

- structured observation forms and notes on feeding the final products to the children, including children's responses, style of feeding or encouragement used, and estimated amounts served and consumed by the children.

If several recipes are tested, develop a structured form to score responses on taste, appearance, ease of preparation, and the other qualities listed above. This is done so that the various options can be ranked according to their popularity. Sample forms are included in Appendix B.6.

The Importance of Unexpected Responses to the Recipe Trials

During recipe trials in Peru mothers were resistant to using oil and sugar in a recipe with flour, saying, "The only way that flour can be mixed with oil and sugar is in Sanco." This identified a traditional snack food for adults that the researchers were unaware of, but that mothers were able to make suitable for children. Because of this unexpected finding, the program went on to promote "Sanquito," a nutritious mixture for children that could be prepared and stored for several days. This combination was much more energy-dense than the usual soups and puddings given to young children and was acceptable to the mothers in the area.

Creed de Kanashiro et. al., 1991a

Train Team Members and Pretest the Guides and Forms

Ideally, recipe trials are conducted by the same field workers used in other phases, because many of the skills needed are similar. The number of teams required depends on the number of trials planned and the distances between sites. At least three people are required per recipe trial: one facilitator to lead the discussion, one note-taker to record the discussion (using notes and cassettes), and one observer to record events during cooking and tasting. There are also many tasks related to obtaining and displaying ingredients, cooking equipment and the utensils, and washing up afterwards. If several small groups of mothers are cooking at once, a note-taker is needed for each.

The particular skills for facilitating a recipe trial are similar to those needed for interviews and FGDs: establishing rapport, open-ended questioning, probing without leading, and remaining unbiased and neutral toward participants. Observation and note-taking skills are similar. Key training topics include:

- objectives of the recipe trials;
- background information on the reasons for developing enriched recipes or using particular combinations of ingredients;
- the methodology, based on the written protocol, questions guides, and forms;
- techniques for observing preparation and estimating amounts of ingredients;
- ways to encourage participation and creativity;
- open-ended techniques for probing key issues;
- techniques for observing and recording reactions to preparation and tasting;

- sampling and recruitment;
- logistics and planning for smooth implementation and clean-up; and
- summary and analysis techniques.

Training includes roleplays, followed by practice sessions with mothers to pretest the methods and forms and clarify the roles of the team members. Careful attention is given to planning logistics as described below.

Assemble Materials and Equipment

Preparations for the recipe trials involve assembling, transporting, and setting up an array of supplies and equipment to facilitate food preparation. The types of materials needed include:

- cooking pots and utensils, washing-up supplies;
- serving dishes and utensils (enough for all participants to taste the recipes);
- stoves and fuel (try to arrange cooking facilities typical of the participants' homes);
- all necessary ingredients, including basic components of the usual diet, nutritious ingredients to add to new or enriched recipes, common local seasonings, oil, and water;
- recording materials (notebooks, data forms, tape recorder, blank cassettes);
- a scale for weighing the ingredients and the finished products; and
- a watch to time the food preparation.

Draft a Field Plan

Based on the protocol, research plan, and number of staff available, draft a field plan that specifies the roles of each staff member, locations and schedules for recruitment and conducting the recipe trials, and expectations for initial analysis in the field.

As mentioned above, a team of at least three is needed to conduct a recipe trial session. Sessions that include creating, cooking, and tasting several recipes take two to three hours, and those that present prepared recipes take one and a half to two hours. Taking into account the time needed for travel, setting up and cleaning up, and filling in the field notes, a team usually can only conduct one recipe trial per day, possibly two if little or no travel is involved.

Make arrangements in advance for supervision, transport, accommodation, and replenishment of cooking supplies needed during the recipe trials.

Implementing the Recipe Trials

Recruit Participants and Arrange a Location

Visit the selected community prior to the recipe trial to obtain permission to work there, recruit mothers of children in the selected age groups, and arrange a date for the recipe trial. There's a good chance that not everyone will be able to attend, so recruit a few extra mothers to be sure there are enough participants.

Arrange in advance for an appropriate location for the sessions. Sessions are best held in a home, a compound, or a community building such as a school to provide privacy and to keep group size limited; otherwise, cooking demonstrations tend to draw a crowd of onlookers. A proper location has safe and comfortable yet typical cooking facilities and adequate seating (mats, benches, or chairs) for those who are not cooking.

Conduct the Recipe Trials

Begin the recipe trials with introductions and clear instructions to put mothers at ease. Depending on group size and the number of facilities available, split into two or three small groups for simultaneous cooking (in a central location or in homes), or ask for a few volunteers to cook while the others watch, comment, and make suggestions. When volunteers are used, all mothers participate in the discussion, tasting the recipes, and serving them to their children. It is assumed that mothers attend with their children so that serving methods and children's responses are easily observed.

As mothers prepare each dish, the facilitator asks why a food is added, reasons for preparation methods, whether anyone else in the group does it the same way or differently, whether they add additional ingredients, and so on. Note-takers observe and record the amounts of ingredients added, procedures, and amount of time used. If utensils (cups and spoons) are provided in standard local sizes, the observed volumes are recorded during the trial, and the same amount is weighed later to calculate the nutrient composition. Weighing the ingredients during the trials is complicated and interferes with the creative process of developing recipes. However, it is very important to measure the total weight of the finished products *before* serving, so that nutrient density can be calculated (see Appendix C).

When the food is ready, each mother tastes and serves it to her child. The facilitator asks for opinions on taste and acceptability of the recipes, discusses serving and feeding methods, and asks whether the recipe can be prepared easily at home using the same ingredients and quantities.

After each session, the field team does a debriefing on the recipe trial. They listen to the cassettes (if sessions are recorded), add details to their field notes, discuss the findings and any difficulties that occurred, and plan necessary changes in the protocol. They also make sure there are enough supplies for the next session.

