GUIDELINES
FOR SELECTIVE FEEDING

THE MANAGEMENT OF MALNUTRITION IN EMERGENCIES

May 2009

With the collaboration of the United Nations Standing Committee on Nutrition and the World Health Organization

Funded by the Global Nutrition Cluster

CONTENTS

BOXES

FIGURES

TABLES

PHOTOS

ACRONYMS

ACF	Action Contre la Faim
AED	Academy for Educational Development
AFASS	Affordable, Feasible, Acceptable, Sustainable and Safe
AWG	Assessment Working Group/Global Nutrition Cluster
BMI	Body Mass Index
BMS	Breastmilk Substitute
CAP	Consolidated Appeal Process
CDC	Centre for Disease Control and Prevention
CDWG	Capacity Development Working Group/Global Nutrition Cluster
CHW	Community Health Worker
CIDA	Canadian International Development Agency
CIHD	Centre for International Health and Development
CMAM	Community-Based Management of Acute Malnutrition
CMR	Crude Mortality Rate
Concern WW	Concern Worldwide
CORE	Child Survival Collaboration and Resources
CSB	Corn Soya Blend
CTC	Community Therapeutic Care
DOTS	Directly Observed Therapy Short-Course
DSM	Dried Skim Milk
EB	Executive Board
ECHO	European Commission's Humanitarian Aid Office
EFSA	Emergency Food Security Assessment
ENA	Emergency Nutrition Assessment
ENN	Emergency Nutrition Network
ERC	Emergency Relief Coordinator
ETKA	Erythrocyte Transketolase Activity
FANTA	Food and Nutrition Technical Assistance
FAO	Food and Agriculture Organization
FBF	Fortified Blended Food
GAM	Global Acute Malnutrition
GFD	General Food Distribution
HFA	Height-for-Age
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
HKI	Helen Keller International
HPN	Humanitarian Practice Network
HTP	Harmonized Training Package
IASC	Interagency Standing Committee
IBFAN	International Baby-Food Action Network
ICCIDD	International Council for the Control of Iodine Deficiency Disorders
IDA	Iron Deficiency Anaemia
IDD	Iodine Deficiency Disorders
IDP	Internally Displaced Persons
IFE	Infant and Young Feeding in Emergencies
IFRC	International Federation of Red Cross and Red Crescent Societies
IMC	International Medical Corps

IRC	International Rescue Committee
IRD	International Relief and Development
ITN	Insecticide Treated Mosquito Net
IYCF	Infant and Young Child Feeding
LNS	Lipid Based Nutrient Supplements
LSHTM	London School of Hygiene and Tropical Medicine
MAM	Moderate Acute Malnutrition
MAMI	Management of Acute Malnutrition in Infants
MGRS	Multi-centre Growth Reference Study
MI	Micronutrient Initiative
MNs	Micronutrient Deficiencies
MOU	Memorandum of Understanding
MSF	Médecins Sans Frontières
MTCT	Mother-to-Child-Transmission
MUAC	Mid-Upper Arm Circumference
NCHS	National Centre for Health Statistics
NFI	Non Food Items
NGO	Non-Governmental Organization
NRC	Nutrition Rehabilitation Centre
NRU	Nutrition Rehabilitation Unit
OCHA	Office for the Coordination of Humanitarian Affairs
ODI	Overseas Development Institute
OFDA	Office of Foreign Disaster Assistance
PEM	Protein Energy Malnutrition
PMTCT	Prevention of Mother-to-Child-Transmission
PLWHA	People Living with HIV/AIDS
RDA	Recommended Daily Allowance
RDT	Rapid Diagnostic Test
RNI	Recommended Nutrient Intake
RUTF	Ready-to-Use Therapeutic Food
RUSF	Ready-to-Use Supplementary Food
SAM	Severe Acute Malnutrition
SD	Standard Deviation
SF	Supplementary Feeding
SFP	Supplementary Feeding Programme
SMART	Standardized Monitoring and Assessment of Relief and Transitions
TB	Tuberculosis
THR	Take Home Ration
TFC	Therapeutic Feeding Centre
TFP	Therapeutic Feeding Programme
TPPE	Thiamine Pyrophosphate Effect
U5	Under-Five Year Old Children
UCL	University College London
UN	United Nations
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNFPA	United Nations Population Fund
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UNSCN	United Nations System Standing Committee on Nutrition
USAID	United States Agency for International Development
USDA	United States Department of Agriculture

USG	Under-Secretary-General for Humanitarian Affairs
VAD	Vitamin A Deficiency
VALID	Valid International
WFH	Weight-for-Height
WFL	Weight-for-Length
WFP	World Food Programme
WHA	Weight-for-Age
WHO	World Health Organization

I. INTRODUCTION

1.1 Humanitarian Response Review: The Cluster Approach

The *ad hoc*, unpredictable nature of many international responses to humanitarian emergencies prompted the Emergency Relief Coordinator (ERC)[a] in 2005 to launch an independent Humanitarian Response Review of the global humanitarian system (Humanitarian Response Review 2005)[1].

Following the recommendations of the review, the cluster approach was proposed in order to achieve predictability and accountability in international responses to humanitarian emergencies, by clarifying the division of labour among organisations and better defining their roles and responsibilities within the different sectors of the response. **The Inter-Agency Standing Committee (IASC)** has designated global cluster leads in eleven areas of humanitarian activity[b]: Agriculture; Camp Coordination/Management; Early Recovery; Education; Emergency Shelter; Emergency Telecommunications; Health; Logistics; Nutrition; Protection; and Water, Sanitation and Hygiene (IASC Task Team on the Cluster Approach 2007; UN/Consolidated Appeal Process 2006)[2,3].

The Global Nutrition Cluster has launched several project agreements in order to actively address some of the identified gaps in nutrition in emergencies [Annex 1 Global Nutrition Cluster] (IASC 2007)[4]**.** One of these is the Revision of the "**1999 UNHCR/WFP Guidelines for Selective Feeding Programmes in Emergency Situations"**.[5]

1.2 Purpose and Scope of the Guidelines

This revised version is intended as a practical guide to design, implement, monitor and evaluate **selective feeding programmes** in **emergency** situations, namely to answer the following key questions:

- Which type and combination of selective feeding programmes are required?
- How should each be implemented?

The target audience includes:

- Nutrition experts
- Programme managers and decision-makers in the United Nations (UN) system
- Government officials within relevant ministries
- Donor agencies
- Non-Governmental Organizations (NGOs)

A wealth of technical and operational guidance material is available on various aspects of emergencies. The present guidelines will not deal with the wide range of vital issues to be addressed in emergency operations; information on emergency assessment, planning, implementation and management are dealt with in other manuals such as:

- Inter-Agency Contingency Planning Guidelines for Humanitarian Assistance (IASC 2007)[6]
- Handbook for Emergencies (UNHCR 2007)[7]
- Emergency Field Handbook - A Guide for UNICEF Staff (UNICEF 2005)[8]
- UNHCR/WFP Joint Assessment Guidelines (UNHCR/WFP 2004; 2009 edition forthcoming)[9]
- Emergency Field Operations Pocketbook (WFP 2002)[10]

---

[a] The Under-Secretary-General for Humanitarian Affairs and Emergency Relief Coordinator (USG/ERC) heads the Office for the Coordination of Humanitarian Affairs (OCHA). The ERC post was created by a UN resolution in 1991 to coordinate complex, man-made emergencies. The USG/ERC has responsibility for all aspects of the functioning of OCHA in New York, Geneva and the field and acts as the principal advisor to the Secretary-General on humanitarian affairs.

[b] Cluster Leads: Nutrition (UNICEF), Water/Sanitation (UNICEF), Health (WHO), Shelter-Conflict and IDPs (UNHCR), Camp Coordination (UNHCR) Logistics (WFP), Telecoms (OCHA/UNICEF/WFP), Early Recovery (UNDP), Agriculture (FAO) and Education (UNICEF).

- Humanitarian Charter and Minimum Standards in Disaster Response. (**Sphere Project** 2004)[11]

The structure and contents of these guidelines are based on the premise that a food security and nutrition assessment has been conducted and that information on the prevalence of malnutrition is available. Guidance on conducting food security and nutrition assessments in emergencies can be found in the following documents:

- A Manual: Measuring and Interpreting Malnutrition and Mortality (Centre for Disease Control and Prevention (CDC/WFP 2007)[12]
- Fact Sheet on Nutrition Surveys (UNHCR/CDC 2007)[13]
- Emergency Food Security Assessment Handbook- First Edition (WFP 2005)[14].
- Measuring Mortality, Nutritional Status and Food Security in Crisis Situations (**SMART** 2005)[15], **Standardized Monitoring and Assessment of Relief and Transitions (SMART) Software**, and **Emergency Nutrition Assessment (ENA for SMART) Software.**[16]

Guidance on infant and young child feeding in emergencies is available in:

- Operational Guidance on IFE for Relief Staff and Programme Managers (IFE Core Group 2007[17]

Guidance on community-based management of severe acute malnutrition is available in:

- Community-Based Therapeutic Care – A Field Manual (Valid 2006)[18]

Consensus has been reached in the international community on several issues relating to selective feeding programmes; however, there are still differences of opinion regarding some concepts and terminology. In these guidelines, efforts have been made to abide by the concepts and terminology used in IASC/Global Nutrition Cluster documents, namely:

- The Toolkit for Addressing Nutrition in Emergency Situations[19]
- Harmonized Training Materials Package (HTP) [20]

Any deviation from the IASC/Global Nutrition Cluster documents will be signalled and explained in boxes.

1.3 How to Use the Guidelines

These guidelines are available as a hard copy together with a CD-ROM which includes:

- An electronic version of the guidelines in both English and French.
- An annotated bibliography which provides an abstract for each document listed in the bibliography at the end of the guidelines, together with a web link to download the documents in various languages, as available. The annotated bibliography also includes additional reading material.

In the electronic version, chapters, sub-sections, annexes, boxes, figures and tables can be quickly reached in the "Contents" section by clicking "CTRL + click key" on the relevant title. Definitions of terms are provided in the glossary. Terms for which a definition is included in the glossary section are signalled by **bold and underlining** on their first appearance in the text. References listed in the bibliography section are signalled by: "(author year) superscript reference number" in the text and can be reached by a double click on the superscript reference number. Web links to download the documents are included in the bibliography when available. Cross-references whether to a chapter, sub-section, figure, table or a document in the bibliography are also indicated by brackets **[…]** which allows a direct link to the relevant cross-reference by clicking "CTRL + click key" on the text within the brackets. The title of tables and figures in the text are in blue and are enclosed in are brackets **[…]** which allow a direct link to the relevant table or figure.

II. ACUTE MALNUTRITION IN EMERGENCIES

2.1 Major Causes

All major emergencies, both natural and man-made, threaten human life. They often result in food shortages and impair the nutritional status of affected communities, in particular **infants**, children, adolescents, but also adult, especially pregnant and nursing women, and **older persons**. Malnutrition can be the most serious public health problem and may be a leading cause of death, whether directly or indirectly. Ensuring that the food and nutrition needs of disaster-stricken populations, refugees, or **Internally Displaced Persons (IDPs)** are adequately met is often the principal component of the humanitarian, logistic, management, and financial response to an emergency.

Access to food and the maintenance of adequate nutritional status are critical determinants of people's survival in a disaster. Micronutrient deficiencies can easily develop during an emergency or be made worse if they are already present. This happens because livelihoods and food crops may be lost; food supplies might be interrupted; there is an increased risk of diarrhoeal diseases, resulting in malabsorption and nutrient losses, and of infectious diseases, which suppress the appetite whilst increasing the need for micronutrients to help fight illness (WHO/WFP/UNICEF 2006)[21].

Food shortages, inadequate health care, poor sanitation and hygiene and inadequate care practices contribute significantly to mortality in the post-emergency period. In such periods, there is an escalation of communicable diseases and most notably the big five diseases that are most severe amongst children under five years of age, i.e. measles, diarrhoea, malaria, respiratory infections and malnutrition.

Both severe and moderate malnutrition must be reduced, as most of the mortality (in absolute numbers) is linked to moderate malnutrition (WHO/UNHCR/IFRC/WFP 2000)[22].

Broadly speaking there are four main categories of emergencies (WFP 2007, 2005)[23, 24]:

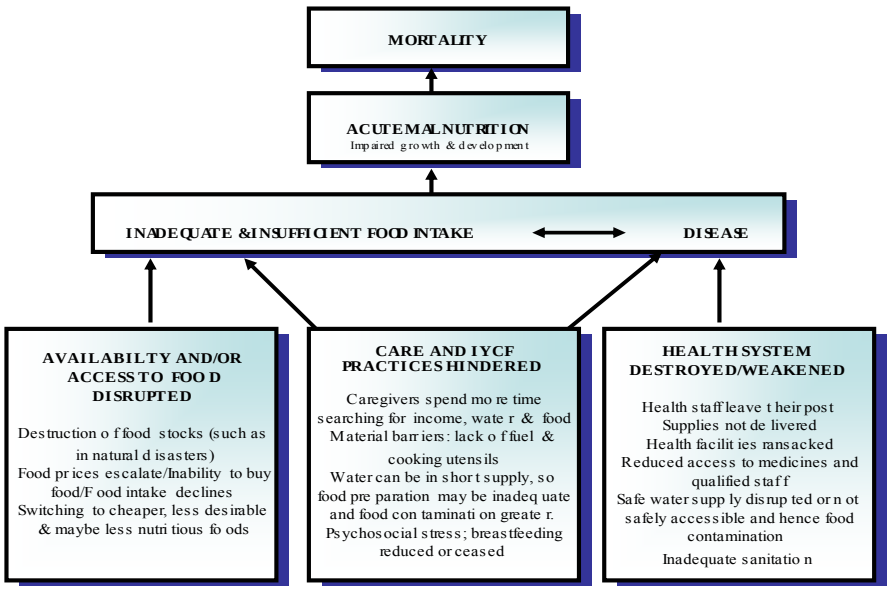
- **Sudden disasters** such as earthquakes, floods, locust infestations and similar unforeseen disasters.
- **Slow-onset crises** such as when drought, crop failure or a severe economic crisis erode livelihoods and undermine food supply systems, hence deteriorating vulnerable households' ability to meet their food needs.
- **Man-made emergencies** resulting in an influx of refugees, or the internal displacement of populations.
- **Complex emergencies**, a humanitarian crisis where a significant breakdown of authority has resulted from internal or external conflict, requiring an international response that extends beyond the mandate of one single agency. (OCHA 1999)[25].

