

Preparing for the Review

Define the Overall Program Objectives and Scope

The overall program objectives will determine the topics reviewed and, therefore, the documents reviewed and the kinds of individuals to be interviewed. It is important at this point to specify program objectives. The objectives may reflect political and funding constraints as well as public health priorities. Consider the following questions and examples when developing or clarifying objectives:

Who will the program reach?

The Weaning Project in Swaziland focused on children age 0 to 23 months. In Northern Cameroon children up to 36 months were included in the program because problems associated with the transition from breastfeeding to other foods continued into the third year of life. In the Gambia and Senegal, children with diarrhea were the key targets because the programs' objectives were to lower complications from diarrhea. In almost all of these programs the families to be reached were low income.

What issues or practices will be the focus?

Child feeding practices include a large number of topics, as illustrated by the lists of issues in Chapter 2. Depending on the program, certain issues such as dietary management of childhood illness, micronutrient consumption, or increased consumption of special complementary foods may be of specific interest.

Where will the program operate?

This is related to the *who* question and usually is defined geographically, often by a region or ecological zone. However, it also can be defined by need—i.e., a national program in the highest-need municipalities.

How are feeding practices likely to be addressed?

Although answering this question is one of the main purposes of the research, it is often possible to say something at the research planning stage about the *types of actions* that are likely to be within the scope of the program. For example:

- Is the program broad enough to handle a variety of activities (e.g., income generation, health care), or is it focused primarily on nutrition education or food security?
- Will the program be implemented through the health service delivery system or will it be community-based?
- Will promotion of home gardening and other agricultural interventions be considered? Will training be provided to health workers or to traditional practitioners?

List Relevant Topics for the Review

Some general topics are listed below. A more detailed list is provided in the section on writing the background document. Making a topic list will help to sort the information and ensure that sources for each topic area are identified.

Topics for review of existing information

- prevalence and patterns of undernutrition
- likely causes of undernutrition (such as inadequacies of food security, care, environmental conditions, or health)
- which demographic characteristics (i.e., ethnic group, rural or urban residence, region) are likely to have the strongest effect on child nutritional status and on feeding practices
- current child feeding practices and problems
- reasons for current practices and possible constraints and motivations for changing behavior
- individuals, services, and media that may influence child feeding
- locally available and affordable foods and their nutritional value
- experience and effectiveness of previous programs to improve child nutrition

Identify Sources of Information

Sources of child feeding and nutrition information include:

- government, donor, and non-governmental organization reports on the nutritional situation and nutrition programs;
- university publications and dissertations;
- nutrition surveys;
- market surveys and price information;
- food consumption data;
- ethnographic reports; and
- census data.

International and national organizations that fund nutrition and food-related research may be able to provide relevant reports or access to their libraries. The Demographic and Health Surveys (DHS) are good sources of up-to-date demographic information, and usually include data on child nutritional status and a variety of feeding practices. National nutrition surveys have been conducted in many countries, or nutrition and feeding data may have been

collected as part of other large surveys. Regional surveys also may be useful. Qualitative or anthropological studies may provide detailed information on child-rearing or dietary practices.

Sources of information on health services, health service use, communications programs, and media may include:

- formative or evaluation research from other health programs,
- health facility surveys,
- private voluntary organizations,
- local market research and advertising agencies,
- radio and television stations and media surveys,
- government information offices and health education divisions, and
- groups working in non-formal and adult education programs.

If sources of information on infant feeding patterns and other important topics are difficult to find, contact local experts in community nutrition, maternal and child health, anthropology, and agriculture. These experts can be interviewed and asked about available studies and reports.

Conducting the Review

Obtain and Review Materials

Prepare a list of the documents to be reviewed and add to this list as other documents are identified. It saves time to get complete and correct reference information at the start (i.e., title, author, volume, date, where the document was obtained). One effective way to broaden the search is to look at the references cited by the documents that are being reviewed. Each document (or its relevant sections) should be read and notes taken on the key points *related to the topics of interest*.

It is helpful to record notes on each topic on *separate* sheets of paper so that these can be sorted and grouped in different ways for analysis. This is especially if more than one person conducts the review. Review the worksheets and the report outline included in later sections of this chapter for ideas on how to organize review notes.

Conduct Key Informant Interviews

Interview knowledgeable individuals to supplement and explain the information that is gathered during the literature review. Key informants also can report on “common knowledge”—i.e., issues and practices that may not be written down. If time and resources are limited, choose four individuals who are local experts in child feeding and nutrition.

Types of individuals to interview include:

- nutritionists,
- ministry of health technical personnel,
- health educators and communicators,

- home economists,
- pediatricians or other medical practitioners,
- personnel working for non-governmental organizations, or
- anthropologists or other social scientists.

Key informant interviews should be structured but open-ended. To focus the discussion, prepare a list of the subject areas to be covered in the background document. Keep detailed notes of the interviews, or tape-record them (with permission) and write notes later.

It is also possible to conduct discussions with small groups.

In Tanzania, prior to the design of the research, a group of experts at the Tanzanian Food and Nutrition Centre were called together to discuss child feeding issues. The group included specialists in breastfeeding promotion, nutrition education, and food science. Valuable information was gained, and it was especially helpful to see that there was general agreement on some points and a range of opinion on others.

More detail on methods for conducting interviews and group discussions is included in Chapters 5 and 7.

