CHAPTER 8: FOOD AND NUTRITION

List of contents

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Need

In an emergency refugees will need partial or complete food support. Some may need nutritional rehabilitation.

Aim

To provide the refugees with sufficient quantities of appropriate food to maintain their health and where necessary to improve the condition of those who are already malnourished.

Principles of response

- ☐ Measures to meet food needs should be appropriate and standardized, with responsibilities clearly defined, and the overall co-ordination ensured by a single organization.
- ☐ Specialist nutritional advice should be available.
- ☐ Whenever possible use familiar foods that meet nutritional needs and maintain sound traditional food habits.
- ☐ Organize food distribution to allow families to prepare their own meals if possible.
- ☐ Pay particular attention to infant feeding and the needs of children and others vulnerable to malnutrition.
- ☐ Maintain close co-ordination with the health and other community services.

Action

- ☐ Assess the health and nutritional status and food needs as soon as possible.
- ☐ Ensure the availability of appropriate food and the necessary transport, storage, cooking fuel and utensils.
- ☐ Organize a general feeding programme for all refugees and additional selective feeding programmes to meet the extra needs of the vulnerable and/or malnourished if necessary.
- ☐ Monitor the effectiveness of the feeding programme(s).

8.1 Introduction

1. In an emergency refugees may be completely dependent on external food sources. Their numbers and condition must be assessed as soon as possible. The types of programmes needed will be determined by this initial assessment. Continuous monitoring of nutritional status will ensure the emphasis between programmes is adjusted to reflect changing conditions.

2. Co-ordination of the feeding programme(s) with the health and other community services is essential.

3. Assistance must be appropriate to the nutritional needs of the refugees and culturally acceptable. Foods prepared locally with local ingredients are preferable to imported special foods. Infant feeding policies require particular attention.

4. Certain groups are more vulnerable to malnutrition than others. These include infants, children, pregnant and lactating women, the sick and the elderly. Special action is required to identify the malnourished and vulnerable and meet their additional needs. Where the refugees have already suffered a prolonged food shortage, many will be malnourished by the time of the first assessment of their condition and needs.

5. If the refugees are already suffering the effects of severe food shortage, immediate action must be taken to provide whatever food is available locally and acceptable to the refugees. The first priority is to meet energy, rather than protein requirements. The supply of a bulk cereal is the first objective of the general feeding programme. If insufficient acceptable food is available locally, it must be brought in from outside, initially by air if necessary. Flexibility and improvisation will be required, and time may be needed to develop the full response set out in this chapter.

6. A summary of basic facts about food and nutrition is given at the end of this chapter together with a brief description of protein-energy malnutrition. Particularly where there is malnutrition, this chapter should be read in conjunction with "The Management of Nutritional Emergencies in Large Populations" (WHO).

8.2 Organization of food support

- ☐ WFP should be closely involved in meeting food needs.
- ☐ Co-ordination and a clear definition of responsibilities are essential.
- ☐ A single organization must have overall responsibility for all aspects of food support.
- ☐ Most refugee emergencies warrant the early appointment of an experienced nutrition specialist as the feeding programme co-ordinator.
- ☐ The refugees must be involved in the organization and management of their feeding programmes.
- ☐ Simple nutrition education is a part of effective food support.
- ☐ Special arrangements may be needed to provide cooking fuel and utensils.

Role of the World Food Programme (WFP)

1. WFP has special responsibility for food within the UN system and WFP's procedures specifically recognize refugee emergencies as qualifying for assistance. It is important to note, however, that WFP food aid does not provide all components of a complete general ration. The UNDP Resident Representative acts as WFP Representa-

tive, but WFP has its own professional field staff in many countries. If necessary, WFP will consider sending a field officer on mission. The advice of the local WFP field staff should be sought from the start of an emergency.

2. WFP has certain resources in food and cash to meet emergency food needs, and is also prepared to undertake procurement and shipping with funds made available by UNHCR. Swift action must be taken to ensure that the additional food items which will be required but are not available through WFP are also procured and delivered. Use of WFP resources in a refugee emergency requires a government request to the Director-General of FAO, and the latter's approval of an emergency project on the advice of the Executive Director of WFP. Pending or in the absence of a government request, the practical role of WFP will be little changed, but different procedures and funding arrangements will be necessary. Details of UNHCR/WFP emergency procedures are given in Part 2.

Responsibilities and personnel

3. UNHCR and WFP staff, together with the national authorities, the operational partner(s) and other organizations, must be clear on responsibilities for assessing and meeting the food needs. Close co-ordination with bilateral donors is essential. Offers of inappropriate food should be refused.

4. Subject to the role of the government and any special arrangements, UNHCR will have overall responsibility for the emergency operation. Thus UNHCR's initial planning must cover all food needs, including those items of the general ration which will not be provided by WFP. Depending on sources of supply and implementing arrangements, UNHCR may entrust specific practical arrangements to WFP. However, every effort should be made to avoid dividing the overall responsibility: a single person must be responsible for co-ordinating the provision of all food supplies.

5. In most emergencies the appointment of a feeding programme co-ordinator will be warranted. This is likely to be a separate responsibility to that for food logistics outlined in the previous paragraph. The co-ordinator would be responsible for the establishment of appropriate standard procedures, the co-ordination of feeding programmes, the monitoring and evaluation of their effectiveness and ensuring close co-ordination with the health and other community services. The co-ordinator should be a nutrition specialist with current experience in nutritional emergencies and local knowledge if possible. A co-ordinator will be particularly necessary in situations where non-specialist organizations and individuals have no alternative but to involve themselves in feeding operations. If initially there is not a nutrition specialist to assign to this position, the acting co-ordinator should seek immediate professional guidance from government nutritionists, or from within the local UN (WHO, WFP or UNICEF) and NGO community.