The underlying causes of malnutrition can be grouped under the three broad categories:

- Food
- Care
- Health

These three causes are interrelated and actions/interventions affecting one area may have significant consequences on the other. For instance, when adequate food is provided, the negative impact of disruptions in health and care provision can be minimized. The present guidelines are primarily concerned with emergencies where availability of and/or access to food are the major causes of malnutrition and hence require the implementation of food assistance-based strategies. However, the protocols to be implemented in the case of selective feeding programmes to treat malnutrition hold true even in situations where food shortage is not the primary cause of malnutrition.

Figure 1 Underlying Causes of Malnutrition in Emergencies



FOOD

In emergencies, livelihood opportunities are often disrupted, thus affecting food availability and accessibility. Natural disasters like floods can destroy food stocks in the home, in warehouses and where crops are grown (land, water, forests and grazing ground). Displacement also affects food security especially in the initial stages before assistance can be provided. Even when there is abundant food available on the market, families may not be able to afford to buy the food and/or switch to cheaper and often less nutritious food, thus decreasing dietary diversity and exacerbating pre-existing micronutrient deficiencies. Some of the major famines in the world have been caused by market shocks which have resulted in an inability to buy food.

CARE

Care and **infant and young child feeding (IYCF)** practices, such as breastfeeding and **complementary feeding,** are often compromised in emergency situations (WHO 2004)[26]. The causes and magnitude of inadequate caring will vary depending on the nature of the emergency. Causes may include: a) stress and additional demands placed on caregivers; b) psycho-social care, time and resources allocated to the child are reduced as caregivers spend more time searching for income, water, and food; c) material barriers such as lack of fuel and cooking utensils; d) fear, stress and anxiety of caregivers and children; e) loss of community support structure; f) water can be in short supply, so food preparation may be inadequate and food contamination greater; and g) inappropriate interventions that undermine safe and appropriate feeding, such as untargeted distribution of milk products.

HEALTH

In emergencies, the delivery of health services can be negatively affected (e.g., disruption of routine health services, insufficient capacity, shortage of medical supplies, need for specialized services to save lives, damaged infrastructures, etc.). In such situations, the health environment often deteriorates rapidly and access to adequate clean water and sanitation may also be adversely affected. Displacement may lead to people having to live in camps and to overcrowding, encouraging infectious

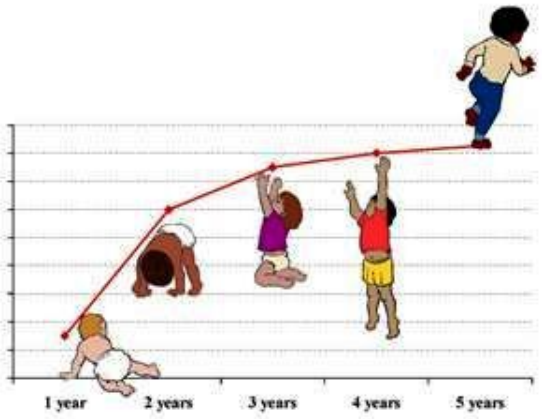
diseases to spread. In addition to this, the health of community members is affected by the quality of their shelter, cold or heat, and stress.

2.2 Assessment Using the New WHO Child Growth Standards

The new **WHO Child Growth Standards** were released in April 2006. These depict normal early childhood growth under optimal environmental conditions and can be used to assess children everywhere, regardless of ethnicity, socioeconomic status and type of feeding. Replacing the NCHS/WHO growth reference, based on children from a single country, with more universal standards based on a more diverse and international group of children, recognizes the fact that children everywhere grow similarly when their health and care needs are met (WHO 2006)[27]. The goal is for the majority of the countries using the NCHS/WHO reference to adopt the new standards by 2010.

Photo 1. WHO Child Growth Standards

http://www.who.int/childgrowth/en/



Since the release of the WHO standards in 2006, researchers have examined their operational implications, namely in terms of estimates of malnutrition rates among children 6-59 months of age and consequent resources needed for response (Myatt and Duffield 2007; Seal and Kerac 2007).[28, 29] Algorithms for converting estimates of child malnutrition based on the NCHS reference into estimates based on the WHO Child Growth Standards have been proposed (de Onis M *et al* 2006*;* Yang H and de Onis M 2008), allowing for comparability.[30, 31]

In June 2008, an Informal IASC Nutrition Cluster Consultation was organized to discuss the transitioning to the WHO Growth Standards in Emergency Nutrition Programmes (IASC 2008)[32]. Weight-for-height with a cut-off of -3 **z-score** for defining severe acute malnutrition, using the WHO standards, will select more children who have a high risk of death and who will benefit from treatment with therapeutic diets, compared to using the NCHS reference. Severely malnourished children will be identified earlier and therefore, receive treatment earlier in their disease course, which is likely to make it easier to reverse the damage of worsening nutrition status. Also fewer complicated cases requiring inpatient treatment are expected (IASC Nutrition Cluster and SCN 2009; WHO/UNICEF 2009)[33,34].

The meeting acknowledged that there are still several outstanding questions which need further investigations regarding the implications of WHO Growth Standards. However, participants agreed on key guiding principles in relation to therapeutic feeding admission and discharge criteria for children 6-59 months of age. These criteria are reflected in the following relevant sections and chapters (IASC Nutrition Cluster and SCN 2009) **[33]**.

2.3 Indicators

In emergencies, **acute malnutrition** in children aged 6 to 59 months is measured as it reflects recent changes in dietary intake and infection, and acts as a 'proxy' for the nutritional status of the entire population. This information is used to:

- Determine whether a response is needed and the nature of this response: general food distribution and/or selective feeding and/or other interventions.
- Identify target groups and geographical areas at greatest risk.

2.3.1 Children 6 to 59 Months of Age

The recommended indicators to assess acute malnutrition in emergency situations are:

- **Mid-Upper Arm Circumference (MUAC):** commonly used to initially screen children (6-59 months) for admission to feeding programmes, particularly in the acute phase of an emergency. It is simple to use, cheap and most acceptable to mothers. Although both the IASC HTP and Toolkit recommend using MUAC < 110 mm for **Severe Acute Malnutrition** (SAM), the IASC Nutrition Cluster Informal Consultation (IASC 2008) **[32]** recommended a revision of cut-off points to the following:
  - SAM: MUAC < 115 mm[c]
  - **Moderate Acute Malnutrition** (MAM): MUAC ≥ 115 and < 125 mm

Photo 2 Measuring MUAC

(WHO, WFP, UNSCN and UNICEF , 2007)[35]

- **Weight for height (WFH):** the nutritional index of most concern because it reflects recent conditions while young children are generally the most nutritionally vulnerable. It is widely used in nutrition surveys and as a selection criterion for selective feeding programmes. The 2006 WHO Child Growth Standards are recommended.

- **Bilateral pitting Oedema:** a clinical sign of severe acute malnutrition (individuals with oedema cannot always be perfectly anthropometrically assessed)[d]. A child is considered to have nutritional oedema if a depression (shallow print or pit) is left after normal thumb pressure is applied on both feet for 3 seconds.

2.3.2 Adults

There is no agreement for the measurement and interpretation of MUAC values in either children less than 6 months or in adults (IASC HTP 2008) **[**20**]**. However, MUAC has also been recommended for targeting intervention to pregnant women at risk of poor pregnancy outcome. The cut-off points given below are those typically used by international agencies.

- **Body Mass Index (BMI):** A measure of body fat based on height and weight. The classification of malnutrition in adults on the basis of BMI is summarized in **[**Table 1 Classification of Malnutrition in Adults based on BMI**]** (WHO 1999; UNSCN 2000)[36, 37].

[c] This is under consideration by WHO, and joint UN statement on admission and discharge criteria for management of SAM is in progress.

[d] Grade 1 (or +): Mild, both feet/ankles
Grade 2 (or ++): Moderate, both feet, plus lower legs, hands or lower arms
Grade 3 (or +++), Severe, generalized oedema including both feet, legs, hands, arms and face.

MUAC

- For pregnant women: various cut-off points are used by different agencies and NGOs. Until a consensus is reached, MUAC < 230 mm (moderate risk) is recommended as stated in the SPHERE standards (SPHERE 2004) **[11]**. Since a MUAC < 230 mm has been shown to carry a risk of growth retardation of the foetus, using this cut-off point for admission into feeding programmes would allow addressing the problem of malnutrition in both mother and foetus by contributing to an improved birth outcome. In practice, MUAC < 210 mm is often used in emergency interventions. The choice should be made according to proportions of women falling under each category of MUAC and available resources.

- For adults: the SCN publication "Adults: Assessment of Nutritional Status in Emergency-Affected Populations" (Collins *et al* 2000)[38] suggests that, for both sexes, the following cut-off points be used for screening adult admissions to feeding centres:
  - SAM: BMI < 16
  - MAM: BMI ≥ 16 and < 17

Table 1 Classification of Malnutrition in Adults based on BMI

BMI (kg/m^2)	Weight Status
≥ 25	Overweight
≥ 18.5	Normal weight
17.0-18.49	Mild **underweight**
16.0-16.99	Moderate underweight
< 16	Severe underweight

In 1995, a WHO Expert Committee which examined the relationship between BMI and MUAC in adults concluded that "MUAC is a reasonable predictor of BMI for the lowest and highest BMI categories" (WHO 1995)[39]. Based on the latter, and until new evidence is available, the following cut-off points proposed in the WHO Expert Consultation Report will be applied, namely:

- ***For men:***
  - SAM: MUAC < 224 mm
  - MAM: MUAC ≥ 224 mm and ≤ 231 mm
- ***For women:***
  - SAM: MUAC < 214 mm
  - MAM: MUAC ≥ 214 mm and ≤ 221 mm

2.4 Classification and Management of Acute Malnutrition

In several large-scale humanitarian crises in the 1990s, it became evident that facility-based **therapeutic feeding** of severe **wasting** and **kwashiorkor** faced major constraints, such as:

- Difficult access and consequent limited coverage.
- Cross infection and security risks.
- High opportunity costs to the carers, usually mothers, having to stay in centres for several weeks leaving their other children and family members at home and rendering them unable to engage in daily activities (Valid 2006) **[18]**.

In order to address these limitations, **Community Therapeutic Care (CTC)** was devised. The first pilot CTC programme was implemented out of necessity during the famine in Ethiopia in 2000 (Collins and Sadler 2002)[40]. The impact of the programme was positive, demonstrating that, for individual children, the clinical effectiveness of the outpatient therapeutic approach was equivalent to, or better than, that achieved in Therapeutic Feeding Centres (TFCs) for non-complicated cases. After a few years of implementing and

developing CTC, Valid International elaborated a guide to help health and nutrition managers to design, implement and evaluate CTC programmes (Valid 2006) **[18].**

> The community-based approach involves timely detection of severe acute malnutrition in the community and provision of treatment for those without medical complications with ready-to-use therapeutic foods (RUTF) or other nutrient-dense foods at home. If properly combined with a facility-based approach for those malnourished children with medical complications and implemented on a large scale, community-based management of severe acute malnutrition could prevent the deaths of hundreds of thousands of children. (WHO/UNICEF/UNSCN 2005)

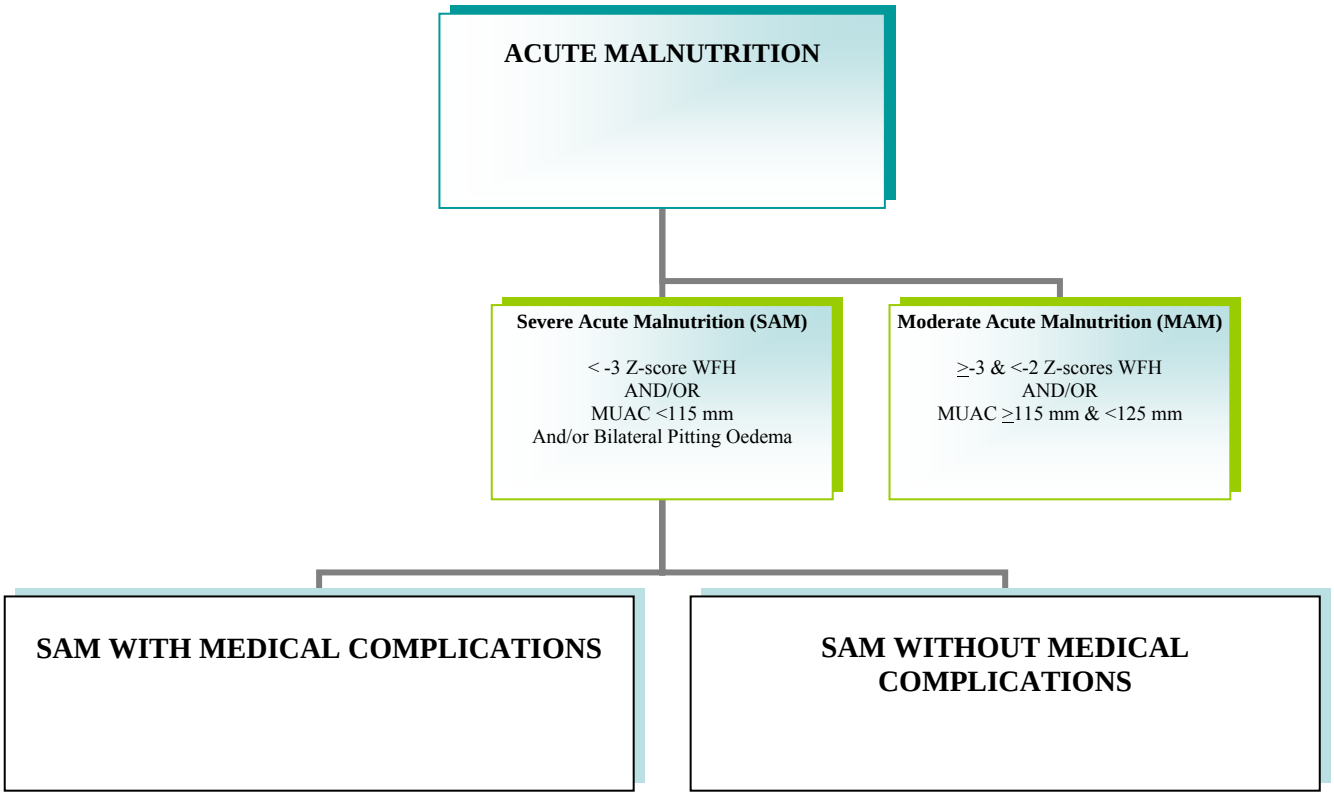
In 2005, an informal WHO/UNICEF/UNSCN consultation, with the participation of UNHCR, concluded that community-based management of severe malnutrition can indeed achieve a low case fatality rate, provided adequate dietary and medical treatment is delivered, close follow-up is ensured and early detection is implemented at community level (WHO/UNICEF/UNSCN 2005)[41]. In 2007, WHO, WFP, UNSCN and UNICEF issued a joint statement supporting the community-based approach **[35]**. With the consensus that slowly built around the CTC model, a new classification of severe acute malnutrition became necessary as described in **[**Figure 2 Current Classification of Acute Malnutrition in Emergencies for Children 6-59 months of age, based on WHO Growth Standards**]** which includes two categories:

- Severe Acute Malnutrition (SAM):
  - SAM with medical complications
  - SAM without medical complications

The criteria for classifying children 6 to 59 months into SAM with or without medical complications as adopted in the IASC/Global Nutrition Cluster Toolkit (IASC 2008) **[19]** and the IASC/Global Nutrition Cluster Harmonized Training Package/Module 13 "Therapeutic Care" are a modified version of the "CTC Classification of Acute Malnutrition" (Valid 2006) **[18].** Other versions are available in other publications (Khara and Collins 2004; Collins 2004; Grobler-Tanner and Collins 2004),[42, 43, 44] as well as in the IASC/Global Nutrition Cluster HTP/Module 6 "Measuring Malnutrition: Individual Assessment" (2008) **[20].** Differences between these various versions relate to terminology **"CTC"** versus "**Community-Based Management of Acute Malnutrition (CMAM)**,**"** as well as to anthropometric indicators as summarized in Box 1 Criteria for SAM with/without Medical Complications (see Chapter X "Pending Issues").