Interviews in Tanzania helped to identify:

- major ethnic groups to include,
- unpublished reports on nutrition programs and small studies,
- traditional feeding practices such as the use of fermented milk,
- local organizations with expertise in health and nutrition education, and
- government policy and norms.

Analyzing and Writing up the Review

Summarize by Theme or Question

The review is most useful if it is well-organized and brief. Organize notes or summary sheets into piles for each topic of interest, highlighting the points that are widely agreed upon, those that are controversial, and those about which little is known. Note the patterns or general trends and any significant exceptions to these patterns.

The information from written reports and interviews can be combined, but it is important to indicate the source of findings, because one key informant's opinion may carry less weight than the results of a national survey. Generally, opinions expressed by key informants are very useful to suggest issues, foods, and practices to ask about in the research, but should not be taken as fact without checking other sources.

The same techniques described for analysis of qualitative data in Chapters 5–8 are used to analyze the findings of the literature review and key informant interviews. The basic approach is to:

- read through notes taken on the documents and interviews;
- use codes, colors, or comments in the margins to mark sections related to key themes and to highlight important points;
- keep a list of the important themes, adding new ones as they are identified;
- sort pages or excerpts of pages into piles of information related to each theme; and
- draft the report by summarizing the main points under each theme.

Fill in the Child Feeding Matrices

A primary objective of the review is to pull together what is known about child feeding practices and the influences on those practices. Worksheets 3.1 and 3.2 are designed to help to summarize these issues.

- Complete separate worksheets for each age group, using multiple copies of the blank worksheets found in Appendix A. Choose the age groups to reflect the stages of child feeding in the local culture or use standard intervals such as 0–5 months, 6–8, 9–11, 12–17, and 18–23 or some variation of this pattern. The age classifications for various practices usually overlap because the studies reviewed often use different groupings to describe their results.
- Each worksheet also has a space to indicate the ideal feeding practice. Refer to the information in Chapter 2, and to national policies and norms on child feeding. Recommendations such as those in *Facts for Life* (UNICEF, 1995) also may be helpful.
- It is usually not possible to fill in *all* the spaces on these worksheets from the review. Filling in the worksheets summarizes existing information and helps to show where there is a *lack of knowledge* and a need for further study. Often, motivations and constraints to improved practices (on Worksheet 3.2) are unknown before trials of improved practices are conducted.

List the feeding practices by age group on Worksheet 3.1. Compare this list of practices to the ideal practices and classify each practice as having a harmful, helpful, or unknown impact on child nutrition. From the information reviewed, try to indicate which practices are problematic and likely targets for improvement through the program.

Worksheet 3.1: Classification of Current Practices

Age Group: 6-9 (Fill in one or more sheets for each age group.)

Ideal Feeding Practices: Continued breastfeeding. Introduction of soft, nutritious foods (2-3 times per day)

CURRENT FEEDING PRACTICES	CLASSIFICATION			HOW COMMON? AMONG WHAT GROUPS?
	■ HELPFUL	■ HARMFUL	■ DON'T KNOW	
Majority: Giving sorghum or maize-based pap 4-5 times per day Minority: remote rural areas still primarily breastfeeding -- pap 1-2 times per day	high/adequate frequency		probably not frequent enough but dilution makes it nutritionally inferior to breast milk	<ul style="list-style-type: none"> ■ throughout the country, almost all children this age eat pap ■ maize in South, sorghum in North ■ only remote, "traditional" villages
Over-dilute, watery pap is common. Usually no added ingredients		not nutrient- dense		<ul style="list-style-type: none"> ■ very common in rural areas and low income urban ■ more educated mothers may add milk, egg, or sugar

Using Worksheet 3.2, list the key feeding problems (the harmful practices identified in Worksheet 3.1) and the factors that influence these practices. In column 2, "Motivations for Current Practices," include families' beliefs about why a feeding practice is good or necessary and the people or other influences that support it. Motivations are not what is scientifically correct or what *you* believe.

Compare actual practices to ideal practices. Draft recommendations that can improve child feeding and nutrition, and note these suggestions or what needs more investigation to complete in column 4. For more information on ideal practices, see Chapter 2 and the list of references on child feeding.

Examples of constraints to improving practices:

- "If I make the porridge thicker the child will not be able to swallow it."
- "A child who is fed eggs will become a thief."
- "My mother-in-law will not allow me to feed greens to a small baby!"
- "Relish ingredients are too expensive—I cannot give extra to this child."
- "How can I breastfeed more often when I am at work all day?"

- Examples of motivations for current practices**
- "We have always started giving maize porridge at this age."
 - "Force-feeding saves me time."
 - "I gave herbal infusions after birth to cleanse my baby's digestive tract."
 - "My baby feels thirsty—that's why I always give a bottle of water."
 - "The health worker told us to stop solid foods during diarrhea."

Appendix B includes examples of recommendations used in other programs.

From the information gathered during the review, also try to identify the constraints on families' ability to improve child feeding practices, and list them in column 3. These may involve external constraints, such as limited resources, or internal attitudes and beliefs against the new behavior. More detail on these constraints will be added after testing the recommendations.

Use the same age groups as in Worksheet 3.1. If practices vary widely among ethnic groups, geographic areas, or rural/urban residence, separate sheets can be completed for these population groups. If there is not a lot of information available, Worksheets 3.1 and 3.2 can be combined into one form.

Worksheet 3.2: Key information for Assessment and Counseling Guide for TIPS

(Fill in one sheet for each age group. Add sheets for any population groups with major differences.)