Role of the refugees and nutrition education

6. The refugees must be involved from the start in the organization and management of the feeding programmes. Special training will be necessary for selected refugees.

7. The provision of simple nutrition education for the refugees is important when unfamiliar foods or new methods of cooking and preparation cannot be avoided and have to be introduced to the refugees. This should be organized in conjunction with other health education activities to provide guidance on proper infant feeding, feeding sick children, treatment of diarrhoea, basic food hygiene and the preparation of available foods for maximum nutritional benefit.

Organization of response

8. Sound organization and planning are the key to success. The logistical arrangements must ensure the delivery of sufficient food in time. Adequate secure storage must be provided and the food must be protected against insects, rodents and rain damage both in the store and in the home. The necessary cooking pots and utensils must be available.1/ The distribution system must be fair and effective. (See ch.12.6).

9. Particular attention must be paid to the provision of cooking fuel. This is often a major problem and failure to provide fuel can quickly lead to destruction of the vegetation in and around the site causing lasting damage to the environment and friction with the local population. Special arrangements may thus be necessary to supply cooking fuel. As a rough indication, a family cooking on a simple wood stove requires some 5kg of wood per day. It may be possible to utilize local technology to modify existing types of wood or charcoal burning stoves in order to make them more fuel efficient. In some areas solar cooking equipment may be an appropriate solution at least for communal needs; a number of simple devices are now being developed. Advice should be sought on this from local experts, and through Headquarters if necessary.

8.3 Assessment and surveillance

/ / The first requirement is a knowledge of the numbers, nutritional status and former diet of the refugees.

/ / This assessment should, if possible, be the responsibility of an experienced nutrition specialist.

/ / Arrangements will be necessary both to monitor the nutritional status of the community and identify individuals who need special food relief.

1. An initial assessment of the health and nutritional status of the refugees should be made as soon as possible. Preferably this should be done by a nutrition specialist; however if one is not immediately available, field staff should carry out a preliminary survey of their own. Guidance on how to do this is given in annex 1. The amount of malnutrition must be established as this has important implications for what form the emergency response will take. Other basic information which will be required to formulate a food aid plan includes the number of refugees, their age/sex breakdown, their present access to food supplies, cooking fuel and utensils. In addition information must be gathered on traditional food and cooking habits, and the local availability of suitable food.

2. This information will enable the field and Headquarters to take early decisions on the components of the rations, total amounts needed, the logistical support necessary and on the requirement for any additional selective feeding programmes. Figure 8-1 on page 101 gives an indication of the considerations.

3. The initial assessment should be followed by regular nutritional

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1/ Special kits have been developed by Oxfam to help set up selective feeding programmes. The kits may be useful at the start, pending local supply arrangements, and can be provided through Headquarters at short notice. Kit 1 contains equipment for nutritional surveillance and assessment. Kit 2 provides equipment to cover supplementary feeding of 250 children. Unless otherwise requested, Kit 2 is also supplied with equipment identical to Kit 1. Kit 3 provides equipment to cover therapeutic feeding of up to 100 severely malnourished children. The kits do not contain cookers.

surveillance under specialist supervision to monitor the condition of the population as a whole and the individual progress of the vulnerable and the malnourished. In an emergency a high child mortality rate is very often associated with high levels of malnutrition and this is therefore an important statistic to record in health/nutrition surveillance programmes.

4. Nutritional surveillance of the population as a whole should be done by weighing and measuring a random sample of the child population at regular intervals. In times of food shortage young children are the first to show signs of malnutrition and are the most severely affected. For this reason it is usually a random sample of children less than 5 years of age (or less than 115cm tall) who are measured regularly in a surveillance programme. Their condition is used as an indicator of the amount and degree of malnutrition in the population as a whole. For a refugee population of under 10,000 a random sample of 200 children will provide a reasonably accurate estimate of overall child malnutrition. For a population of 10,000-20,000, a sample size of at least 400 is required. Initially such surveys should be made every two months. When conditions have stabilized once every 3-6 months is sufficient. Any change or trend in nutritional status can thus be detected and adjustments made in the relevant feeding programmes.

5. Where conditions and/or results of the initial assessment indicate a need for supplementary or therapeutic feeding, individuals will need to be identified and registered for these programmes. Their individual progress should then be monitored through more frequent weighing at the feeding centres.

