would like to have you test now that your baby is 8 months old is to begin feeding him thick mashed foods.

Did you know that

- *broths only fill the baby's stomach for a short time and that mashed foods instead, fill and satisfy him so he will not cry from being hungry, this way you can finish your chores with a little more time on your hands?*
- *it is easy and inexpensive to prepare mashed foods from the foods you prepare for the rest of the family; you do not have to prepare the food for your baby separately?*

For example, what are you preparing for… today? From this, you can take… (for example, potato, noodles, rice, carrots, spinach, lentils, beans, chicken liver or a small piece of ground meat) .. and mash it. This way you can prepare a thick mashed food to feed your baby.

Eating this way, the baby will grow stronger and be more alert.

I would like to suggest that this week you try to feed your child thick mashed foods during each meal. And remember, the mashed food can be prepared from the foods you have prepared for the rest of the family (for example, potatoes, noodles or rice).

Would you like to try it this week?

1 To be used during the initial and follow-up visits of the *Test of Recommendations.*

REMINDER FOR EACH RECOMMENDATION

It is useful to develop a reminder or drawing for each recommendation or recipe, and leave it with the mother during the initial visit (see in Example of a reminder of a recommendation in Annex II-2).

SOLUTIONS GUIDE

During the follow-up visit it will also be useful to have suggestions to help the mother practice the recommendation in spite of problems that she may have encountered. For this, a matrix of solutions should be developed (Form II-2.4). An example of the matrix of solutions used in Mexico is provided below in Table II-5.

Table II-5. Example of a completed matrix of solutions[1]

Recommendation:	Increase meal frequency

BARRIERS	SOLUTIONS
"There is not enough time for so many feedings".	• Ask the mother to try to feed her child only one more time than usual. • Feed the child an extra fruit. • If the child is older than 1 year, he/she can eat a fruit or bean taco all by him/herself. • Feed the child lunch or dinner when everyone else is eating. • When his siblings are eating bread or fruit, ask them to share it with the baby.
"It is expensive".	• Ask the mother to feed the baby the same foods she feeds the rest of the family.
"He cannot tolerate a large dinner; his stomach can get too full. He gets diarrhea if he has too much dinner". "When they have too much dinner they wake up complaining of stomach aches or with diarrhea". "We do not have dinner".	• Give only a snack of bread and milk or yogurt. • Do not feed heavy foods for dinner.
"She falls asleep before dinner time". "When she eats at night she cannot sleep, her stomach hurts".	• Feed the child dinner an hour before bed time.

2. Selection of participants

Participants with similar characteristics as those to whom the recommendations will be directed (in this case, mothers of children less than two years of age) should be selected. They do not have to be chosen randomly and could include mothers who participated in Module I. Each recommendation should be tested in at least six households. Always select extra households in the event that a mother cannot be found for the follow-up and final visits. For example, in Peru, each of the five recommendations selected was tested in six homes. There were a total of 30 participating mothers in the initial visit, but only 24 were found and interviewed in the final visit.

1 To be used in the follow-up visits during the *Test of Recommendations.*

3. Materials

For the initial visit:

- Copies of the registration form for the initial visit (Form II-2.1)
- Copies of the matrix of motivations (Form II-2.3)
- Pencils/pens
- Identification card
- Battery-operated cassette recorder, if planning to tape the interview
- Clipboard
- Support material to help the mother remember the recommendation (such as drawings and recipes)

If a demonstration will be done, it might be necessary to also include:

- Ingredients or food models and pictures
- Food scale to weigh foods with a capacity up to 5 kg
- Measuring cup
- Samples of spoons and other utensils/containers used for household measures (for example, tin cans, bags and bottles)

For the follow-up visit:

- Copies of the registration form for the follow-up and final visits (Form II-2.2)
- Copies of the matrix of motivations (Form II-2.3)
- Copies of the matrix of solutions (Form II-2.4)
- Pencils/pens
- Identification card
- Battery-operated cassette recorder, if planning to tape the interview
- Clipboard

For the final visit:

- Copies of the form for the follow-up and final visits (Form II-2.2)
- Pencils/pens

- Identification card
- Battery-operated cassette recorder, if planning to tape the interview
- Clipboard

Note: If the visits will be taped, it is recommended to use one cassette per mother to record all three interviews on the same cassette.

4. Personnel and time

Inasmuch as the *Test of Recommendations* is a participatory activity, it is necessary to establish an open and cordial relationship with the participating mothers. Thus, it is important that the field workers are familiar with the community and have excellent communication and interpersonal skills. These skills are also helpful in exploring the beliefs and opinions regarding the practices and recipes being recommended.

To the extent that differences in adoption or rejection of a recommendation may be a function of the quality of interpersonal communication used by different field workers rather than a function of the recommendation itself, it is critical that the field workers carrying out the tests should be well trained and standardized in this methodology. Preferably, the same field personnel that participated in Module I should be involved as they are already familiar with the project objectives. If this is the case, four days of training, including field practices, should be sufficient

During the home visits, a field worker with good communication skills would:

- Not make the mother feel evaluated, instead make her feel her comments about and experiences with the recommendation are important.
- When asking questions, do not suggest the answer to the mother, avoid the use of leading questions.
- Avoid being satisfied with superficial answers and avoid changing the subject too quickly.
- Not interrupt the mother when she is speaking.
- Be patient and allow time for her to think.
- Not make promises or create false expectations.
- If possible, during the interview, observe the relationship between the mother and other family members, the mother's reactions with her children, the general family life conditions, and the family interaction.
- Observe the position, gestures, and attitude of the person being interviewed.

The testing of each recommendation should last approximately eight days. If resources and time are available, the testing period can be extended to 15 days. This would allow a more realistic estimate of the actual adoption of the recommendations by the mothers. For example, in Mexico it was observed that during the first week numerous mothers followed the recommendation; however, the frequency of practicing the recommendations decreased during the second week.

The total time to conduct the *Test of Recommendations* will depend on the number of behaviors that will be tested and on the number of field workers. One field worker can carry out two to three visits daily. If six field workers are available, two weeks should be enough to carry out tests in approximately 24 homes. The total time including training the field workers, execution, and analysis of the tests is approximately three weeks.

5. Description and procedures

The *Test of Recommendations* includes three home visits: an initial visit, follow-up visit, and final visit to each of the mothers selected to participate.

Initial visit

INTRODUCTION

During the initial visit, the field worker should explain to the mother that the tests are activities that require her participation because she, as a mother, is most knowledgeable about child feeding and can offer the best understanding of the acceptability of a recommendation. In order to ensure her collaboration, the field worker should maintain a cordial relationship with the mother and explain, in clear and simple words, the purpose of the visit. If possible, it is very helpful to have other family members, neighbors and/or friends present in the meeting as they could later remember and/or reinforce the recommendation.

The following is an example of the way in which the field workers introduced themselves to the participating mothers in a *Test of Recommendations* in Peru.

Good morning. My name is Graciela Respicio and I work for the Nutrition Research Institute. We are working on a project to improve child feeding of children less than 2 years of age and we have developed a number of recommendations for mothers of children in this age group. Before giving the recommendations to all mothers, we would like to have some mothers like yourself, help us test the recommendations at home and give us your opinion about them to see if they can truly be followed.

We would like to ask you to help us to test a recommendation for one week. I will be back in seven days so you can tell me your experience with the recommendation and if you were able to follow it or not. I would like to know if this is alright with you and if you would like to help us by participating.

I would like you to help us test this recommendation and if something of what I tell you is not clear, please ask me to clarify it. Also, if you have difficulties following the recommendations, I would like you to give me as much information as possible so we can improve our recommendations. In addition, if you have any ideas on how to improve the recommendation, please tell me. We are very interested in your comments and opinions. Everything that you tell me about when you were able to follow the recommendation and when you were not able to do so is very valuable and will be very helpful.

COLLECTION OF BASELINE INFORMATION

In addition to presenting the specific recommendation to the mother, baseline information needs to be collected during the initial visit to know what and how the mothers are feeding their children, and avoid giving them a recommendation that they are already practicing. The baseline information will be used also to determine if the desired behavior change was achieved. A form to collect this information (Form II-2.1) and the guidelines for its application are provided in this Annex.

Depending on the recommendations suggested to the mothers, it may be necessary to add questions to Form II-2.1. For example, in Mexico, specific questions related to the recipes were asked, such as, for example: "Do you feed your child thin or thick soups?" To confirm these answers, a simplified food frequency questionnaire emphasizing the foods of interest was developed based on the *24-hour Dietary Recall*. This questionnaire was applied only to those mothers selected to test a new recipe or food preparation.

INITIAL VISIT AND PRESENTATION OF THE RECOMMENDATION

When a recommendation is being presented to the mother, the motivations (reasons and benefits) to adopt the recommendation should also be presented and discussed with her. A form for recording these motivations (Form II-2.3) is provided in this Annex.

Other messages may also be given to further motivate mothers. For example, in Peru, the message "feed your child with patience, love, and good humor" was presented to mothers along with the specific recommendation to be tested as a way of promoting interactive feeding at the same time that specific dietary recommendations were being tested for acceptability.

If the recommendation is a new recipe or makes reference to an appropriate consistency (for example, how thick the preparation for the child should be), a specific amount of food to give to the child in each meal, or the amount of an ingredient that should be included in a preparation (for example, half a chicken liver), it is very important to demonstrate the preparation of the food as part of the presentation of the recommendation. However, if the resources necessary for the preparation are not available, the use of pictures to explain consistency or amounts may be useful. It is important that the mother have a clear idea of what she is being asked to test.

The presentation of the recommendation should be done individually with each mother in her home. This way, the baseline data collection, the selection of the recommendation that will be tested, and the motivation to encourage the mother to adopt it will be individualized and most likely will lead to better results than if done in group. It is important to note that the *Test of Recommendations* is not a test of communication messages (which is better carried out in group). Instead, it is a trial to select recommendations that will be promoted during an intervention.

At the end of the visit, the field worker may leave a reminder or drawing of the recommendation with the mother (see in Example of a reminder of a recommendation, in this Annex). This will remind the mother to practice the recommendation and the different steps to follow if the recommendation includes a new or modified recipe.

Follow-up and final visits

In addition to the initial visit, two other visits are recommended: a follow-up visit during the middle of the test period and a final visit at the end of the test period.

FOLLOW-UP VISIT

This should be carried out by the field workers to determine the degree to which the mothers are following the recommendation or suggested recipe. It is important to note that it might be difficult for a mother to remember details of her experience with the test one week after the initial visit. Therefore, a visit during the middle of the testing period is suggested so that the team can assess whether the mother remembers the recommendation, if she was able to put it to practice or not, and what facilitated or impeded her to carry out the recommendation. Form II-2.2 should be filled during this visit.

It is important to evaluate the probability that the mother will continue the new practice, and if low, motivate her to continue the test. However, if the mother refuses to continue the test, the field worker should thank her for trying and take notes of her reasons for not complying with the recommendations.

If the mother is not able to remember the recommendation during the follow-up visit or has some reservations that have kept her from adopting it, the field worker will need to re-explain it to her so that she can follow the recommendation during the remainder of the testing period. The follow-up visit is also useful to demonstrate to the mother how to practice the recommendation, help her with the skills needed for its practice, and to identify other ways to support her. For this, the field worker should rely on the matrix of motivations (Form II-2.3) and matrix of solutions (Form II-2.4).

If a *24-hour Dietary Recall* or food frequency questionnaire is being used during the follow-up visit, it will be possible to determine quantitatively if the mother was able to follow the recommendation.