Debriefing is the transition step between conducting the recipe trials and analyzing the information obtained. During the debriefing the team determines if sufficient, consistent information is obtained and whether additional trials are necessary. If new issues arise that require elaboration, one or two extra trials are planned to gather more information.

Analysis of the Recipe Trials

Summarize the Results of the Trials

The team summarizes the results of each trial according to the key issues addressed. Key issues include:

- usual methods for preparing children's food;
- combinations tested and mothers' initial reactions;

- what was accepted or rejected and why;
- responses of children and mothers to the taste, texture, etc.;
- information on serving quantity, if relevant; and
- new ideas for recipes or food combinations.

For each recipe trial session, list important findings under headings that identify the recipe or main ingredient, or that refer to characteristics such as time for preparation, amounts of ingredients, and mothers' resistances and motivations. One way to summarize these main points is to prepare a matrix with foods or recipes on one axis and key characteristics on the other on one page.

For each session, summarize the results of mothers' and children's taste tests of each food or recipe, identifying which are acceptable and which are not. If possible, rank the recipes or ingredients according to various criteria, such as ease of preparation, children's willingness to eat, and nutritional value. In addition to these rankings, write a more detailed description on *why* certain foods are more or less acceptable, how and why ingredients are combined, resistances that were mentioned, and any suggested solutions. Note whether there were differences of opinion within the group of participants. Mark all notes clearly with the date, place, and type of mothers included in the session.

Once the recipe trials are complete, either for one population segment or the whole sample, summarize the findings **across sessions** using the same headings. Look for differences and similarities in findings from different trials. For example, did mothers' responses differ depending on the age of their youngest child, their ethnic background, or whether they live in rural or urban areas? Highlight the majority opinions, but also note the range of opinions expressed by participants.

During analysis look for patterns of beliefs or traditional practices that cause resistance to new recipes, and identify possible ways to avoid these constraints. Most cultures have definite ideas about what ingredients can be mixed together.

The resistance of mothers in Niger to adding oil to porridge was overcome by suggesting that fried groundnut cakes (often consumed by adults with the porridge) be crumbled into the children's servings.

Mothers in Peru didn't like the idea of adding sugar or milk to potato dishes, but were willing to add carrots to sweet dishes and to combine cereal and legume flours, because in both cases they liked the taste.

Remember to interpret the findings with care, because conducting a recipe trial is not the same as testing specific recipes at home, where time, food, and resources are more limited. Because all the ingredients are provided in abundant quantity for the trials, mothers often use greater quantities of expensive ingredients, such as milk, than they are actually able to use when the recipe is prepared at home. The facilitator asks about this during the session, and answers to this question are summarized. This issue is explored more carefully, however, during the trials of improved practices (TIPs).

Revise Child Feeding Recommendations and Calculate Nutrient Composition

On the basis of the review of existing information and all your research conducted so far, select the **best options** for improving young child feeding practices. Information from the recipe trials allows choices to be made on the basis of

mothers' and children's preferences, time for preparation, and availability of ingredients. With the assistance of a nutritionist, check the nutrient composition of the preferred recipes.¹

If the nutrient composition of the recipes developed is inadequate, the ingredient amounts can be modified. In an area where development of new recipes is an essential aspect of improving child feeding, it is often necessary to conduct two brief sets of recipe trials: one set to generate ideas, followed by calculating nutrient composition and adapting the recipes, and a second set of trials to test the acceptability of the modified recipes. As an alternative, the modified recipes can be tested during the TIPs. Always keep in mind that a traditional food or an enriched version of an existing recipe usually is easier for mothers to adopt than something completely new. References in this chapter to "development of recipes" should not be taken to mean that complicated new procedures or combinations are the desired outcome of recipe trials.

Insights from the Gambia where recipe trials were used for mothers to prepare and serve the usual pap and an enriched pap for children age four to seven months:

- *servicing size was usually about 125 g;*
- *the current paps were considered "thick enough"; mothers added water to any pap they felt was "too thick";*
- *the ingredients most commonly added to pap were sugar and bean flour; and*
- *there was a tendency not to add oil or groundnuts because "they didn't know how."*

Look back to Worksheets 3.1 and 3.2 to see how recipe trial findings can be used to refine the recommendations or to identify new problems, solutions, motivations, and constraints. Also consider how the findings can be used to develop the Assessment and Counseling Guide for TIPs (Worksheet 6.1). Specify the recommendations to test in the TIPs, based on nutrient value and acceptability of the recipes and new ways to enrich children's food.

Write a Summary of the Findings

¹ This is done by weighing the amounts of ingredients used during the trials (recorded in local measures), then using food composition tables to convert the weights to nutrient values. Total the values, then divide by the total weight of the prepared recipe to get the nutrient density of the final product. This is done for energy, protein, and any micronutrients that commonly are deficient in the diets of area children. If the same type of recipe is prepared several times, use the average amounts or calculate nutrient composition for each version of the recipe to identify the most nutritious way to prepare it.

Nutrient value per serving is calculated using the information collected on usual serving size. Use this information to help define the serving amounts and feeding frequencies to recommend for children to meet their nutritional needs. See Appendix C for more information on these calculations.

This summary is brief, focusing on key findings relevant to TIPs and to program implementation. Prepare the summary in draft because the findings eventually will be integrated into the final research report.

Attachment 5.2 at the end of this chapter contains an example of a recipe trials report. Key points to include are:

- a listing of the recipes that are most acceptable and why;
- a listing of the ingredients or preparations that are rejected and why;
- key characteristics that are important in determining acceptance;
- revised feeding recommendations (described in the previous section);
- remaining questions to address during TIPs;
- lessons learned about conducting recipe trials;
- recommendations regarding future use of the method; and
- recommendations for program implementation.