Both MUAC and WFH are included in the present guidelines based on the conclusions of the IASC Nutrition Cluster Informal Consultation held in Geneva in June 2008 and are discussed in detail in Chapter V**.** (IASC Nutrition Cluster and SCN 2009) **[33]**

Figure 2 Current Classification of Acute Malnutrition in Emergencies for Children 6-59 months of age, based on WHO Growth Standards



Infants under 6 months old should be treated in an inpatient centre, employing relactation techniques to increase breast milk production at the same time as treating the infants for severe acute malnutrition.

III. MICRONUTRIENT DEFICIENCIES IN EMERGENCIES

3.1 Major Causes

The adverse effects of micronutrient deficiencies (MNDs) are profound. Micronutrient deficiencies may lead to increased risk of death, morbidity and susceptibility to infection, blindness, adverse birth outcomes, **stunting**, low work capacity, decreased cognitive capacity and mental retardation. Factors that can increase the prevalence and/or severity of pre-existing micronutrient deficiencies during an emergency include (UNHCR/UNICEF/WFP/WHO 2003) [45]:

- Endemic micronutrient deficiencies in the country of origin.
- Lack of suitable diversification in rations, (e.g. only one or two commodities are provided and/or no fortified/nutrient dense commodity is provided).
- Lack of access to fresh foods.
- Rations based on highly refined cereals that may be low in B vitamins, iron, potassium, magnesium and zinc.
- High rates of infection and/or diarrhoea in children (which can also be the result of micronutrient deficiencies).

Anti-nutrients such as phytates present in many cereals can also inhibit absorption of certain micronutrients and exacerbate the deficiencies. Micronutrient deficiencies have been reported for years in emergency settings and especially in refugee camps (IASC/Global Nutrition Cluster HTP/Module 4 "Micronutrient Malnutrition" 2008; UNICEF/WFP/UNICEF 2006) **[20** and **21]**.

3.2 Major Micronutrient Deficiencies in Emergencies

The most significant endemic micronutrient-deficiency diseases worldwide are:

- Iodine deficiency disorders - IDD (WHO/UNICEF/ICCIDD 2007) [46]
- Iron deficiency anaemia - IDA (WHO/UNICEF/UNU 2001; WHO/CDC 2004)[47];[48]
- Vitamin A deficiency - VAD (WHO/FAO 2005; FAO/WHO 2002)[49, 50]
- Zinc deficiency[e]

Iodine, iron and vitamin A deficiencies affect at least one third of the world's population, the majority of whom are found in developing countries. It is estimated that just over 2 billion people are anaemic and just under 2 billion have inadequate iodine nutrition, leading to decreased productivity, increased morbidity, and, in the case of pregnant women, increased risk of death, while 254 million preschool-aged children are vitamin A deficient (WHO and FAO 2005)[51]. Severe vitamin A deficiency can lead to death. The extent of zinc deficiency worldwide is not well documented, but about 800,000 child deaths per year are attributable to zinc deficiency. Zinc deficiency is also responsible for approximately 16% of lower respiratory tract infections, 18% of malaria and 10% of diarrhoeal disease (WHO 2002)[52].

In addition, three micronutrient deficiencies are the most commonly observed deficiencies to result from inadequate access to micronutrients in food aid-dependent populations and are usually avoidable in a disaster situation:

- **Beriberi –** thiamine deficiency (WHO/UNHCR 1999)[53]
- **Pellagra –** niacin deficiency (WHO 2000)[54]
- **Scurvy –** vitamin C (ascorbic acid) deficiency (WHO/UNHCR 1999)[55]

[e] http://www.who.int/whr/2002/chapter4/en/index3.html

3.3 Indicators

Two main approaches are used in direct assessment of micronutrient deficiencies in individuals:

- Clinical signs, such as **goitre** as a clinical sign of iodine deficiency and **night blindness/Bitot spots** in the case of vitamin A deficiency.
- Biochemical testing to identify sub-clinical deficiencies, such as the measurement of the nutrient under study, in blood, serum or urine.

The micronutrient deficiencies of greatest concern in emergencies are presented in [Table 2 Major Micronutrient Deficiencies in Emergencies: Clinical Signs and Biochemical Tests].

Table 2 Major Micronutrient Deficiencies in Emergencies: Clinical Signs and Biochemical Tests

MICRONUTRIENT	DEFICIENCY	MAIN CLINICAL SIGNS	RECOMMENDED BIOCHEMICAL TESTS
Iodine	IDD	Goitre, **cretinism**	Urinary iodine level
Iron	IDA	Tiredness, pallor	Haemoglobin level in the blood
Niacin	Pellagra	Dermatitis, diarrhoea, dementia "the 3 D's"	Urinary N-methyl nicotinamide mg/g creatinine
Thiamine	Beriberi	Progressive severe weakness and wasting of muscles	Erythrocyte transketolase activity (ETKA) and the thiamine pyrophosphate effect (TPPE)
Vitamin A	VAD	Night blindness, **conjunctival xerosis**, Bitot spots	Serum retinol
Vitamin C	Scurvy	Bleeding purple swollen gums	Serum plasma ascorbic acid

Observation of clinical signs has the advantage of being non-invasive compared to biochemical tests; however, the main disadvantage of clinical signs is that they are, with a few exceptions, non-specific. Goitre, a specific clinical sign of iodine deficiency, may also result from iodine excess (Seal and Prudhon 2007)[56]. Moreover, clinical signs of micronutrient deficiencies often represent more advanced cases of micronutrient malnutrition.

Biological measures (analysis of blood or urine samples) have the advantage of providing objective measures of micronutrient status and can detect sub-clinical micronutrient malnutrition. However, the

collection of biological samples for testing often presents logistic challenges (staff training, cold chains, etc.), and sometimes acceptability and ethical challenges (IASC HTP 2008; Gorstein *et al* 2007; University College London (UCL) and UNHCR 2003).[57,58] Moreover, biochemical measurements might sometimes only give part of an answer. For example, low haemoglobin blood concentration measures anaemia. However, anaemia might be related to iron deficiency or could result from a combination of micronutrient deficiencies, including, vitamin A and some B-vitamins. It could also result from infections, especially malaria or hookworm. A summary of main clinical and biochemical indicators and their interpretation in terms of public health significance for the micronutrient deficiencies of concern in emergencies is provided in **[**Annex 2 Public Health Cut-Off Points for Indicators of MNs**]** (Adapted from Seal and Prudhon 2007) **[56]**

3.4 Prevention and Control

3.4.1 Food fortification

Fortification of food with micronutrients is one strategy to correct or prevent micronutrient deficiencies in a population. It is considered a valid technology if limited access to a diverse diet fails to provide adequate levels of the respective nutrients. The aim of fortification is to increase intake of one or more nutrients that are inadequate in the food supply. This can be done in three ways (WFP 2004)[59]:

- Restoring the nutrients lost during food processing by restoring depleted nutrients to their natural level, for example restoring B-vitamins which are lost during milling.
- Increasing the level of a nutrient above that normally found in the food, for example adding extra iron to wheat flour or extra calcium to milk.
- Adding nutrients that are not normally present in a food item otherwise considered a good vehicle for delivering micronutrients to the consumer, for example putting vitamin A into sugar, or iodine into salt (WHO 2008) [60].

3.4.2 Vitamin and Mineral Supplements

Combining nutritional interventions with other complementary public health measures is necessary to eliminate (or prevent) a specific micronutrient deficiency. Two examples of public health measures are deworming interventions in combination with distribution of iron supplements to control iron deficiency anaemia, and distribution of vitamin A capsules through routine supplementation to control vitamin A deficiency and to reduce overall morbidity and mortality (UNHCR/UNICEF/WFP/WHO 2003) **[45]**.

3.4.2.1 Vitamin A Supplementation

Delivery of high-dose supplements remains the principal strategy for controlling vitamin A deficiency. Food-based approaches, such as food fortification and consumption of foods rich in vitamin A, are becoming increasingly feasible but have not yet ensured coverage levels similar to supplementation in most affected areas (UNICEF 2007)[61]. In emergency situations, all children 6 months to 5 years of age, plus post partum women up to 6 months after delivery should be given vitamin A supplements if any of the following criteria are met (Global Nutrition Cluster/Toolkit 2008) **[19]**:

- The population originates from an area known or presumed to be deficient in vitamin A.
- Vitamin A supplementation programmes were ongoing pre-emergency.
- Clinical signs of vitamin A deficiency (night blindness, Bitot spots, corneal scarring) were present in the population in pre-emergency population surveys.
- Malnutrition and/or diarrhoeal diseases are currently prevalent.
- Measles has been identified in epidemic proportions.

In emergency settings where measles vaccination campaigns are implemented, vitamin A supplementation should also be administered as a preventative measure.

The dosage of vitamin A given to post partum women will depend on the elapsed time since delivery with a low daily/weekly dose given between 2 and 6 months when there is higher risk of pregnancy. Dosage of vitamin A supplements should be given as shown in [Table 3 Dosage and Schedule of High-Dose Preventative Vitamin A Supplementation in Measles Campaigns or Vitamin A Deficient Areas] (IASC/Global Nutrition Cluster Toolkit 2008).

Table 3 Dosage and Schedule of High-Dose Preventative Vitamin A Supplementation in Measles Campaigns or Vitamin A Deficient Areas

Age Group	Amount of Vitamin A to be administered in international units (IU)	Schedule
0-6 months	Exclusive breastfeeding (post-partum dose to mother)	
6-11 months	100,000 IU as a single dose	At any health or immunization contacts such as measles immunization
12-59 months	200,000 IU as a single dose every 4 to 6 months	At any health or immunization contacts
Post Partum women	200,000 IU as a single dose	Within 6-8 weeks after delivery
	OR	**OR**
	10,000 IU daily **or** 25,000 IU weekly	During the first six months after delivery

Children with SAM are likely to have associated vitamin A deficiency and should be given supplementation as an essential part of their routine medication.

3.4.2.2 Iron Supplementation

While iron deficiency is frequently the primary factor contributing to anaemia, it is important that strategies to control anaemia be based on a multisectorial approach addressing the numerous factors involved, such as infectious diseases (malaria, intestinal parasitic infections), other chronic infections, particularly Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome (HIV/AIDS) and tuberculosis (TB), and various other nutritional deficiencies.

Until the WHO recommendations are revised it is advised that iron and folic acid supplementation be targeted to those who are anaemic and at risk of iron deficiency. They should receive concurrent protection from malaria, where appropriate, and for other infectious diseases through prevention and effective case management.

Although the benefits of iron supplementation have generally been considered to outweigh the recognized risks, there is evidence to suggest that supplementation at levels recommended for otherwise healthy young children carries the risk of increased severity of infectious disease in the presence of malaria and/or **undernutrition** (WHO 2006).[62] While confirming that iron supplementation is effective for reduction of iron deficiency and anaemia in iron-deficient children, a trial in Zanzibar showed that under certain conditions supplementation may be associated with adverse effects, specifically increased risk of hospitalization (primarily due to malaria and infectious disease), and mortality. For that reason, in malaria-endemic areas, WHO advises that malarial prophylaxis be provided along with iron supplements.

3.4.2.3 Multiple Vitamin and Mineral Supplements

Foods fortified with micronutrients may not meet fully the needs of certain nutritionally vulnerable subgroups such as pregnant and lactating women, or young children. UNICEF and WHO have developed the daily multiple micronutrient formula as shown in **[**Table 4 Composition of Multiple Micronutrient Supplements for Pregnant and Lactating Women, and Children from 6 to 59 months**]** (WHO/WFP/UNICEF 2006) **[21]**. Other formulations are also available[f] and some recent ones include vitamin K.

Table 4 Composition of Multiple Micronutrient Supplements for Pregnant and Lactating Women, and Children from 6 to 59 months

Micronutrients	Pregnant Women	Children (6-59 months)
Vitamin A µg	800.00	400.00
Vitamin D µg	5.00	5.00
Vitamin E µg	15.00	5.00
Vitamin C µg	55.00	30.00
Thiamine (vitamin B_1) mg	1.40	0.50
Riboflavin (vitamin B_2) mg	1.40	0.50
Niacin (vitamin B_3) mg	18.0	6.00
Vitamin B_6 mg	1.90	0.50
Vitamin B_{12} µg	2.60	0.90
Folic Acid µg	600.00	150.00
Iron mg	27.00	5.80
Zinc mg	10.00	4.10
Copper mg	1.15	0.56
Selenium µg	30.00	17.0
Iodine µg	250.00	90.0

[f] http://www.supply.unicef.dk/catalogue/

Pregnant and lactating women should be given a multiple micronutrient supplement (one film-coated tablet) providing one **Recommended Nutrient Intake (RNI)** of micronutrients daily, whether they receive fortified rations or not. Where iron and folic acid supplements are already provided to women through ante- and post-natal care, these should be continued. When fortified rations are not being given, children aged 6 to 59 months should be given one dose each day of the micronutrient and when fortified rations are being given, children aged 6 to 59 months should be given two doses each week of the micronutrient supplement **[Table 5 Schedule for Giving Multiple Micronutrient Supplements]** (IASC/Global Nutrition Cluster Toolkit 2008).