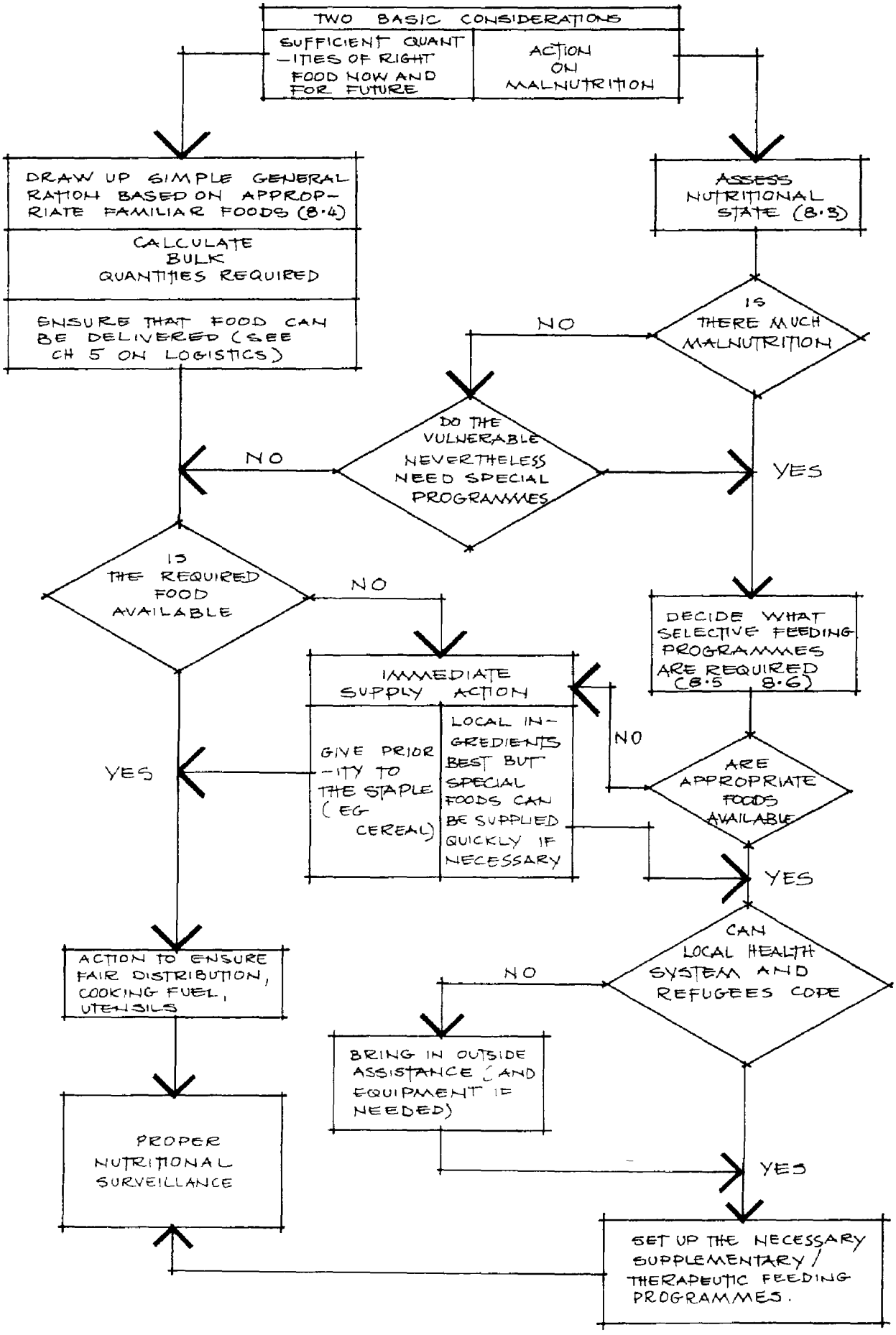
6. Thus nutritional surveillance takes two forms: first, monitoring the effectiveness of the food provided to the whole community (the general feeding programme) by measuring a random sample of children; second, monitoring the progress of vulnerable individuals and thereby the need for or effectiveness of selective feeding programmes.

7. Malnutrition can be recognized by clinical signs (see the descriptions on page 111 of marasmus, kwashiorkor and marasmic-kwashiorkor) and by body measurements. Measurements are required for objective assessment of nutritional status and for purposes of comparison with regular surveillance data. The weight-for-height method expressed as a percentage of a reference standard is the most sensitive indicator of acute malnutrition and is preferred for nutritional surveillance and for measuring individual progress in emergencies. Children of less than 80% weight-for-height[2/] are classified as malnourished and those of less than 70% weight-for-height as severely malnourished. For rapid screening of the young child population the less sensitive arm circumference measurement described in annex 1 can be used.

8.4 General feeding programme

/7 Every effort should be made to provide familiar foodstuffs and maintain traditional food habits.

2/ Percentages are those of the WHO International Standard



8-1 RESPONSE TO FOOD AND NUTRITIONAL NEEDS

☐ Average rations must provide the following amounts of energy: at least 1500 Kcal (6.3 MJ)[3] for initial survival and over 2000 Kcal (8.4 MJ) for longer term maintenance.

☐ The diet must satisfy protein and basic vitamin requirements.

☐ Pay particular attention to locally prevalent nutrient deficiencies.

1. Every effort should be made to provide familiar foodstuffs and maintain sound traditional food habits. Expert advice on the ration is essential and should take full account of local availability. Staple foodstuffs should not be changed simply because unfamiliar substitutes are readily available. Inappropriate foods often lead to wastage and malnutrition, and lower the morale of the refugees.

2. The amount and quality of food provided must satisfy energy and protein requirements. A survival ration should provide at least 1500 Kcal, while over 2000 Kcal (and 50g of protein) are required for longer-term maintenance. Active adults may require considerably higher energy intakes. Although there is a marked difference between the needs of a young child and an active adult it is strongly recommended that a standard ration is provided for each refugee without distinction. A typical daily ration to provide sufficient calories and protein would be built around:

- a staple food which provides the bulk of the energy and protein requirement, e.g. cereal 350-400g
- an energy-rich food, e.g. oil 20-40g
- a protein-rich food, e.g. beans 50g

Other items such as vegetables, sugar, spices, condiments, fruits, and tea, should be provided according to cultural and nutritional needs. However absolute priority must be given to the staple food. A few items and assured delivery are better than a complex ration, some of which fails to arrive. Advice on the logistical aspects of food supply, in terms of amounts to be moved, is contained in chapter 5.

3. Essential vitamin and mineral requirements must also be met: a varied diet is the best means of doing so. Where adequate quantities of certain nutrients cannot be provided in the diet, the inclusion of seasonally available vegetables will usually prevent vitamin and mineral deficiencies arising. Whenever possible the refugees should be encouraged to grow appropriate varieties of vegetables themselves. Local food markets within the settlement should be encouraged. Particular attention must be paid to any locally prevalent deficiencies and efforts made to include food items which are rich in the missing nutrients. The distribution of multivitamin tablets to the entire refugee population is a waste of time and money, since they contain insufficient quantities of individual vitamins to correct deficiences.