Age Group: 6-9 **Population Group:** rural Yoruba (regional, ethnic, religious groups)

Ideal Feeding Practices: Continued breastfeeding on demand. First foods are soft (not liquid) but nutrient-rich.

CURRENT FEEDING PROBLEMS	BELIEFS, PRACTICES, AND INFLUENCES:		RECOMMENDATIONS
	■ MOTIVATIONS FOR CURRENT PRACTICE	■ CONSTRAINTS TO IMPROVING PRACTICE	
pap is watery	<ul style="list-style-type: none"> - white, liquid pap looks like breastmilk - can feed child quickly 	<ul style="list-style-type: none"> - child can't swallow thick pap - takes too long to spoon-feed (mothers are very busy) 	<ul style="list-style-type: none"> - thin pap with a small amount of breastmilk instead of water - gradually making the pap thicker each day
many mothers do not add anything to enrich pap	<ul style="list-style-type: none"> - inexpensive, available - belief that plain pap is nutritious 	<ul style="list-style-type: none"> - extra ingredients mean more cost and time to prepare - beans, sugar cause diarrhea if not well-cooked 	<ul style="list-style-type: none"> - enrich pap with ingredients that are available in the home such as cooked and finely ground soy beans, peanuts, banana, etc.

Prepare a Problem Identification Document

Write a brief report summarizing existing information, pointing out gaps, and making recommendations for research. Include the completed worksheets and any other tables that were prepared to summarize the information. This document should cover the following issues.

Describe child nutrition problems:

- Where are the children most malnourished? In what age groups? In what population groups?
- What types of undernutrition occur (chronic, acute, micronutrient)?
- What are the most important causes of undernutrition (illness, food availability, inappropriate practices, etc.)?

Identify other important health or environmental problems:

- What illnesses are most common among young children?
- Are there difficulties with water supply and sanitation? What are they?

Describe child feeding practices (see Boxes 2.2–2.5 for details):

- What are the patterns and practices of breastfeeding (initiation, the first months, later after foods are introduced)?
- When are other foods introduced? What foods?
- How are foods for children prepared? Are commercial foods popular for young children? If so, which ones?
- How are young children fed? By whom?
- How many meals are children fed? Do they get snacks?
- What locally available and affordable ingredients could be added to children's diets to improve nutrition?
- What happens to feeding during a childhood illness?

Describe mothers' and other family members' beliefs and attitudes regarding child feeding, nutrition, and health:

- What are the reasons for current practices?
- How strong are the beliefs and attitudes? Which will be most difficult to change?
- What could motivate changes in behavior?
- What beliefs or external constraints could prevent improvements in feeding practices?
- What are prevailing attitudes about children (by gender if important) and parenting?
- Whom do mothers trust for advice on child feeding? Who makes decisions in the household on child feeding?
- What role do community groups and institutional programs play?

Identify the population groups that should be the focus of research and programs to improve child feeding:

- What groups seem to differ greatly in feeding practices?
- Are there important differences in rural and urban practices?
- Are there important religious and/or ethnic differences?
- Do practices vary by region or climate (i.e., coastal, desert, forest)?

Describe the channels through which services and educational programs could be delivered:

- What services are provided by the government health system? By private or traditional health systems?
- What types of trained personnel are available?
- What are their responsibilities?
- What staff and mechanisms exist for community-level outreach and education?
- What traditional or non-formal information systems, such as mothers clubs, literacy programs, or folk theater, could be used?
- What is the coverage and potential effectiveness of mass media?

Describe health care providers' knowledge, attitudes, and skills related to counseling on child feeding and nutrition:

- Are government workers prepared to provide counseling?
- Are there traditional or non-formal practitioners who could provide counseling?
- What misconceptions about child nutrition and feeding are common among health care providers?

Examine past and current efforts to improve nutrition or communicate information about infant and child feeding and health:

- What media have been used and with what impact?
- What educational messages are being communicated?
- What lessons have been learned?

Identify the gaps in existing knowledge, including specific practices/beliefs or broad subject areas and types of data.

Broad examples:

- an absence of household-based research on actual feeding behaviors,
- a lack of qualitative information on mothers' beliefs and attitudes, or
- a tendency for most research to cover only one of the major ethnic groups.

Specific examples:

- a lack of information on whether and how mothers encourage or coax a child to eat,
- poor understanding of the reasons for very low rates of exclusive breastfeeding when most mothers claim breast milk alone is enough, or
- unknown energy density of first foods given because the amount of dilution has not been measured.

Insights gained from the review of literature conducted in Swaziland:

Stunting is common from an early age, due to chronic undernutrition.

Feeding practices and frequent illness (not severe food shortages) are the main causes of poor growth.

Breastfeeding practices are documented and there is a group active in breastfeeding support, but there is little information about how problems are resolved.

Use of non-human milk is very common, beginning with newborns. A great deal is known about the use and marketing of milk.

Little is known about precise practices related to the introduction of foods, nutrient density, and how feeding practices can be improved.

The health services weigh children but conduct little education and conduct minimal community outreach.

Health service personnel have many false ideas about infant feeding. They need to be interviewed in more detail to plan training sessions.

The traditional health system is well developed and popular but its role in child feeding advice is unknown.

Many people listen to radio programs and there is local expertise and experience in developing educational radio programs.

When the questions or key issues listed above cannot be answered or described, this represents a gap in the existing information. Once the review has identified the key issues and gaps, design a research plan that is efficient and practical. As noted earlier, a thorough, well-focused review of existing knowledge and a set of clear objectives are the most important tools to guide the process of research design.