Table 5 Schedule for Giving Multiple Micronutrient Supplements
(Taken from the IASC Nutrition Cluster A Toolkit for Addressing Nutrition in Emergency Situations page 30)

Target Groups	Fortified food rations are NOT being used	Fortified food rations are being used
Pregnant and lactating women	1 RNI each day	1 RNI each day
Children (6-59 months)	1 RNI each day	2 RNI each week

A powdered form of multiple micronutrients (MNP) is also available. In most instances, it has similar specifications as above. The formulations and doses may, however, differ depending on the prevalence of underlying micronutrient deficiencies and availability of other interventions such as distribution of fortified blended food, regular vitamin supplementation programme etc. MNPs have also been used among adolescent girls and pregnant/lactating women.

IV. FOOD AND NUTRITION ASSISTANCE IN EMERGENCIES

There are two mechanisms through which food and nutrition assistance may be provided:

- **General Food Distribution**
- **Selective Feeding Programmes**

4.1 General Food Distribution

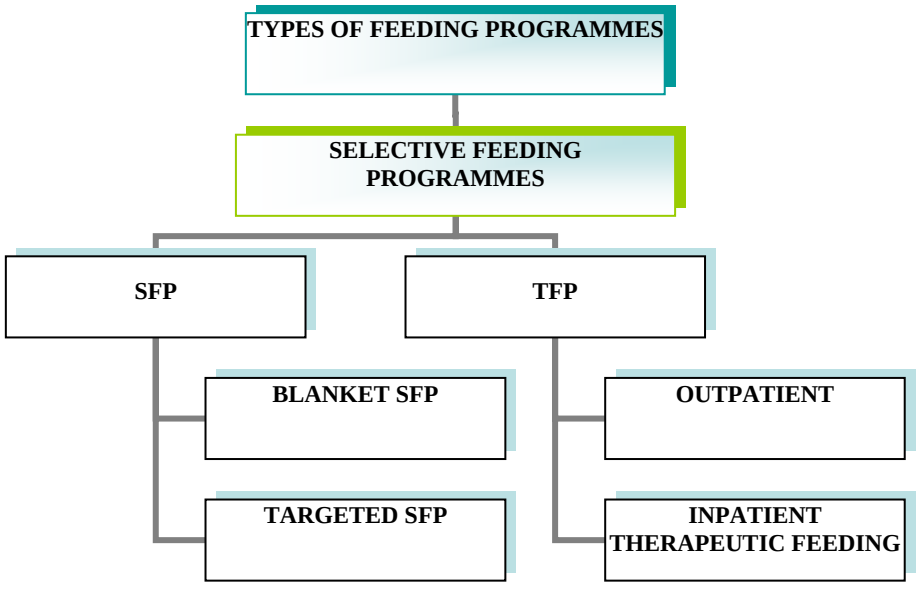
General food distribution (GFD) is when a food ration is distributed to households affected by an emergency. GFD is implemented when there are acute and severe food shortages resulting in high mortality and malnutrition rates (or the risk of these). Severe food shortages may occur suddenly such as after an earthquake or they may have a slow onset such as in areas with protracted drought and conflict. These guidelines focus on selective feeding programmes; guidance on GFD can be found in other publications (Global Nutrition Cluster/HTP/Module 11"General Food Distribution" 2008; WFP 2000)[63].

The objectives of a GFD at the onset of a crisis are to save lives and protect the nutritional status of the population.

4.2 Selective Feeding Programmes

4.2.1 Types of Selective Feeding Programmes

Figure 3 Selective Feeding Programmes to Address MAM & SAM



There are two forms of Selective Feeding Programmes:

- **Supplementary Feeding Programmes (SFP)** to rehabilitate moderately malnourished persons or to prevent a deterioration of nutritional status of those most at-risk by meeting their additional needs, focusing particularly on young children, pregnant women and lactating mothers.
- **Therapeutic Feeding Programmes (TFP)** to rehabilitate severely malnourished persons and thus reduce excess mortality.

The two types of selective feeding programmes are complementary and according to the situation, may have to be implemented simultaneously.

4.2.2 Criteria for Establishing Selective Feeding Programmes

The exiting WHO classification of the severity of the situation, based on NCHS reference is provided in Table 6. With the change to WHO growth standards – this classification may change especially since this classification does not take into account the population size or the recent trends.

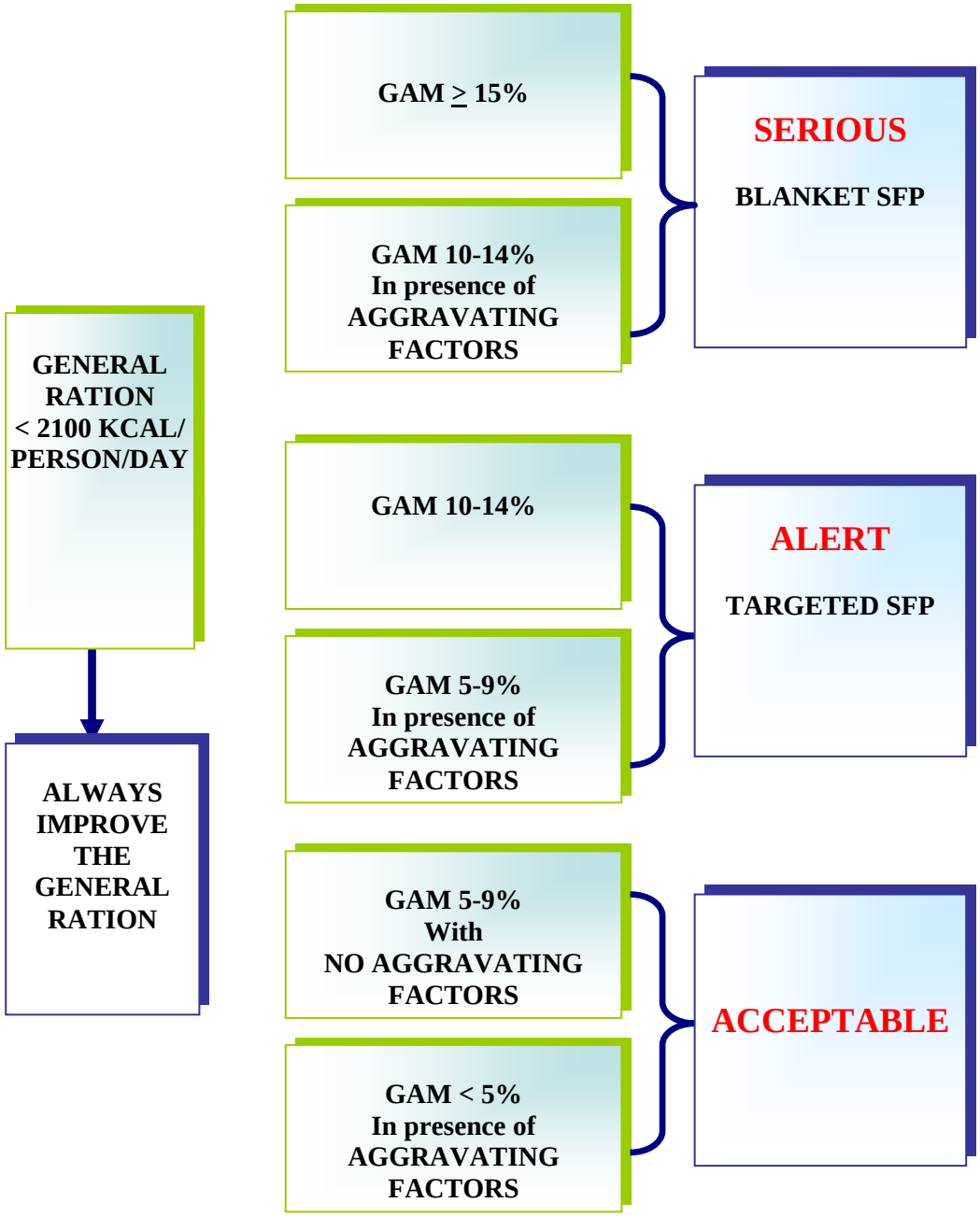
Table 6 Classification of GAM Prevalence and Relevant Actions Required

GAM Prevalence (%) NCHS	GAM Prevalence (%) WHO Standards[g]	Classification	Typical Actions
< 5	To be developed	Acceptable	No action required
5-9		Poor	Continue to monitor the situation
10-14		Serious	Intervene
≥ 15		Critical	Immediate emergency intervention

Selective feeding interventions that are recommended according to the GAM prevalence are described in [Figure 4 Criteria for Deciding the Type and/or Combination of Selective Feeding Programmes]. The cut-off points presented in this figure are intended as guidance (not a prescription) for deciding whether to initiate or continue a programme. The overall decisions should be based on GAM rates, an assessment of underlying factors, overall need and recent trends. It should be emphasized that these guidelines are interim and likely to change once new thresholds are defined with the use of WHO growth standards.

[g] The Informal IASC Nutrition Cluster Consultation held in June 2008 concluded that: "for reporting purposes, survey results should be reported using both NCHS reference and the WHO Standards until the WHO standards have been fully adopted. Initially, the main results would continue to be given in NCHS reference".

Figure 4 Criteria for Deciding the Type and/or Combination of Selective Feeding Programmes Based on NCHS Reference



Aggravating Factors (non-exhaustive list):

- Nutritional situation worsening
- General food ration is below the mean energy, protein and fat requirements
- Crude mortality rate> 1 per 10,000/day
- Epidemic of measles or whooping cough
- High prevalence of respiratory or diarrhoeal diseases

GAM Rate :

- Among children 6 to 59 months on the basis of WFH < -2- z-scores NCHS reference
- Recent trends of GAM
- Population size that is affected

4.3 Food Aid Commodities for Selective Feeding Programmes

4.3.1 Therapeutic Milk

Therapeutic milk which consists of a mixture of DSM powder, vegetable fat, **maltodextrin** (or cereal flour in the homemade formula of F-75), sugar, mineral and vitamin complex, are used in the dietetic inpatient treatment of SAM. Two types are available (WHO/UNICEF 2000; WHO 1999)[64]:

- **F-75** therapeutic milk, which provides 75 kcal/100 ml and 0.9g of protein per 100 ml, is to be used during the first phase of the dietetic treatment of severe malnutrition for complicated cases in inpatient care.
- **F-100** therapeutic milk, which provides 100 kcal/100 ml and 2.9g of protein per 100 ml, is to be used during the rehabilitation phase for complicated cases in inpatient care. Diluted F-100 can be used for the inpatient treatment of severely wasted infants under 6 months old.

When ready-to use therapeutic milk is not available, ingredients needed for the preparation of F-75 and F100 can be provided.

4.3.2 Breast Milk Substitutes

The decision to distribute breast milk substitutes (BMS) should be guided by the International Code of Marketing of Breast Milk Substitutes. Adherence to the Code is a **minimum requirement** for **universal** implementation, including in emergencies. The Code is intended to protect the mothers/carers of both breastfed and non-breastfed infants and young children from commercial influences on their infant feeding choices. The Code does not ban the use of infant formula or bottles but controls how they are produced, packaged, promoted and provided.

There is operational guidance on how to ensure appropriate infant and young child feeding in emergencies and should be referred to, when distribution of BMS is warranted.

UNHCR Recommendations on the Use of Milk Products (UNHCR 2007) (Annex 4)

- Never distribute milk powder, by itself, to take home. It should be mixed with cereal flour, six parts cereal to one part milk powder.
- Never let liquid milk be carried home.
- Only use dried milk in supervised on-site feeding programmes as a high energy drink mixed with oil and sugar.
- Dried skimmed milk should always be fortified with Vitamin A.

Key Considerations for Infants in Exceptionally Difficult Circumstances

Newborns are especially vulnerable during complex emergencies. Childhood illnesses and death rates can increase 20-fold in these situations because of high levels of exposure to infections, poor hygiene, and inadequate feeding and care (The Partnership for Maternal, Newborn and Child Health 2006)[65]. Delayed initiation and non-exclusive breastfeeding dramatically increases these risks. Breastfeeding practices should not be undermined through inappropriate distribution of milks, milk powder or BMS. However, in complex emergencies some infants - whose mother is dead or absent, or too ill, malnourished or traumatized to breastfeed - may need to be fed BMS for the long or short term. In such cases, BMS should be procured and distributed as part of the regular inventory of feeds and medicines, in quantities only as

needed and handled by an agency with the necessary expertise. There should be clear criteria for their use and education for caregivers about hygienic and appropriate feeding (Chapter 9 of IFE Module 2) **[17].**

Key considerations on the Prevention of Mother-to-Child Transmission (PMTCT) of HIV/AIDS

The latest WHO consensus statement regarding HIV and infant feeding advises that, in resource-poor settings, it is more realistic to promote exclusive breastfeeding for six months than to support replacement feeding for HIV-infected mothers.

Global recommendations on infant feeding for HIV-infected mothers include (WHO/UNICEF/UNAIDS/UNFPA 2007)[66]:

- The most appropriate infant feeding option for an HIV-infected mother depends on her individual circumstances, including her health status and the local situation, but should take into consideration the availability of health services and the counselling and support she is likely to receive.
- **Exclusive breastfeeding** is recommended for HIV-infected women for the first six months of life unless **replacement feeding is acceptable, feasible, affordable, sustainable and safe (AFASS)** for them and their infants before that time. A detailed definition of AFASS is provided in **[**Annex 4 Definition of AFASS Replacement Feeding**]**
- When replacement feeding is acceptable, feasible, affordable, sustainable and safe, avoidance of all breastfeeding by HIV-infected women is recommended.
- At six months, if replacement feeding is still not acceptable, feasible, affordable, sustainable and safe, continuation of breastfeeding with additional complementary foods is recommended, while the mother and baby continue to be regularly assessed.
- All breastfeeding should stop once a nutritionally adequate and safe diet without breast milk can be provided.
- When HIV-infected mothers choose not to breastfeed from birth or stop breastfeeding later, they should be provided with specific guidance and support for at least the first two years of the child's life to ensure adequate replacement feeding. Programmes should strive to improve conditions that will make replacement feeding safer for HIV-positive mothers and families.

