Chapter 6: Ration Design

Program Design Steps

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Key Concepts

In This Chapter

Ration design in an HIV context will be similar to typical food assistance programming ration design. However, as this chapter outlines, there are several primary challenges and key considerations that will influence ration design in an HIV context, including factors that make the objectives of the use of food, appropriateness of commodities and determinants of the size of the ration different.

The chapter then outlines the key steps for ration design in the HIV context. Again, the steps themselves will be familiar to food assistance program managers, but the outcomes of these steps may be different due to HIV-related factors. It is important to remember that ration design is part of the larger process of program design and must focus on achieving the program's objectives. As with all food assistance programming, there must first be a determination that food is needed and is an appropriate response.

The chapter ends with a brief discussion of special issues that food assistance program managers may find relevant, including the use of ready-to-use therapeutic food (RUTF), breast milk substitutes and specialized food products in the HIV context.

6.1 Key Concept

Challenges and Considerations for Ration Design in an HIV Context

This section reviews a number of primary challenges and key considerations that can help guide ration design in the HIV context.

Primary Challenges to Ration Design

Limits of food assistance. Outside of the emergency context, food assistance and supplementary feeding rations are not intended to meet 100 percent of an individual's nutrient needs. Accordingly, there is no nutritionally complete food available through non-emergency food assistance programs. In most food assistance programs implemented in the context of HIV, rations are intended to be supplemented by food that the household accesses through other means.

Commodity and resource constraints. Program budget constraints may require difficult decisions when determining rations. In some cases programs may face trade-offs between reaching fewer beneficiaries with larger, more complete rations and reaching more beneficiaries with smaller rations. There are no hard and fast rules about this. Programs should base their decisions on the objectives for providing the ration and how best to meet the program objective.

Key Considerations for Ration Design

Determining food insecurity. Food assistance must be based on determination of food insecurity, even in the HIV context. Not all HIV-infected and -affected individuals and households are food-insecure. Therefore, indicators of food insecurity must also be used in designing rations for beneficiaries in the HIV context.

Objectives of food assistance in the HIV context. In some cases, the objectives of food distribution will be different in the HIV context than in a non-HIV context. For example, in a non-HIV context, the objective of food distribution may be to improve targeted groups' nutritional status. But in an HIV context, the objective may be simply to maintain chronically ill individuals' nutritional status or delay a decline in their nutritional status.

Lack of a universal "HIV ration." Ration design in the HIV context is based on determining such factors as the nutrient gap, the objectives of food support, the purpose of the ration, the most appropriate commodities available and the ability of beneficiaries to process, prepare and consume particular commodities.

Appropriateness of commodities. Due to HIV's symptoms, side-effects and how it constrains caregivers' time, some commodities may be more appropriate than others in the HIV context. Commodities that are processed, fortified, and easy to prepare and consume should be prioritized for PLHIV and their households.

Nutrient recommendations for PLHIV. While current evidence shows that PLHIV have an increased need for energy, data are insufficient to recommend an increase in protein, fat or micronutrient requirements due to HIV infection. Thus, protein should continue to provide 10 percent to 15 percent of daily energy intake, fat should provide at least 17 percent of energy intake, and micronutrients should be consumed at recommended daily allowance (RDA) levels.[1]

Staple food consumption. Any increase in PLHIV energy requirements should be derived from a balanced diet rather than from just an increase in staple foods. Because diets in

poor households around the world are dominated by starchy foods, it is very important to consider providing pulses and oils in household rations and/or fortified commodities, in addition to a reasonable cereal component.

Food distribution. When selecting the composition, size, and packaging of rations, program managers should consider the logistics of distributing the rations. Distribution factors include transport of commodities to sites that may be in remote rural areas, storage capacity at sites, distribution processes to beneficiaries, transport of commodities by beneficiaries to their homes or preparation requirements for wet feeding. The feasibility and costs of these factors will differ for different ration packages, so programs should consider what is manageable given their resources and contexts (see **Chapter 9: Operational Modalities** for more information on this topic).