CHAPTER 4: DESIGN AND PLANNING OF THE RESEARCH

Planning research involves a series of decisions. The process is one of specifying the research questions, appropriate groups to sample, and most practical methods for collecting the needed information. The review document has already summarized what is and is not known, which helps to make decisions about key research questions and the sample.

This chapter lists the main decisions that must be made and suggests ways to design a research plan to fill in the information gaps. Then it discusses the logistical issues related to implementation of the research plan. The main tasks for this stage are listed in the box below. They are listed in somewhat chronological order, although many of the tasks are interrelated and their order may vary.

TASK BOX FOR PLANNING THE RESEARCH	
Preparation Tasks	
Define the research objectives and questions.	<ul style="list-style-type: none"> ■ based on review document ■ reflecting program objectives
Select the core research team.	<ul style="list-style-type: none"> ■ research director ■ field supervisors
Decision Guide for Research Design	
Specify the research components in addition to Trials of Improved Practices (TIPs).	<ul style="list-style-type: none"> ■ is exploratory research needed? ■ is checking research needed?
Choose population segments and types of population units.	<ul style="list-style-type: none"> ■ regions to be covered ■ population groups (ethnic, language, rural/urban, etc.)
Choose categories of participants.	<ul style="list-style-type: none"> ■ mothers and primary caregivers ■ other family members ■ health care providers ■ other influential people
Choose age groups of children to be included.	<ul style="list-style-type: none"> ■ overall age range of children ■ age groups to reflect feeding practices
Choose specific research methods.	<ul style="list-style-type: none"> ■ if exploratory or checking research is needed, what type?
Select sites (population units) within each segment.	<ul style="list-style-type: none"> ■ number of sites ■ criteria for sites

Develop the research plan.	<ul style="list-style-type: none"> ■ fill in Worksheets # 4.2 and 4.3
Logistics for Fieldwork	
Plan field personnel and supervision needs.	<ul style="list-style-type: none"> ■ number needed per site/method ■ quality control ■ plan transport and accommodation
Schedule training and fieldwork.	<ul style="list-style-type: none"> ■ time needed for each step
Estimate cost requirement.	<ul style="list-style-type: none"> ■ budget
Select the field team.	<ul style="list-style-type: none"> ■ criteria for field workers ■ train a few more than required
Train the field team.	<ul style="list-style-type: none"> ■ general training issues

Preparation Tasks

Define the Research Objectives and Questions

To design the most efficient research plan, begin by defining your key research objectives, based on the background review and overall aims of the program. Then, for each research objective, specify the detailed questions that need to be answered. The research questions are likely to resemble those listed at the end of Chapter 3—i.e. the questions that could not be answered by the review of existing information.

Research objectives and specific questions identified as priorities in Swaziland were:

1. **To learn about the balance of traditional and modern concepts influencing decision making on child feeding.**
 - *How does Swazi tradition influence decisions and why?*
 - *How does the concept of "modern" influence decisions and why?*
 - *Who influences different decisions?*
2. **To investigate the relationships among the concepts of health, growth, and food.**
 - *What is the image of a healthy child?*
 - *What are families' perceptions about growth?*
 - *In what ways are foods seen to be connected with child health?*
3. **To gather detailed information on feeding practices of children under two years of age.**
 - *How is food prepared for young children? How much are foods diluted? Why?*
 - *What breastfeeding problems or doubts are of concern to mothers and how are they resolved?*
 - *What are the usual serving sizes and frequency of feeding, by age?*
 - *How do women's work patterns affect child feeding?*
4. **To learn about health workers' knowledge of, attitudes toward, and influence with mothers concerning child feeding.**

Select the Core Research Team

The **core research team** refers to a small group of people who will be responsible for planning, supervising, and analyzing the research. The core team should include:

- **a research director** whose primary responsibilities will be planning, supervising staff, following the research plan and protocols during implementation, and analyzing the research results;
- **a nutritionist** who will help develop nutritionally sound recommendations and analyze dietary information; and
- **other experts** on the methods or topics of the research, who will assist as needed.

The field team, consisting of field supervisors and interviewers, can be hired later, as discussed at the end of this chapter.

Ideally, all members of the core research team participate in all aspects of the research (training, interviewing, observation, analysis, and report writing). Early recruitment of the technical resource persons is critical so they can be involved in decisions on research design, sampling, and question guides. If the research is limited so that just one or two persons function as field supervisors, it is beneficial to hire them early so they can participate in planning.

How the core and field teams are selected depends on local resources and the level of participation desired by program personnel. In some places research can be contracted to a research firm or institute selected through competitive bidding. In other cases, it can be handled partially or completely by the program, which may hire the research director or other team members.

Individuals with some training in nutrition and/or the social sciences are ideal candidates for team membership. The team should include at least one person who is knowledgeable and experienced in community nutrition programs. The core team should be capable of using all of the research methods that are planned, willing to stay for extended periods in the communities, and able to participate until the research is completed. Ideally, some members of the team will also be involved in implementing the program that follows from the research.

Box 4.1 lists skills and experience that will be important elements of the core research team, although no one person needs to have all of the qualifications. Expertise that is lacking can be obtained by consulting with local experts, such as communications specialists or anthropologists.