Regarding provision of BMS in refugee and IDP situations, UNHCR has adopted the following policy: Where voluntary and confidential counselling and testing is in place, and a mother chooses to learn her HIV status, if an HIV-infected mother decides to use replacement feeding, it is important to support her with:

- Appropriate, adequate amounts and timely supply of replacement feeds (e.g. infant formula)
- Utensils and cleaning materials, including soap for hand washing, disinfecting liquids for utensils and timely replacement of worn materials.
- Access to safe water is key
- Extra fuel may need to be allocated for assuring boiling water for the preparation of infant formula (UNHCR 2008).[67]

4.3.3 Fortified Blended Foods

Fortified blended foods (FBF) are a mixture of cereals and other ingredients (such as soya beans-preferably de-hulled, pulses, oil seeds, dried skimmed milk, and possibly sugar) that has been milled, blended, pre-cooked by extrusion or roasting, and fortified with a pre-mix of adequate amount and with a wide range of vitamins and minerals, (UNHCR/UNICEF/WFP/WHO 2003) **[45]**. They are often used in

on-site and take-home SFP. Annexe 5 gives details of the specification of the FBF which are currently in use. The current specification of FBF is being revised to meet the nutrient needs of young and malnourished children. The revised specification may include pre-mixed FBF, DSM, and/or oil as well as sugar. Various recipes are available to facilitate diversity in preparing FBF-based meals (WFP 2002)[68].

4.3.4 Ready-to-Use Therapeutic Foods (RUTF)

RUTF is an energy-dense mineral/vitamin-enriched food, specifically designed to treat severe acute malnutrition created in 1998[h]. It is equivalent in formulation to Formula 100 (F 100), which is recommended by WHO for the treatment of severe malnutrition. RUTF is usually oil-based and contains little available water, which means that it is microbiologically safe, will keep for several months in simple packaging and can be made easily using low-tech production methods. RUTF are soft or crushable foods that can be consumed easily by children from the age of six months without adding water. They are a very good source of many micronutrients that might otherwise be broken down by heat. This product has enabled the treatment of SAM to move outside of feeding centres and into the community. The most commonly used RUTF include:

4.3.4.1 Compressed Biscuits

These are highly nutritional baked wheat and oat bars used in the rehabilitation phase of severe malnourished children and adults. The nutritional specification is close to the specification for therapeutic milk F-100. One bar (two tablets) of such products provides about 300 kcal, which is comparable to 300ml of therapeutic milk. It can be eaten as a biscuit or as mixed with water.

Technology to make compressed biscuits is complicated and expensive and not transferable to small scale manufacturers in developing countries.

4.3.4.2 Lipid-Based Spreads

These lipid-based pastes also known as "RUTF spread" are nutrient-dense peanut (groundnut)-based paste formulated for the treatment of severe malnutrition at home for children without medical complications or serious illness. Such products are usually conveniently packaged in sachets or small pots to remain free of contamination for up to two years and require no cooking or preparation. They taste like a slightly sweeter kind of peanut butter, and consist of peanut paste, vegetable oil, sugar, milk powder, vitamins and minerals.

Lipid-based spreads can be made using simple technology that is easily transferable to small scale local producers in developing countries, provided quality assurance is respected. RUTF spread can be produced in quantities sufficient to treat several hundred children using a planetary mixer[i] in a clinic. Production of larger quantities of RUTF spread can also be achieved in partnership with local food companies (Manary 2006)[69] and (Valid 2006) **[18]**.

4.3.5 Ready-to-Use Supplementary Foods (RUSF)

Little is known about the nutrient requirements of children with moderate acute malnutrition. A technical committee has been formed to review their needs. Until the committee provides guidelines, various forms of RUSF developed based on anecdotal evidences are being used for the management of moderate acute malnutrition. Some of these new foods are more expensive per metric tonne than blended cereals, but their possible greater clinical effectiveness is expected to have a greater impact on mortality and morbidity. RUSF are advantageous as they do not require additional water or fuel to cook the product; they have a

[h] The first RUTF was created in 1998 http://www.ird.fr/fr/actualites/fiches/1998/fiche79.htm .

[i] A type of mixer that allows homogenous mixing of various ingredients of different densities in different proportions.

low microbial count and longer shelf life than FBF. These products are available in different packaging options such in a cup which provides a weekly ration per child (such as peanut-based RUSF).

Examples of products are given below:

4.3.5.1 Soy-Based RUSF

Soy-based RUSF is suited as a nutritional support in emergency situations and is particularly adapted to the treatment of moderate malnutrition as of one year of age. It is composed of vegetable fat, sugar, soya flour, peanut paste, whey powder, fat reduced cocoa, and a mineral and vitamin complex. Some of the commercially available products are packaged in individual sachets that provide 500 kcal per sachet. It is used as is, without prior dilution with water. After being opened, the sachet can be used through the day.

4.3.5.2 Peanut-Based RUSF

Such products consist of vegetable fat, peanut paste, sugar, DSM powder, whey, maltodextrin and a complex of vitamins and minerals.

4.3.5.3 Fortified Biscuits

Fortified biscuits, which are wheat-based biscuits, provide a minimum of 450 kcal of energy, 4.5% maximum moisture, a minimum of 10-15 g of protein, a minimum of 15 g fat, and 10-15 g sugar at a maximum per 100 g. They have a shelf-life of 18 to 24 months. They are easy to distribute and provide a simple solution to quickly improving the level of nutrition at the beginning of an emergency operation[j]. They are usually used in the first days of emergency when cooking facilities are scarce.

4.3.6 Other Commodities Included in Selective Feeding Programmes

4.3.6.1 Iodised Salt

Current recommendations indicate that average consumption of salt should be <5 g/day (WHO 2003)[70]. Salt should be fortified with Iodine at 45.5 – 75 ppm.

4.3.6.2 Vegetable Oil and Sugar

When the supplementary feeding ration consists of a FBF as the main source of energy and protein, vitamin A-fortified vegetable oil is provided to increase the energy density of the meal. Sugar is usually added to increase energy density, but mainly to improve the taste.

4.4 Resource Mobilisation for Selective Feeding Programmes

Each UN agency supports different types of nutrition-related activities in emergency and refugee situations. Their collaboration is agreed upon through a Memorandum of Understanding (MOU) which sets out the respective roles and functions of each agency. The key responsibilities of agencies of the UN system are described in the IASC/Global Nutrition Cluster HTP/Module 2 "Agency Mandates and Co-ordination Mechanisms" **[20]** and in WFP Field Operations Pocketbook/Annex 10 "Working with Others" **[10]**. More information on resource mobilisation and management of selective feeding programmes is provided in Chapter IX **[**MANAGEMENT ISSUES**]**. This section focuses on responsibility for mobilisation and provision of food commodities and micronutrient supplements and medical supplies.

[j] https://wfpen.ernsystems.com/publicfiles/HighEnergyBiscuits.pdf

4.4.1 Refugee and IDP Situations

In the UN System, WFP is responsible for mobilizing the following commodities for selective feeding programmes:

- Edible oils and fats
- Fortified blended foods
- Iodized salt
- Sugar
- Fortified biscuits.

UNHCR is responsible for mobilizing, transporting and storing sufficient quantities of foods outside WFP's food basket. It includes therapeutic milk and RUTF, and non-food commodities including essential drugs for treatment (UNHCR 2006)[71].

4.4.2 Natural or Man-Made Disasters

WFP and UNICEF cooperate in emergency and rehabilitation assistance for people affected by natural or man-made disasters and who remain in their country of origin. As in refugee and IDP situations, WFP is responsible for mobilizing food commodities needed for supplementary feeding programmes, while UNICEF has the mandate to mobilize therapeutic foods for infants and children[k]:

- Therapeutic milk for use in facility-based TFP
- RUTF

UNICEF is also responsible for covering any unmet micronutrient needs through the distribution of supplements or the provision of vitamin/mineral mixes as well as medical treatment.

4.5 Calculating the Nutritive Value of Food Rations

A spreadsheet application "Nutval" for the planning, calculation and monitoring of the nutritional value of food rations. Nutval is not designed for calculating diets for therapeutic and supplementary feeding programmes as its data base does not include food commodities used in TFP and SFP such as RUTF or RUSF. However it can be used for calculating the nutritive value of FBF rations with vegetable oil and/or sugar (WFP/UNHCR 2008)[72]. The Nutval is available free of charge at http://www.nutval.net/.

[k] In 2007, the Supply Division procured $50 million worth of nutritional supplies, mainly for emergency situations and procurement of RUTF doubled reaching to nearly $ 18 million delivered to 41 countries. http://www.unicef.org/supply/index_39993.html and (http://www.supply.unicef.dk/catalogue/

V. THERAPEUTIC FEEDING PROGRAMMES (TFP)

This chapter focuses on the decision-making process/milestones for programme managers responsible for setting up, monitoring and evaluation of TFP. Detailed guidance on the individual nutritional/dietary and medical management of SAM can be found in the following publications:

- IASC/Global Nutrition Cluster. HTP/Module 13 "Therapeutic Feeding"/part 2, 2008 **[20]**
- WHO/UNICEF. "Management of the Child with Serious Infection or Severe Malnutrition - Guidelines for Care at the First-Referral Level in Developing Countries" 2000 **[64]**
- WHO. "Management of Severe Malnutrition: a Manual for Physicians and other Senior Health Workers" 1999 **[36]**
- Module 2 on IFE for health and nutrition workers in emergency situations. Chapter 8. The Young Severely Malnourished Infant **[17]**
- Community-Based Therapeutic Care (Valid 2006) **[18]**

5.1 Objectives of Therapeutic Feeding

Therapeutic feeding, which consists of intensive medical and nutritional treatment of severely malnourished individuals, aims to reduce the risk of excess mortality and morbidity.

5.2 When to Start TFP

The decision to start a TFP is based on the analysis of:

- Local health structure not coping with existence of children with SAM
- Available resources – human, material and financial

5.3 Therapeutic Feeding Components

There are two components of management of SAM as discussed in Chapter II**:**

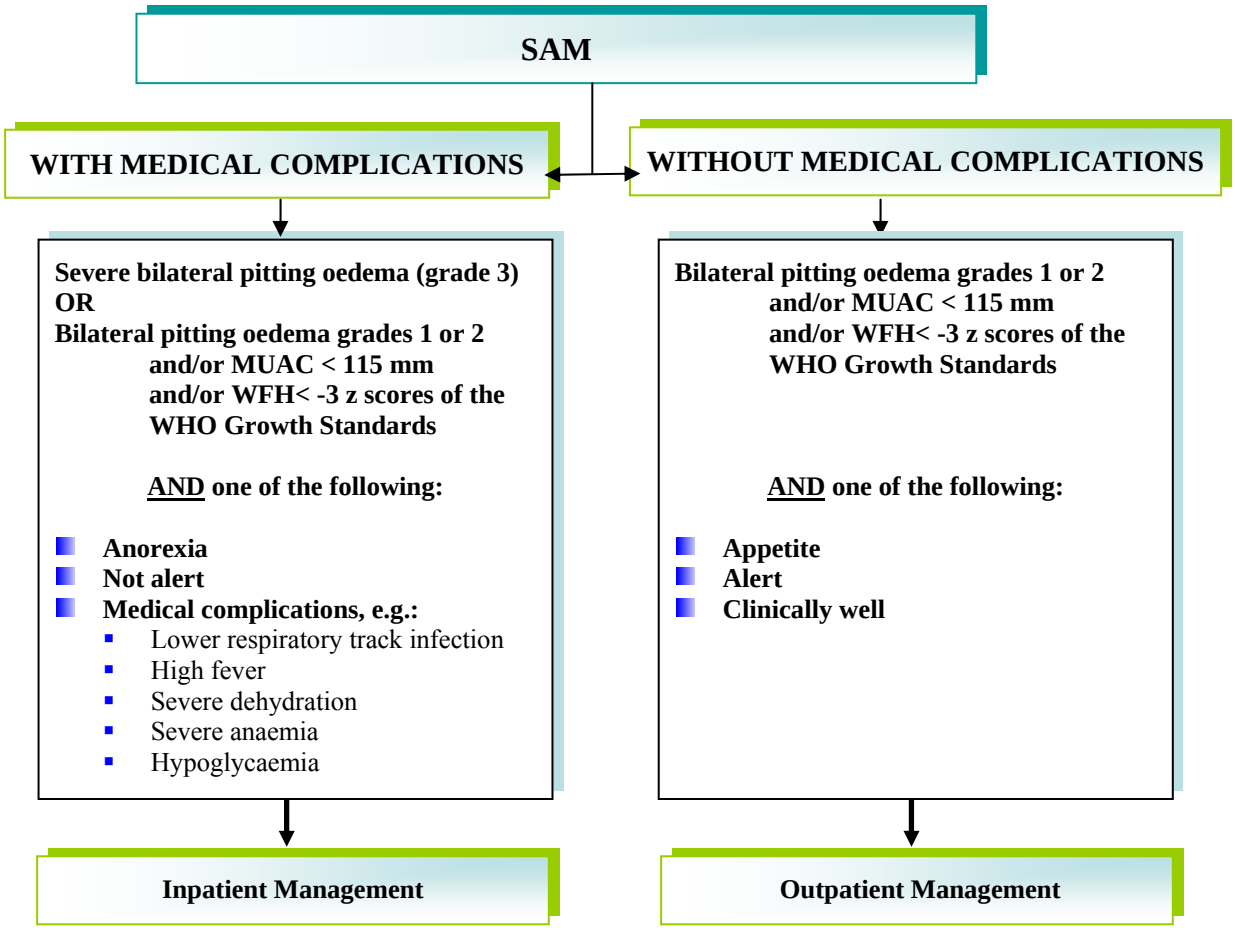
- Inpatient management of SAM with medical complications; and
- Outpatient management of SAM without medical complications

Combining the two components together with community mobilization offers an effective approach to the management of SAM which can:

- Greatly increase coverage and maximize the impact of TFP in reducing child mortality.
- Reduce some of the limitations noted when TFP relies solely on the inpatient strategy, such as:
  - Poor coverage
  - Late **referrals**
  - High default rates
  - Cross infection

The classification of SAM and relevant management approach are presented in **[**Figure 5 Criteria for Defining SAM with and without Medical Complications**]**.

Figure 5 Criteria for Defining SAM with and without Medical Complications



5.3.1 Inpatient Management of SAM with Medical Complications

5.3.1.1 Admission Criteria

Based on the recommendations of the IASC Informal Consultation "Transitioning to the WHO Growth Standards: Implications for Emergency Nutrition Programmes" **[32]**, and the joint UNICEF/WHO Statement on the WHO Child Growth Standards and the identification of SAM in infants and children (link to be provided) inpatient management is recommended for:

- ***All infants (below six months of age) with SAM*** **[17]**. The development of best practice interim guidelines on the management of acute malnutrition in infants below 6 months (MAMI) is in progress as a collaborative effort between the Emergency Nutrition Network (ENN), the Centre for International Health and Development (CIHD) at UCL and Action Contre la Faim (ACF) with funding from the IASC Global Nutrition Cluster (ENN/UCL/ACF 2008)[73]. A WHO consultation on severe malnutrition held in 2004 identified a number of knowledge gaps regarding dietary management of severe malnutrition among infants less than 6 months of age (WHO 2004)[74]. The nutrient requirements of young infants are different and their physiological processes less mature than those of older infants. Given the lack of published evidence regarding the optimal management for severely malnourished infants aged < 6 months, the consultation agrees on the need to conduct observational studies and

comparative randomized trials of alternative formulations to guide decisions about optimum dietary management in this age group. Interim best practice guidelines for the treatment of the severely malnourished infant less than 6 months of age were developed to help guide practitioners (IFE Module 2) **[17]** as briefly described in **[**Box 2 Dietary Management of Severely Malnourished Young Infants (<6months)**]** in Chapter X.