FINAL VISIT

At the end of the testing period, a final visit to all participating mothers should be carried out in order to obtain their impressions, experiences, and comments regarding the recommendation or recipe tested. For this, Form II-2.2 should be used. The *24-hour Dietary Recall*, food frequency questionnaire, or any other questionnaire (if developed) should be re-applied to assess if the mother followed the recommendation.

The purpose of the final visit is to determine what the mothers understood and remembered about the recommendation, if they put it to practice or not, how many times they practiced it, how it was carried out each time, what modifications were made, what problems were encountered, what motivated or enabled them to comply with it. In addition, they should be asked if they have suggestions about how to more effectively communicate this recommendation to other mothers in the community.

6. Analysis

Descriptive analysis

The first analysis of the *Test of Recommendations* is descriptive. To facilitate this analysis, the answers to the questions of Form II-2.2 (registration form for the follow-up and final visits) should be organized in a matrix, such as the one provided in this Annex (matrix for the analysis of the *Test of Recommendations*, Form II-2.5). The following is an example of such a matrix from Peru.

Table II.6. Example of a completed matrix for the analysis of the *Test of Recommendations*

Recommendation	Remembered	Execution	Modification	Facilitators	Obstacles	Intention to continue
Feed thick puree before soup	Yes, remembered the recommenda-tion	Executed	None	It is easy It is more nutritious Soup is not nutritious	When money is an issue, it is difficult to add everything to the puree	Has intention to continue

Matrices should be developed and analyzed for each recommendation tested, consolidating the information from all of the households that participated in the test. These summary matrices will be used to rank recommendations and to select the final recommendations.

In general, it has been observed that the facilitating factors are related to the ease of putting the recommendation to practice, the perceived (positive consequences) or expected benefits (motivations), the skills, and the support of family members, among others. The obstacles deal with the lack of actual or perceived time, the elevated cost, particular child's characteristics (illness, lack of appetite, etc.), the child's acceptability (he/she liked it or not), or situations perceived as out of the mother's control (other people decide what to feed the child, etc.).

Summary of the results about compliance and feasibility

The selection of the recommendations that will be included in the intervention plan (Module III) should be done according to the mothers' *compliance* with the recommended practice, the *feasibility* of continuing the recommended practice, and the positive *impact* the recommended practice will likely have on the nutrition of young children.

To evaluate the recommendations, the first step is the development of a matrix (Form II-2.6) to be completed with quantitative and qualitative information about mothers' *compliance* with and the *feasibility* of each recipe or recommendation being tested.

Compliance is defined as the combination of:

a. Percent of mothers who put each recommendation to practice

b. Number of times per week they practiced them

c. If it is a recipe, number of times per day they fed it to the child.

d. Child's acceptability of the new recipe.

Feasibility refers to the following criteria:

a. Positive and immediate consequences perceived by the mother

b. Compatibility with existing beliefs and knowledge in the population

c. Cost in economic resources for the mother

d. Cost in time and effort to the mother

e. Complexity of the recommended practice.

Table II-7 shows a matrix that was very useful for the selection of the final recommendations in Mexico.

Table II-7. Example of a completed matrix for the compliance and feasibility analysis of the recommendations tested

	CRITERIA	Noodle soup with liver	Vegetable soup with liver	Give foods with smaller servings of broth	Increase the number of meals per day
COMPLIANCE	**% who put recommendation into practice**	100%	64%	82%	82%
	# of times/week they put it into practice	1 or 2 times a week	1 time every 2 weeks	Foods were not always given with broth	Few put it to practice every day
	# of times/ day they fed it to the child	2 times a day (lunch and dinner)	1 time a day	Does not apply	Does not apply
	Child's acceptability	Very good acceptability. Giving him liver too often may *bore him.*	Not all children liked it because of the vegetables. Giving liver too often may *bore him.*	Good acceptability	Good acceptability
FEASIBILITY	**Perceived positive consequences**	Nutritious and good for her growth.	Nutritious. Good if the child is sick.	Her health and digestion improved. Was no longer hungry.	She was happier and her health and weight improved.
	Compatibility with beliefs and knowledge	Noodle soup is good for children. Chicken liver is good for small children.	Vegetables have vitamins and are good for the child's digestion. Chicken liver is good for small children.	There is a set belief that the *substance* is in the broth and not in the *solid food*.	Too much food may be harmful to the child. It is the child who decides how much and when to eat.
	Cost in economic resources	Inexpensive and accessible.	Inexpensive.	Does not increase expense.	Increases expenses.
	Cost in time and effort	Little time.	Effort to find vegetables.	Takes time.	Too much time and effort.
	Complexity	Does not seem complex.	Does not seem complex.	It is easier to serve broths and liquids than solids.	Depends on the child's appetite and the mother's activities.

Data analysis

Once the results are organized in matrices like the one described in the table above, the data should be analyzed by applying the feasibility and impact criteria (see Form I-10.4 of Annex I) to the recommendations that were tested and to those that were not tested but will be included in an intervention. The results of the *Test of Recommendations* will provide a clearer idea of the potential feasibility of each recommendation. Based on this analysis, three to five recommendations deemed to have potential for adoption should be selected. These recommendations will form the basis of an intervention to be designed during the application of Module III.

7. Example of the application of the Test of Recommendations

In a project in Guatemala (Rivera et al., 1998), the following recommendations were tested after having been ranked using the data analysis described in Module I:

- Increase feeding frequency giving the child three main meals and two snacks, one at mid-morning and one at mid-afternoon. In addition, "good" snacks were suggested, such as sweet bread, banana or other fruit, and thick atole (cereal-based drink).
- Combine certain foods in each meal, giving the child at least two basic foods such as black beans, rice, noodles and egg. Always serve these foods with a corn tortilla.
- Increase the amount of food, giving the child one more spoonful than usual of beans, rice, or noodles. Give children less than one year of age half a corn tortilla and children older than one year of age at least one corn tortilla at each meal.
- Help the child eat by spoon-feeding the child less than one and helping and motivating older children to finish all the food served.

Each recommendation was evaluated using the *Test of Recommendations* with six mothers for a period of five days. Most of the mothers put the recommendation to practice during the five days. However, when comparing results, the recommendation most feasible to adopt was "increase the frequency consumption each day", particularly for children older than eight months of age. The most difficult recommendation to adopt was "give food combinations" since it was difficult to remember and it seemed complex to the mothers. Also, the recommendation about "amount to feed" was difficult to adopt, especially because children were not able to eat the amount of tortilla suggested. Finally, the mothers were able to help their children eat; and those who tried to increase the frequency of consumption each day spontaneously stated that to achieve it they had to help their children eat.

The data were analyzed again using the feasibility of adoption and potential impact criteria. The following recommendations were tested:

a) Increase the daily frequency of meal times

b) Prepare certain food combinations at each meal

c) Increase the amount of food served at each meal

d) Help the child to eat

e) Increase the daily frequency of meals during diarrheal illness and recovery

f) Increase the amount of food served during diarrheal illness and recovery

It should be noted that the last two recommendations were not evaluated in the *Test of Recommendations* because of the implicit difficulty in finding children with diarrhea or in the recovery period after having had diarrhea.

In the data analysis, "increasing the daily frequency of meal times", letter (a) above, received the highest score for feasibility of adoption followed by the maternal practice of "helping the child to eat" (d). Meanwhile, "increasing the amount of food served" (c), received the highest score for potential impact, but the lowest score for feasibility of adoption. Moreover, it was considered more feasible to "increase the daily frequency of foods during diarrhea and the recovery period" (e) than to "increase the amount of food" (f).

Therefore, the final selected recommendations were: "increase the daily frequency of meal times (three formal meals and two snacks) (a), and "help the child to eat" (d). The social communication intervention was designed around these two recommendations.

PRODUCT

Once the *Test of Recommendations* is finished, a final list of recommendations to improve infant and young child feeding which have the potential to be adopted by the community will be available and summarized on the Form II-4.

REFERENCE

Rivera Dommarco J, Santizo MC, Hurtado E (1998) Diseño y Evaluación de un Programa Educativo para Mejorar Las Prácticas de Alimentación en Niños de 6 a 24 Meses de Edad en Comunidades Rurales de Guatemala. Washington, DC: Pan American Health Organization.

GUIDELINES FOR COMPLETING THE REGISTRATION FORM FOR THE INITIAL VISIT OF THE TEST OF RECOMMENDATIONS (FORM II-2.1)

I. Introduction

Before starting the questions, the field worker should introduce herself to the mother and ask her consent to apply the questionnaire. In the same manner, the objectives of the study and the interest in the mother's participation should be explained in simple terms.

II. Completing the form

1. Date of interview	Write the date in which the initial visit is carried out, starting with the day, month and year. The months should be written using a progressive code that goes from 01 for January to 12 for December. For the first nine days of the month, a zero must be written before the number. For example day 2 = 02.
2. Field worker's name and code	Write your name and the first letter of your paternal last name, and your code after the diagonal (which should be assigned by the Supervisor).
3. Child's code	Write the corresponding code, **unique for each child**. This code should be assigned by the Supervisor and added to a list of participating children.
4. Child's name	Clearly write the child's name in the following order: paternal last name, maternal last name, and first name.
5. Mother's name	Clearly write the mother's name in the following order: paternal last name, maternal last name, and first name.
6. Name of the person who takes care of the child (if different from the mother)	It is possible that the person who usually takes care of the child is not the mother. In this case, clearly write the name of the person in the following order: paternal last name, maternal last name, and first name.
7. Relationship to the child	Write the relationship between the child and the person who usually takes care of him/her.

8. Location of home	Write the name of the street where the home is located. Record also particular signals and/or reference points that will facilitate finding the home later.
9. Recommendation that will be tested	Write the recommendation that the mother will test.
10. Evaluation of whether or not recommendation is currently followed	According to the questions or forms developed by the team, determine if the mother already practices the recommendation that she will test. If she already practices the recommendation, ask her about another recommendation that will also be tested and record the change in number 9. If the mother is not already practicing it, proceed to question 11.
11. What do you think of the recommendation?	EThe purpose of this question is to determine the mother's initial reaction to the recommendation. Ask the mother: What do you think of the recommendation? Record her reactions.
12. Would you like to change it in some way? How?	The purpose of this question is to determine if the mother would like to change the recommendation in some way to improve it or make it easier to put to practice. In addition, the question asks how the mother would like to change the recommendation.
13. Have you heard something similar before? Where?	The purpose of this question is to determine if the mother has heard the recommendation previously and where she had heard it.
14. Have you done something similar before? What did you do?	The purpose of this question is to determine if the mother has practiced a similar recommendation and to record which practice it was and how it was similar to the recommendation.
15. Do you think you could put this recommendation to practice? Why? Why not?	The purpose of this question is to determine if the mother thinks she can comply with the recommendation and why she thinks that way.
16. Do you have any doubts?	The purpose of this question is to determine whether the mother has any doubts about the recommendation, how to put it to practice and the frequency with which she should practice it. In addition, this question will give the field worker the opportunity to increase the mother's confidence in practicing the recommendation, using the matrix of motivations (Form II-2.3).

17. Observations	Write any information needed to clarify or facilitate the interpretation of any answer given by the mother. Record any problems encountered while conducting the interview, if applicable. If more space is needed to record the answer to any of the previous questions, use this section.
18. Days and times available for possible visits	The purpose of this question is to determine which days and times are convenient for the mother for the follow-up and final visits.

III. At the end of the interview

Thank the mother for answering the questions and explain that you will be back to hear her opinions regarding the recommendation. Leave a reminder or drawing of the recommendation, if available.