4. Two deficiencies are commonly seen among refugees: vitamin A deficiency and anaemia. Vitamin A deficiency in malnourished populations, especially in children, leads to blindness. Anaemia, which

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[3] Energy values are expressed in the thermochemical kilocalorie. However, as a scientific unit this has been superseded by the megajoule (MJ). 1000 Kcal = 4.184 MJ; 1 MJ = 239 Kcal.

is commonly associated with parasitic diseases or an insufficient intake of iron and folate, can lead to cardiac failure and death in the most severe cases. Both conditions can be prevented by a proper diet.

5. The need for a fair, efficient and regular ration distribution cannot be over-emphasized. An accurate census is needed and a monitoring system must be established to ensure that the food is actually reaching every refugee as intended. Disruption, diversion and corruption will inevitably lead to widespread discontent and suffering.

6. There are two main types of distribution: dry ration and cooked meals. Whichever is used, it is important to ensure that those doing the distribution have exact instructions on the size of the rations and are seen to follow them. If scales are not available or not a convenient way of measuring out food then cans or containers should be provided whose weight/volume comparison is known for each commodity.

7. The distribution of food as pre-packed rations is an unsatisfactory solution and is to be avoided.

Dry ration distribution (take home)

8. This method has major advantages over cooked food distribution. It allows families to prepare their food as they wish, permits them to continue to eat together as a unit and is generally more culturally and socially acceptable.

9. Distribution is usually made at weekly intervals. Where an accurate census is available and families have food distribution cards, some form of delegated family or group distribution is possible, but in the initial stages the best way to guarantee a fair distribution may be to have every individual present. For a discussion of ration cards see ch.12.6.

10. In addition to cooking pots, fuel and utensils, the refugees must have containers and sacks to protect and store their food rations. Oil tins and grain bags will be useful, and contracts with suppliers, at least for initial deliveries, should not require their return.

Cooked food distribution

11. This requires centralized kitchens with adequate utensils, water and fuel (although obviously less than the amounts required for family cooking), and trained, healthy personnel. The refugees usually sit together in a feeding compound, although in some circumstances families can carry the cooked food to their accommodation. At least two meals must be served each day and the efficient organization of cooked food distribution for large numbers is difficult. Every effort should be made to avoid having to resort to mass cooked food distribution for the general ration. Such distribution may, however, occasionally be necessary in the initial stages, for example, pending the availability of sufficient cooking utensils and fuel. It may also, although rarely, be preferred by the refugees.

Monitoring the general feeding programme

12. A general feeding programme matching the standards elaborated in 8.4 is the minimum necessary to maintain a good nutritional status in a healthy population. Its effectiveness must be closely monitored through the surveillance programme. The quality and the quantity of the rations should be regularly discussed with the refugees. Where there are complaints, these should be investigated. Proper arrangements must be made for the inspection of food supplied by contractors.

8.5 Supplementary feeding programmes

- In addition to the general feeding programme, extra food may be required for the malnourished or to prevent malnutrition.
- The programme must actively identify those who need supplementary food and ensure they receive it.
- The aim is to provide at least one high energy, high protein, low bulk extra meal daily.

The need

1. Where malnutrition exists or the needs of the vulnerable groups cannot be met from the general ration, special arrangements are required to provide extra food. This is organized through a supplementary feeding programme (SFP). Infants, children, pregnant and lactating women and the sick are the most seriously affected by food shortage. Their vulnerability stems from the greater nutrient requirements associated with growth, the production of breast milk, repair of tissues and production of antibodies. Because children are unable to eat a large volume of food, it is necessary both to prepare food in a concentrated form, giving more nutrients in less volume, and also to provide more frequent meals. Malnutrition results in lower resistance to infection, which in turn results in further malnutrition. Small children are particularly susceptible to this cycle of infection and malnutrition. Sick children must eat and drink, even if they have no appetite, are vomiting or have diarrhoea. They must receive additional food whenever possible.

2. Certain other groups or individuals may be vulnerable to malnutrition for social or economic reasons. These include unaccompanied children, the disabled, single-parent families, and perhaps the elderly, particularly those without family support. In some communities specific social or cultural practices and taboos may put constraints on meeting the nutritional needs of certain persons, for example pregnant and lactating women or even sick children.

3. Where the refugees are predominantly women and children, it may be impossible (or unnecessary) to provide this whole group with supplementary food. Under such circumstances it is better to adjust the general ration to the needs of the majority, for example by increasing the overall protein content. Supplementary feeding programmes are an increasingly common feature in refugee emergencies; however, they may not always be the most effective response. Table 8-2 outlines general considerations when deciding on the need for such a programme.

Aim and content

4. The aim is to provide extra high energy, high protein, low bulk meals, once or twice a day to those who need it. The number of meals depends on the nutritional status of the population, the nutritional value of the general ration and the age of the beneficiaries. The size of the supplement also depends on the nutritional status of the beneficiaries: but at least 350 Kcal and 15g protein per day should be provided.

5. Supplementary meals should be prepared as porridge or soup which are easily digestible and can be eaten by people of all ages. The food is generally based on cereal and legume blends with edible oil added to increase the energy content. Other ingredients can be added to give additional nutrients and variety of flavour (e.g. sugar, vegetables, fish, milk). There are some prepacked cereal/legume blended supplementary foods available through UN agencies (e.g. CSM, corn-soya-milk; WSB,