BOX 4.1: SKILLS AND EXPERIENCE NEEDED ON THE CORE RESEARCH TEAM

- Respect for the perspective of potential program participants and willingness to learn from the participants are essential attitudes of all team members.
- Experience with qualitative research and data analysis.
- Program experience and an orientation toward community development.
- Technical expertise in nutrition and child health.
- Management skills: financial, logistical, personnel.
- Writing skills.
- Willingness and time available to provide close and supportive supervision of field activities.
- Democratic style: willingness to listen to the interviewers and learn about the results of the field work.
- Familiarity with local languages and cultures.

Decision Guide for Research Design

This manual describes a range of qualitative methods for studying different aspects of child feeding. *It is not expected that every program will make use of all of them.* As explained in Chapter 1, we have tried to develop a flexible approach that allows the research team to tailor the most efficient research design for its needs. The choice of methods, participants, and sites for the research will depend on the research questions you have identified.

Choose the Research Methods

Use the decision guide in Box 4.2 to guide your selection of research methods. It is important to remain flexible, recognizing that the plan can be adjusted as information is collected.

The core method of this manual is trials of improved practices (TIPs)—step 3 in box 4.2—which can stand alone or be combined with exploratory and/or checking research methods.

TIPs are used to test the response of mothers and children to new feeding practices that are potential program recommendations.

Box 4.2: BASIC DECISION GUIDE FOR SELECTING RESEARCH METHODS

1.	Review existing information and design research:	
	<ul style="list-style-type: none"> ■ Is sufficient information available to design household trials and develop feeding recommendations for testing? 	<p>If yes, proceed to #3.</p> <p>If no, proceed to #2.</p>
2.	Conduct one or more of the following types of exploratory research if information is needed on:	
	<ul style="list-style-type: none"> ■ Mothers' beliefs, motivations, and constraints related to child feeding practices. 	Conduct in-depth interviews with mothers. (p. 5.2)
	<ul style="list-style-type: none"> ■ Actual feeding behavior (frequency consistency and type of food, amount, interaction with child, etc.) especially if you believe reported details may not be accurate. 	Conduct observations in conjunction with interviews. (p. 5.2)
	<ul style="list-style-type: none"> ■ Palatability, acceptance, quantities served, consistency, time for preparation, and ease of teaching new or modified existing recipes to improve children's nutrient intake. 	Conduct recipe trials . (p. 5.20)
	<ul style="list-style-type: none"> ■ Health care providers' motivation and ability to provide effective counseling on child feeding. 	Conduct in-depth interviews or focus group discussions (FGDs) with health workers. (p. 7.2)
	<ul style="list-style-type: none"> ■ Images and perceptions related to child health and feeding. 	Conduct FGDs (along with other techniques) with mothers and/or other family members
3.	Based on results of Steps 1 and 2, develop a guide with recommended behaviors to be tested.	Conduct trials of improved practices (TIPs) . (p. 6.1)
4.	Based on results of Step 3, refine the program plan and messages. Conduct one or more types of checking research if needed:	
	To check responses among people not exposed to the household trials and obtain immediate reactions to recommendations and motivations for behavior change.	Conduct FGDs with mothers in other communities of the same population segments.
	To check acceptability of the actions and messages among program personnel, implementors, or key influential people.	Conduct key informant interviews or FGDs with relevant people. (p. 7.2)
5.	Analyze results, develop strategy, and move toward program implementation.	

Some programs may have access to enough existing information on child feeding to allow them to develop a set of recommendations for testing right away. In such cases, the research will begin with step 3, the TIPs. Other conditions that may permit restricting the research only to TIPs include narrowly focused objectives; a well-defined and small program area; well-trained staff with nutrition counseling experience; time and resource constraints; or use of the method as a training technique only (as discussed in Chapter 10).

However, in many cases, additional information will be needed to draft an initial set of recommendations. Therefore, the first step in designing the research is to decide *if* additional methods are needed, then *which* methods are most appropriate.

■ **Is exploratory research needed?**

Exploratory research is used before TIPs to identify important feeding problems and solutions, and to gather additional information that may be needed for program strategy development.

Exploratory research is needed if:

1. more information about current feeding practices and attitudes is required to develop feeding practice recommendations for testing or
2. the views of fathers, grandmothers, health workers, or other people who influence the primary child care giver are required. This issue is discussed in more detail under research participants.

Box 4.3 can be used to guide decisions on exploratory research.

Box 4.3: DECIDING ON THE NEED FOR EXPLORATORY RESEARCH

<ul style="list-style-type: none"> ■ Can you complete Worksheet 3.1 for the relevant age groups? ■ Can you fill in columns 1 and 4 of Worksheet 3.2? (information on motivations and constraints can be gathered with TIPs) ■ Can you complete Worksheet 6.1 (assessment and counseling guide) for the relevant age groups? 	<p>If yes:</p> <ul style="list-style-type: none"> ■ Go to Worksheet 3.2. ■ Go to Worksheet 6.1 in Appendix A; a completed example is included in Chapter 6. ■ Go to Chapter 6: you are ready to design TIPs. 	<p>If no:</p> <p>Identify what information is missing and use box 4.2 to decide which exploratory methods to use.</p>
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■ **If yes, what methods for exploratory research are needed?**

This decision depends on the research questions. The methods covered in this manual include:

- in-depth interviews,
- observations,
- recipe trials, and
- focus group discussions (FGDs).

Look back to the decision guide in Box 4.2; it lists the most appropriate methods for exploring different research questions. Choose the methods best suited to the gaps or questions identified during the review of existing information.