Form II-2.1
Child's code_____

REGISTRATION FORM FOR THE INITIAL VISIT OF THE *TEST OF RECOMMENDATIONS* (FORM II-2.1)

1. Date of interview: __ __/ __ __ /__ __ __ __
day month year

2. Field worker's name and code:

..... / ___ ___

3. Child's code:

___ ___ ___ ___ . . . . . .

4. Child's name:

. . . . . .
Paternal last name Maternal last name First name

5. Mother's name:

. . . . . .
Paternal last name Maternal last name First name

6. Name of the person who takes care of the child (if different from mother):

. . . . . .
Paternal last name Maternal last name First name

7. Relationship to child: . . . . . .

8. Location of home:

Address: . . . . . .

. . . . . .

. . . . . .

Street, avenue, kilometer and/or alley, house number, neighborhood, section, etc. (identifying information to facilitate coming back for other visits)

9. Recommendation that will be tested: . . . . . .

. . . . . .

. . . . . .

10. Evaluation of whether or not recommendation is currently followed: (following questions or questionnaires developed by the team)

. . . . . .

. . . . . .

Form II-2.1
Child's code_____

11. What do you think of the recommendation?

. . . . . .

. . . . . .

12. Would you like to change it in some way? How?

. . . . . .

. . . . . .

13. Have you heard something similar before? Where?

. . . . . .

. . . . . .

14. Have you done something similar before? What did you do?

. . . . . .

. . . . . .

15. Do you think you could put this recommendation into practice? Why? Why not?

. . . . . .

. . . . . .

16. Do you have any doubts about this recommendation?

. . . . . .

. . . . . .

17. Observations:

. . . . . .

. . . . . .

. . . . . .

. . . . . .

. . . . . .

. . . . . .

18. Days and times available for possible visits:

. . . . . .

. . . . . .

. . . . . .

GUIDELINES FOR COMPLETING THE REGISTRATION FORM FOR THE FOLLOW-UP AND FINAL VISITS OF THE *TEST OF RECOMMENDATIONS* (FORM II-2.2)

I. Introduction

As a general rule, avoid reading questions word by word. Try, instead, to establish a natural conversation with the mother. This conversation should include the mother's experience with the new recommendations and her comments, the child's response, the mothers' willingness to continue the practice, and the changes made to the recommendation.

The following topics should be covered with the mother:

- To what extent were you able to follow the recommendation? Why?
- How did you feel about this experience (was it difficult or easy to practice the new recommendation)?
- Did you modify the recommendation? Why?
- What did other people think of the recommendation? Why?
- Do you plan to continue putting the recommendation in practice? Why? Why not?

After introducing yourself to the mother, explain to her that you are interested in knowing if the practice worked or not, and proceed with the interview.

II. Asking questions

1. Date of interview	Write the date in which the follow up or final visit is carried out, starting with the day, month and year. The months should be written using a progressive code that goes from 01 for January to 12 for December. For the first nine days of the month, a zero must be written before the number. For example day 2 = 02.
2. Field worker's name and code	Write your name and the first letter of your paternal last name, and then in the diagonal write your code (this should have been previously assigned by the Supervisor).
3. Child's code	Write the corresponding code, **unique for each child**. This code should be assigned by the Supervisor, it is necessary to verify that there are no repeated codes and that the number that will be written is added to a general list of children who enter into the study.

4. Child's name	Clearly write the child's name in the following order: paternal last name, maternal last name, and first name.
5. Mother's name	Clearly write the mother's name in the following order: paternal last name, maternal last name, and first name.
6. Relationship to the child	Write the relationship between the child and the person listed in question 5, if not the mother.
7. Recommendation tested	Write the recommendation that the mother agreed to test at the initial visit.
8. Do you remember the recommendation? What did it say?	The purpose of this question is to evaluate if the mother remembers the recommendation given. It is NOT to evaluate if she put it practice or not, only if she remembers it.
9. Evaluate if the mother has been practicing the recommendation, the frequency with which she has practiced it, and why or why not she has practiced it	The purpose of this question is to evaluate if the mother followed or not the recommendation, how many days or times she practiced it and why. Apply those questions or forms developed to evaluate compliance with the recommendation.
10. How did you feel practicing the recommendation?	The purpose of this question is to determine the mother's reactions regarding her experience practicing the recommendation.
11. ¿What did you like about the recommendation?	The purpose of this question is to determine what the mother liked about the recommendation or about practicing it.
12. What did you dislike about the recommendation?	The purpose of this question is to determine what the mother DISLIKED about the recommendation or about practicing it.
13. Do you think your child liked it or not? Why?	The purpose of this question is to evaluate the child's reaction to the recommendation and document his/her reaction.

14. Did other people say something to you about the recommendation? Who? What did they say?	The purpose of this question is to determine if family members, neighbors or friends, or any other person, said something to the mother about the recommendation, who they were, and what they said.
15. Did you ever change the recommendation? What did you change? Why did you change it?	The purpose of this question is to determine if the mother made any changes to the recommendation, which changes she made, and why she made those changes.
16. Are you willing to continue practicing this recommendation? Why? Why not?	The purpose of this question is to determine if the mother intends to continue practicing the recommendation and why or why not.
17. Observations	Write any information important for clarifying or facilitating the interpretation of any answer. Record anything that might have obstructed or impeded the interview, if applicable. If more space is needed to record the answer to any of the previous questions, use this section.
18. Days and times available for the final visit	The purpose of this question is to determine which days and at which times it is more convenient for the mother to have the field worker return for the final visit.

III. At the end of the interview

Thank the mother for her collaboration and come to an agreement with her about the best day and time for the final visit.

Form II-2.2
Child's code_____

REGISTRATION FORM FOR THE FOLLOW-UP AND FINAL VISITS OF THE *TEST OF RECOMMENDATIONS* (FORM II-2.2)

1. Date of interview: __ __/ __ __ /__ __ __ __
day month year

2. Field worker's name and code:

..... / ___ ___

3. Child's code:

___ ___ ___ ___ . . . . . .

4. Child's name:

. . . . . .
Paternal last name Maternal last name First name

5. Mother's name:

. . . . . .
Paternal last name Maternal last name First name

6. Relationship to child (if different from the mother):

. . . . . .
Paternal last name Maternal last name First name

7. Recommendation tested: . . . . . .

. . . . . .

. . . . . .

8. Do you remember the recommendation? What did it say?: . . . . . .

. . . . . .

. . . . . .

9. Evaluate if the mother has been practicing the recommendation, the frequency with which she has practiced it and why or why not she has practiced it. (Apply here the questions or forms developed to evaluate the compliance or rejection of the recommendation.)

. . . . . .

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Form II-2.2
Child's code_____

10. How did you feel practicing the recommendation?

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. . . . . .

. . . . . .

. . . . . .

11. What did you like about the recommendation?

. . . . . .

. . . . . .

. . . . . .

. . . . . .

12. What did you dislike about the recommendation?

. . . . . .

. . . . . .

. . . . . .

. . . . . .

13. Do you think your child liked it or not? Why?

. . . . . .

. . . . . .

. . . . . .

. . . . . .

14. Did other people say something to you about the recommendation? Who? What did they say?

. . . . . .

. . . . . .

. . . . . .

. . . . . .

15. Did you ever change the recommendation? What did you change? Why did you change it?

. . . . . .

. . . . . .

. . . . . .

Form II-2.2
Child's code_____

16. Are you willing to continue practicing this recommendation? Why? Why not?

. . . . . .

. . . . . .

17. Observations:

. . . . . .

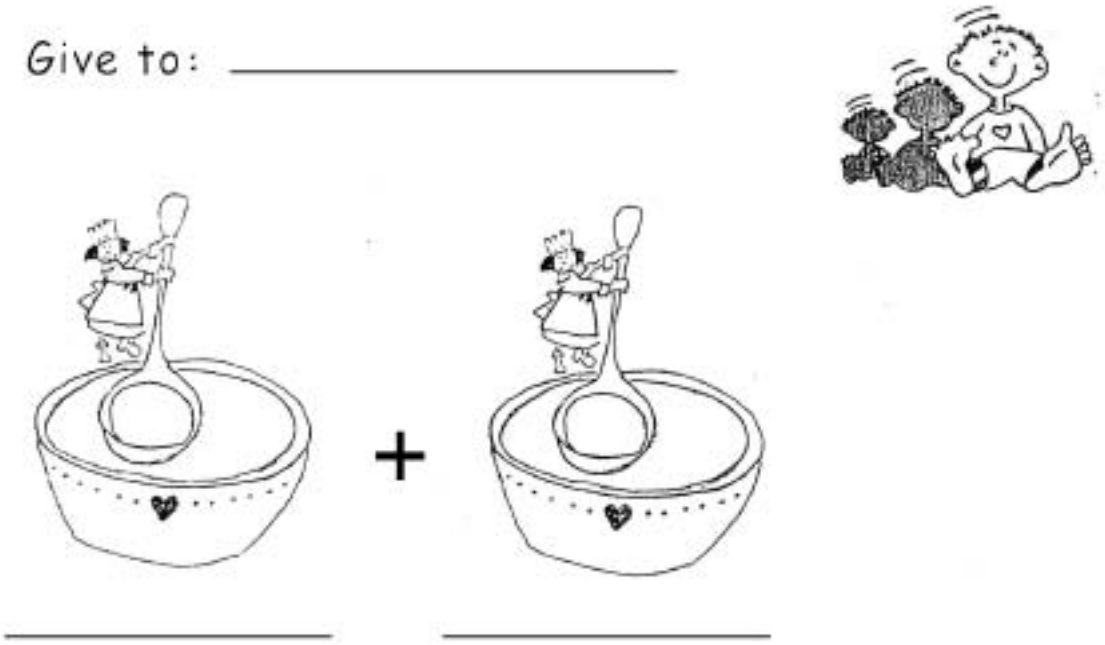
. . . . . .

18. Days and times available for the final visit:

. . . . . .

. . . . . .

Example of a reminder of a recommendation



(Drawing by Marian Villanueva, Instituto Nacional de Salud Pública, Mexico)

MATRIX OF MOTIVATIONS (FORM II-2.3)

RECOMMENDATION	MOTIVATIONS

MATRIX OF SOLUTIONS (FORM II-2.4)

Recommendation:	

BARRIERS	SOLUTIONS

MATRIX FOR THE ANALYSIS OF THE TEST OF RECOMMENDATIONS (FORM II-2.5)

Recommendation	Remembered	Execution	Modification	Facilitators	Obstacles	Intention to continue

MATRIX FOR THE COMPLIANCE AND FEASIBILITY ANALYSIS OF THE RECOMMENDATIONS TESTED (FORM II-2.6)

	CRITERIA	Recommendation 1	Recommendation 2	Recommendation 3	Recommendation 4	Recommendation 5	Recommendation 6	Recommendation 7
COMPLIANCE	% who put recommendation into practice							
	# of times/week they put it into practice							
	# of times/day they fed it to the child							
	Child's acceptability							
FEASIBILITY	Perceived positive consequences							
	Compatibility with beliefs and knowledge							
	Cost in economic resources							
	Cost in time and effort							
	Complexity							

Annex II-3
Focus groups (optional)[1]

OBJECTIVES

The objectives of the *Focus Groups* are to:

- Resolve doubts and/or inconsistencies regarding the information collected during the assessment (Module I) and *Test of Recommendations* (Module II)
- Confirm the feasibility of mothers following those recommendations that were modified after applying the *Recipe Creation Exercise or Test of Recommendations*

STEPS

1. Previous work

The following tasks must be completed in preparation for a *Focus Group*: identifying the participants, scheduling a time that is convenient to them, searching for a place to hold the sessions; and revisiting the persons invited to reconfirm their attendance. This process might take from two to four days per group.

In addition, a guide must be developed according to the purpose of the group with the topics to be covered and the main questions to be asked during the session.