8-2 Indicators of likely need for a supplementary feeding programme

<table>
<tr><th>Major indicator (1)</th><th>Other factors</th><th>Type of SFP</th></tr>
<tr><td>General ration averaging less than 1500 Kcal/person/day</td><td rowspan="2">None</td><td rowspan="4">For all vulnerable groups (see 8.5.1 and 2) if resources allow, as soon as possible</td></tr>
<tr><td>over 20% children malnourished</td></tr>
<tr><td rowspan="4">10-20% children malnourished</td><td>General ration averaging less than 2,000 Kcal/person/day</td></tr>
<tr><td>Severe public health hazards</td></tr>
<tr><td>Significant diseases (esp. measles) prevalent or imminent</td></tr>
<tr><td>None</td><td rowspan="2">Selective within vulnerable groups: at least for all mal-malnourished. See 8.5.8.</td></tr>
<tr><td rowspan="2">5-10% children malnourished</td><td>Any of above</td></tr>
<tr><td>None</td><td rowspan="2">No SFP: individual attention to malnourished. (Whatever the other factors, available resources are probably better used correcting/minimizing them)</td></tr>
<tr><td>under 5% children malnourished</td><td>Any of above</td></tr>
</table>

(1) Percentages are of children under 5 years old under 80% weight-for-height.

wheat-soya-blend). These may be useful at the start of an emergency feeding programme if the ingredients are familiar to the refugees. However, local foods should be substituted as quickly as possible and prepared in a more traditional and appropriate way.

Admission and discharge

6. The supplementary feeding programme must be based on the active identification and follow up of those considered vulnerable. This requires a regular house-by-house or family-by-family assessment, usually made by public health workers operating a referral system. As well as encouraging those in need to participate in the supplementary feeding programme and ascertaining the reasons for non-participation, continued home-visiting is required to monitor the progress of infants

8

and children. Those identified for the programme should be registered and issued with a numbered identity bracelet or card to facilitate follow-up.

7. In practice, a supplementary feeding programme that does not actively identify those in need but simply operates on an open "come-if-you-wish" basis is most unlikely to benefit those in greatest need and is a very questionable use of food and organizational resources.

8. The criteria for admission to a supplementary feeding programme will depend on the condition of the refugees and the resources available. The order of priority within the vulnerable groups is, generally, any malnourished person (less than 80% weight-for-height - WHO International Standard), young children (less than five years old or 115cm in height), women during the last 3 months of pregnancy and the first 12 months of lactation, medical referrals and the socially vulnerable. Should restrictive selection be necessary because of lack of resources this will in part change the nature of the programme from preventive to curative.

9. The amount of food required for supplementary feeding is likely to be about 3MT per 1,000 beneficiaries per month. Table 8-3 below shows how this estimate was arrived at.

10. Children should not be discharged from supplementary feeding until they have been more than 85% weight-for-height for at least one month.

11. Once begun, supplementary feeding must be considered necessary until such time as an appropriate general ration is provided that meets the needs of the vulnerable, and as long as living conditions remain hazardous. It is a mistake to discontinue supplementary feeding as soon as the nutritional status of vulnerable individuals or groups starts to improve. The programme should not be discontinued until the surveillance results reflect sustained improvement and not more than 5% of the children remain malnourished.

Organization

12. An effective programme requires the regular attendance of all those registered. The identification of those in need is a prerequisite, to be followed by careful control of attendance and progress. Trained staff should weigh and measure children on admission to the SFP and reweigh regularly, preferably monthly, thereafter to monitor individual progress.

13. As for general rations, the supplementary feeding programme may be organized either using the 'take home' or 'on-the-spot'

8-3 Supplementary food quantities

Typical daily ration				Monthly amount for 1000 in MT (Daily amount x 30 x 1000)
Item	Amount (g)	Energy (Kcal)	Protein (g)	
cereal	60	210	6	1.8
oil	10	90	-	0.3
DSM	25	90	9	0.75
Sugar	5	20	-	0.15
	100	410	15	3.0

method. Both require careful registration and control. The take home system is relatively simple to administer but the supplement is likely to be shared within the family. On-the-spot supplementary feeding is the preferred method. Supervision is improved, the intended beneficiary is seen to eat the correct amount of food and follow-up is easier as those in need are seen more often and under more controlled conditions.

14. Any supplementary feeding programme must be closely integrated with the community health care programme. The supplementary feeding programme will give the opportunity for health problems to be identified. Certain daily medications may best be given in the course of the supplementary feeding programme, for example iron and folate preparations for anaemia.

15. Feeding centres and kitchens must be well organized and kept clean. Long waiting periods must be avoided and the schedule must not clash with family meal times or other essential community activities. Parents must be made to understand that the supplementary feeding programme is given in addition to normal meals. Utensils, bowls, scales and other equipment will be required and can generally be obtained locally. (See 8.2.8)

16. One supplementary feeding centre can usually handle up to 500 beneficiaries. The centres should be run by trained refugees: an experienced nurse should be able to supervise 4 or 5 centres. Where different organizations establish their own supplementary (or therapeutic, see 8.6) feeding programmes it is most important that these are appropriate to the needs, centrally co-ordinated, and procedures standardized. The health guidelines described in ch.7.2.18 should cover selective feeding programmes. See pages 92 and 93 for examples of standard reports. The programmes must avoid such a dependence on outside assistance that they collapse when individuals or organizations leave.

8.6 Therapeutic feeding programme

- ☐ A therapeutic programme may be needed to save the lives of severely malnourished children.
- ☐ Treatment of the severely malnourished requires medical supervision.
- ☐ The treatment consists of food of high energy and protein content given according to the individual's nutritional requirements.

1. Therapeutic feeding (TFP) is required to reduce deaths among infants and young children with severe protein-energy malnutrition (PEM). The forms of PEM are described in section 9. If severe PEM exists, therapeutic feeding will initially be a priority to save lives. However, if introduction of supplementary feeding is delayed because resources, particularly trained personnel, are concentrated on therapeutic feeding, there may quite quickly be such a deterioration in other less malnourished children that the life-saving achievements of a therapeutic programme will be overtaken by the life-threatening consequences of not having an adequately functioning supplementary programme, benefiting many more people.