Ration sharing. Individuals who receive take-home rations (THRs) may share them with other household members, diluting the rations' benefits. Programs should consider this when determining ration size. Programs also could try to reduce ration sharing by choosing commodities that are more likely to be associated with specific beneficiary groups (e.g., chronically ill individuals or children or pregnant women) or offering counseling and education about the ration's importance to the targeted population.

Behavior change communication. In the HIV context, behavior change communication (BCC) and nutrition counseling can help beneficiaries manage symptoms, side effects and food-drug interactions, and make the most of the ration and other foods.

6.2 Key Concept

Key Steps for Ration Design in an HIV Context

In many ways, designing rations in an HIV context is similar to designing rations for typical food assistance programs. Both involve a multi-step process that takes several factors into consideration. Key Concept 6.2 focuses on the eight key steps that are different in an HIV context:

1. Review the vulnerability assessment data.
2. Determine program objectives and the ration's role.
3. Consider appropriateness of various commodities for the HIV context.
4. Determine the ration's size.
5. Determine the ration's duration.
6. Design the ration.
7. Monitor the ration's use.
8. Plan the exit strategy.

Step 1. Review the Vulnerability Assessment Data

Before providing food assistance, food assistance program managers should carefully assess the root causes of hunger and malnutrition. **Chapter 3: Vulnerability Assessments** highlights the type of information that can be collected to determine the causes and

characteristics of food insecurity and in turn help guide ration design. Assessment information useful for ration design includes:

- Extent and type of risks beneficiaries face
- Gender and generational considerations relative to food access and use
- Dependency ratios
- Seasonal patterns of malnutrition
- Food stocks and storage
- Months of self-provisioning in a normal year
- Nutritional status in children under five and in adults
- Consumption patterns and household dietary diversity (number of food items consumed, frequency of consumption)
- Food habits, preferences and acceptable food substitutes
- Availability of and access to milling facilities
- Food preparation practices
- Feeding, health, nutrition and sanitation practices

For example:

- If dependency ratios are uniformly higher than normal in a program area, programmers might increase the household ration size.
- If months of self-provisioning are low, this information can be used to calculate the average household caloric gap and provide information for determining ration size.
- If milling facilities are not widespread in the program area, a program may decide not to provide unprocessed, whole grains.

Special assessments may be warranted to collect information on sub-populations of interest, such as OVC.

Step 2. Determine Program Objectives and the Ration's Role

The use of food can have several objectives, such as preventing malnutrition in vulnerable target groups, rehabilitating malnourished individuals, improving participation in services or activities, and providing a safety net.

Table 1: Food Assistance Objectives and Ration's Role in the HIV context

Food Assistance Objective	Ration's Possible Role in the HIV Context
Maintain the nutritional well-being of HIV+ pregnant and lactating women	Nutritional supplement, incentive for regularly attending BCC and nutritional counseling at service delivery points
Improve adherence to ART	Support for managing drug side-effects, incentive for regular attendance at ART site
Provide a safety net for HIV-affected households	Contribution to household food supply, income transfer, protection of productive assets, reduction of adoption of risky livelihoods
Enhance livelihoods of older OVC through livelihood training	Coverage of opportunity costs for time spent in training, incentive to attend and complete training

Ration design in an HIV context will be influenced by program objectives and the ration's role in achieving these objectives. Table 1 on page 126 provides some examples of food assistance objectives in the HIV context and the ration's role in support of the objectives.

The objectives of food distribution in an HIV context may be different from those in a non-HIV context, and food assistance program managers need to consider the impact of HIV on possible achievement of program outcomes and impact. In the case of non-infected OVC, improving nutritional status remains a realistic objective. However, as already noted, for individuals who are chronically ill the objective may be simply to maintain nutritional status or to delay a decline in nutritional status.

When a ration's role is to maintain or improve targeted beneficiaries' nutritional status, the ration should include commodities that are high in nutritional value and appeal to the targeted groups. When the ration's objective is to increase or ensure participation in services or activities, commodities should be chosen for their incentive or monetary value as well as their nutritional value. In addition, the ration's value must be equal to or slightly greater than the opportunity cost of participating in the service or activity. When the ration is to act as a safety net, it must be designed to provide protection from the risks the program hopes to help beneficiaries avoid, such as offering enough value to prevent the sale of productive assets or risky lifestyle choices.