2. Selection of participants

The selection of participants for the *Focus Groups* depends on its purpose, i.e., either to clarify contradicting results of the *Test of Recommendations* or to elucidate issues related to carrying out a specific recommendation. The selection of participants does not have to be random.

1 More guidance on how to prepare, conduct, and analyze focus groups can be found in Dawson S, Manderson L (1993) A Manual for the Use of Focus Group, published by the International Nutrition Fund for Developing Countries. Also available online at www.inffoundation.org.

In general, for each *Focus Group* there should be between six and eight participants. To ensure this number, it may be necessary to invite approximately ten to fifteen persons. This will depend on the response of the study community to the project.

The invitation may be done verbally directly with the person who will participate or written in an invitation card, or a combination of both. The invitation card should include the name of the person invited, the place where the session will take place, and the time the group will meet.

The number of *Focus Groups* will depend on the information to be collected. It is recommended to have at least two *Focus Groups* carried out for each topic.

3. Material

- Copies of the Form for the *Focus Groups* (Form II-3.1)
- Notebook to take notes
- Pens/pencils
- Clipboard
- Identification card
- Battery-operated cassette player with batteries and two cassettes, if planning to tape the session
- Name labels and markers for the participants' names
- Snacks

4. Personnel, site and time

To effectively develop a focus group, a minimum of one moderator and two note-takers is needed. Their tasks are described below.

Moderator:

Moderating a Focus Group is not an easy task. A skilled moderator will have a good handle on group dynamics techniques and on the subjects to be discussed.

Note-taker:

The note-taker should be trained to listen and record the Focus Group discussion as exactly as possible. This person should be receptive to participants' attitudes and opinions during the session.

If the team does not have anyone with these characteristics, hiring outside experts may be necessary.

It is common for mothers to take their children to the session for lack of baby-sitter. Thus, it is recommended to plan to have someone in charge of the children at the *Focus Group* location while their mothers participate. If possible, participants should be asked to attend the session without their children.

Each *Focus Group* should be carried out in a neutral and private site, with minimal risk of interruptions. Ideally, the site should have good ventilation and illumination. The seats should be similar for everyone (participants and moderator) and arranged in a circle with nothing in the middle.

It is recommended that only one session be held per day. The discussion should last no longer than one and a half hours.

5. Description and procedures

The moderator should be in charge of asking the questions listed in the question guide, always inquiring about the reasons behind mothers' practices or opinions. The note-takers should record the most pertinent comments and, at the end of the session, use the tape recording (if available) and the moderator's notes to expand and complement their notes.

Welcome

It is important to greet and welcome the participants to help them feel comfortable and willing to participate with enthusiasm and trust. For this, it is recommended to:

- Greet the participants and thank them for attending the meeting
- Assure them that their presence is very important and thank them for the opinions and comments they will give during the meeting
- Explain to them, in general terms, the reasons for the meeting:

  For example: *We have invited you because we would like to learn about infant and young child feeding in… (name of community). (If the participants are mothers) Who better than you, mothers, who are in charge of feeding your families, to talk about this...*

Introduction (ice-breaker activity)

The moderator and the note-takers should introduce themselves:

For example: *To get to know each other better, each one of us is going to introduce herself. My name is Rosario and I am from Concepción, a beautiful little town in the Mantaro valley, near Huancayo. I have two children: Ruben who is 9 and Ururi who is 6, and I hope to have two more.*

I am Hilaria, from a little town in …, but not as beautiful as … I have a baby, but my baby is 20 years old.

OK! Now it's your turn… Who would like to start?

Motivate the participants to introduce themselves one at a time until all have done so. These introductions may be used to record some information on the participants, as for example, number of children, age of the youngest, mother's age and education. The introductions may also be done as part of an ice-breaker activity or game.

Purpose and procedure

It is important to inform the participants about how the session will be carried out:

For example: *We are here to learn about infant and young child feeding in this community … It is you, the mothers, who will teach us. This is why it is very important that all of you participate. This will be a conversation. There is not set order, we cannot tell you to start here and end there. Anyone of you may start, anyone may follow, and we may contradict ourselves. It is important that all of you give us your opinions and listen to the opinions of the others present. All your opinions are good; there are not bad or incorrect opinions*

If applicable, the use of a cassette-recorder should be explained:

For example: *Since all that you will say is very important for us, we will record your opinions so nothing escapes us. Our friends (name the note-takers) will take notes, but if they cannot write everything down, we have the tape to listen to later.*

General discussion

The moderator should have a copy of the question guide and know it well. It is recommended not to read each question. Moreover, the order of the questions does not have to follow that of the question guide; in some instances, it might be necessary to change the order to be able to follow the flow of the conversation. Examples of questions are shown in Table II-8 below.

Table II-8. Focus Group Questions to Assess Consumption, Availability, Cost and Beliefs of Specific Processed Foods

Objective	Question
Consumption	Are young children in this community given (specific food)? How old are they when they are first given (specific food)? At what age is (specific food) no longer given to children? How is (specific food) prepared? How is (specific food) served?
Availability	Is it easy or hard for families to find (specific food) in the community? What makes it easy/hard?
Cost	How much does (specific food) cost? Is that considered inexpensive, moderately priced, or expensive? If (specific food) cost less, do you think more parents would give it to their child? Why do you think that?
Beliefs	How would you describe the parents of children who do eat (specific food)? Is (specific food) a suitable food for children less than two years of age? Please explain.
Suggestions	If you wanted to convince parents in this community to feed (specific food) to their children, what would you say to them?

To increase the fluidity of the conversation, the moderator should use the same expressions as the participants.

For example: *Juana said that her son likes okra. At what time can children begin to eat okra? How do you feed it to children of that age? Will 6 month old children eat it?*

The moderator and note-takers should be attentive to mumbled words, gestures, body movements, head movements agreeing or disagreeing with something, and conversations between two participants, and they should further explore their contents. It is by paying attention to such details that the best information is obtained. The following are examples of exploring these cues:

I heard Rosa telling Vicenta that … you can also make pudding with sweet potatoes? Can you tell us how, Rosa?

I thought I heard someone around here say that broccoli is good for children.

When Susana was explaining how to prepare green beans, Sonia moved her head saying no, no, no. How do you prepare them, Sonia?

Conclusion

When all the questions have been asked, the moderator should summarize what was said and ask if anyone wants to add something else to the discussion. This time may be used to clarify any doubts the participants might have about the recommendations.

Snacks

When finished, a snack may be served. This time may be used in many ways to:

- Quickly exchange impressions among the moderator and the note-takers to determine if anything was left unsolved or not clarified and, if yes, discuss these issues with the participants before they leave.
- Approach a participant and ask her to clarify something that does not require everyone's participation, as for example, information about her age or number of children.
- Ask any questions to the participant who spoke the least.
- Listen to what the participants talk among them regarding infant and young child feeding.

Departure

It is important to thank the participants for their time and, particularly, for their comments and opinions. When the participants begin to get up from their seats, the moderator should approach the door to personally say good-bye to each one.

It is important to remember that respect and cordiality, in the words and gestures of the moderator and note-takers, are crucial for the success of the *Focus Group*.

6. Analysis

The systematization and analysis of *Focus Groups* data is based on matrices, much like the analysis of the semi-structured interviews. How each matrix is organized depends on the topics covered in the *Focus Groups*. It is suggested to start by summarizing the information obtained (knowledge, reasons, and positive or negative attitudes) for each of the recommendations or questions included in the question guide. It is useful to record on the matrix the number of participants that gave each of the answers in order to be able to rank the answers in terms of its prevalence in the group.

PRODUCT

The product of the *Focus Groups* is:

- A better understanding of the acceptability of the recommendations that were modified during the *Recipe Creation Exercise* and/or *Test of Recommendations*

Form II-3.1
Focus Group Number_____
Meeting place_____

REGISTRATION FORM FOR THE FOCUS GROUP (FORM II-3.1)

1. Focus group number: ___ ___

2. Meeting place: . . . . . .

. . . . . .

3. Date of focus group: __ __/ __ __ /__ __ __ __
day month year

4. Moderator's name and code:

..... / ___ ___

5. Note-taker's name and code:

..... / ___ ___

6. Participants' names and codes:

..... / ___ ___

..... / ___ ___

..... / ___ ___

..... / ___ ___

..... / ___ ___

..... / ___ ___

..... / ___ ___

..... / ___ ___

..... / ___ ___

..... / ___ ___

..... / ___ ___

Form II-3.1
Focus Group Number_____
Meeting place_____

CODE	AGE	LAST YEAR COMPLETED IN SCHOOL	CHILD'S AGE

7. Participants' information:

8. Starting time: __ __ : __ __

9. Ending time: __ __ : __ __

10. Topics to cover during focus group: . . . . . .

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Form II-3.1
Focus Group Number_____
Meeting place_____

11. Observations and comments about the group

- Participation level
- Was the question guide completed?
- Other

MATRIX FOR THE ANALYSIS OF THE FOCUS GROUP (FORM II-3.2)

RECOMMENDATION/ QUESTION	KNOWLEDGE, REASONS AND ATTITUDES

MATRIX FOR THE FINAL LIST OF RECOMMENDATIONS THAT WILL BE PROMOTED IN AN INTERVENTION (FORM II-4)

FINAL RECOMMENDATIONS

MODULE III
DESIGN OF THE INTERVENTION PLAN

PURPOSE

Often, the effort invested during the diagnostic stage of a project is not carried into the next stages. This is due, in part, to the numerous manuals that stop at this stage without explaining how to develop an intervention plan (see Glossary) from the information collected. Module III will help the team to review the information collected and analyzed during the assessment in Module I and the *Test of Recommendation and Recipe Creation Exercise* in Module II and use it to develop an intervention plan. The intervention plan should address the food and nutrition problems in the diets of children less than 24 months of age identified during the assessment. It should describe the most adequate intervention to help relieve these problems taking into consideration the existing barriers and facilitators at the familiar, community and institutional level.

This module defines a nutrition and feeding intervention as a set of multiple strategies planned and designed to: a) change the feeding behaviors in a section of the population (for example, a group of mothers[1] of children less than 24 months of age), b) modify the factors that influence these behaviors, and c) promote the recommendations that have been selected with the application of modules I and II.

The food and nutrition intervention to be implemented should be developed by an interdisciplinary team. Often during the implementation of this intervention, the team will need to return to the intervention plan to keep the intervention on course. Sometimes during the implementation, critical factors used in determining the content of the intervention (like the reasons why certain decisions were made, why specific objectives were established or why particular contents were included) become obscured and the intervention design is changed without thorough consideration. The team should be confident that the findings from Modules I and II provided a solid basis for the design of the intervention and that the intervention plan cannot be changed on a whim.

1 The vast majority of young children are likely to be cared by their mothers. However, we used "mother" throughout ***Pro*PAN** to denote mothers and other caregivers.

PRODUCT

When the application of Module III has been finished, the team will have:

- A general plan to carry out a food and nutrition intervention for children less than 24 months of age. This plan includes objectives, strategies, material, and implementation.

The research team may decide to hire an outside expert with experience in social marketing and communications to help with some specific components of the intervention plan. This will depend on the expertise and experience of the research team, and on the type of intervention to be designed.

STEPS

To develop an intervention plan, the steps below should be followed:

- Review of the main results of the research carried out in Modules I and II. The detailed reports and summary matrices developed previously should be particularly helpful.
- Listing of all the possible strategies that could be used to promote selected behavior changes.
- Selection of the strategies that the program will be able to implement with the material and human resources available.
- For each strategy, design of a detailed list of the activities to be carried out.