2. Food is the treatment for PEM. Unlike supplementary feeding, therapeutic feeding is solely a curative measure and thus in theory a short-term programme. The need for its continuation will depend on the effectiveness of the general and supplementary feeding programmes and the nutritional condition of any new arrivals.

3. The usual criteria for admission to a therapeutic feeding programme are oedema (kwashiorkor), or severe marasmus (weight-for-height less than 70%). Patients

should remain on therapeutic feeding until they are free from illness; at least 80% of weight-for-height and without oedema. On recovery patients would be discharged to the supplementary feeding programme.

4. Therapeutic feeding should take place on an in-patient basis whenever possible, as food must be given every 3-4 hours. Infection and dehydration are the major causes of death and patients must be closely watched for medical complications. If weight does not increase quickly on a properly run TFP, the explanation is likely to be that the individual also has an illness which must be treated. The immunization of young children against measles is a priority because of the high mortality associated with this disease in a malnourished population.

5. A therapeutic feeding programme must be run by experienced and suitably qualified personnel. One centre can usually handle about 50 children and will require two experienced supervisors full-time. It should be noted that most doctors and nurses have little training in nutrition or experience in treating severe PEM. They must therefore be given the necessary guidance. The refugees and particularly the mothers of patients must be involved in running the therapeutic feeding centre.

6. In addition to a suitable building and services, the centre will require a kitchen and the necessary utensils and equipment, which can usually be obtained locally (see 8.2.8). Treatment is a diet which provides at least 150 Kcal and 3-4g of protein per kilo body weight per day for each patient, via 5-7 meals at 3-4 hourly intervals throughout the 24 hours. Boiled water mixed with a dried skimmed milk/oil/sugar mixture, or with a UNICEF K Mix II/ oil mixture, can be used to initiate treatment. A mixed diet is introduced once the patient's condition starts to improve (usually after 4-5 days).

8.7 Infant feeding and milk products

- ☐ Breast-feeding is best for babies and must be promoted and continued for as long as possible.
- ☐ Ban baby bottles completely.
- ☐ Weaning foods must be appropriate; foreign baby foods and special foods often are not.
- ☐ Infant formulae should be avoided, and never used except under strictly controlled conditions, with a cup and spoon.
- ☐ Milk products and especially powdered milk can cause problems and are often inappropriate.

1. The vital importance of correct infant feeding in an emergency must be understood.

2. Human milk is the best and safest food for infants and children under 2 years. Breast-feeding provides a secure and hygienic source of food, often initially the only source of food, as well as antibodies giving protection against some infectious diseases. Breast-feeding must be encouraged for as long as possible. Every effort must be made to promote or restimulate lactation even among sick and malnourished mothers. Experience has shown that this can be done. Mothers may need to receive extra food to encourage breast-feeding and provide the additional calories and nutrients required. This should be done through the SFP.

3. The problems associated with infant formulae and feeding bottles are exacerbated in a refugee emergency. Clean boiled water is essential but rarely available, careful dilution of the feeds is of critical importance but difficult to control, mothers are unlikely to be familiar with the use

of infant formulae, and the instructions are often in a foreign language. Infant formulae, if unavoidable, should be distributed from health or feeding centres under strictly controlled conditions and proper supervision. Infant feeding bottles must never be distributed or used; they are almost impossible to sterilize and keep sterile under such conditions and are therefore dangerous. Babies should be fed by clean cup and spoon if necessary.

4. While continuing breast-feeding, appropriate weaning foods should be introduced at between four and six months of age. Weaning foods should be locally available foodstuffs and as far as possible be prepared in the traditional manner. Overseas donations of tinned baby foods are rarely appropriate.

Other milk products

5. Some populations have long considered milk as an ideal food, while others rarely consume it in either its natural or powdered form, and may even have a lactose (milk sugar) intolerance. Milk should not be distributed if it is not a traditional part of the refugees' diet.

6. Major practical problems are often associated with milk powder. Both proper hygiene and proper dilution will be difficult to ensure, and contaminated milk, for example because of unsafe water or exposure to dust and flies, provides an ideal environment for bacterial growth. For these reasons, milk should not form part of the general ration, except as a possible source of protein for refugees with a nomadic background whose main food was previously milk and meat; meat is likely to be difficult to supply in an emergency.

7. In addition to infant formula, the products commonly offered in emergencies include dried whole milk (DWM), dried skimmed milk (DSM), sweetened and unsweetened condensed milk and evaporated milk. Their appropriateness must be ascertained before acceptance. It should be noted that if used, DSM must be vitamin A fortified (when it will have a shelf-life of six months).

8. Milk products are useful in supplementary and therapeutic feeding programmes, administered under supervision. For example, milk can be added to SFP cereal mixtures to boost the protein content. Milk powder is the usual basis for early stages of treatment in therapeutic feeding. Whenever used it is imperative that the milk be correctly prepared and served under controlled and hygienic conditions. Instruction and guidance must be given.

8.8 Provision of the necessary food

- ☐ Logistical aspects must be considered from the start.
- ☐ All possible local sources of the appropriate food must be explored before resorting to overseas supply.

1. This section assumes that the refugees have no food supplies of their own. Considerations relating to the choice of the ration and the importance of familiar foodstuffs that meet the nutritional needs and maintain sound traditional food habits have been covered in earlier sections. Details of UNHCR/WFP procedures for emergency food supply are given in Part 2.

Logistics and storage

2. Adequate logistics will be the key to a successful emergency operation, and food will be the major item to be transported. Logistical considerations are thus very important and sometimes determining. Particular attention must be paid to proper storage, protection against both the elements and pests, and losses through theft. Effective stock

control will be essential. Considerable reserve stocks may be necessary. Guidance on logistics, including a guide to calculating probable total amounts to be moved, is given in chapter 5.