■ **Is checking research needed?**

It may be necessary to follow up the TIPs with checking research to confirm the findings in other population groups or with participants who have not been involved in earlier steps of the research. Checking research is important if:

- You plan to have repeated, intensive contact with a small sample for interviews and trials, because responses may start to be biased by involvement in the research. It would be advisable to check final recommendations with people who have not already participated in the research.
- You want to obtain feedback from program staff or policy-makers to the recommendations after testing them with mothers.

■ **If yes, what methods are needed for checking research?**

This question is difficult to answer before the research begins, and your plan may need to be adjusted on the basis of findings in the field. The checking techniques covered in this manual are focus group discussions and interviews. The choice between them is based on the type of participants and the topics to be discussed. Convening a focus group discussion with a group of mothers or fathers may be a convenient and effective way to get their reactions to some nutrition messages. However, if health workers' input is needed, interviews may be more appropriate because the workers are scattered in various locations. Attitudes toward most child feeding topics are usually discussed freely in a group setting; however, the privacy afforded by interviews might be necessary to get honest opinions on sensitive issues.

Examples of research designs from some African programs are found in Box 1.2. Details on specific research methods are provided in Chapters 5 through 7.

It is important to remember that the research plan depends on the program objectives, available resources, and research questions. There are trade-offs of time and cost with each method. Tailor the plan and include only the essential methods and topics.

Guidelines for Selecting the Sample

Selecting the sample for consultative research requires the following steps: choosing population segments; identifying appropriate sampling units within these segments; choosing categories of participants; choosing the age groupings for children of participants; selecting sites; and developing the research plan. These steps are described below.

Choose Population Segments

A population segment is a group of people defined by characteristics that affect the topic of interest, young child feeding. The specific characteristics used to define segments are those that are expected to reflect significant differences in child feeding practices and related beliefs.

The following questions guide decisions about selecting population segments:

- **Where are the problems greatest and who is most likely to benefit from the program?**
(Worksheet 4.1, Part A)
- **What groups (categorized by geographic area, rural vs. urban residence, ethnicity, religion, etc.) are the focus of the research?**
(Worksheet 4.1, Part B)

In some settings, the priority groups already may be partially defined by political, funding, or other factors. In these cases, focus on the most appropriate segments within the designated groups.

In other cases, segments must be selected from a large and varied population. The information gathered during the review provides the basis for segmenting the population for the field research.

To select population segments, begin by completing Part A of Worksheet 4.1 to summarize where nutrition problems occur.

Examples of population segments

Nigeria (4 segments)

1. Yoruba people (south-central), urban
2. Yoruba people rural
3. Hausa people (north), urban
4. Hausa people, rural

Tanzania (3 segments)

Arusha region only (north, highland)

1. Meru people, rural
2. Masai people, rural
3. Mixed ethnicity, urban

Ghana (5 segments)

National scope:

1. North, near main town
2. Forest, farming, remote
3. Forest, farming, near main road
4. Coastal, fishing village
5. Coastal, peri-urban area

Swaziland (4 segments)

National scope:

1. Rural, accessible
2. Rural, remote
3. Urban, peri-urban poor
4. Urban, company town

BOX 4.4: CRITERIA FOR SELECTING POPULATION SEGMENTS

- Scope of the program.
- Areas with high prevalence of undernutrition.
- Geographic or ecological areas: mountains, highlands, coast, plains, drylands, or other zones that affect the types of food available and work-related practices that can affect time and other resources available for child feeding.
- Factors such as degree of urbanization, language, ethnic or religious affiliation, which influence maternal roles, child feeding practices, and/or access to channels of education and communications.

Fill in Part B of Worksheet 4.1 using the information available and sound judgment. Examples of population segments used in several programs are shown in the box on page 4.11.

For most programs, no more than four population segments should be selected, although programs of national scope may require more segments. Create segments *only* when groups differ so much that different activities, messages, and/or communication strategies are required to reach them. Choosing *too many segments* increases the complexity, duration, and cost of the research. Do not collect detailed information on more groups than the program itself can target with tailored actions.

For example, typical segments are two distinct ecological zones where diets are different, such as highlands and lowlands. In the lowlands the lifestyle differences between rural and urban residents may be large, and undernutrition may be widespread in urban areas with recent migrants. This scenario suggests three sampling segments: lowland rural areas, lowland urban areas with long-term residents and recent migrants, and highland rural areas.

Worksheet 4.1 (Completed as an example)

A. Problem: Nutrition problems are common among children aged 3–36 months living in rural/semi-urban/urban or (specify) rural and urban slum (shanty towns) areas, in the following regions/zones: rural-eastern and western provinces; urban areas of three major towns

and among the following (ethnic, religious, etc.) groups: not applicable

B. Population Segments: The research will focus on households with children aged 3–24 months in these population segments: 1) rural; 2) peri-urban (shanty towns) a in areas of the high priority districts (defined by government) regions and those _____.
(list other characteristics)

C. Population Units: The type of population that should be used for each segment.

Segment 1 rural: a census track of isolated homesteads Segment 2 peri-urban: the catchment area for a health center
Segment 3 _____
Segment 4 _____

D. Categories of Participants: The research should include information from the following categories of participants:

Mothers: _____ of children 3–24 months
Characteristics: at home, working outside home
Other family: fathers, mothers-in-law
Health care workers: Birth attendants
health workers
Other: _____

E. Age Groupings: The age groups that likely describe when local feeding patterns change are:

Age Group (months)	Reason
0–4 months	breastfeeding predominates, most infants do not receive solid foods
5–8 months	period when solid foods are introduced; many feeding and other nutrition problems begin to occur
9–12 months	period when mothers regularly feed solids and begin to vary the diet with snacks
12–17 months	child more independent; transition to family diet; still breastfed
18–24 months	quantity a critical issue; children often fed by siblings or left to eat alone; usual age of weaning

Note: Usual age groupings are 0 up to 6 months, 6–8, 9–11, 12–17, and 18–24 unless local feeding practices change at different times, which would result in other categories.