<i>Examples of Insights from Recipe Trials</i>

For the last point, keep in mind that recipe trial sessions are not only a research method, but also an effective way of communicating recommendations to a group of mothers. As a means of presenting new combinations of ingredients, recipes are better understood than asking mothers to combine foods from different food groups (Creed de Kanashiro and Fukumoto, 1991b). Tasting new foods often motivates families to try them at home.

In Nigeria:

- *Mothers who were asked about the possibility of adding palm oil (an excellent source of energy and vitamin A) to children's pap objected to the idea because adding oil to pap was something they had never heard of and because palm oil has a very strong taste. However, when one tablespoon was added during a cooking demonstration and taste tested, mothers said they didn't notice any difference in taste and children appeared very willing to eat the enriched pap.*

There was also an unexpected finding—mothers said that the new recipe "looked like custard" (an expensive and desirable baby food) because of the effect that adding a small amount of red palm oil had on the color of the pap.

When the nutrition education program was implemented, it used cooking sessions as a way for health workers and mothers to teach the new recipe to other mothers. Cooking demonstrations were effective for communication and motivation, because the positive responses to the taste and appearance of the new dish helped to overcome any resistance to the idea of adding these new ingredients to pap.

In Peru:

- *Purees (savory dishes) took less time to prepare than puddings (sweet dishes), although it had appeared in interviews that puddings were more acceptable.*
- *Mothers who resisted adding oil or fat were pleasantly surprised when they tasted foods prepared with these ingredients during the trials.*
- *Mothers tended to add too much broth to purees made from ingredients taken from the family pot, so recommendations had to specify the amount of liquid to be added.*
- *Ideas were found on ways to introduce foods such as fish, oil, and beans, which were not usually given to young children.*

Attachment 5.1

EXCERPT FROM A REPORT ON HOUSEHOLD INTERVIEWS AND OBSERVATIONS

(From: Project for Promotion of Improved Young Child Feeding. *Household Observations, Interviews and Trials*. Swaziland National Nutrition Council, 1988.)

Introduction of Foods and Liquids Other than Breastmilk

- The introduction of other milks and water begins virtually at birth. In the first month of life three children from the entire sample were not breastfed. Of those breastfed, only about a quarter were exclusively breastfed. The majority also received either water (one third); formula (one third) or a thin corn gruel, often with water not milk.
- By the second month of life the same percentage of children were breastfed and the same portion were supplemented but the picture becomes more complex: use of formula remains the same, but powdered milk and cereal use increases. A quarter of the sample received a thin gruel (nestum, indengane or inembe) plain or with milk.
- From the third month of life virtually all children are receiving one or more supplements. (Breastfeeding continues at the same rate.)

In the third month, formula use remains high, use of powdered milks increases and the use of nestum or maize porridges increases to half the sample.

- Almost universal supplementation continued from the fourth to the sixth months. Both formula and powdered milk decreased while use of indengane increased. By the fifth and sixth month almost all children received soft porridge.
 - Well nourished children were more likely to receive a nutrient dense indengane:

	Well <u>nourished</u>	Under- <u>nourished</u>
milk and sugar added	50%	25%
milk only added	33%	50%
sugar only added	17%	25%

- Incwancwa (a soft, sour porridge) was not given to children before they were about a year old even though almost half of the families ate incwancwa. Incwancwa was not served to children because mothers believe it causes heartburn and makes children become thin.
- By three months of age a few children were already receiving liphlishi (adult maize porridge) and by six months, half the young children were receiving it. However, less than a quarter were receiving other relishes with the liphlishi: it was usually mixed with gravy or emasi. Mothers said they give liphlishi to a child when: the throat is wide enough to accept thick food; the child signals its desire for liphlishi; or, the stomach can cope with thick food.
- By ten months, all children were receiving liphlishi with the exception of three, and most were receiving some relish. However, food variety was low, children over ten months received an average of four different foods in a day (not including sugar). The foods were usually maize, milk, green vegetable and a legume. Sometimes oil was used. One child received meat.
- Foods commonly mentioned as favorite foods of young children included oranges, bananas, thick liphlishi and gravy and emasi (sour milk).

- Interestingly, a variety of foods are withheld from young children. While the specific foods mentioned were often dissimilar, the reasons were often the same: child will become greedy, stomach-ache, heartburn, constipation.

Many more foods were listed as being withheld by mothers with undernourished than mothers with well nourished children.

Therefore

The major problem with the timing of introduction of foods is the very early supplementation with formula and powdered milks and by month three with thin porridges.

The use of soft porridge between the fourth and sixth month is commendable. The use of incwancwa could be encouraged since the sourness may decrease bacterial growth in the porridge when fed over the course of a day. By six months liphalishi should be introduced to increase the energy density of the child's food.

The transition to adult food by ten months is desirable especially if it includes all foods in the family pot (the vegetables, legumes and oil).

Dilution of Food and Mode of Feeding

- The first supplements to breastmilk -were liquids -- other milks and formulas. Thus bottle use is high: half of the sample was feeding their child with a bottle during the first months of life. The other half was either not using anything because they were not supplementing or they were using a feeding cup or ordinary cup. Generally, all feeding utensils seen in the home were not clean.
- The thin porridges introduced between three and six months were often so thin that they could be fed by bottle although the majority of mothers seem to be feeding the porridges either by cup, cup and spoon, or cup and hand. There follows an analysis of the percent solids contained in the porridges²:

Mean solid content for indengane	12.9%	(SD: 1.5%)
Liphalishi solid content	27.2%	(only one sample)
Phutu solid content	34%	(only one sample)
- During analysis of the dietary recalls a judgement was made about the consistency of the foods the child received: i.e. was the diet only liquid, extremely dilute (thin), more dilute than recommended (medium), or suitable for the child's age.

² A sample of the child's porridge was taken on the day they observations took place. The sample was stored in a plastic bag and frozen for a maximum period of one week. The porridge samples were thawed in warm water and duplicate 2g-test samples were dried for 16 hours and 24 hours at 27 degrees Centigrade.