DEVELOPMENT

Step 1. Review of research results

Before applying Module III, it is useful to complete a matrix like the one found in Form III-1 (see example in Table III-1), synthesizing the findings of the research carried out in Modules I and II. For each one of the recommended practices or selected recommendations obtained at the end of Module II, the following should be reviewed and discussed:

- The selected recommendations (see matrix in Form II-4, Module II).
- The resources necessary to practice the recommendations.
- The different barriers to practicing the recommendations.

- The actual or potential factors that facilitate practicing the recommendations.
- The implications of the findings for an intervention strategy, i.e. how the team thinks the practices can be changed and how to modify the factors that impede practicing the recommendations.

This exercise should be a synthesis of the previous research (Modules I and II), which should include a discussion of the resources necessary for the mothers to carry out the recommendations, the barriers or obstacles to adopting these recommendations, the facilitating factors, the implications for the intervention strategies, and the lessons learned informally during the entire research process (Dickin *et al*., 1997). Moreover, after studying and analyzing the behaviors in a detailed or "micro" manner, the team should reflect on the implications for the intervention strategies in a more "macro" manner, considering the social and institutional environment.

The following example is taken from a project in Peru. The matrix was completed by an interdisciplinary team and members of the community by "brainstorming". With the aim of keeping the intervention strategies realistic, the research results were made known and available to everyone present.

Table III-1. Example of a completed matrix for the research summary *

Recommendation	Necessary resources	Barriers	Facilitators	Implications for the intervention
Offer animal source foods (particularly those rich in iron, such as chicken liver or "blood sausage") at least once a day, every day, to your 6 to 24 months old child	• Time for the mother to buy, prepare, and serve the food • Money available to buy iron-rich foods • Availability of the foods in the market	• Elevated cost of "blood sausage" • Children do not like chicken liver or "blood sausage" • Mothers think that "blood sausage" should not be given to children • Children eat at "community kitchens" (*comedores populares*) once a day and "blood sausage" or chicken liver is never served there	• It is easy to find "blood sausage" or chicken liver in the markets that mothers visit • Mothers think that "blood sausage" and chicken liver are very nutritious	• Promote the nutritive value of foods with "blood sausage" and chicken liver and teach mothers how to prepare them for young children. • Work with private industry to decrease the cost of "blood sausage" and chicken liver • Encourage "community kitchens" to incorporate some food preparations with "blood sausage" or chicken liver into their menu • Train personnel working at "community kitchens"

* From Peru

Step 2. Listing of possible intervention strategies

As can be observed in the previous matrix, a great spectrum of potential strategies can be identified to promote recommendations. Examples of strategies commonly adopted are listed below:

- Training: Providing training in "community kitchens" and/or child care centers to health care personnel and/or community health workers.
- Development of health services norms: Development of norms to improve the quality of care in the health services, particularly the quality of counseling in terms of both its technical content, and personal communication and interaction.
- Development of a nutrition and feeding communications plan to improve young child feeding: Development of a communications plan which includes demonstration or modeling of skills, which is fundamental in preparing recipes. This plan would be directed to mothers of young children as well as to other family members, such as fathers and grandmothers.
- Promotion of community participation for problem analysis, planning, monitoring and evaluation.
- Coordination with strategic allies: Coordinating with allies such as food producers and non-governmental institutions implementing similar projects.

In addition to the options identified previously, additional options to be considered are:

- Advocacy on child nutrition issues.
- Legislation or creation of laws to strengthen and protect the food and nutrition of young children.
- Reorientation of food aid programs to focus on the prevention of malnutrition on children 6-24 months of age.

Only the first five intervention strategies will be discussed in this module.

Step 3. Selection of intervention strategies

Again, based on the information collected, the team will have to decide the best strategies to be developed and which could be carried out by the program or project with the financial and human resources available. The team should also discuss which strategies families would not have much control over and which ones would involve the family participation.

Even if the research findings of Modules I and II are considered complete, it is possible that additional quick research may be needed to develop some of the selected strategies. For example, in a project in Guatemala (Rivera et al., 1998), where it was decided to include school-aged children as one of the audiences of the feeding messages because of their important and active role in the care of younger children, it was necessary to also survey the schools.

Step 4. Design of the intervention plan

For each intervention strategy that will be implemented, a detailed intervention plan should be developed. Examples of strategies commonly used and the activities involved in each one are described below. (These are not inclusive and the team may decide for strategies not listed here.)

4.1. Training

Almost all of the interventions will include a training component because often the successful implementation of an intervention plan requires the cooperation of groups, organizations or institutions that support the promotion of the recommended practices. In the case of a communication intervention on child feeding, it will be necessary to train the groups that are the sources of information on the selected topic. For example, the team should consider training health care personnel working on children's health, health promotion volunteers working at the community level, personnel from "community kitchens", and personnel from non-government organizations (NGOs) working on similar projects.

A plan to revise health and nutrition norms at Ministry level requires also training of health personnel on the implications of the revisions for the delivery of health services.

Training involves the following activities:

- Identification of the training audience(s)
- Definition of the training objectives
- Development of the educational content
- Definition of the methodology to be used in training
- Development of training materials
- Identification of trainers
- Development of a timeline
- Estimation of the duration of training sessions
- Development of an evaluation instrument
- Budget estimation

4.1.1. IDENTIFICATION OF TRAINING AUDIENCES

Considering the information in Modules I and II about sources of feeding advice, the team can decide who should receive training. For example, if mothers consult health personnel, the latter is a training audience (i.e., the health personnel should receive training). If the midwives are an important health resource in the intervention communities and the mothers consult them regarding child feeding, they too will be a training audience.

On the other hand, it is necessary to know the characteristics of the audiences to which the training will be targeted. For example, if health promotion volunteers will be trained, it is important to know their education levels or if they have received any previous training on child feeding, in order to adapt the content and the training methodology to this level of knowledge and experience. If necessary, this information should be collected before planning the training.

It is also important to determine logistical details, as, for example, the most adequate time to hold training sessions so the target population can come around daily activities or other scheduled events. Another important consideration is the number of people who will be trained. Generally, to obtain the best results, the training should be done with groups of 20 people or less.

4.1.2. DEFINITION OF THE TRAINING OBJECTIVES

It is very important to be clear on what is expected of the participants at the end of the training sessions. Thus, it is useful to complete a matrix like the one shown below for each activity that the participants are expected to perform after the training. The matrix includes knowledge, skills, and attitudes required to carry out each activity.

For example, if health promotion volunteers are to be trained on how to show mothers in the community to prepare new thicker-consistency recipes, the matrix to be used would be similar to the one in Table III-2 (Form III-2).

Table III-2. Example of a matrix to aid in the definition of the objectives of a training session.

Activity	Knowledge	Skills	Attitudes
Show mothers in the community how to prepare new thicker-consistency recipes	• Importance of thick-consistency foods • New recipes (ingredients and preparation)	• Prepare the recipes • Teach mothers how to prepare recipes	• They like the recipes • Are motivated to promote the use of the recipes

Based on the completed matrices for each activity, the specific objectives of the training should be defined. In the case of the example given above, the specific objectives of the training would be:

At the end of the training, the health promotion volunteers should be able to:

- *Counsel about the importance of diets of thicker consistency for children between the ages of 6 and 24 months.*

- *Describe the new recipes for thick-consistency foods for children 6-24 months of age (ingredients and preparation).*
- *Correctly and easily prepare the recipes to be promoted.*
- *Teach the recipes to other mothers.*
- *Show favorable attitudes toward the recipes and their promotion.*

It is important to define the objectives precisely because the training will be developed and evaluated based on them. Later in the intervention, these objectives will also be useful for monitoring the program activities.

4.1.3. DEVELOPMENT OF THE EDUCATIONAL CONTENT

Once the objectives are defined and considering the matrix described above, the specific contents of the training may be developed. It is possible that the topics to be developed will be obvious, but these should be linked to the knowledge and skills expected to be acquired by the end of the training session. In any event, the content has to be in accordance with the knowledge and experiences that the audience to be trained has previously had. The content should include the technical aspects of the recommendations to be promoted as well as the communication skills necessary to transmit the recommendations to the mothers.

An important part of training is the presentation of the research results, since they form the basis and justification for the intervention that will be implemented.

4.1.4. DEFINITION OF THE METHODOLOGY TO BE USED IN TRAINING

It is important to use adult education principles and participatory techniques, especially when training adults. When training on how to communicate with other people, as in the example where health promotion volunteers are asked to show the preparation of the recipes to mothers, the methodology used to train should be the same that the health promotion volunteers are expected to use. Thus, it will be necessary to show the preparation of the recipes to health promotion volunteers in the same way that these volunteers are expected to show to mothers. The training may include practice sessions where the volunteers show mothers how to prepare the recipes.

4.1.5 DEVELOPMENT OF TRAINING MATERIALS

Once the methodology to be used has been defined, the training materials should be developed. These may include slides, transparencies, counseling cards, flip charts and brochures. In addition, it should include food items and utensils to be used in the preparation of the recipes. In many cases, it is useful to reproduce and distribute the materials among the participants so they can use them as reminders of the main activities and messages. When the training audiences are expected to use certain materials during their activities, these should be available for the training sessions. The audiences should be trained to use them correctly and easily.

4.1.6. IDENTIFICATION OF TRAINERS

The trainers should have knowledge of both training techniques and the training topic (if possible, they should have participated in the Modules I and II research). The number of trainers depends on the number of persons who will be trained and the training methodology that will be used.

4.1.7 DEVELOPMENT OF A TIMELINE

The time it takes to plan the training, produce the materials, and evaluate the training, as well as the duration of the training sessions, should be considered when developing a timeline. It is also necessary to consider how the training fits in with the rest of the intervention activities.

4.1.8 ESTIMATION OF THE DURATION OF THE TRAINING SESSIONS

The time that each training session will take should be estimated. A matrix to summarize the planning of the training session can be found in Form III-3.

4.1.9 DEVELOPMENT OF AN EVALUATION INSTRUMENT

As stated before, the subject of monitoring and evaluation will be described in more detail in Module IV. Nonetheless, it is important to note that an instrument should be developed to test the knowledge and skills of the persons being trained, which should be applied before and after each training session. In addition to knowledge and skills, the evaluation instrument should included information on whether or not the objectives were met, and comments about the methodological, administrative and logistical aspects.

4.1.10 BUDGET ESTIMATION

All intervention plans should include a budget that considers the expenses estimated for each of the plan activities. For the training sessions, the budget items include materials and other resources needed for the training, salary of the trainers and rent of the site where the training sessions will take place. Sometimes, per diems for the trainees or travel expenses are also included.

4.2 Development of health services norms

The Ministry of Health is the normative agent for health programs in the country. Therefore, all health and/or nutrition projects or programs should be coordinated at the Ministry level in order to count with the support and credibility of health authorities. It is recommended that the team shares the process and the results of the research with personnel from the Ministry of Health. It is also desirable that a representative from the Ministry be invited to participate in the selection of the intervention strategies to eventually incorporate them into the norms and activities of the Ministry.

All the child feeding recommendations that will be promoted should be discussed, negotiated, and agreed upon with the Ministry of Health. The dissemination of messages and the behavior change in the popula-

tion will be easier to achieve if personnel from the Ministry also participate. Moreover, in terms of sustainability of the programs and their achievements, the participation of a permanent institution, such as the Ministry of Health, and its personnel is crucial.

When the Ministry of Health personnel offers advice, it is usually well received by the community. If the implementation of this manual is not being done by the Ministry of Health, it will be necessary to involve the Ministry in the implementation process, especially in the dissemination of the messages and the use of educational materials in health clinics. This usually involves training of Ministry personnel, not only on the technical aspects of the intervention recommendations, but also on the revision of their own protocols and procedures to improve the quality of counseling about child nutrition and feeding.