- ***Children less than 6 months of age*** who have:
  - Bilateral pitting oedema

    or
  - Severe wasting as identified:
    - Weight-for-Length (WFL)< -3 z-scores of the WHO Growth Standards

      and/or
    - The infant is too weak or feeble to suckle effectively (independently of his/her weight-for-length)

      or
    - The mother reports breastfeeding failure and the infant is not gaining weight at home.

- Treatment of severe malnutrition in infants under 6 months old MUST be in an inpatient centre.
- Full strength F100 should NEVER be used for feeding infants
- Therapeutic feeding combined with supportive care to re-establish successful lactation, is recommended.
- The objective of therapeutic feeding for infants under 6 months of age is to ensure survival through adequate weight gain on breast milk alone.

- ***Children between 6 and 59 months of age*** who have:
  - Severe bilateral pitting oedema (grade 3)

    or
  - Severe wasting as identified:
    - by MUAC < 115mm

      and/or
    - WFH< -3 z-scores of the WHO Growth Standards

      and
    - Anorexia; and/or
    - Medical complications (such as high fever, severe anaemia, etc.)

Photo 3 Child with Bilateral Oedema
(WHO 2006)[75]

These children are at the highest risk of death and should receive 24-hour care until their condition is stabilized and their **appetite** returns. Stabilisation may take up to 7 days or longer, including a transition phase for 1-3 days before being referred for rehabilitation in the community.

5.3.1.2 Type of Facilities for Inpatient Management of SAM

In emergencies, inpatient care can often be provided through additional support to Nutrition Rehabilitation Units (NRUs) in existing hospital paediatric wards or health centres. If numbers are great, specialized

centres such as TFCs for inpatient treatment may need to be set up, ideally near to a hospital, in temporary buildings or tents. A TFC should fulfil the following criteria:

- Limited capacity up to a maximum of 50 children
- Qualified staff
- Maintain strong links to the community-based outpatient programme so that children are smoothly integrated into outpatient care for a full recovery.

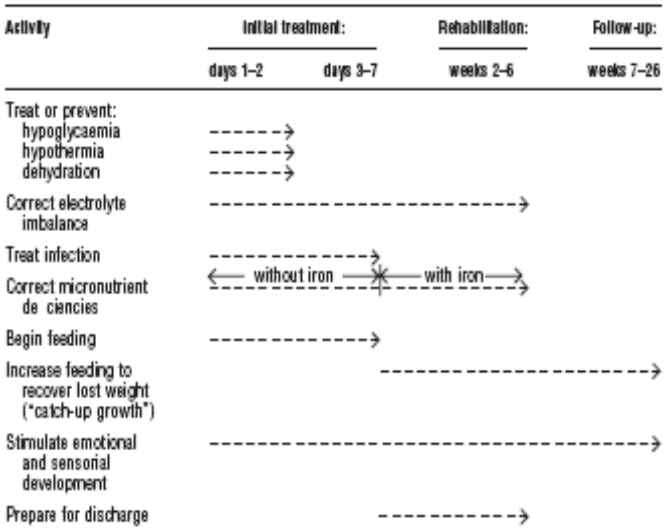
The programme should include nutrition/health education and counselling for caretakers and families to reduce re-admissions.

5.3.1.3 Treatment Schedule

The treatment schedule that was previously recommended includes the following phases as shown in **[Figure 6]** (WHO 1999)

Initial treatment (stabilisation and transition): management of acute medical conditions for approximately 3-7 days. It consists of medical and nutritional treatment according to WHO recommended protocol, namely:

Figure 6 Timeframe for the Management of SAM



- Inpatient intensive care/medical treatment to control infection, dehydration and electrolyte imbalance, thereby reducing the mortality risk.
- Nutritional treatment which consists of very frequent feeds with F-75 therapeutic milk (10-12 feeds per day) to prevent death from **hypoglycaemia** and **hypothermia**. This phase should not be extended beyond one week because of the limited energy content of the diet.

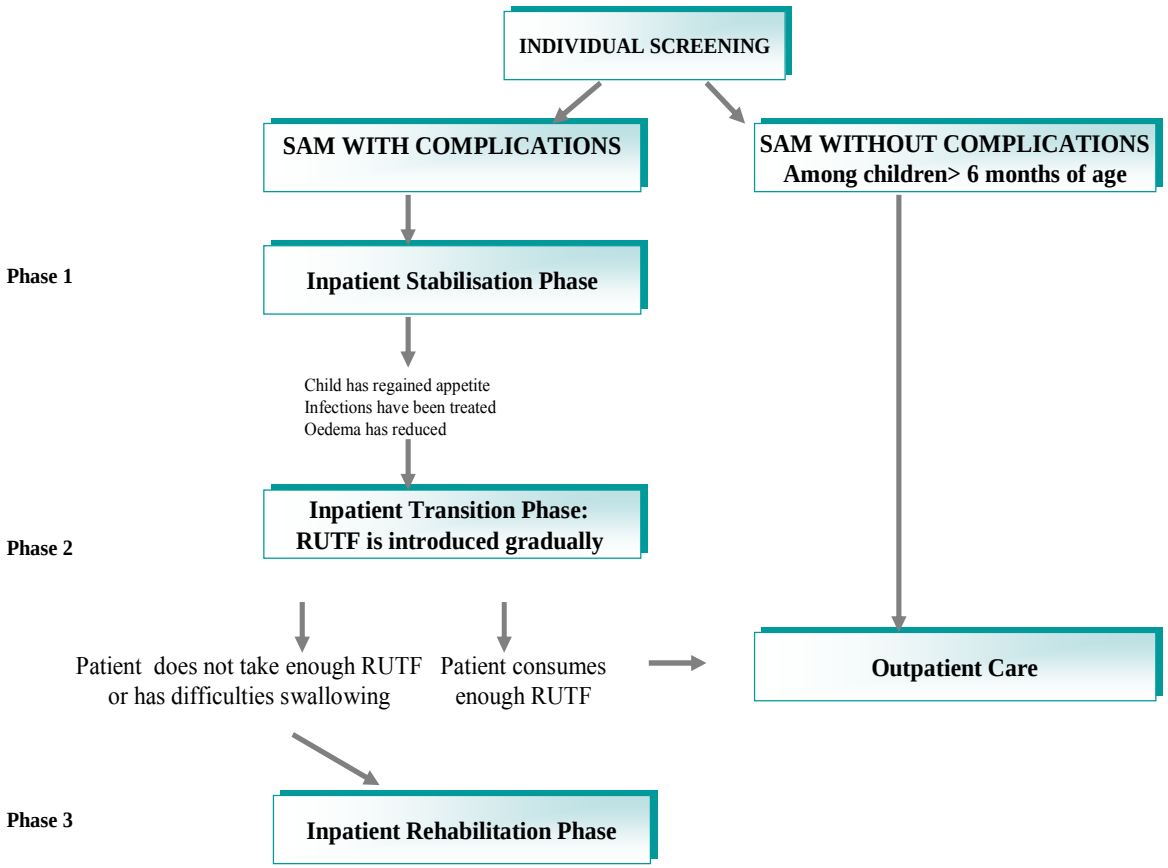
With the adoption of outpatient care the transition phase includes examining the possibility of transferring eligible children to outpatient/community-based care using RUTF.

Rehabilitation: to achieve very high intakes and rapid weight gain of >10 g gain/kg/day using the recommended milk-based F-100 which contains 100 kcal and 2.9g protein/100 ml. (WHO 1999).

The "Rehabilitation Phase" can now take place on inpatient or outpatient basis depending on the outcome of the transition phase as summarized in [Figure 7 Integrated Management of SAM].

The total duration of stay in an inpatient TFP should not exceed six weeks. If the child does not gain weight during this period the implementation of the feeding regime should be reviewed. If this is not the reason for lack of weight gain, there may be other underlying causes i.e. medical/social issues (HIV-AIDS, tuberculosis, lack of care, etc.) which should be addressed accordingly.

Figure 7 Integrated Management of SAM



5.3.1.4 Discharge from Inpatient Treatment

If outpatient treatment programmes do not exist and where admission has been based on WFH, the child can be discharged from inpatient care when he/she reaches WFH> -1 z-scores based on at least two consecutive weighings and there has been no oedema for the last 14 days. When a SFP programme is in place, children can be discharged from therapeutic care when they reach WFH -2 z-scores to complete nutritional recovery in the SFP.

If referral to outpatient treatment is possible that children can be discharged from inpatient care when the child has good appetite with acceptable intakes of RUTF, infections have been treated, and oedema has been reduced.

5.3.2 Outpatient community-based treatment

5.3.2.1 Objectives of outpatient treatment

This approach aims to maximize coverage and access of the population to treatment for SAM by providing easier access to treatment through outpatient services, closer to homes (within a day's return walk). An essential component of the approach is community mobilization techniques to engage the affected population in designing an appropriately structured programme and foster participation for timely identification and referral of cases of SAM in the community. Community mobilization enables cases of SAM to be caught before medical complications take hold but also provides mechanisms of referral for any complicated cases to inpatient care. More details on the planning process for community mobilization can be found in Chapter 5 and Annex 9 of the Valid Manual "Community-Based Therapeutic Care – A Field Manual" **[18]**.

5.3.2.2 Organization of outpatient treatment

The outpatient service should be set up wherever possible in existing health facilities or using existing community-level trained health staff and **community health workers**.

The programme should include orientation for caretakers and families to ensure appropriate home treatment with RUTF and routine medicines. It should include nutrition/health education and counselling for caretakers and families including appropriate use of locally available foods, to reduce re-admissions.

5.3.2.4 Admission Criteria to Outpatient Treatment

There are two points of entry into outpatient care [see Figure 5 Criteria for Defining SAM with and without Medical Complications]:

- Direct admission at initial screening: for children (6 to 59 months) who have SAM without medical complications, are alert, and have appetite.
- Transfers from inpatient care: for children (6 to 59 months) who had to be admitted first to inpatient care, and who have been cured from medical complications and have regained appetite during the stabilisation phase.

5.3.2.5 Discharge Criteria from Outpatient Treatment

Where admission has been based on WFH, the child can be referred to a supplementary feeding programme when he/she reaches WFH> -2 z-scores and maintains this weight gain for two consecutive weeks or discharged from outpatient care when he/she reaches WFH> -1 z-scores.

Children without medical complications admitted directly to outpatient care on the basis of MUAC are followed up by regular weight measurements. Discharge can be decided when there is a 15 to 20% weight gain from the first follow up visit without oedema. The choice between 15 to 20% is based on the general food situation in the community and opportunities for follow up and counselling.

5.4 Monitoring and Evaluation Indicators

The Sphere standard is that >75% of under fives should recover in a therapeutic feeding centre. This can only be applied to therapeutic feeding centres. New standards for performance are being developed for

community based management of severe malnutrition. The typical criteria used for judging the success of TFP are summarized in **[**Table 7 Indicators for Assessing the Effectiveness of TFP**]**.

Table 7 Indicators for Assessing the Effectiveness of TFP (6 – 59 months) [1]

TFP indicators	Acceptable
Recovery rate (%)	> 75
Death rate (%)	< 10
Defaulting rate (%)	< 15%
Mean weight gain (g/kg/day): ▪ In-patient care till full recovery ▪ Inpatient and outpatient care combined	 ≥ 8 ≥ 4
Coverage (%) ▪ Rural areas ▪ Urban areas ▪ Camps	 > 50 > 70 > 90
Mean length of stay ▪ In-patient care till full recovery ▪ Inpatient and outpatient care combined	 < 3-4 weeks < 60 days

5.5 When to Close TFC

Usual criteria to decide on the closure or hand-over of a therapeutic care programme specifically established in response to an emergency or refugee situation include:

- When there is a local health structure that can cope with and treat existing and new cases of SAM.

Other criteria usually considered include:

- Food supply is reliable and adequate (whether though GFD or people's own access to food)
- Crude mortality rate is low
- Effective health and disease measures are in place (e.g. no disease outbreaks)
- The population is stable, and no population influx is expected.

[1] Based on SPHERE standards and in line with IASC toolkit (2008)

VI. SUPPLEMENTARY FEEDING PROGRAMME (SFP)

6.1 What is Supplementary Feeding?

Supplementary feeding is the provision of nutritious rations to targeted individuals that supplement the energy and nutrients missing from the diet of those with higher nutritional needs (such as pregnant women, lactating women with infants under 6 months), or those who are moderately malnourished. It normally provides a ration that is additional to food provided through the food distribution (usually GFD). However there may be situations where only supplementary feeding is required (without GFD).

6.1.1 Objectives of Supplementary Feeding

The purpose of this activity is to stabilize or improve the nutritional status of beneficiaries in order to reduce or prevent acute malnutrition.

6.1.2 Types of Supplementary Feeding

Depending on the prevalence of malnutrition and availability of partners, supplementary feeding can be provided through:

- **Blanket supplementary feeding**
- Targeted supplementary feeding

6.1.2.1 Blanket Distribution

Blanket SFPs provide a food supplement to all members of an at-risk group (e.g. all children under five, pregnant and lactating women, etc.) in a specified geographic area (community, camp, district, etc) irrespective of nutritional status. Thus a blanket SFP can have the following objectives:

- To prevent nutritional deterioration and related mortality and morbidity in those who have additional nutritional requirements
- Restore nutritional status in those moderately malnourished among nutritionally vulnerable groups.

Blanket SFP are often implemented when GFD has not been established or is inadequate, when numbers of vulnerable people are very large or when GAM levels are so high that blanket coverage is required (IASC/Global Nutrition Cluster HTP/Module 12 “Supplementary Feeding”-part 2 2008) **[20]**.