Sources of supply

3. Sources of food will be determined by local circumstances, which the ration selected will naturally reflect. The timely provision of a complete ration may require a combination of the following sources:

(1) Borrowing from national stocks, WFP stocks on hand in the country (direct WFP stocks or those available to WFP under reciprocal drawing rights) or stocks of other donor organizations on hand in the country;

(2) Purchase on the local market or from neighbouring countries;

(3) Overseas supply, either as a result of diversion of WFP or other stocks already at sea, or overseas procurement, or through contributions in kind;

(4) Bilateral donors, including NGOs.

4. In cases of extreme urgency, it may be necessary for Headquarters to make interim arrangements for the supply of appropriate essential food by air, but every effort must be made to find acceptable local supplies first. Air transport is unsuitable for large quantities of the appropriate staple foods, while the processed foods usually airlifted are often inappropriate to the traditional food habits of the refugees.

8.9 Basic facts about food and nutrition [4/]

Nutrients

1. All foods are made up of five basic types of nutrient: carbohydrates, fats, proteins, vitamins, and minerals, in addition to variable amounts of water. Carbohydrates are mostly starches and sugars of vegetable origin, being, for example, a major component of cereals and tubers. They are a source of energy. Fats and oils provide the most concentrated source of energy, having more than twice the energy content per weight of carbohydrates and proteins. In most poor countries, most of the energy is derived from the staple foods, especially cereals, fats accounting for a much smaller proportion. Proteins are body-building substances required for growth and tissue repair. Protein is found in foods of animal origin and in cereals and legumes. Vitamins and minerals are needed in small quantities for the adequate functioning of the body. Individual vitamins and minerals or combinations are found in all foods in very variable amounts.

Energy and protein intakes

2. If the energy intake is inadequate, some protein will be burnt to provide energy and not used for body growth or repair, that is, it will be used in the same ways as carbohydrate or fat, which are usually less expensive. Not less than 20% of the energy requirement should be supplied from fats and oils which greatly enhance the palatability of the diet and increase energy density (important for younger children). Energy requirements vary widely even in normal individuals. They are also increased by physical activity. Much higher intakes are

4/ Adapted from "The Management of Nutritional Emergencies in Large Populations".

required for the treatment of malnutrition, when the aim is rehabilitation rather than maintenance.

Food and diets

3. Most diets in most countries [5/] contain adequate amounts of all the nutrients required for good health if enough of the diet is taken to satisfy the individual's energy requirements. Even a growing child, if healthy, requires no more than 10% of the calories to be supplied from protein sources. The commonly used foods are listed in table 8-4 overleaf.

Protein-energy malnutrition (PEM)

4. PEM is a problem in many developing countries, even in normal times. Most commonly it affects children between the ages of six months and five years (especially at the time of weaning). Severe PEM is usually precipitated by low food intake associated with infection. Refugees are particularly vulnerable and UNHCR staff should be able to recognize severe PEM, which has three forms, described below. See also annex 1.

5. Nutritional marasmus results from prolonged starvation. The main sign is a severe wasting away of fat and muscle, which have been expended to provide energy. The child is very thin and may have an "old man" face and loose folds of skin. The children affected may, however, appear relatively active and alert. This is the most frequent form of PEM in cases of prolonged food shortage.

6. Kwashiorkor is seen most commonly in areas where the staple food is mainly carbohydrate, for example tubers and roots like cassava, but it is precipitated by many factors other than protein deficiency. The main sign of kwashiorkor is oedema, that is a swelling usually starting at the lower extremities and extending in more advanced cases to the arms and face. Oedema must be present for the diagnosis of kwashiorkor but can also occur in other diseases. Where there is gross oedema, the child may look "fat" and be regarded by the parents as well-fed. Associated signs of kwashiorkor, which do not always occur, include hair changes (colour becomes lighter, curly hair becomes straight, comes out easily with a gentle pull) and skin changes (dark skin may become lighter in places, the skin may peel off, especially on the legs, and ulceration may occur). Children with kwashiorkor are usually apathetic, miserable and withdrawn and often refuse to eat. Profound anaemia is a common complication of kwashiorkor.

7. Marasmic kwashiorkor is a mixed form, with oedema occuring in children who are otherwise marasmic and who may or may not have the other associated signs of kwashiorkor. In practice, mixed forms will often be seen.

5/ Appendix 7 of "A Guide to Food and Health Relief Operations for Disasters" gives information on the major foods and acceptable alternatives in adult diets in over 100 countries.

8-4 Characteristics of common foods

	Food type	Approx. energy per 100g	Approx. protein per 100g	Vitamins and minerals	Comments
1.	Cereal grains (rice, corn, sorghum, oats etc.)	350 Kcal	8-12g	Contain vitamin B and iron. However these reduced by milling, i.e. the whiter the flour the greater the loss of vitamins.	The main source of both energy and protein in most diets.
2.	Legumes/oilseeds (beans, peas, soya, groundnuts etc.)	350/500-700 Kcals Provides energy in a a compact form but relatively expensive and requires careful storage.	20-25g some beans can be up to 40% protein e.g. soya	B complex vitamins. Most contain significant quantities of iron and calcium.	Legumes are particularly useful when eaten with cereals as the proteins complement each other.
3.	Whole tubers and roots (yams, taro, cassava, sweet potato, potato etc.)	75-110 Kcals. In flour form contain 300-350 Kcals.	Very low in protein	Variable but generally low.	Bulk and low protein content makes them unsuitable as staple foods in emergencies.
4.	Vegetables and fruits	Low in energy	Low in protein	Important source of vitamins. Variable quantities of B and C vitamins. Dark green leaves or yellow/red pigmentation usually indicates vitamin A compounds.	