Choose Population Units

- **What type of community or defined cluster of dwellings is typical of each segment?**

The next step is to select the type of population units to include in the research. A population unit is a community or cluster of people. Each unit should contain 35 to 50 children in the age group of the study (e.g., 0–24 months) to provide a large enough population for recruiting households.

- In rural areas people usually live in villages or in separate homesteads or compounds that include extended-family members. A village is a population unit, but a compound is too small. A defined area with many compounds could be a population unit.
- In urban areas there are often zones of different social class, ethnicity, or degree of urbanization. A shanty town is an example of a population unit in an urban area. If urban zones are large, choose smaller neighborhoods within them.

Fill in Part C of Worksheet 4.1. Actual sites will be selected later. Selection of sites is easiest if well-recognized boundaries of the units are selected, such as standard units reported in census or local government listings.

Choose Categories of Participants

- **Who does and/or influences child feeding?**
- **Whose input is needed to answer the research questions?**

TIPs are conducted with mothers or primary caregivers of young children. The age range of children to be included in TIPs is discussed below. It also is useful to sample mothers who vary by other characteristics that may affect feeding practices or willingness to accept recommendations. For example:

- maternal age, or parity and past experience with mothering;
- work status: within or outside of the household; or
- maternal educational level.

For methods other than TIPs, it is also useful to sample people other than mothers and primary caregivers who have a direct or indirect influence on child feeding. Those who may influence mothers, either through their professional roles or through personal relationships, include the following groups:

- *Fathers* rarely prepare food, but may have major control over food distribution in the family and the mother's mobility outside the home or community. They may play an important role in cultivation of food crops and raising animals and may purchase some or all of the family food. Fathers often influence mothers' food selection, preparation, and feeding practices, particularly when the child is ill.
- *Mothers-in-law* and *mothers' mothers* may have significant control over family practices and decisions.
- *Policy makers* need to understand the health impact of undernutrition and program interventions if they are to be expected to provide essential resources for programs.

- *Health workers* may be a primary source of information and support on child feeding issues and are often the ones who will carry out a new program.
- *Community groups and leaders* and *other development workers* can support a variety of program interventions.
- *Storekeepers* and *street vendors* promote and sell foods and may be considered a source of information on child feeding.

Fill in Part D of Worksheet 4.1.

Not all participants will be included in each research method, but if a group's influence is important and needs to be strengthened or altered, it should be included in the program strategy. This means that it is important to include them in at least one step of the research, to learn their opinions, motivations, and resistances. Determining **whom** to talk to helps guide the decision about which methods to use, as shown in Box 4.2.

Choose Age Groupings of Children

- **What age groupings reflect transitions in feeding practices?**
- **What age groups have nutritional problems?**

Choose the appropriate age groupings for children on the basis of what is known about infant feeding patterns and the patterns and prevalence of undernutrition by age.

Suggested age groupings are:

- Zero to less than six months (when exclusive breastfeeding is recommended);
- Six to less than nine months (a period of high risk for infection and malnutrition, when infants begin to need complementary foods);
- Nine to less than 12 months (when children are introduced to a greater variety of foods);
- 12 to less than 18 months (when children are able to walk and often are considered ready for a transition to the family diet);
- 18 to less than 24 months (when children need even greater quantities of nutrient-dense foods because breastfeeding is decreasing); and
- 24–36 months (when nutrient needs and morbidity may be high, but children often are left to feed themselves with minimal adult supervision).

The age groups may be divided differently to reflect culturally relevant practices. For example, if there is a local ceremony at 10 months to mark a milestone in children's lives, this may be a more appropriate break point than the nine months cut-off suggested above.

It may be possible to narrow the overall age range or reduce the number of groups, depending on the local situation and the scope of the program. For example:

- If the prevalence of undernutrition is no longer increasing in the third year of life, no major transitions in child feeding occur during this period, and rates of illness are not changing, it is not necessary to include children over two years.
- If other research indicates that feeding practices do not vary much between the first and second half of the second year of life, those two age groups can be combined to form one group.

Choose the age groupings that are most appropriate to the research questions and the local culture, and fill in Part E of Worksheet 4.1. These age groups guide the *sampling* of households.¹

Develop the Research Plan

Decisions on whom to talk to (Worksheet 4.1) are now combined with decisions on the kind of research required (i.e., exploratory, TIPS, and/or checking). With this information, it is possible to draft a research plan frame that outlines the types of participants to select for each research phase. Examples of research plans for exploratory research and TIPS are provided in Worksheets 4.2 and 4.3, and blank worksheets are in Appendix A.

If the research plan includes **exploratory research**, fill in Worksheet 4.2 using your notes on Worksheet 4.1.