6.1.2.2 Targeted Distribution

Targeted SFPs provide a food supplement to moderately malnourished individuals to prevent them from becoming severely malnourished and to rehabilitate them. Targeted SFP programmes can have the following specific objectives:

- To rehabilitate moderately malnourished children, pregnant and lactating women with infants less than 6 months of age, the medically ill adolescents and adults such as People Living with HIV/AIDS (PLWHA) and older people.
- To reduce mortality and *morbidity* (illness) risk in malnourished children under five years.
- To rehabilitate referrals from therapeutic feeding programmes (i.e. children cured from SAM).

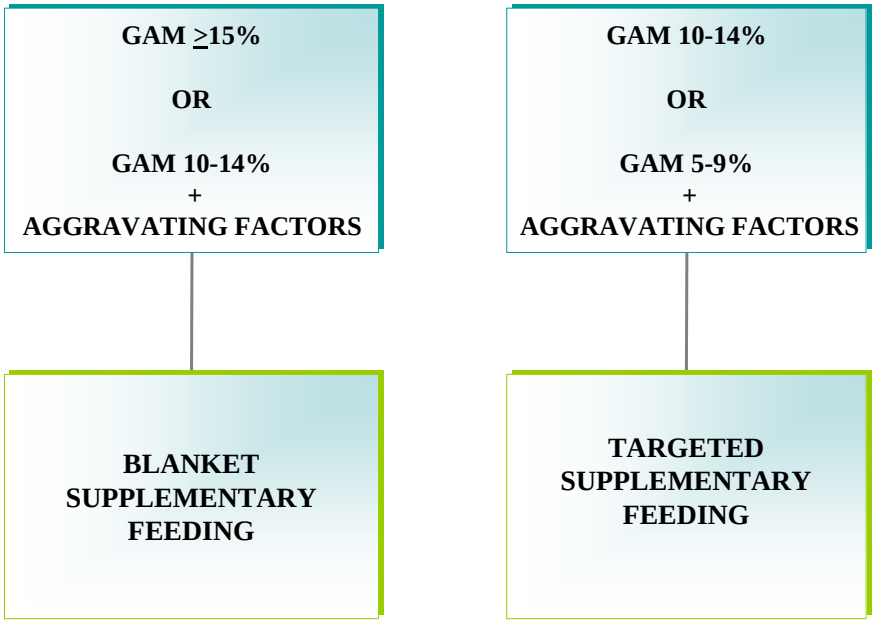
The key difference between the two types of SFP is that:

- **Targeted SFP target moderately malnourished individuals; while**
- **Blanket SFP target all those in 'at risk groups' irrespective of nutritional status**

6.2 When to Implement SFP

Blanket SFP is warranted where there is a high prevalence of GAM and/or few health facilities to target individuals or where there are large numbers of individuals requiring treatment. Blanket SFP should be implemented where the prevalence of GAM is extraordinarily high. Decision charts can be used as guidelines for when to open and close an SFP. They should however be used only as a guide and when appropriate for the SFP's context, precise objectives and timeframe. The existing decision charts present thresholds using the NCHS references and do not take into consideration contextual factors such as population size or capacity of local health structures to cope with supplementary feeding programmes. The general guidelines for establishing SFPs are above or equal to 15% or 10-14% with aggravating factors as shown in **[**Figure 8 Criteria for Establishing SFP**].**

Figure 8 Criteria for Establishing SFP



Food security is an important assessment component of managing malnutrition in emergencies. Seasonality of food availability is common and programmes geared towards preventing and managing malnutrition should plan greater inputs during predictable lean seasons.

6.3 How to manage a Targeted SFP

The appropriate choice is determined by balancing the advantages and the disadvantages of on-site versus take-home feeding and depends on the goals of the programme as well as the existing resources such as infrastructure and capacity (WFP 2000) **[63].** The aim of targeted supplementary feeding is to cure the moderately malnourished population groups, the intervention includes medical evaluation, routine medical

treatment, regular nutritional status monitoring, health and nutrition education and cooking demonstrations.

6.3.1. Take-Home Rations

Take-home rations (THR) are provided through the regular distribution of food to be:

- Prepared at home: when a FBF-based premix ration is provided
- Eaten as is: when RUSF is provided.

In such programmes it may be necessary to increase the amount of food to compensate for sharing within a household. It is generally accepted that take-home rations should always be considered first as these programmes require fewer resources and there is no evidence to demonstrate that on-site SFP are more effective. Other advantages of dry ration feeding are that it:

- Carries less risk of cross-infection as large numbers of malnourished and sick children do not have to sit in close proximity while feeding.
- Takes less time to establish than on-site feeding programmes which require setting up and equipping centres.
- Is less time consuming for mothers and carers who only have to attend every week or fortnight. This leads to better coverage and lower default rates.
- Keeps responsibility for feeding within the family.
- Particularly appropriate for dispersed populations many of whom would have to travel long distances to attend daily.

6.3.2. On-Site Feeding

On-site feeding consists of daily distribution of cooked food/meals at feeding centres. The number of meals provided can vary in specific situations, but a minimum of one meal per day should be provided to children.

On-site feeding may be justified when:

- Food supply in the household is extremely limited so it is likely that the take- home ration will be shared with other family members.
- Firewood and cooking utensils are in short supply and it is difficult to prepare meals in the household.
- The security situation is poor and beneficiaries are at-risk when returning home carrying weekly supplies of food.
- There are a large number of unaccompanied/orphaned children or young adults.

6.3.3. Take Home versus On-Site Feeding

- On-site feeding/wet ration: An on-site feeding requires a special centre where cooking and eating take place on the same premises on a daily basis. An on-site feeding is provided once or twice per day as a porridge mixture.
- Take-home/dry ration: A dry take-home ration is usually provided at a social community centre or at a Mother and Child Health (MCH) clinic (WFP 2007)[76]. Dry food rations can be provided weekly, every two weeks or monthly. The frequency of provision will depend on various factors such as the ease of access to SFP sites and the type of food resources being distributed. For instance various RUSF are available which have different nutritive values per 100 g and different packaging forms (individual spread sachets, pot containers or biscuits designed to supply the weekly needs of SFP (Valid 2006) **[18]**.

Take-home rations, distributed on a weekly or biweekly basis, are preferred to on-site feeding but their size should take into account household sharing. On-site feeding may be considered only where security is a concern. Where fuel, water or cooking utensils are in short supply, such as in populations which are displaced or on the move, distributions of ready-to-eat foods may be considered in the short term, provided they do not disrupt traditional feeding patterns. For take-home feeding, clear information should be given on how to prepare supplementary food in a hygienic manner, how and when it should be consumed and the importance of continued breastfeeding for children under 24 months of age (SPHERE 2004). **[11]**

6.4 Targeted SFP: Criteria for Admission and Discharge

Criteria for admission and discharge are based upon precise cut-off points. The cut-off points used to define moderate acute malnutrition should be in agreement with national relief or nutrition policies and take into consideration capacity and resources for running the programme. Moderate Acute Malnutrition cut-offs can be adapted in emergencies according to the needs and the available resources (e.g. target the highest priority group, such as 6 to 24 months old children).

There is currently, no internationally recognized consensus on the discharge criteria for SFP, using the new WHO Growth Standards. Discharge criteria for supplementary feeding programmes will be reviewed in a meeting to follow up on the 2008 WHO Moderate Malnutrition consultation will be held towards the end of 2009. (Discharge criteria may change to % of weight gain in line with the management of severe acute malnutrition and transition to WHO Standards). In the interim, it is recommended to continue using current guidelines, based on minimum length of stay and/or using cut-offs in WHO standards more or less equivalent to that in NCHS reference. Admission and discharge criteria for different population groups are described in the following subsections.

6.4.1 Moderately Acutely Malnourished Children 6 to 59 months

MUAC has been accepted as an independent criterion for admission for children 6 – 59 months in selective feeding programmes. Exact age may be difficult to obtain, in this case the mother should be asked to estimate the age of the child or use the health or birth card. It is likely that the mother or caregiver will remember the time of birth of a young infant and this recall is essential. A local events calendar could also be used. Children should not be selected on the basis of height as a proxy for age as in stunted populations there are many children older than 6 months but shorter than 65 cm. Selecting younger children on height would exclude these stunted children from treatment. MUAC is often used in the community for screening and referral to feeding centres.

In a settled population all households could be requested to bring children below five years to the feeding centre for screening. Organise screening points close to the communities and avoid community screenings in the health facilities so as not to overwhelm the capacity of the health structures. Children could also be identified through screening in the community during home visiting. Cooperation from the community is therefore essential for the programme. New arrivals in a refugee camp should be screened during registration.

Infants under 6 months are **never** included in supplementary feeding. If an infant under 6 months is malnourished (with or without medical complications) or the mother has insufficient breast milk and the child is at high risk for malnutrition, the mother and infant are both referred to inpatient care.

Figure 9 Screening of Children 6-59 Months for Admission into/Discharge from Targeted SFP

Screening	Admission Criteria	Intervention	Discharge Criteria
MUAC for all children 6 to 59 months AND/OR Weight and height measurements **(Children with bilateral pitting oedema should be sent for therapeutic feeding)**	If MUAC >= 115 mm and < 125 mm AND/OR WFH < -2 z-score & >= - 3 z-score of the WHO Growth Standards AND* • Appetite • Clinically well • Alert ALSO Children discharged from the therapeutic feeding programme	**Targeted SFP**	MUAC >=125 mm for two consecutive visits AND >=-2 z-score WHO Growth Standards for two consecutive visits AND Minimum 2 months treatment in the SFP Children discharged from therapeutic feeding should stay in the SFP for 2 – 3 months depending on national guidelines.

*Children with MAM and medical complications are admitted to the SFP but are referred for medical treatment and return when medical complications have been resolved.

Infants under 6 months are **never** included in supplementary feeding. If an infant under 6 months is malnourished (with or without medical complications) or the mother has insufficient breast milk and the child is at high risk for malnutrition, the mother and infant are both referred to inpatient care.

6.4.2 Moderately Malnourished Pregnant and Lactating Women

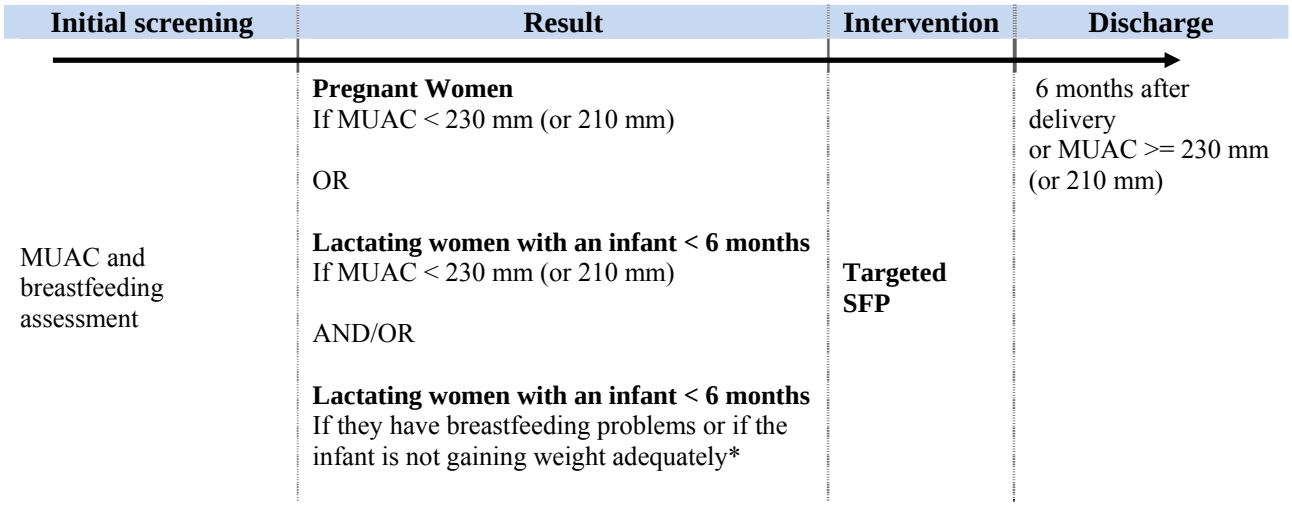
During pregnancy and lactation, a women's nutritional needs become greater than at other times in her life. For pregnant and lactating women, there are the demands for net tissue deposit or milk formation. Pregnant women with a normal weight before pregnancy require an additional 285kcal/day[m], and lactating women require an additional 500kcal/day[n] (FAO/WHO/UNU 2004; UNHCR/UNICEF/WHO/WFP 2003)[77] **[45].** Both pregnant and lactating women have also increased needs for micronutrients. Iron, folate, vitamin A and iodine are particularly important for the health of women and their infants.

MUAC less than 230mm in the second or third trimester of pregnancy is the recommended cut-off point for admission of pregnant women into targeted SFP as shown in **[**Figure 10 Screening of Pregnant and Lactating Women for Admission into/Discharge from Targeted SFP**].**

[m] The extra energy cost of pregnancy is 85 kcal/day, 285 kcal/day and 475 kcal/day during the first, second and third trimesters (FAO/WHO/UNU 2004)

[n] Well-nourished women with adequate gestational weight gain should increase their food intake by 505 kcal/day for the first six months of lactation, while undernourished women and those with insufficient gestational weight gain should add to their personal energy demands 675 kcal/day during the first semester of lactation. Energy requirements for milk production in the second six months are dependent on rates of milk production, which are highly variable among women and populations (FAO/WHO/UNU 2004)

Figure 10 Screening of Pregnant and Lactating Women for Admission into/Discharge from Targeted SFP



*If the infant has visible wasting or bilateral pitting oedema it should be referred for inpatient therapeutic feeding using relactation techniques to establish exclusive breastfeeding

6.4.3 Moderately and Mildly Malnourished Chronically Ill Adults

Like other sick people, people living with HIV/AIDS (PLWHA) or TB do not eat or absorb enough nutrients and therefore use their own body tissues for energy and vital nutrients. They lose weight, become malnourished, and are less resistant to other infections because the immune system is damaged. This speeds up the downward cycle of additional infections leading to worse malnutrition and additional infections.

Ensure that food aid, when provided to PLWHA and HIV/AIDS affected families, does not increase stigmatization or make non-affected vulnerable families feel excluded (IASC 2004).

HIV infection increases nutritional requirements by 10% in the case of asymptomatic HIV infection to maintain body weight and physical activity, and 20–30% in the case of symptomatic HIV infection or AIDS (WHO 2003)[78]. In emergencies with large-scale food needs, the best way to provide nutritional support to the large number of HIV/AIDS infected and affected persons is through general food distributions to avoid stigmatization (IASC 2004)[79]. However, where the general ration has not been increased to account for HIV, the additional energy requirements of PLWHA and their Recommended Daily Allowance (RDA) of micronutrients should be addressed through targeted supplementary feeding together with prevention, impact mitigation, and care, treatment and support activities (UNAIDS/UNHCR/WFP 2006)[80].