Ten samples were taken in all, but one sample had to be discarded because the duplicate tests differed greatly.

All young children's diets (4-6 months) were either liquid or thin.

The 7–11 month-olds ranged from liquid to medium. No one had a diet considered to be of appropriate consistency and the difference between well and undernourished children was negligible.

For the children in their second year of life, food consistency was seldom suitable. Differences between well and undernourished children were apparent: about three-quarters of the undernourished children had a diet classified as liquid or thin (many of these children were sick) while virtually all of the well nourished children's diets were either medium or suitable. It is also notable that mothers of these undernourished children (12 months and older) reported that they were more likely to offer the breast than food if the child was crying and fussy while the mothers of the well nourished children were more inclined to offer food.

Therefore

The dilution factor has a large role in undermining the nutrient density of the Swazi child's diet. Dilution begins early with milk feeds in bottles and continues with dilute porridges and diets that rely on liquid more than solid foods. Every attempt must be made to encourage less dilution and more nutrient dense foods that will boost intake-and make bottles inappropriate feeding utensils. The use of soft porridges as "baby foods" should be discouraged. The idea of feeding the child from the family pot should be promoted from early in the child's life.

Frequency of Feeding

- Infants aged 0–3 months were usually breastfed on demand, which resulted in a feeding frequency of ten to twenty feeds a day. Usually, 2-3 bottle feeds were given in addition to the breast. Where bottle feeding was practiced breastfeeding frequency was reduced.
- A typical feeding pattern for children aged 4-6 months was to be breastfed between three and ten times per day and to be supplemented between two and six times per day with cereals and/or milk. Mothers tended to report feeding fewer meals than they were actually observed to give. This may be because the feedings were often small. Similar to the pattern with infants, breastfeeding frequency was reduced the more often supplements were given.
- Children of 7–11 months were observed to be fed 4–5 times per day. However, only two of these feedings were meals (defined as a substantial amount of more than one food).

Mothers said they considered it proper to feed a child of this age 3–5 times per day in addition to a few breastfeeds.

- Mothers of children over 12 months said 4–6 feeds are appropriate for a child of this age. Again, in this age group, there was a tendency to give snacks and meals. Total frequency of feeding did not vary between well and undernourished children. However, undernourished children were usually found to be fed meals less frequently than well nourished children.

None of the mothers of undernourished children gave an accurate estimate of their actual feeding frequency.

- For all age groups, mothers said that the constraints to increasing feeding frequency were cost, time, scarcity of food, wastage of food, or fear of the child becoming obese.

Therefore

The frequency of feeding appears to be high, even though cooking is done only once or twice per day. However, the implications for bacterial contamination merit consideration because food is cooked only once or twice and fed repeatedly throughout the day. Because of the high feeding frequency the amount given per feed may be more important than frequency (see next discussion).

Mothers appear to have an adequate perception of the need to feed children frequently but they are unaware of how often they are feeding their child. An important recurring theme in the educational programme could be the need for mothers to be aware or conscious of child feeding.

Quantities of Food

The following points were noted by the ethnographer during the observations:

- the amount of food the mother said she considers appropriate for her child;
 - the amount of food that the mother reported as being the child's normal intake;
 - the amount of food which the ethnographer estimated the child to have eaten.
- Overall, it appears that all the children in the sample ate insufficient quantities of food. Mothers were unaware of the quantities that are needed and the quantities consumed by their child. Many mothers of undernourished children said they do not know how much their child should eat.
- The mothers of children under six months said that they were unable to estimate how much their child eats. For children over six months, mothers tended to over-estimate the amount their child eats.
 - For children over a year of age there was a striking difference in the quantity of food given to the well and the undernourished children. Well nourished children got 2–3 meals and 1–2 snacks per day. Undernourished children got 1–2 meals and about two snacks per day.
 - A mother judges her child to have eaten enough when he refuses to take more; crawls away; or spits out the food. Only one mother claimed to gauge her child's food intake according to quantity served.
- Generally young children have their own food dish and might only share with one other child, but as they get older there is a tendency for them to eat from the common plate.
- Mothers stated that they were afraid to give their child more food because of wastage and a few mothers said they would not give more because the child might become obese.

Therefore

Mothers need precise messages on the amounts of food appropriate for the child's age and encouragement to offer, at each sitting, the amount she thinks the child should eat. The fear of food wastage and obesity should be addressed in a straightforward fashion.

Feeding Style

Through structured observations of the feeding situation the ethnographers were able to rate mothers on "feeding style". That is, whether the mother:

- paid attention to her child while he was eating;
 - measured the quantity of food the child should eat;
 - encouraged the child to continue eating if he lost interest before the food was eaten; and
 - was aware of hygiene.
- Generally feeding style scores were low for all children:
- Although a mother often sits with her young child and feeds him, older ones are allowed to take the dish and feed themselves.
 - Mothers do not measure food for their children. The food for the day is placed in a container and offered frequently.
 - Many mothers are worried about their children having poor appetites and encourage their children to eat. However, at least one third of mothers with undernourished children did nothing to encourage them to eat more.
 - Hygiene was generally ignored.

Therefore

Mothers need to be made aware of their responsibility in child feeding -- at least to monitor it. Perhaps the idea that the mother is teaching the child to eat would be an appropriate avenue: children don't always know what is best for them. The mother should measure food, encourage and guide the young child.

Attachment 5.2

EXCERPTS FROM A REPORT ON RECIPE TRIALS

(From: Samba, Ndure K. *Improving infant and young child feeding practices in the Gambia*. PRITECH/USAID, 1992.)

RESULTS OF THE FOCUS GROUP DISCUSSIONS & RECIPE DEMONSTRATIONS

4.1 WEANING FOOD RECIPE DEVELOPMENT

In the focus group discussions, a small group of mothers of children 4 to 7 months of age were asked to develop recipes to enrich pap by adding energy- and protein-rich local foods such as groundnut, beans (cowpea), and/or vegetable oil. This was done in two sessions.