Step 3. Consider the Appropriateness of Various Commodities for the HIV Context

There are several key considerations that help determine if the ration meets beneficiary needs and program objectives in an HIV context, including:

Processing requirements. Programs should explore opportunities to provide fortified milled cereals as well as already-processed, fortified blended foods. Fortified milled cereals take less time and energy for PLHIV or their caregivers to prepare because processing cereals often requires long walks to milling facilities—if they are available at all—as well as the strength to pound the grain into flour.

Preparation requirements. To simplify meal preparation for caregivers, programs should consider food commodities that can be cooked easily and quickly with minimum water and fuel. Partially precooked commodities such as fortified blended foods like corn soy blend (CSB) and wheat soy blend (WSB), or ready-to-use foods are preferred choices.

Palatability and digestability. Palatability and digestability are extremely important, particularly when providing rations for chronically ill people and PLHIV, who may have reduced appetite, eating difficulties or gastrointestinal problems such as diarrhea, nausea and vomiting from infections or drug side effects. Rations should be designed to minimize discomfort or aggravation of these symptoms. Fortified milled cereals, adequately soaked/cooked pulses and fortified blended foods that can be made into porridges often are more palatable and easier to digest for sick persons, as well as small children or the elderly.[2]

Fortification. Micronutrients are critical for all people and are vital in fighting infection. PLHIV in particular can benefit from commodities fortified with micronutrients.

Acceptability. As in all food assistance programs, some commodities are more readily accepted by beneficiaries than others, which affects food use and consumption. Factors that can influence acceptability include traditional diet patterns, taste preferences and foods avoided for cultural or religious reasons. For example, commodities like CSB may have high accepability in some areas but may be considered "children's food" and rejected by adults in other areas.

Value. When the ration serves as an income transfer or incentive, the commodities must have an appropriate value in local markets. Foods with high values may be good for income transfers but are more likely to be sold rather than eaten by beneficiaries. These factors determine a ration's income transfer value:

- What does it cost the target population to participate in the program (e.g., transportation, daily lost wages, daily wage rate)?
- What is the value of other incentives that are offered (e.g., training, health services)?
- What is the value of the commodities to the participants?

Step 4. Determine the Ration's Size

In food assistance programming, ration size can be based on:

- A specific percentage of the energy and protein needs of an individual or household
- The value of an income transfer that serves as an incentive for participation in services/activities or a safety net
- The nutritional value of the meal that the ration is assumed to replace (e.g., lunch as a part of school feeding)

Two factors unique to the HIV context can be considered in determining the ration size:

Increased energy requirements of PLHIV. The WHO recommendations for the nutritional requirements of PLHIV (summarized in Table 2) call for increases in energy. The amount of this increase depends on whether the individual is an adult/adolescent or child, asymptomatic or symptomatic and experiencing weight loss or no weight loss.[3] While there is no definitive answer regarding the appropriate increase in energy intake for PLHIV, there is a strong rationale for increasing the energy intake for individuals in an advanced stage of the disease or those who require higher energy levels to support medical interventions (e.g., ART, TB treatment).

Higher dependency ratios or larger household size. In areas of high, long-term HIV prevalence, higher dependency ratios or larger household size might be the norm. Programs should consider increasing ration size for these households. Where higher dependency ratios and larger household size are not widespread, programs should determine if they can offer households a larger ration on a case-by-case basis.

Table 2: Adults, Adolescents and Children: Energy Adjustments for HIV Status

	HIV Positive Phase	Energy	Protein
Adults and Adolescents	Asymptomatic	10% increase	No change (12-15% of energy intake)
	Symptomatic	20%-30% increase	No change (12-15% of energy intake)
Children	Asymptomatic	10% increase	No change (12-15% of energy intake)
	Symptomatic with no weight loss	20%-30% increase	No change (12-15% of energy intake)
	Symptomatic with weight loss	50%-100% increase	No change (12-15% of energy intake)

Step 5. Determine the Ration's Duration

The optimal duration for providing rations is still a matter of debate and, to a certain extent, trial and error. As discussed in **Chapter 1: Conceptual Framework**, HIV-induced food security shocks differ from other shocks and cannot be addressed in the same way as droughts and other natural disasters. HIV's impact on community and household resiliency may be more severe and long lasting than other shocks, which can influence the duration of the rations. Therefore, monitoring household resiliency in the HIV context is essential for guiding decisions on the duration of a ration.