The great variety and even contradictory nature of the messages given to communities regarding nutrition and child feeding are problems observed in many countries. The incorporation of personnel from the Ministry at all levels of the intervention allows for increased coordination and standardization of the messages. In addition, it reinforces the promotion of the recommendations by disseminating them through different sources of information.

The development of health services norms involves both coordination at the central and coordination at the local level:

4.2.1 COORDINATION AT THE CENTRAL LEVEL:

- With the Ministry of Health regarding norms and/or recommendations, and messages about the recommendations to be promoted.
- With different programs within the Ministry of Health, such as for example, Food and Nutrition Security Program, and Baby Friendly Hospital Initiative).
- With other Ministries (notably, Agriculture, Economics and Education).

4.2.2 COORDINATION AT THE LOCAL LEVEL:

- Dissemination and discussion of the information obtained with the assessment (Modules I and II) with the community to involve it in a solution plan.
- Inclusion of the belief/acknowledgment that infant nutrition is a central part of good health in all the well-baby and sick-baby visits in health centers.
- Integration of nutrition personnel (where applicable) trained in pediatrics, growth and development.
- Selection of a few messages about the recommended practices that institutional health personnel will know and disseminate.
- Standardization of key messages regarding the recommended child nutrition and feeding practices among different counselors in health centers.
- Implementation of appropriate counseling techniques and good communication skills, such as listening to the mother, congratulating her and asking questions to verify her comprehension.

- Development and use of educational materials that facilitate counseling.
- Distribution of materials to mothers and care-givers of small children as well as other family members.
- Use of recipe preparation demonstrations for mothers of small children at the individual and group levels.
- Inclusion of community extension personnel (such as volunteers, health promoters, midwives, managers of "community kitchens" and pharmacy personnel) in interventions to improve child nutrition and feeding, with support from the Ministry personnel.

4.3 Development of a nutrition and feeding communications plan to improve young child feeding

Health communications strategies, also known as strategies of information, education, and communication (IEC) or behavior change communication, in feeding and nutrition are the central axis in all the interventions involving changes in behavior and adaptation of recommendations. The plans for IEC generally try to integrate different intervention strategies that require a communications component.

To develop a communications plan, the team will have to carry out the following activities.

- Definition of the nutrition and feeding problems (results from Modules I and II).
- Identification of the target audiences.
- Selection of recommended practices (results from Modules I and II).
- Definition of communications objectives.
- Identification of communications channels.
- Development of creative messages and strategies.
- Development, testing, and production of materials.
- Development of an implementation plan.
- Development of a monitoring plan.
- Development of an evaluation plan.
- Budget estimation.

A description of each one follows.

4.3.1. DEFINITION OF NUTRITION AND FEEDING PROBLEMS (RESULTS FROM MODULES I AND II)

The plan should summarize the nutrition and feeding problems of young children detected from the research carried out using Modules I and II.

4.3.2. IDENTIFICATION OF THE TARGET AUDIENCES

The *primary, secondary and tertiary audiences* should be defined based on the General Survey and field work experience. It is important to remember that in children's nutrition and feeding, the mothers and caregivers are the primary audience -- although it is the child who will benefit most from the changes in practices, it is the mother and caregiver who have to implement the changes.

The *segmentation of the audiences* tries to define, within the primary audience, the different existing segments or groups that will be influenced by the intervention (see Glossary). The different segments have different concerns, interests, and practices, thus requiring different strategies and communication messages. The segments of the primary audience should be described and quantified. This will help in the design of the communications materials and in defining the number of materials to be produced.

Examples of the different segments of the primary audience are: :

- Mothers with children 0-5.9 months of age.
- Mothers with children 6-8.9 months of age.
- Mothers with children 9-11.9 months of age.
- Mothers with children 12-23.9 months of age.
- Mothers who consume at or buy meals from "community kitchens".
- Mothers who work outside the home.

Other segments may be identified according to geography (region of the country, urban or rural area), demographics (ethnic groups) or socioeconomic level.

4.3.3. SELECTION OF RECOMMENDED PRACTICES (RESULTS FROM MODULES I AND II)

The selected recommended practices, their steps and resources necessary to adopt them, as well as their facilitators and perceived positive consequences, should be described in the plan. The recommended practices specific to each different audience segment should be described. This information should come from the data analysis conducted in Modules I and II

4.3.4. DEFINITION OF COMMUNICATIONS OBJECTIVES

The communications objectives usually refer to the:

- Coverage or exposure of the different audiences to the intervention activities and materials.
- Increase in knowledge of the different audiences about the main child feeding messages.
- Compliance (at least one time) with the recommended child feeding practices.
- Adoption, in the most sustainable way, of the recommended child feeding practices.

The evaluation of communication interventions is based on their coverage and on the change of knowledge and behaviors in the primary audience. Generally, the objectives do not include changes in the nutritional status of children less than 24 months of age (measured anthropometrically).

4.3.5. DENTIFICATION OF COMMUNICATION CHANNELS

The decisions taken in the previous steps and the information collected in Module I (particularly in the *General Survey*) will guide the team in the selection of the communication channels most adequate to reach the mothers and care-givers of young children and other audiences. The communications plan should consider the main communication channels (radio, television, and newspapers) and graphic materials (posters, flyers, billboards, etc.), as well as less formal communication channels such as interpersonal contacts with health personnel, community volunteers and mothers who practice the recommended behaviors. In addition, alternate communication channels such as community theatre and the oral tradition of some communities should also be considered. The decisions should be based on the reach of each channel and its cost.

4.3.6. DEVELOPMENT OF CREATIVE MESSAGES AND STRATEGIES

The creative messages should be related to both the recommended practices and the communications objectives. These messages describe what will be said to the different audience segments regarding the recommended practices, using words and phrases expressed by the audiences and documented during the research. The messages establish common subjects that give coherence to the different aspects of each practice. For example, if an objective is that "a greater percentage of mothers help their children less than 24 months to eat," an integrative message could be "feed your child with patience, love, and good humor".

The messages should include the main benefit that the mothers and children will obtain when carrying out the recommended practices. For example, if an objective is that "a greater percentage of children between 12 and 24 months of age eat healthy snacks" and the investigation found that mothers associate a healthy child to a child who grows well and is happy, a possible message for the mothers could be "giving fruit instead of sweets for snacks will help your child grow happy".

Creative strategies consider communications phases, since not all the messages can be disseminated simultaneously. The team should decide which objectives are most important and which are complementary and, based on this, arrange the messages in phases. For example, a program in Guatemala (Rivera et al., 1998) was developed in three phases, each one lasting four months. During phase 1, the basic messages about increasing the feeding frequency of children were introduced. Phase 2 introduced messages for special cases, such as when the child is sick or convalescent, and also messages directed to fathers. Phase 3 was used to reinforce the previous messages.

When developing the IEC plans, it is useful to carry out a *market analysis*, a technique used by the commercial market to understand and evaluate a product in relation to its competitors (see Glossary). In health and nutrition interventions, the "product" is usually a series of recommended practices or, in the case of ***Pro*PAN**, the recommended feeding practices for children less than two years of age. Through market analysis, the "four P's" of a product are analyzed: price, promise (or main benefit), position (or place of the product in the minds of the audience), and promotion.

4.3.7. DEVELOPMENT, TESTING AND PRODUCTION OF MATERIALS

The team should consider which materials will best adapt to the target audiences, communications channels selected and specific messages. From Module I, the research team will have an idea about materials that are used by other organizations and how they could be adapted for this type of intervention. New materials will also likely to be developed.

Materials that can be developed include brief radio messages and other recorded messages, posters for health centers and similar places, flip charts for group meetings, decision trees for individual counseling, pamphlets with the main child feeding recommendations listed by child's age, and recipes to be distributed during the demonstration of recipe preparations. Instructions on how to use each material correctly or user guides should be prepared for training.

All the materials and messages should be tested before being reproduced in their final form, since the testing of materials and messages is crucial for their effectiveness. They should be tested with a sample of the intended audience for comprehension and cultural appropriateness. Testing should include alternatives and a second test after modifications have been made. The team should develop protocols for testing each material.

The production of materials should be based on the estimated number of people in the primary, secondary, and tertiary audiences and these numbers should be specified in the communications plan.

4.3.8. DEVELOPMENT OF AN IMPLEMENTATION PLAN

In this section of the plan the team should consider how the intervention will be implemented in the context of existing nutrition and feeding programs of the Ministry of Health and other organizations. In the same way, the team should consider the way in which the messages and materials will be distributed to the different communications channels, and the training necessary for the personnel involved (see training).

The implementation section should include a list of all the activities that will be developed and when (for example, using a timeline). Project implementation should take place when the plan has been completely developed.

4.3.9. DEVELOPMENT OF MONITORING PLAN

The monitoring and evaluation activities of the intervention are described in Module IV. It is important to have mechanisms to assess the implementation progress and identify potential problems in order to be able to improve the project during its implementation. The project components should be analyzed and revised periodically, if needed. Moreover, it is important to monitor the coverage, that is, the exposure of the audience to the intervention messages and materials, as well as the audience's reactions to the project. In addition, the distribution of materials and messages, and the administration of the project should be monitored.

4.3.10. DEVELOPMENT OF AN EVALUATION PLAN

The project should have an evaluation plan based on its objectives related to changes in knowledge and behavior of the audiences. The evaluation should be designed to provide information about the implementation process, the reasons why the intervention worked or failed and the lessons learned.

4.3.11. BUDGET ESTIMATION

All intervention plans should include a detailed budget.

4.4 Promotion of community participation

Community participation is a very valuable process. It reinforces the population's capacity to modify and intervene in factors that influence its health and nutrition. Community members have the right to participate individually or collectively in the planning and implementation of health and nutrition programs that will affect them.

There are different ways of involving the community. In Peru, for example, where one recommendation was giving "blood sausage" to young children, it was found that the incorporation by "community kitchens" of a preparation with "blood sausage" in their menu once a week encouraged community participation (Creed-Kanashiro *et al*., 1998).

In some instances, community participation will be difficult or even nearly impossible to achieve. In other cases, it may not be necessary to include community participation, for example, the development of Ministry of Health norms or protocols is basically a negotiation among Ministry authorities and health professionals and does not require community participation.

Ways of promoting community participation include:

4.4.1. COMMUNITY ASSEMBLIES

Community assemblies have proven to be the most common and important method to involve the community and they have been used to learn the needs of the community and propose solutions. Assemblies have also been used for the dissemination of results of the research and the selection of community health workers who could be trained for an intervention.

4.4.2. COMMUNITY MOBILIZATION

In addition to community assemblies, community mobilization has been used to reach specific goals as, for example, the building of a center for health and nutrition related activities. The formation of community groups with similar interests, such as mothers' clubs, breastfeeding and child feeding support groups, and community banks to improve mothers' income, have also been encouraged.

4.4.3. COMMUNITY REPRESENTATIVES

Some projects have invited community representatives to participate in research and in planning of the intervention. Community representatives can help to gather background, exploratory or confirmatory information for the project. They can also facilitate entry into the community and help recruiting program participants or volunteers.

Each project should define the expected degree of community participation, the ways in which the community may participate and when community participation is particularly important.

Most community participation methodologies follow phases such as:

a) Organization of the community:

-Recognition of a problem

- Identification and involvement of leaders/health committees

b) Assessment/analysis:

-Self or participatory assessment

-Analysis of problems found

c) Plan of action:

-Vision of the future

-Selection of feasible solutions

-Development of action plan (dates, activities, and people responsible)

d) Implementation and monitoring:

-Implementation of activities described in action plan

-Participatory monitoring and evaluation

The methodology for involving the community should be described in a detailed plan.