In the first session, mothers were asked to prepare pap the way they would do in their homes. Below is a table of the ingredients used by four groups of women from Sintet and Sankuley Kunda.

Table 3. Ingredients used in session 1 of recipe trials

INGREDIENT	AMOUNT USED (g)			
	SINETET		SANKULEY KUNDA	
	GROUP 1	GROUP 2	GROUP 1	GROUP 2
millet (fermented)	80	100	100	500
sugar	15	30	30	60
salt	a pinch	a pinch	a pinch	a pinch
milk				60 ml
water	375 ml	500 ml	675 ml	500 ml
size of serving	125	125	125	125

All four groups of mothers prepared *ogi* from fermented millet flour, sugar and salt. Mothers were asked to show the amount of pap they would feed to a four to six month old child, the size of these servings was approximately 125 g.

One group from Sankuley Kunda added some fresh cow's milk to their *ogi*. According to mothers in this group, milk was added to improve the flavor of the *ogi*.

During this session, mothers always added more water when they felt that the *ogi* was too thick but the consistency of the paps at the end of preparation was thick enough to be fed to a four to six month old child.

In the second session, mothers were asked to prepare two additional recipes. For the first one, mothers were asked to plan and prepare a thicker or richer pap, depending on the type of pap that is usually prepared, i.e. if the usual pap is thick, mothers were asked to try adding ingredients; if the usual pap is watery, mothers were asked to try making a thick pap. The recipes were eased on their choice of the potential ingredients provided. These were millet, fresh milk, sugar, salt, groundnut paste, pounded groundnut, bean (cowpea) flour, and vegetable oil.

Table 4. Ingredients used in session 2 of recipe trials

INGREDIENTS	AMOUNTS USED (g)			
	SINTET		SANKULEY KUNDA	
	GROUP 1	GROUP 2	GROUP 3	GROUP 4
RECIPE 2				
millet flour	60	160	500	125
sugar	30	30	125	90
salt	pinch	pinch	2 pinches	
milk		50 ml		
groundnut paste			45	
groundnut flour		30		
bean flour	80		80	80
vegetable oil				30 ml
water	375 ml	1500 ml	1800 ml	1000 ml
RECIPE 3				
millet flour	80			
sugar	20			
salt	20			
milk	pinch			
groundnut paste	125			
groundnut powder				
bean flour	30			
vegetable oil	15			
water	250			

During this session, three groups of mothers added bean flour to their *ogi* mixtures. Vegetable oil, milk, groundnut paste and groundnut powder were used by one group each.

The second group from Sintet added groundnut powder to their millet *ogi*. The groundnut powder was first mixed in water and passed through a sieve. The fluid was then added to the pap and the groundnut grits discarded. Mothers said they would not add the grits to the pap as infants would find them difficult to swallow.

In Sankuley Kunda, mothers reported that they often used bean flour in cooking and both groups did so in the second session. The first group of mothers added groundnut paste to the bean and millet flour *ogi*. The groundnut paste was made lighter with water before mixing into the pap. When asked why they did not add oil to the *ogi* they said that they did not know how this was done.

The second group of mothers from Sankuley Kunda made a pap from bean flour and oil. When asked why they did not use any of the groundnut products, they said they did not know how these could be incorporated into *ogi*. In addition, oil was considered the same as groundnuts which-has a high oil content.

All the paps made in this session were considered suitable for feeding to sick children as long as the pap was not made too thick.

Prior to the TIPs, five recipes were formulated based on the ingredient combinations mothers tended to use. These combinations were then improved where the nutritional value of a recipe was found to be inadequate. These recipes were to be promoted during the household trials and field staff prepared and tasted them during their training.

The five recipes were millet and milk pap, millet and bean flour pap, millet and groundnut powder pap, millet and groundnut paste pap and millet and vegetable oil pap.

The consistency of the paps prepared from these recipes was used as a standard and field workers were asked to grade the consistency of paps given to study children on this standard. Each of the recipes prepared enough pap for approximately two portions and the field staff were to judge the adequacy of the amount of pap given to study children based on these portion sizes.

CHAPTER 6: TRIALS OF IMPROVED PRACTICES (TIPs)

TIPs: A Method for Testing Program Recommendations

Developing strategies to change behavior requires knowledge of nutrition problems affecting children and information about improved practices that are acceptable and feasible for families. All practices should be tested, ideally in people's homes, before they are recommended. This is done through trials of improved practices (TIPs), the core method of this research.

The advantage of TIPs, particularly for refining feeding recommendations, is that mothers or primary caregivers are given a *choice* of recommendations to act on, questioned about their reasons for that choice, and then followed up to see what actually happened. Did they try the new practice, and if so, how did they feel about it? Did they modify it? Or if they didn't try it, why not? In this way the proposed recommendations are tested in a real environment, and information is gathered on their acceptability. This information helps program planners to set priorities among the many seemingly important feeding practices and messages. Through TIPs, researchers and/or nutrition counselors discover:

- The relative ease or difficulty of communicating various recommended practices;
- Modifications that make the recommendations more acceptable;
- Unanticipated resistance points that limit behavior change;
- Ways in which recommendations are undermined by practices such as dilution, replacement, or children's resistance to new foods; and
- The approximate proportion of families who are and are not able to modify feeding practices and improve nutrition without additional resources.

TIPs test the feasibility of asking people to carry out the advocated **behaviors**. (This is different from pretesting educational **materials** and **messages**, which occurs much later.)

Objectives

1. To test mothers' responses to recommendations for improving infant and child feeding and determine which are most feasible and acceptable.
2. To investigate the constraints on mothers' willingness to change feeding patterns and their motivations for trying and sustaining new practices.

TIPs involve the following steps, which are described in the Task Box.