Table 3 provides examples of ration duration used by various food assistance programs. These are not recommendations; they simply illustrate the range of durations programs use for different objectives and populations.

Table 3: Examples of Duration of Ration by Beneficiary Type and Program

Beneficiary	Objective	Duration of Ration Provision
ART clients	Improved nutritional status Stabilization to begin ART Improved adherence Management of drug side-effects	Until client reaches a specific anthropometric target (e.g., BMI = 18.5) Limited timeframe (e.g., 6 months after beginning treatment)
TB clients	Improved adherence	Duration of treatment
HIV+ pregnant/ lactating women	Maintain or improve nutritional status Improve participation in PMTCT services Improve follow-up of mother-child pairs	From pregnancy through 6–24 months post-pregnancy
PLHIV	Improved nutritional status Improved quality of life Safety net	Until PLHIV reaches a specific anthropometric target (e.g., BMI = 18.5) Until indicators of food access improve ***or*** Limited timeframe, such as 6 months–2 years
Affected households	Safety net	Until indicators of food access improve ***or*** Limited timeframe, such as 6 months–2 years ***or*** Until death of infected household member ***or*** 6 months–2 years after death of infected household member
OVC	Safety net Incentive for participation in services (e.g. school, training)	Until the child becomes an adult or is no longer vulnerable Duration of service

Step 6. Design the Ration

The process of designing a ration for the HIV context should not be significantly different from standard ration design. Assessment information, clear objectives for the food assistance and an understanding of the target population's special characteristics will help determine the optimal combination of commodities, within the program's budgetary confines.

Step 7. Monitor the Ration's Use

Monitoring the ration's appropriateness and use is an important aspect of monitoring program inputs. This can help programs refine and improve ration distribution, ration composition and complementary interventions to maximize the ration's effectiveness.

During implementation, programs should collect information about how beneficiaries are using the rations, perceived acceptability and quality, beneficiary satisfaction with the food, intra-household distribution and extent of ration sharing. Such monitoring enables programs to assess if the ration was appropriately designed and can provide timely beneficiary feedback that is crucial to adjust and improve the ration's effectiveness. (See **Chapter 8: Monitoring and Evaluation** for an example of end-use monitoring (EUM), a monitoring tool related to ration use.)

Step 8. Plan the Exit Strategy

The goal of an exit strategy is to ensure that a program's impacts are sustained after the program ends. As noted in **Chapter 7: Implementation Strategies**, which discusses sustainability and exit strategies in detail, developing appropriate exit strategies may be more challenging for food assistance programs—including program food distribution components—than other kinds of programs and is likely to be further complicated in a context of high HIV prevalence.

Ensuring impacts that depend on the continued delivery of an input, such as rations, may be particularly challenging because of the need to identify a reliable source of that input or, in the case of incentives, an equally valuable input that will result in the continued use of services. In planning an exit strategy, programs should critically evaluate the need to continue providing food to accomplish program objectives.

Effective food security programming should reduce the need for external sources of food to achieve program objectives. Objectives related to improving or maintaining nutritional status or providing a safety net can be met through a combination of strengthened home food production, BCC, food storage and preparation practices, and income generation. Improvements in program services or in the services' benefits can sometimes provide enough of an incentive for participation that a ration is no longer needed.

Chapter 7: Implementation Strategies also includes a planning matrix that provides information on key questions, components and challenges that will help food assistance program managers think through the steps for planning an exit strategy related to food distribution.