4.5 Coordination with strategic allies

Barriers beyond the scope of intervention activities may be encountered, impeding the practice or adoption of the recommendations that are promoted. One example of this is the lack of accessibility to iron and vitamin A-rich foods. In cases like this, it may be useful to coordinate with other groups or organizations that may somehow contribute to lessen the barriers. These groups are called strategic allies because although they do not necessarily promote the recommended practices, they will help to improve the chances of their adoption.

The activities to be carried out when coordinating with strategic allies are:

- Identifying groups/organizations that could diminish or eliminate barriers to adoption of the recommendations (such as industry, non-governmental organizations, “community kitchens”, and farmers).
- Establishing contact with them.
- Preparing advocacy documents with a detailed explanation of the problem, a description of other intervention strategies, and what is asked of the strategic ally.
- Scheduling a meeting to present and discuss the proposal.

REFERENCES

Creed-Kanashiro H, Villasante R, Uribe T, Penny M (1998) Prototype Manual for the Determination of Educational Dietary Recommendations to Improve Dietary Intake of Vitamin A and Iron. Lima, Peru: Instituto de Investigación Nutricional.

Dickin K, Griffiths M, Piwoz E (1997) Designing by Dialogue: A Program Planners' Guide to Consultative Research for Improving Young Child Feeding. Washington, DC: Academy for Educational Development/The Manoff Group.

Rivera Dommarco J, Santizo MC, Hurtado E (1998) Diseño y Evaluación de un Programa Educativo para Mejorar Las Prácticas de Alimentación en Niños de 6 a 24 Meses de Edad en Comunidades Rurales de Guatemala. Washington, DC: Pan American Health Organization.

MODULE III
ANNEXES

MATRIX FOR THE RESEARCH SUMMARY (FORM III-1)

Recommendation	Necessary resources	Barriers	Facilitators	Implications for intervention

MATRIX TO AID THE DEFINITION OF THE OBJECTIVES OF A TRAINING SESSION (FORM III-2)

Activity	Knowledge	Skills	Attitudes

MATRIX TO SUMMARIZE THE PLANNING OF THE TRAINING SESSION (FORM III-3)

Subject/ Activity	Objectives	Contents	Methodology and techniques	Materials	Facilitators	Time (duration)

MODULE IV
MONITORING AND EVALUATION

PURPOSE

With the completion of Modules I, II and III of ***Pro*PAN**, the team has outlined the main infant and young child feeding problems and main strategies through which these can be improved. During the course of the program implementation, how will the team know if the program is being implemented as it was designed? How will they know if improvements need to be made to its design? How will they know if the program actually improved child feeding problems? These questions can be answered with a well-designed *monitoring* and *evaluation* plan. This module provides information relevant to the development of such a plan. Additional resources may need to be consulted, depending on the scope of the plan and experience of those implementing it.

In practice, behavior-change programs have sometimes failed to significantly improve child nutritional status. The main reasons that programs fail can be grouped into three categories:

- The program was poorly implemented.
- The program designers made a poor choice of which behaviors to promote.
- Although well implemented, the program did not have the effects on behaviors that were anticipated.

For example, an educational program designed to promote the consumption of carrots by children might not have the expected impact on vitamin A status because the educators did not properly teach mothers[1] the importance of giving carrots to children. Or else, it could be that mothers[1] learned about the importance of giving carrots, but were not able to purchase them during certain months of the year. Another reason would be that, although children were given carrots more frequently than before the program started, the amounts given were still insufficient to increase vitamin A status to adequate levels.

1 The vast majority of young children are likely to be cared by their mothers. However, we used "mother" throughout ***Pro*PAN** to denote mothers and other caregivers.

Therefore, the best way to assure that the program designed is being properly implemented and has the intended effects is through adequate attention to monitoring and evaluation. The objective of this module is to create an integrated monitoring and evaluation plan to:

- Assess the progress of the program designed in Module III (monitoring).
- Determine if any modifications should be made to the program design (monitoring).
- Evaluate the outcomes of the program designed in Module III (evaluation).

PRODUCT

Upon conclusion of this module, the team will have a monitoring and evaluation plan that describes how the program designed in Module III will be periodically assessed to determine if it is proceeding according to plan and evaluated to determine if it has had the expected outcome on infants and young children.

STEPS

The conceptual framework for this module stems from a World Bank publication on monitoring and evaluating nutrition programs (Levinson *et al*., 2000). Per this publication, the steps in creating a monitoring and evaluation plan are as follows:

- Specification of program goals.
- Identification of program inputs, outputs, outcomes, impacts and benefits.
- Design of a monitoring and evaluation system.

Each one of these steps is discussed below.

DEVELOPMENT

Step 1. Specification of program goals

In Module III, a series of intervention strategies were developed. In the first step of Module IV, these strategies are revisited to articulate the overarching goals of the program.

Levinson *et al*. (2000) offer the following definition for goals:

> "Goals are the broad aims of the program, the significant, longer-term changes that planners expect to occur in people's lives. For example, the reduction of severe protein-energy malnutrition and the significant reduction of iodine deficiency disorders".

In other words, goals are focused on improvements in the nutritional status of young children. As such, a program focused on young child malnutrition might have goals like reducing malnutrition and reducing vitamin A deficiency.

Step 2. Identification of program inputs, outputs, outcomes, impacts and benefits

Levinson *et al*. (2000) describe a five-component framework that makes explicit how program activities will help programs meet the goals articulated in Step 1 (Table IV-1, Form IV-1).

Table IV-1. Monitoring and evaluation framework that details how program activities will lead to achievement of program goals (Levinson *et al*., 2000).

Goals: Broad aims of program				
Inputs →	Outputs →	Outcomes →	Impacts →	Benefits
Resources used to support the primary activities of the program.	The delivery of goods and services.	Changes in behaviors or practices.	Nutritional status measures.	Broader effects.
Monitoring		*Evaluation*		

These five components, expressed quantitatively, are defined as follows:

Input are the materials, goods and services needed to implement the program. Inputs include such items as training of program personnel, educational materials, food, supplements, equipment to measure children's weight and height, and growth charts

Outputs refer to the successful delivery of the program's materials, goods and services to the target population. For example, in a communication program, an output would be the number of mothers that received education on incorporating iron-rich food into their children's diet. Other outputs include the number of program personnel trained on a particular topic, educational materials delivered to the intended population, food provided to target families, supplements given to children, equipment delivered to health personnel or facilities, and growth charts given to children's families.

Outcomes those effects the program outputs can have which are necessary for the program to have the intended impact. Change in feeding behavior is an example of an outcome. For instance, caregivers feeding children more iron-rich foods is an intended result of a program, but does not guarantee that the program has had an impact on children's nutritional status.

Impacts are the biological and/or observable changes in the nutritional status of the child. Anthropometric (e.g. growth) and micronutrient measures are commonly used measures of the impact of a nutrition program. Impacts could include reduction in the prevalence of anemia, incidence of stunting, or incidence of low birth weight.

Benefits are the ultimate effects that the program hopes to have, but are unlikely to be measurable within the context of an on-going program. Benefits of a successful nutrition program may include such effects as increased cognitive ability, decreased morbidity, increased work productivity, increased life expectancy, and decreased mortality.

Through monitoring, the quantity and quality of inputs and *outputs* are documented. Through evaluation, *outcomes*, *impacts* and *benefits* are measured.

The decision to measure impacts and benefits will depend on the specific questions that need to be answered as well as the evaluation budget available. For some programs it may not be feasible or advisable to measure impacts and benefits. It is important to note that both weight and length are affected by a wide range of factors in addition to diet and feeding practices. Length is also difficult to measure in the field and is only likely to be affected when the intervention occurs prior to the second year of life. When resources are available, weight and length should be included in program evaluations[2] , however, even well run programs that positively affect feeding practices may not at the same time demonstrate significant changes in length.

As mentioned, benefits are longer-term effects that require a long follow-up period and substantial resources to evaluate properly. For these reasons, benefits are rarely evaluated in programs. Thus, most programs evaluate their effect on outcomes, in other words, the specific behaviors being promoted. Often, impacts are also evaluated.

Table IV-2 presents an example of these monitoring and evaluation components. A program in which the goal was to reduce anemia among Peruvian women and children, was developed whereby cooks from "community kitchens" (*comedores populares*) were trained (inputs) to increase the use of chicken livers in recipes (outputs) (Creed-Kanashiro *et al*., 1998). It was expected that with the increased availability of chicken liver in the recipes (outputs), women and children attending the "community kitchens" would consume more chicken livers in their diet (outcomes). The additional iron in their diet, from the iron-rich chicken liver source, would increase their circulating blood iron (hemoglobin) and decrease anemia among women and children (impact). With adequate iron status, children would have improved learning capacity and women would have increased work capacity (benefits).

2 Guidelines on how conduct anthropometric measurements can be found in Cogill B (2003) Anthropometric Indicators Measurement Guide. Washington, DC: Food and Nutrition Technical Assistance Project, Academy for Educational Development. (Available online at www.fantaproject.org.)

Table IV-2. The monitoring and evaluation conceptual framework: An example from a Peruvian program (Creed-Kanashiro *et al.*, 1998).

Goals: Reduction of anemia among women and children				
Inputs →	Outputs →	Outcomes →	Impacts →	Benefits
Training of "community kitchen" cooks Adequate supplies of chicken livers	Chicken livers provided three times weekly to women and children attending "community kitchens"	Increased consumption of chicken liver at "community kitchens" by women and children	Reduced prevalence of iron-deficiency anemia among women and children	Improved learning and work capacity
Monitoring		*Evaluation*		

In Module III, several intervention strategies were discussed. As shown in Table IV-3, different intervention strategies can have different inputs, outputs and outcomes. Often, however, the different inputs will converge on similar outputs and outcomes.



Table IV-3. Sample inputs, outputs and outcomes from intervention strategies described in Module III.

Intervention Strategy	Sample Inputs	Sample Outputs	Sample Outcomes
Training	Health volunteer training to demonstrate recipes using iron-rich food to mothers	Targeted mothers receive recipe demonstration	• Targeted mothers make iron-rich recipes • Targeted children consume iron-rich meals • Targeted children increase their iron intake
Norms (to change hospital norms so that all newborns are put immediately to the breast)	Meetings arranged with hospital staff in charge of maternity ward norms	Meetings held with staff in targeted hospitals	• Targeted hospitals change protocols so that all newborns are put immediately to the breast • Targeted hospitals implement new protocols
Communication	Development and production of IEC materials on increasing feeding frequency	Targeted parents receive materials	• Targeted children's feeding frequency increases • Targeted children increase their caloric intake
Community participation (to organize breastfeeding support groups)	Meeting space identified for support groups	Meeting space provided for breastfeeding support groups	• Targeted mothers exclusively breastfeed for 6 months
Coordination with strategic allies	Agreement with poultry processing plants to provide chicken livers at cost	Chicken livers are provided at cost	• Targeted children increase their consumption of chicken livers
Advocacy (to enlist pediatricians' associations in the promotion of the introduction of complementary foods at 6 months of age)	Meetings arranged with cognizant officers in pediatrician associations	Meetings held with officers in targeted associations	• Targeted associations that introduce bylaws to promote the introduction of complementary foods at 6 months of age
Legislation (to fund growth monitoring equipment and activities in rural areas)	Development of draft legislation	Draft legislation presented to legislators representing rural constituents	• Rural children increase attendance at growth monitoring and promotion activities
Production of fortified foods	Agreement with food company to develop a fortified complementary food	Fortified complementary food produced and distributed	• Targeted children increase their consumption of fortified complementary food

Step 3. Design of a monitoring and evaluation system

3.1. MONITORING SYSTEM

Levinson *et al*. (2000) recommend considering what role program personnel can play in monitoring and evaluation. Is the required information to gather so specialized or time consuming that program personnel will be over burdened? Should an external institution be invited to gather all or some of the monitoring and evaluation data? Depending on the size and scope of the program, it is likely that employing a mix of both internal and external personnel is best. External personnel are likely to be more objective in their assessment and may have some specialized knowledge (for example, in statistics), which can be useful for a more rigorous evaluation. Internal, program personnel, on the other hand, will certainly be more familiar with the history and setting of the program and will be able to provide important contextual insights. Use of internal program personnel also allows for some capacity building for the future.