1. Training field personnel
2. Recruiting participants

3. An initial visit to gather background information, conduct dietary assessment
4. Debriefing to analyze dietary information, prepare for counseling
5. Counseling visit to present options, get reactions, negotiate trial practices
6. Debriefing to discuss reactions to recommendations and options selected
7. Follow-up visits to learn about the reactions to the new practices
8. Analysis, summary, and application of results.

In some settings, the initial visit and the counseling visit can be combined.

TASK BOX FOR TRIALS OF IMPROVED PRACTICES (TIPs)	
Preparation Tasks	
Draft a counseling guide on behavior change recommendations.	<ul style="list-style-type: none"> ■ list common feeding problems, by age ■ for each problem (and age) list several realistic recommendations for improving dietary intake ■ develop the counseling guide by completing Worksheet 6.1
Design the research protocol.	<ul style="list-style-type: none"> ■ determine number and procedures for each household visit
Develop question guides and recording forms.	<ul style="list-style-type: none"> ■ specify topics that require additional questioning ■ draft dietary assessment forms ■ draft recording forms ■ experienced nutritionist drafts dietary analysis forms
Revise the research plan.	<ul style="list-style-type: none"> ■ Worksheet 4.3 ■ recruit participants
Draft a field plan.	<ul style="list-style-type: none"> ■ schedule fieldwork ■ assign responsibilities
Train the field team and pretest the guides and forms.	<ul style="list-style-type: none"> ■ objectives of TIPs ■ TIPs methods and forms ■ role plays and pretesting ■ initial analysis in the field
Implementation Tasks	
Recruit households.	<ul style="list-style-type: none"> ■ identify households for TIPs ■ obtain consent
Conduct the <i>initial visits</i> .	<ul style="list-style-type: none"> ■ conduct interviews, observations, and assessment in selected households ■ schedule counseling visit
The steps in the shaded boxes can be skipped if the field team has just completed the in-depth interviews and observations with families who will participate in TIPs.	
Analyze initial data and plan specific recommendations.	<ul style="list-style-type: none"> ■ review results of initial visit ■ identify feeding problems and plan recommendations to suggest in each household ■ revise counseling guide as needed
Conduct the <i>counseling visits</i> .	<ul style="list-style-type: none"> ■ discuss specific recommendations and negotiate with the

	<ul style="list-style-type: none"> ■ mother to try a new practice ■ schedule follow-up visit
Summarize the response to counseling.	<ul style="list-style-type: none"> ■ preliminary analysis: what recommendations are mothers willing/not willing to try and why? ■ document motivations and constraints
Conduct the <i>follow-up visits</i> .	<ul style="list-style-type: none"> ■ repeat dietary assessment ■ find out how mothers followed the suggested practices, why/why not, how they modified the advice and why, and their positive and negative reactions. ■ review and summarize information
Analysis Tasks	
Tabulate results of the trials.	<ul style="list-style-type: none"> ■ each recommendation: number agreed to, number tried, number will continue/were successful ■ note key constraints and motivations
Revise child feeding recommendations.	<ul style="list-style-type: none"> ■ revise guide to include most appropriate/successful recommendations, amended according to mothers' suggestions ■ focus on most common problems
Write a report on the findings.	<ul style="list-style-type: none"> ■ summary ■ recommendations for programming ■ remaining questions/recommendations for further research and the decision on need for checking research.

Preparing for the Counseling and Trials of Improved Practices (TIPs)

Draft an Assessment and Counseling Guide on Feeding Practices

At this stage, all the information collected to date is used to draft an Assessment and Counseling Guide on Feeding Practices. This guide is used by interviewers during TIPs. Development of this guide is a critical step because it translates information gathered during the research into a list of likely practice improvements. It is important to allow adequate time for development and discussion of all possible recommendations.

Begin by gathering the following information:

- the review of existing information, including the experiences of previous nutrition programs in promoting certain feeding practices or foods;
- completed Worksheets 3.1 and 3.2;
- the draft reports and worksheets from all the exploratory research conducted (in-depth interviews, observations, and/or recipe trials); and
- additional information about local food preparation methods, food availability, and nutrient values.

Sort the information by appropriate age groups. Use Worksheet 6.1 to list briefly the **ideal feeding practices** for the first age group. Refer to local norms for infant and young child feeding (such as those promoted by the ministry of health), *Facts for Life* (UNICEF, 1993), and other reference materials for additional information on ideal practices, if desired.

Use the data collected to list all of the **feeding problems** identified for that age group. If many problems are identified, choose the most important ones to focus on. Focus on practices that are:

- common in the population;
- likely to have a significant negative effect on nutrition; and
- could be improved using existing resources.

Some feeding problems require changes that are outside the scope of the program. Others result from practices that are deeply rooted in culture and unlikely to change. Consider all behaviors that appear amenable to improvement by changes in the use of available family resources.

For each problem selected, suggest **realistic recommendations** that help mothers take small, practical steps that move them toward the ideal behavior. These recommendations should be as specific as possible. Try to identify:

- positive feeding behaviors that are practiced in some households and could be recommended in others;
- acceptable modifications of current feeding practices (such as feeding one extra snack each day or modifying the consistency or contents of solid food recipes); and
- locally available foods that can be fed to children to improve their diets.

Leave space on the guide for additional recommendations identified during TIPs implementation.

All practical options that lead to the desired nutritional benefit are explored during TIPs. In many cases, there is more than one option for improving feeding practices. For example, to increase energy consumption, children can eat more frequently, consume larger portions, or eat foods that are enriched by adding ingredients or reducing water content. During planning, a list of possible recommendations to achieve each practice improvement is drafted. The list is shortened and refined during the testing process.

Repeat the process outlined above for each age group. Recommendations for special categories of children, such as children who are not breastfed, or who are experiencing illness and poor appetite are also developed.

After the list of recommendations is complete, review it with the team's nutrition experts to be sure that, if followed, the recommendations will have a positive impact on children's diets and the problems being addressed. Eliminate all recommendations that are unlikely to have the desired nutritional impact.