- Write the selected population segments and units in the top row.
- List the types of units under each segment.
- In the first column list the categories of people who will be interviewed or included in groups. General headings are provided, but this does not mean that all of these types of people must be included. For example, the exploratory research may be done only with fathers and health workers because there is enough information on mothers' practices to go directly to TIPS.
- In the second column fill in the method selected. There will be blank spaces in the plan because not all types of participants or methods are included in every segment.

For TIPS fill in Worksheet 4.3, using notes from Worksheet 4.1.

- Write the population segments and units across the top of the blank research plan.
- List the age groups selected for the trials in the first column.
- If there are any additional selection criteria, write the age group more than once and specify the other criteria in the second column. For example, a study may include well-nourished and undernourished children in each age group. In this case, the age 0–5 months is specified on the first two lines of column 1, and well-nourished and undernourished are specified on lines 1 and 2, respectively, of column 2.

¹ The results may be analyzed by grouping the children differently, if new information emerges to indicate that other age cut-off points are more informative.

- **In the second column fill in the method selected. There will be blank spaces in the plan because not all types of participants or methods are included in every segment.**

For TIPs fill in Worksheet 4.3, using notes from Worksheet 4.1.

- **Write the population segments and units across the top of the blank research plan.**
- **List the age groups selected for the trials in the first column.**
- **If there are any additional selection criteria, write the age group more than once and specify the other criteria in the second column. For example, a study may include well-nourished and undernourished children in each age group. In this case, the age 0–5 months is specified on the first two lines of column 1, and well-nourished and undernourished are specified on lines 1 and 2, respectively, of column 2.**

Choose the Research Sites

Next, identify the actual sites where the research will be conducted, based on the population segments and types of units chosen earlier. Select the specific villages, neighborhoods, or zones that are included, using the guidelines in Box 4.5.

BOX 4.5: SELECTING RESEARCH SITES

- Selection takes place at several levels.
- The sites should be representative of the program area in terms of socio-economic status, access to health care and other services, food availability, and other characteristics that are likely to affect the recommendations or the way the program will be delivered.
- Select two or three sites that are representative of each population segment.
- If necessary, the findings in these sites can be confirmed in other sites, using some of the checking methods discussed in Phase 2.

If a listing of suitable population units (such as cities, census zones, etc.) is available, sites may be selected randomly. But, because qualitative research includes a small number of sites and a small sample, purposive sampling is often best for this research.

Purposive sampling means choosing a site on purpose because it has characteristics representative of the population that a program aims to serve (see Box 4.5). It does *not* mean choosing a site just because it is convenient for the research team. If you do not have enough information to select sites based on specific characteristics, it is better to select sites randomly. Visiting potential sites to assess their suitability is very useful at this stage. Site selection is an important step; choosing inappropriate sites can bias the research findings.

Choose the Sample Size

The sample size is the number of people or households selected to participate in the research. There are no definitive rules for calculating sample sizes in qualitative research, but including at least two or three individuals per participant category in each population unit is recommended. For TIPs, the sample should include 10 to 15 children from each site, or two to three children in each age group per site. If there is another characteristic of particular interest, such as whether children are growing well or are ill, the sample size is increased.

Using these estimates, determine the number of participants needed within each site to ensure that the major age groups and relevant characteristics are covered adequately. General points about sampling are noted in Box 4.6.

BOX 4.6: NOTES ON THE SAMPLE SIZE

- Although research sites may be selected purposively, individuals in those sites should be selected randomly.
- A purposive sample is chosen to represent the characteristics of interest in the research and program. Because the sample is not random, it is not representative in the statistical sense. It is not valid to apply statistical tests to results based on a purposive sample.
- Decisions about sample size must be taken in light of time and budgetary constraints.
- Because there is no statistical process for calculating the sample size, during the research the team may decide *not to interview* the entire sample, if interviews after a certain point stop yielding new and useful information.
- Alternatively, the team may decide to *add interviews* of a certain type of respondent on the basis of early findings.

On Worksheets 4.2 and 4.3 fill in the planned sample sizes in each cell—i.e., the numbers of respondents to include for each category and each population segment.

It is not necessary to prepare a detailed research plan for the checking methods at this point because the types of participants, sites, and methods will depend on the findings of the TIPs. A draft framework that lists the anticipated topics for checking research may be helpful.

Finally, add up the sample sizes for each column in the research plan and examine the total sample size for TIPs. Evaluate whether the design and sample sizes are feasible within the time and resources available. If reductions in the number of sites or types of participants are required, it is better to make these revisions at the beginning of the process to minimize the impact of collecting information from fewer participants. Try to streamline the research plan by considering the rationale for each method, topic, and population segment and eliminating methods, topics, or segments that are not essential to program design and implementation.

Worksheet 4.2: Sample Research Plan for Exploratory Research

Participants	Methods	Population Segments			
		A. Highland, urban	B. Highland, rural	C. Lowland, urban	D. Lowland, rural
		Population Units 1. low income neighborhood 2.	Population Units 1. local government area (scattered homesteads) 2.	Population Units 1. shanty town 2. low income neighborhood	Population Units 1. villages 2.
Mothers:					
working at home	recipe trials	1 group	2 groups	1 group	2 groups
working outside home	interviews	10	not applicable	10	not applicable
Other family members:					
fathers	FGDs	2 groups	2 groups	1 (thought to be similar)	1
mothers-in-law	FGDs	not applicable	2	not applicable	2
Health care providers:					
health workers	interviews	5	(none available)	5	3
TBAs	interviews		3		3
Other influential community members:					
Totals:					