Assuming the team has primary responsibility for monitoring and evaluation, it must carefully consider which information is required for decision making and how often it needs to be updated. Factors to assess are:

- What information will be most useful for monitoring the program? (For example, will knowing the religious affiliation of the families of children who attend growth monitoring sessions help the team to improve the program as much as knowing the children's age?)
- What information is already being routinely collected? (For example, if a program is implemented within an existing larger program or at a health facility, it is likely that information on growth monitoring, clinic attendance, supplement distribution is being collected.)
- What information can be feasibly collected on an on-going basis by program staff? (For example, if someone spends 15 of 20 working days a month recruiting, training, and supervising health volunteers, can this person reasonably be expected to sort through clinic records for information on 50-100 children per month?).

Although outcomes fall in the purview of evaluation in the conceptual framework presented in Table IV-1, information on outcomes should be collected regularly during program implementation and not just at evaluations. The mechanism for gathering this information on an ongoing basis is the monitoring system.

A framework is provided to aid with assessing these three factors (Table IV-4, Form IV-2). Input, output and outcome information to be gathered and the frequency of data collection are noted in the first two columns. Then, these questions are evaluated one by one: (1) Is this information useful? (2) Is it already collected? (3) Can it be feasibly collected? After going through this process, the team will decide on the amount and kind of information to gather for program monitoring. See Table IV-5 for an example.

Table IV-4. A framework for deciding what monitoring information needs to be collected and how frequently

Information	Frequency	(1) Useful?	(2) Already collected?	(3) Feasibly collected?
Input				
Output				
Outcome				

Table IV-5. An example of a completed framework for deciding what monitoring information needs to be collected and how frecuently

Information	Frequency	(1) Useful?	(2) Already collected?	(3) Feasibly collected?
Input: Training of community cooks				
Number of trainings held	1 per month	Yes	Yes	Yes
Number of trainees who attended	1 per month	Yes	Yes	Yes
Number of trainees who passed a post-test assessing minimum skills and knowledge	1 per training	Yes	No	Yes
Age of trainees	1 per training	No	No	Yes
Sex of trainees	1 per training	No	No	Yes
Education level of trainees	1 per training	No	No	Yes
Ethnicity of trainees	1 per training	No	No	Yes

Although all of the input information can be feasibly collected, the team decides that the first three are the ones which will yield the most useful information. Forms will have to be developed to assess "Number of trainees who passed a post-test assessing minimum skills and knowledge" because this information is not being collected through an existing data-collection or monitoring system.

3.2 . INDICATORS

How can the monitoring and evaluation information gathered be most helpful to the program manager and implementing team? By being carefully crafted to measure what is intended. This is achieved through the development of indicators.

Levinson *et al*. (2000) offer the following as characteristics of good indicators: simple, clearly defined, measurable, variable, valid, reliable and quantifiable. They emphasize that useful indicators "must show variation between persons and over time" or else they "will not discriminate between those who have benefited from the program and those who have not." For example, child height varies over time and between well and poorly nourished children whereas adult height does not, making height a good indicator for children's, but not for adults', nutritional status.

Next, forms need to be developed for all of the monitoring information that will be collected, field personnel need to be identified, and the frequency of data collection needs to be specified. Form IV-3 provides a matrix to aid with the planning of data collection and an example of a completed matrix is shown in Table IV-6 below.

Table IV-6. Example of a matrix for monitoring and evaluating program activities (adapted from Levinson *et al.*, 2000)

Indicator	Form	Person	Frequency
Input: = Number of community cooks who passed post-test / Number of community cooks who attended training	Training form	Nutritionist field worker	• Monthly
Output: = Number of days per week chicken livers were incorporated into recipes	Menu review form	Nutritionist field worker	• Monthly
Outcome: = Number of parents reporting that their children ate chicken liver at community kitchens / Total number of parents interviewed with children less than 2 years	Food frequency questionnaire	Nutritionist field worker	• Every 3 months • Baseline • Endline
Impact: = Number of children with hemoglobin values below iron-deficiency cutoff / Total number of targeted children	Blood indexes form	Laboratory technician	• Baseline • Endline

In this example, some of the indicators are assessed with a single number (for example, the output indicator) and others with a ratio of two numbers (for example, the input, outcome and impact indicators). The "form" column indicates the name of a form that needs to be developed to gather information on that specific indicator. The "person" column refers to the technical background of the person or group of persons who will be responsible for filling out the form. Finally, the frequency with which monitoring information is going to be collected and reviewed and when the information will be collected for evaluation purposes are noted in the "frequency" column. In the case of the input indicator, even though information will be collected at each training (see Table IV-5) and several training workshops are held each month, the information will only be synthesized into the indicator once per month.

3.3 Evaluation system

Evaluation of the outcomes and impacts of a program, i.e., whether the program has had the anticipated effects and whether the observed effects, if any, were due to the program, requires the following:

- Choosing the evaluation design.
- Determining the sample size and sample frame.
- Identifying the control group.

These will be discussed in turn.

3.3.1. CHOOSING THE EVALUATION DESIGN

There are many evaluation designs from which to choose, a fact that frustrates and confuses many program planners. The most rigorous design is a **randomized controlled trial** in which a program is randomly allocated to one group of individuals (or communities) while a comparable group (the control group) receives no program. While the proper implementation of this approach provides the best evidence of the effect (or non-effect) of a program, it requires considerable resources.

There are a number of alternative evaluation designs that are less rigorous than the randomized, controlled trial (Fitz-Gibbon, Morris, 1987; Levinson *et al*., 2000). Regardless of the design, all evaluations should include *at least* a *baseline* and an *endline* evaluation. Many program managers make the mistake of not conducting a baseline survey prior to the initiation of program activities. Comparing outcome and impact indicators in the program group to the same indicators in a control group only at the end of the program is a commonly used but very weak design. For comparison, several evaluation designs are summarized in Table IV-7.

Table IV-7. Types of program evaluation designs (adapted from Levinson *et al.*, 2000).

Design	Comments
(1) Pre-post design with a randomized control group	The most rigorous of designs. Often not feasible due to lack of resources or other constraints.
(2) Pre-post design with a non-randomized control group	Differs from (1) only in that the control group is not randomly assigned. The control group is purposively selected to be as similar as possible to the intervention group. Clearly, extreme care should be taken in selecting this control group. It is recommended that statistical or epidemiological assistance be obtained before making a final decision.
(3) Pre-post design without a control group	The lack of a control group identified at the start of the program makes it much more difficult to attribute changes seen in the intervention group to the program. Programs that use this approach should attempt to gather information on other factors that might be causing changes in behaviors and/or nutritional status (for example, government radio spots or changes in food prices or availability).
(4) Time-series design	This requires multiple measures of indicators *before* the start of the program to establish a trend in the direction and magnitude of change of the indicator (for example, the proportion of children < -2 weight-for-age Z score). The analysis then examines whether the rate of change was significantly hastened after the initiation of the program.
(5) Institutional-cycle design	Many nutrition programs are "phased in" over a number of months or years due to limitations in personnel or resources. This rolling implementation can be used to the advantage of the program planner by taking a series of before-implementation measurements at each successive round, making it comparable to design option (1) or (2) depending on whether the phase-in is done randomly or not.

3.3.2. DETERMINING THE SAMPLE SIZE AND SAMPLING FRAME

Once an evaluation design has been selected, the next steps are to determine the sample size and choose the sampling frame (Levinson *et al*., 2000). Knowledge of how to determine the sample size and choose the sampling frame is quite specialized so it is recommended that program planners enlist a statistician or epidemiologist for assistance. In preparation for the discussion of these issues with an expert, these items should be clearly defined (Levinson *et al*., 2000):

- The number of groups of interest being studied, if more than one (for example, rural and urban participants, communities receiving all program activities and those receiving a subset of activities).
- The key indicators that will describe outcomes (for example, the proportion of children consuming meat products daily).
- The amount of change expected in each indicator (for example, increase in the proportion of children consuming meat products daily from 30% to 40%).

With regards to the "amount of change expected in each indicator," programmers tend to hypothesize that their programs will have effects that are *larger* than is realistically achievable. For instance, a 25% decrease in malnutrition (for example, in height-for-age Z score), would be very difficult to achieve through a single program implemented over a relatively short 3 to 5-year time frame.

The statistician will use these three pieces of information, along with a measure of the level of confidence needed to draw conclusions and the probability of detecting a difference in the indicator, if one actually exists, to calculate the **sample size** needed to test the hypothesized effects.

The other specialized step is the selection of the **sampling frame**. Options include simple random sampling, stratified sampling, systematic sampling, and cluster sampling (Levinson *et al*., 2000). The choice of which of these sampling frames to use depends to a great extent on such factors as how dispersed the population being studied is and the existence of a complete population registry. Information on these factors will facilitate the discussions with the statistician.

3.3.3.IDENTIFYING THE CONTROL GROUP

In identifying a control group, it is important to keep in mind that "individuals (or communities) in a control group must be identical, or as similar as possible, to the group of program participants (Levinson *et al*., 2000)." The best way to achieve this is to randomly select the communities or individuals that will participate in the program and those that will not. If the program will be phased in over time to different communities, those that will receive the program activities first can be randomly selected while those receiving the program last can be assigned to be the control group.

3.4 Developing a timeline

Finally, all monitoring and evaluation activities should be specified in a timeline that considers program implementation activities outlined in the intervention plan (Module III) as well. See Table IV-8 for an example.

Table IV-8. Example of a timeline of program activities, including monitoring and evaluation.

Activity	Year 1				Year 2			
	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Quarter 1	Quarter 2	Quarter 3	Quarter 4
Complete intervention plan and monitoring and evaluation plan	X							
Develop forms for gathering monitoring and evaluation data	X							
Hire and train field workers for baseline evaluation	X							
Carry out and analyze baseline evaluation	X							
Develop curriculum for training community cooks		X						
Train community cooks in adding chicken liver to recipes		X	X	X	X	X		
Collect monitoring information on training of community cooks		X	X	X	X	X		
Collect monitoring information on chicken livers incorporated into recipes by community cooks		X	X	X	X	X	X	X
Carry out and analyze endline evaluation								X

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MODULE IV
ANNEXES

MONITORING AND EVALUATION FRAMEWORK (FORM IV-1)

Framework to detail how program activities will lead to the achievement of program goals (Levinson *et al*., 1999).

Goals: broad aims of the program				
Inputs →	Outputs →	Outcomes →	Impacts →	Benefits
Monitoring		*Evaluation*		

MONITORING INFORMATION FRAMEWORK (FORM IV-2)

Framework to aid in the decision of what monitoring information needs to be collected and how frequently.

Information	Frequency	(1) Useful?	(2) Already collected?	(3) Feasibly collected?
Input				
Output				
Outcome				

MATRIX FOR MONITORING AND EVALUATING PROGRAM ACTIVITIES (FORM IV-3)

Matrix to detail the indicators, forms, personnel and frequency needed for monitoring and evaluating program activities (adapted from Levinson *et al*., 1999)

Indicator	Form	Person	Frequency

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*Pro*PAN:

Process for the Promotion of Child Feeding