Number the remaining recommendations for each age group to help with record keeping, as shown in the Assessments and Counseling Guide for TIPs (Worksheet 6.1). A completed assessment and counseling guide for Nigeria is found in Attachment 6.1 at the end of this chapter.

WORKSHEET 6.1: Completed Assessment and Counseling Guide for TIPs

Age Group 1: 0 to less than 6 months (specify)

Ideal Feeding Practices: exclusive breastfeeding, frequently and on demand, day and night

Problem #1: Child is not exclusively breastfed

Recommendations:*	Potential Motivations:
<ol style="list-style-type: none"> 1. Stop giving feeds of water. 2. Stop giving feeds of milk, porridge or other foods. 3. Increase frequency of breastfeeding. <ol style="list-style-type: none"> a. Feed more at night. b. Feed more day and night. 4. Reduce frequency of other fluids. 5. Reduce frequency of other feeds. 	<ul style="list-style-type: none"> - Breast milk contains lots of water and won't be contaminated like unboiled water. - Breast milk alone contains all needed nutrients for babies this age and avoids the cost, time, trouble, and possible introduction of germs that supplements entail. - The more you breastfed, the more milk you will produce, so you'll always have enough to satisfy the baby; the more you breastfeed, the better the baby will grow; the more you breastfeed, the less likely you will become pregnant too soon. The more you do this, the more you avoid the cost, time, trouble, and possible introduction of germs that other foods bring.

* **These are options.** The mother is asked to try one, two, or three, not all of them. For example, the mother may agree to stop giving milk, but only to reduce water and to feed more at night. (#2, 3a, and 4)

Problem #2: _____

Recommendations:	Potential Motivations:

Problem #3: _____

Recommendations:	Potential Motivations:

Age Group 2: 6-8 months (specify)

Ideal Feeding Practices: Introduction of soft, nutritious food;
continued breastfeeding

Problem # 1: Non-nutritious porridge is given; not energy-dense because over diluted

Recommendations:

1. Make some porridge with less water.
2. Make a "special porridge"—recipe with less water and a teaspoon of oil and add fired, mashed groundnuts.
3. Feed the special porridge at least twice a day.

Potential Motivations:

1. Child less hungry
 - more content, less crying
 - will let mother work
2. Child is able to swallow porridge
3. Child will like the taste

Problem #2:

Recommendations:

Potential Motivations:

Problem #3:

Recommendations:

Potential Motivations:

Develop the Research Protocol

Prepare a research protocol to guide the field team during implementation. Specify each step, from recruitment to analysis, and attach the research plan, questions, guides, and forms, as discussed below.

There are two alternative TIPs protocols: one requires three household visits (initial, counseling, and follow-up), the other requires two (counseling and follow-up only; see Box 6.1). The number of visits depends on the scope of the research, the availability of information needed to develop a detailed Assessment and Counseling Guide, and the level of training and experience of the interviewers.

The two-visit protocol combines the initial and counseling visits into one. If there is already considerable information on child feeding practices, and interviewers are able to do a dietary assessment and analysis of feeding problems on the spot, then the TIPs can be done in two visits. Otherwise, a three-visit protocol is recommended.

BOX 6.1: CONTENT BY DAY FOR A THREE-VISIT TRIAL

Initial Visit (Day 1)	Counseling Visit (Day 2)	Follow-up Visit (Day 6–10)
<ul style="list-style-type: none"> ■ Background information ■ Feeding practices ■ 24-hour recall ■ Food frequency (of other regularly consumed foods) 	<ul style="list-style-type: none"> ■ Feedback on practices ■ Recommendations and initial response ■ Negotiation and motivation ■ Discussion with interviewers, if needed ■ Agreement on specific practices to try 	<ul style="list-style-type: none"> ■ Changes since last visit ■ 24-hour recall ■ Outcome and response to trial ■ Modifications ■ Adoption of practice

Advantages of the three-visit protocol include:

- The interviewers have time to assess dietary and qualitative information thoroughly for each child, confer with a field supervisor and other team members to discuss appropriate recommendations, and return to the household well-prepared for the counseling session.
- When less information on child feeding is available at the start, the Assessment and Counseling Guide may not be complete for all situations. With the three-visit design, the guide is refined during the process of conducting TIPs, adding problems and solutions as they come up.

This chapter describes the three-visit design. If the two-visit protocol is selected, the instructions and forms for Day 1 and Day 2 are combined into a single visit, and there is less emphasis on interviewing about current feeding practices (because this information is already available).

Other variations are also possible.

In Senegal the initial visit of TIPs included a detailed in-depth interview and full-day observation, similar to what was described in Chapter 5.

In The Gambia an extra follow-up visit was conducted, so that mothers who had not successfully adopted a new behavior had a chance to choose another recommendation.

If two *follow-up visits* are desired, revise the forms for Day 2 and Day 3 accordingly.

Develop Question Guides and Recording Forms

TIPs involve several activities: interviewing, observation, dietary assessment, counseling, motivation, and assessing response to the trial. A detailed guide is essential, because the interviewer needs to ask different types of questions and needs to have a different style of interacting with the mother at different times. Sometimes the neutral style of a researcher is required, while at other times the motivating style of a nutrition counselor is preferred.

Question guides outline the steps and key issues in conducting the initial, counseling, and follow-up visits. They may be integrated with, or separate from, the data forms used to record the mothers' responses. The guides and recording forms include the issues listed below.

The Initial Visit:

- Open-ended questions and probes on child feeding practices and mother's beliefs. (Refer to topics listed in Chapter 2 and the gaps identified in the review. Also see Chapter 5 for details on preparing open-ended question guides.)
- Dietary assessment methods and recording forms. (Details on the 24-hour recall and food frequency assessment are provided later in this chapter.)
- Identification of specific feeding problems (interpretation of the dietary assessment).