Key Concept

6.3 Special Issues for Ration Design in an HIV Context

In an HIV context, programmers face several additional issues related to ration design, including:

Use of Ready-to-Use Therapeutic Food. RUTF is a specialized food product developed specifically for the nutritional rehabilitation of malnourished individuals. It is typically nutrient-dense and can be eaten without any further preparation. Originally developed to support community-based therapeutic care for severely undernourished children, it is currently being used in Malawi and other countries for severely malnourished PLHIV, and its effectiveness as an adjunct to ART is being tested. One type of RUTF is spreads or pastes, such as Plumpy'nut® and its locally produced varieties. Since RUTF is sufficiently different in appearance, texture, taste and smell from regular household food, programs have successfully targeted it to vulnerable individuals as a special nutritional supplement. RUTF tends to be expensive, even when locally produced, so it is especially important to carefully consider its role and to target it effectively.

Use of breast milk substitutes. While some PMTCT programs supported by WFP may provide infant formula, WFP does not. WFP's policy is based on concerns that acceptable, feasible, affordable, sustainable and safe (AFASS) conditions (see **Chapter 10: Health and Nutrition**) for safe replacement feeding do not exist among the populations supported by WFP, the high cost of infant formula and WFP's Memoranda of Understanding with UNICEF and UNHCR for emergency settings, which place the responsibility for providing formula with those agencies. Breast milk substitutes also are not available as a FFP commodity for Title II programs.

Specialized food products. Specialized food products refer to cooked, partially cooked and uncooked blended foods that are enriched or fortified with nutrients and used for either supplementary feeding or therapeutic feeding, or as an incentive for participation in services or activities. The products can take the form of bars, flours, beverages, powders or pastes. A number of food aid commodities, such as CSB and WSB are considered specialized food products, as are locally manufactured food products like e'pap, Likuni Phala, SOSOMA, Medika Mamba and Foundation. A number of these products are being promoted specifically for PLHIV or immuno-suppressed clients. Information on nutrient content and product use may be available from the product label or advertising, from the manufacturer, or from a regulatory agency on file for public review. To evaluate manufacturer nutrient content or health claims, programs should check with government regulatory agencies or with WHO/FAO.

Annex 1: Additional Resources for Ration Design

NutriSurvey. A modeling tool that can be used to determine appropriate population-level rations available at www.nutrisurvey.de/lp/lp.htm.

Rogers, Beatrice Lorge & Macias, Kathy E. (2004) ***Program Graduation and Exit Strategies: A Focus on Title II Food Aid Development Programs*** available at www.fantaproject.org/publications/tn9.shtml.

United Nations High Commissioner for Refugees (UNHCR), United Nations Children's Fund (UNICEF), World Food Programme (WFP) and World Health Organization (WHO). (2003) ***Food and Nutrition Needs in Emergencies*** available at http://whqlibdoc.who.int/hq/2004/a83743.pdf.

United Nations High Commissioner for Refugees (UNHCR) and World Food Programme (WFP). (1999) ***Guidelines for Selective Feeding in Emergencies*** available at www.unsystem.org/SCN/archives/rnis26/ch7.htm.

USAID's Office of Food for Peace. "Commodities Reference Guide (CRG): Sections 1-4," January 2006 version available at www.usaid.gov/our_work/humanitarian_assistance/ffp/crg.

USAID's Office of Food for Peace. "Commodity Reference Guide (CRG): Part Two: Guidelines for Selecting Food Aid Commodities: An Overview," January 2006 version available at www.usaid.gov/our_work/humanitarian_assistance/ffp/crg/overview.html.

World Health Organization (WHO) and Food and Agriculture Organization of the United Nations (FAO). (2002) ***Living Well with HIV/AIDS: A Manual on Nutritional Care and Support for People Living with HIV/AIDS*** available at ftp://ftp.fao.org/docrep/fao/005/y4168E/y4168E00.pdf.

Endnotes

1 World Health Organization (WHO). ***Nutrient Requirements for People Living with HIV/AIDS: Report of a Technical Consultation***. Geneva: WHO, 2003.

2 USAID Office of Food for Peace. "Commodity Reference Guide, Section I: Commodities," available electronically at http://www.usaid.gov/our_work/humanitarian_assistance/ffp/crg/ (accessed January 2007).

3 WHO, ***Nutrient Requirements***.