5.	Meat, milk and dairy products, eggs, etc.	150-550 Kcals depending on fat content	Generally in range 10-20g except for liquid milks 3-6g	Good sources of B vitamins. Whole milk and eggs also good source of vitamin A. Milk and eggs provide significant amounts of calcium.	Usually consumed in very small quantities in normal times. They are more readily utilized by the body than proteins of vegetable origin. Therefore small quantities useful to improve the quality and palatability of diet.
6.	Fish, dried	300 Kcals	63g	Rich source of calcium and iron. Contains B vitamins.	A concentrated source of protein for those who like it. Therefore acceptability trials essential before use.
7.	Fats and oils	900 Kcals i.e. the most concentrated energy source	nil	Rich source of Vitamin A, except for lard, other animal fats and vegetable oils.	Useful way to increase energy intake without increasing bulk of diet. Improves palatability and helps in food preparation.

Further references (1)

Cameron M. Hofvander Y. (1976)	Manual on Feeding Infants and Young Children Third edition expected in 1983 (Also in French and Spanish)	Protein-Calorie Advisory Group of the UN FAO 2nd edition
Centers for Disease Control (1981) (Graitcer P.L.)	A Manual for the Basic Assessment of Nutritional Status in Potential Crisis Situations Provisional edition, revision expected in 1983.	US Public Health Service
Peel S. (1979)	Selective Feeding Procedures A simple guide for those running feeding programmes. Revised edition expected in 1983.	Oxfam
Rajagopalan S. Shiffman M. (1974)	Guide to Simple Sanitary Measures for the Control of Enteric Diseases Contains a section on food sanitation. (Also in Arabic, French and Spanish)	WHO
Simmonds S. Vaughan P. Gunn S. W. (1983)	Refugee Community Health Care Comprehensive guidance on planning, management and delivery of refugee health services	Oxford University Press
Simmonds S. Gabaudan M. (1982)	Refugee Camp Health Care: Selected Annotated References A companion to above	Ross Institute Publication No.14
UN (1977)	A Guide to Food and Health Relief Operations for Disasters. (Also in French and Spanish)	Protein-Calorie Advisory Group of the UN
de Ville de Goyet C. Seaman J., Geijer U. (1978)	The Management of Nutritional Emergencies in Large Populations Essential reading. (Also in French and Spanish)	WHO
WHO (1981)	Guidelines for Training Community Health Workers in Nutrition (Also in French)	WHO offset publication No.59
WHO (1981)	The Treatment and Management of Severe Protein-Energy Malnutrition (Also in French and Spanish)	WHO

(1) See also the further references at the end of chapter 7, only some of which are repeated here.

Rapid assessment of the nutritional status of young children using the arm circumference method

Explanation of the principle

1. The arm circumference technique is suitable for a rapid assessment of the nutritional status of young children. It measures a part of the arm whose circumference does not normally change significantly between the ages of one and five, but which wastes rapidly with malnutrition. The technique is not suitable for monitoring the progress of individual children.

2. If professional help is available it should of course be used but this assessment can be done by those with no previous nutritional experience provided the guidelines below are followed. The technique thus allows any UNHCR field officer to provide an objective assessment and hard facts rather than be limited to subjective reporting. This in turn allows a much more effective response.

Selection of the children

3. If the refugee population is 10,000 or less a random sample of not less than 200 children aged between one and five years should be chosen. This can be done on a house to house basis or by assembling all the children at one site and measuring, for example, every fifth child. If a "cluster" sample method is used (e.g. sampling in different sections of a large settlement) not less than 30 children per cluster should be measured to allow a comparison between sections. Take care that the adults do not just produce sick children in the belief that the test is to be followed by medical attention; this will distort the result. A quick but crude way of ascertaining that children are approximately within the age range of one to five years is to check they have more than six teeth but are less than 115cm in height. For most people this would mean the children come up to about waist height.

4. The assessment must be put in context: information about where the children come from and when they arrived should be obtained and reported, as the condition of this particular group may not reflect that of the whole caseload.

8

The measurement

5. If custom-made measuring tapes (possible sources ICRC and Headquarters) are not available, take a thin strip of plastic of about 30cm in length and mark off clearly a zero point, then 12.0cm and 13.5cm.

6. Before measuring any child check for the presence of oedema (the swelling seen in kwashiorkor) by pressing a finger against the front of the child's foot for about 3 seconds. If a dent ('pitting') is seen the child has oedema and should not be measured but marked down as having oedema and being severely malnourished. (See the suggested report form on the next page.)

7. If there is no oedema, the circumference of the child's left upper arm should then be measured at the midway point. The tape should be wrapped closely (but <u>not</u> tightly) around the left arm midway between the elbow and the point of the shoulder. The arm should be hanging loosely.

The results

8. Classification of nutritional status can be made as seen on the attached form. The amount and degree of malnutrition can be calculated as percentages of the sample.

NUTRITIONAL SURVEY REPORT FORM

Arm circumference method

District ..... Site ..... Date .....

Total refugee population at site .....

Total number of children from whom random sample taken ..... Method of sampling .....

Surveyor's name/Organization .....

Satisfactory (A)	Malnutrition (B)	Severe Malnutrition (C)	
More than 13.5cm (approximately equivalent to over 80% weight-for-height)	12.0-13.5cm (approximately equivalent to 70%-79% weight-for-height)	Less than 12cm (approx. equivalent to under 70% weight-for-height)	Oedema
(Record numbers only. As this is for statistical purposes there is no need to keep any other details on those measured)			

Total sample = A + B + C =

% Malnutrition = $\frac{(B + C) \times 100}{A + B + C}$ =

% Severe Malnutrition $\frac{C \times 100}{A + B + C}$ =

of which % Kwashiorkor = $\frac{\text{Oedema} \times 100}{C}$ =

Observations .....

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