The Counseling Visit:

- Feedback on practices and suggested recommendations (from the Assessment and Counseling Guide).
- Appeals and motivations that are believed to be most effective in stimulating compliance.
- Information to help overcome attitudinal barriers to behavior change.
- Information to help overcome practical barriers.
- Guidelines for reaching an agreement with the mother to try the new practice for a certain period of time (usually about one week) and to be re-interviewed about her experience. The mother should be asked if and how often she is already carrying out the practice.
- Space to record the recommendations discussed with the mother and her positive and negative reactions to each. Ask the mother about her overall reaction to the suggested practice, her desire to follow the advice and why, and her perceived ability to follow the advice and why. Ask her if she expects to make any changes in the advice, and why. Find out if anyone else needs to be consulted for the behavior change to be tried.
- Space to record the recommendations that the mother agrees to implement.

- Guidelines for a cooking demonstration if a new food is involved.

The Follow-up Visit:

- Change since the last visit.
- Questions and a format to record the mother's comments after she has tried the recommendation.
- Space to record any modifications of the original recommendation.
- Questions and space to record the reactions of other family members who may have commented on the new practice.
- Assessment of whether the mother plans to continue the new practice.

Samples forms for TIPs that can be adapted are included in Appendix B.7. Although these forms were used for a study in Nigeria, they are similar to ones used for TIPs in various countries. Keep the following points in mind while adapting the forms:

- Be sure to include space for recording background information on the families, and a unique identification number for each household.
- Ask sensitive questions later in the interview, after rapport is established. In Nigeria, researchers decided not to ask about mother's education at the beginning the interview, in case it made mothers uncomfortable.
- Include questions only on those beliefs and practices that are relevant to your program and are not well understood. Also, provide guidelines on whether the interviewer should ask these questions in all participating households or only in those with a child in a certain age group.
- Do not cover the same issue repeatedly. Information on many practices and beliefs will be gathered during the dietary assessment or the response to the trials, so additional questions on those issues are not needed.
- Make the guide flexible. Interviewers should not read each question word by word. The objective is to remind the interviewer of the key issues, while allowing for a natural conversation with each mother.
- It is important to provide guidelines for analyzing the diet and planning the counseling for each household. These are included with the forms for the initial visit (see sections 14 and 15 in the example in Appendix B.7).
- Allow plenty of room to record detailed responses. Field teams in several countries pasted sections of the forms into lined exercise books, leaving extra pages where needed. Using a book is a helpful way to keep together the forms from all visits to a particular household.

Revise the Sample and Plan Recruitment

As discussed in Chapter 4, trials are conducted in the minimum number of sites needed to represent the diversity of child feeding practices in the region. Children are selected purposively from the age groups and other categories considered most relevant to the program, within the chosen population segments. At least two children of each age group are selected in each location, and possibly more children from the age groups for which feeding problems and

transitions are common. The table below shows a suggested sampling scheme for the minimal sample from three sites.

Example of a Sample for TIPs				
Age Group	Site 1	Site 2	Site 3	Total
0–5 Months	2	2	2	6
6–11 Months	4	4	4	12
12–17 Months	2	2	2	6
18–23 Months	2	2	2	6
Total	10	10	10	30

A few additional children may be included to replace the drop-outs that are likely to occur. In a qualitative study, the sample needs only to be large enough to include the range of usual responses. If in the process of collecting the data, feeding practices for an age group or a site are found to vary more than expected, it may be necessary to include a larger sample for that group.

Usually it is important to select low-income households where feeding problems are most likely to occur. However, the very poorest homes or those in areas suffering from severe food shortages are not appropriate because these families will be **unable** to make any improvements in child feeding without external assistance or provision of food. TIPs are useful for identifying which families **can** do more to help themselves. When selecting the sites, think about the expected program participants. Decide how children will be selected for TIPs.

- Include only one child from any one family compound because it is important to get a range of different feeding practices and responses to TIPs.
- Community leaders or health workers can help identify households with appropriate-age children.
- If there is a list of households with children in the selected age range, households can be selected randomly.
- The interviewers can select the sample, or a separate team of recruiters can select households in advance. Advance recruitment saves time, especially if undernourished or sick children are specified for TIPs.

Draft a Field Plan

Develop a field plan that specifies responsibilities, and when and where information is to be collected. The plan includes an implementation schedule. As with other methods, when planning the implementation schedule, remember to allow for more recruitment time if children with special characteristics (e.g., malnourished, anorexic, or in very narrow age ranges) are desired.

The length of time needed for household trials depends on the number of sites and workers, length of the question guides, availability of transport, and distances that must be covered. It is important to plan the schedule in advance because community leaders need to be informed, especially if they are assisting in the identification of households.

To estimate the amount of time required, assume that interviewers can conduct two or three initial visits each day (if houses are not dispersed too widely).

Because this is qualitative research, data collection is scheduled to allow days in between for review and discussion, at least at the beginning of the work. Expecting to discuss findings at the end of a tiring day of fieldwork is not realistic. However, the time between visits is shortened as researchers' questioning and note-taking skills develop and their familiarity with the problems and possible solutions increases. The steps in conducting visits and summarizing the information are discussed in the implementation section.

The other difficult aspect of scheduling is the need for follow-up visits about five to six days after the counseling visit. Plans are made in advance so that field workers can tell mothers when they will return. If the sites are widely dispersed, it is better to use the time in between counseling and follow-up visits for analysis or for TIPs in additional households in the same site, rather than proceeding to another site and expecting to return later for follow-up.

Because follow-up visits take less time than initial visits, and there is no need to look for children of certain ages, field workers are able to complete about twice as many households per day. However, it is important to consider that not all mothers will be at home for the scheduled follow-up, so an extra day should be allocated for initial analysis and repeat attempts at follow-up, as needed. A sample TIPs schedule and field plan from Nigeria is included in Attachment 6.2 at the end of this chapter.