For sick adults, BMI, MUAC, and weight measurements are the most common indicators used for selection and discharge from SFP. The use of MUAC in adults may be affected by the redistribution of subcutaneous fat towards central areas of the body during ageing (Collins *et al* 2000) **[38]** or because of dyslipidaemia due to HIV/AIDS, affecting all ages (especially those infected at birth). Thus in emergency and refugee situations where the general ration is not increased to account for a high prevalence of HIV/AIDS in the affected population, malnourished adults should be admitted to targeted SFP as shown in **[**Figure 11 Screening of Ill Adults for Admission into/Discharge from Targeted SFP**]**.

Figure 11 Screening of Ill Adults for Admission into/Discharge from Targeted SFP

Screening	Result		Result	Intervention	Discharge
MUAC or BMI (when feasible)	Men: MUAC ≥224 mm & < 232 mm Women: MUAC ≥ 214 mm & < 222 mm	OR	If BMI > 16 & < 17	**Targeted SFP**	BMI ≥ 18.5

6.4.4 Moderately Malnourished Older Persons

Older persons are particularly vulnerable to malnutrition and their health may also be compromised by poor diet and nutrition[o]. The causes of malnutrition may include:

- Poverty
- Responsibility for supporting grandchildren
- Living alone or age-related disabilities such as immobility, blindness and/or loss of teeth.

During emergencies, older people's vulnerability to hunger is often heightened by:

- Inaccessible food distribution points
- Difficult-to-digest foods
- Inability to prepare foods
- Tendency to share scarce food rations with family members (Hutton 2008)[81].

Theoretically, a well-planned general ration is usually adequate for older persons. However, in practice, a number of other factors often results in the general ration not actually meeting the nutritional needs of the older persons. Some of these factors include: poor physical access to the ration as a result of marginalization or isolation; poor digestibility, especially of whole-grain cereals; lack of motivation or inability to prepare foods; and poorer access to opportunities for supplementing the ration (HelpAge International 2001)[82].

Anthropometric indicators for malnutrition in older persons are not well defined. However, until further research yields definitive recommendations, HelpAge International recommends the use of a combination of three sets of criteria: anthropometric, clinical and social risk factors (HelpAge International 2001) as shown in **[**Figure 12 Screening of Older People for Admission into Targeted SFP**]**. The clinical signs should be verified by a health worker**.**

[o] http://www.who.int/nutrition/topics/ageing/en/index.html

Figure 12 Screening of Older People for Admission into Targeted SFP

Initial screening	Result	Verification of Clinical signs	Verification of social risk factors	Intervention	Discharge
MUAC	If MUAC > 160 mm and < 185 mm	**None of the following:** ▪ Bilateral oedema **or** ▪ Inability to stand/immobile **or** ▪ Extreme weakness **or** ▪ Dehydration **or** ▪ Anorexia	**At least one of the following:** ▪ Living alone without family support **or** ▪ Physical or mental disability **or** ▪ Not strong enough to engage in any household activities **or** ▪ Very low socio-economic status **or** ▪ Psychologically traumatised (e.g. loss of home or family members)	**Targeted SFP**	At closure of SFP

6.5 Blanket SFP: Target Groups

6.5.1 Target Groups

The primary target groups for blanket SFPs are:

- All children between 6 months and 59 months or two or three years of age depending on the need, context and resources[p]
- Pregnant women from the second trimester until her infant is 6 months old
- Other at-risk groups (for instance acutely sick and older persons).

6.6 Food Commodities and Rations for SFP

Supplementary foods must be energy dense and rich in micronutrients, culturally appropriate, easily digestible and palatable (tasty). FBF like CSB, Unimix or Famix are normally used. In situations where cooking may not be feasible, ready to eat items, such as fortified biscuits, ready to use supplementary foods (RUSF) or locally made snacks can be substituted. However, due to cost considerations and popularity of certain commodities like compressed biscuits leading to over-demand, these are not recommended for long-term use and a change to blended foods is recommended as soon as feasible.

On-site feeding or wet rations should provide from 500-700 kcal (500 kcal recommended but up to 700 kcal to account for sharing with siblings at the centre) of energy per person per day, including 15-25 grams of protein. Two meals are needed to provide this amount of energy and protein given the small stomach size of children. Food is also needed for caregivers. On-site feeding should be timed so as not to clash with family meals.

[p] With the understanding that breastfed infants between 6-11 months only need 200-300 kcal per day.

Take-home or dry rations (THR) should provide from 1,000 to 1,200 kcal per person per day and 35-45 grams of protein in order to account for sharing at home amongst other children or adults in the household and should be provided in the form of a pre-mix. Distribution of the ration as a premix avoids the use of the items as separate commodities which may be sold/exchanged rather than given to the malnourished patients in the designed proportions. This ration is intended to supplement the normal food that the malnourished person is eating at home and not to replace it completely.

Mothers are often unfamiliar with the premix used for supplementary feeding and it is essential that cooking demonstrations and information about how to prepare the premix are provided. The FBF, Oil and sugar premixes generally need about 15 minutes of cooking. It is important to cook the premix properly as insufficient cooking may provoke diarrhoea in the children. As the premix requires cooking and it is recommended to prepare the food several times a day to give to the child, the mother needs to have access to enough cooking utensils and fuel as well as the time to prepare the mixture at home. The mothers should be aware of these issues and if there are barriers to appropriate preparation of the pre-mix, this should be planned for in the intervention (e.g. availability of cooking fuel, utensils, choice of most appropriate product e.g. RUSF or instant FBF formula).

Examples of rations are provided in **[Table 8 Examples of SFP RationsError! Reference source not found.]**.

Table 8 Examples of SFP Rations

		Take-Home Rations			On-Site Rations		
		Example THR 1	Example THR 2	Example THR 3	Example On-site 1	Example On-site 2	Example On-site 3
FBF	(g)	250	200			125	100
Soy-Based RUSF	(g)			92[q]			
Fortified biscuits	(g)				125		
Fortified Vegetable oil	(g)	25	20			10	10
Pulses	(g)						
Sugar	(g)	20	15			10	10
NUTRITIVE VALUE							
Energy	(Kcal)	1250	1000	500	560	605	510
Protein	(g)	45	36	12.5	15	23	18
Fat	(g)	30	30	32.9	30	26	29

[q] One sachet includes 92g

6.7 Routine Health-Related Interventions for Moderate Acute Malnutrition

6.7.1 Vitamin A

Children 6-59 months:

- Routine supplementation should be given on admission except where Vitamin A has been given in the past month or health campaigns have ensured good coverage.
- Children referred from outpatient care, inpatient care or other health facility where Vitamin A has already been given should not be given Vitamin A.
- Children showing clinical signs of Vitamin A deficiency should be referred for treatment according to World Health Organization (WHO) guidelines.

Pregnant and lactating women: Pregnant women should NOT be given Vitamin A. Vitamin A is given postpartum, within six weeks after delivery only.

6.7.2 Antihelminths

To ensure adequate weight gain, **all children 12-59 months** must be routinely treated (every six months) for worm infections with mebendazole or albendazole (or other appropriate antihelminth).

6.7.3 Iron and Folic Acid

Children 6-59 months: Children with anaemia should be treated according to WHO and Integrated Management of Childhood Illness (IMCI) guidelines; this should include malaria testing and treatment in endemic areas (in malaria endemic areas, prevention should be an important part of the intervention). Children with severe anaemia should be referred to a health facility for treatment.

Pregnant and lactating women: Supplementation should be given according to WHO and national guidelines.

6.7.4 Other treatments

Other medical treatments, including vaccination for measles and expanded programme of immunization (EPI) update, should be provided through referral to clinic services and administered according to national guidelines.

6.8 Monitoring and Evaluation Indicators

The typical criteria used for judging the success of SFP are summarized in **[**Table 9 Indicators for Assessing the Effectiveness of SFP**]**.

Table 9 Indicators for Assessing the Effectiveness of SFP

SFP indicators	Acceptable	Alarming
Recovery rate	>75%	<50%
Death rate	< 3%	> 10%
Defaulting rate	< 15%	>30%

The Sphere standard for SFP is that 75% of children who exit from an SFP should have “recovered”. Coverage of targeted supplementary feeding programs should be >50% in rural areas and >70% in urban areas and >90% in camp situations.

6.9 When to Close SFP

From the outset, clearly defined and agreed objectives and criteria for set-up and closure of the programme are established.

Targeted SFP can be closed when the following criteria are satisfied (IASC 2008) **[19]**:

- General food distribution is adequate (meeting planned nutritional requirements)
- Prevalence of acute malnutrition is below 10% without aggravating factors
- Control measures for infectious diseases are effective.
- Deterioration in nutritional situations is not anticipated; i.e. seasonal deterioration.

Normally a maximum time limit of three months is envisaged for a blanket SFP because it is anticipated that by this time the situation will have improved (e.g. adequate general rations established, epidemics are under control, and safe and sufficient water is present). Blanket SFPs can be closed when the following conditions are met:

- GFD is adequate and is meeting planned minimum nutritional requirements
- Prevalence of acute malnutrition is below 15% without aggravating factors

or

- Prevalence of acute malnutrition is below 10% with aggravating factors
- Disease control measures are effective

VII. MONITORING AND EVALUATION (M&E) AND REPORTING

Monitoring is the periodic oversight of the implementation of an activity to establish the extent to which input deliveries, work schedules, other required actions targeted outputs are proceeding according to plan, so that timely action can be taken to correct deficiencies detected.

Evaluation is a process to determine as systematically and objectively as possible the relevance, effectiveness, efficiency and impact of activities in the light of specified objectives. It is a learning and action-oriented management tool and organizational process for improving current activities and future planning, programming and decision-making.

Various tools are available for detailed information and M&E training, such as:

- UNHCR. Health Information System (HIS) - A Training Manual to Support Implementation in Refugee Operations"/Module 8, 2007[83]
- IASC/Global Nutrition Cluster/Module 20 "Monitoring and Evaluation" **[20]**

The need to establish minimum reporting standards that must be adhered to by those implementing emergency selective feeding programmes has been identified as a priority in a recent retrospective emphasized of emergency supplementary feeding programmes (Navarro-Colorado 2007)[84]. This is an ongoing project to design a Minimum Reporting Package will involve development of three main tools:

(i) A set of guidelines and data collection templates

(ii) Supporting manuals and training materials

(iii) A database application for data entry, analysis and reporting based on the guidelines, and employing user-friendly software developed for this purpose.

7.1 Indicators for M&E

In addition to benchmark indicators for assessing efficiency and effectiveness of SFP and TFP listed in the relevant preceding chapters, below are examples of currently used indicators in refugee and non refugee situations. The UNHCR Health Information System (HIS) - Standards and Indicators Guide, 2008 also provides more guidance for refugee situations[85].

7.1.1 Exit Categories: Definitions for Therapeutic Feeding and Supplementary Feeding

Exit strategies are summarized in **[**Table 10 Exit Categories for Therapeutic and Supplementary Feeding**]**.

Table 10 Exit Categories for Therapeutic and Supplementary Feeding		
INPATIENT CARE for the Management of SAM with Medical Complications	**OUTPATIENT CARE for the Management of SAM without Medical Complications**	**SUPPLEMENTARY FEEDING for the Management of MAM**
EXIT CATEGORY: CURED		
Child 6-59 months meets outpatient care discharge criteria Infant < 6 months meets inpatient care discharge criteria	Child 6-59 months meets discharge criteria	Child 6-59 months meets discharge criteria
EXIT CATEGORY: DIED		
Child dies while in inpatient care	Child dies while in outpatient care	Child dies while in supplementary feeding
EXIT CATEGORY: DEFAULTED		
Child is absent for 2 days	Child is absent for 3 consecutive sessions	Child is absent for 3 consecutive sessions
EXIT CATEGORY: NON-RECOVERED		
Child does not reach discharge criteria after 4 months in treatment (medical investigation previously done)	Child does not reach discharge criteria after 4 months in treatment (medical investigation previously done)	Child does not reach discharge criteria after 4 months in treatment (medical investigation previously done)
EXIT CATEGORY: REFERRED TO OUTPATIENT OR INPATIENT CARE		
Referred to Outpatient Care Child's health condition is improving and child is referred to outpatient care to continue treatment	***Referred to Inpatient Care*** Child's health condition is deteriorating	***Referred to Outpatient or Inpatient Care*** Child's health condition is deteriorated and child meets outpatient or inpatient care admission criteria

7.1.2 Indicators for In-patient TFP

The following table summarises the indicators used for Therapeutic feeding.

Table 11 Indicators for Therapeutic Feeding Programmes for Children 6 – 59 months

Indicator	Description	Formula	Units	Standard
Mean length of stay	Average length stay for recovered children	Sum No. days of admission of recovered children 6 – 59 months/ No. 6 – 59 months exists due to recovery		Inpatient care till full recovery 3-4 weeks Inpatient and outpatient care combined < 60 days
Average weight gain	Average No. grams that recovered children gained per Kg per day since admission into TFP	Sum [(weight on exit (g) minus minimum weight(g))/(weight on admission (kg)) x duration of treatment (days)] / No recovered children. This should be presented by category (marasmus or kwashiorkor) of the recovered children.	g/kg/day	Inpatient care till full recovery >= 8g/kg/day Inpatient and outpatient care combined >=4g/kg/day
Recovery rate	Proportion of U5 exists from TFP due to recovery	No of 6 – 59 months recovered/Total No. of U5 exits (recovered, died, defaulted)x 100	%	> 75%
Death rate	Proportion of U5 exits from TFP due to death	No. U5 deaths/Total No. of U5 exists (recovered, died, defaulted) x 100	%	< 10%
Default rate	Proportion of U5 exits from TFP due to default	No of U5 defaulters/Total No. of U5 exits (recovered, died, defaulted) x 100	%	< 15%

7.1.3 Indicators for SFP

The following table summarises the indicators used for Supplementary Feeding. **[83]**

Table 12 Indicators for Supplementary Feeding Programmes for Children 6 – 59 months

Indicator	Description	Formula	Units	Standard
Mean length of stay	Average length stay for recovered children	Sum No. weeks of admission of recovered children 6 – 59 months/ No. 6 – 59 months exists due to recovery		< 3 months
Average weight gain	Average No. grams that recovered children gained per Kg per day since admission into SFP	Sum [(weight on exit (g) minus minimum weight(g))/(weight on admission (kg)) x duration of treatment (days)] / No recovered children This should be presented by category (marasmus or kwashiorkor) of the recovered children.	g/kg/day	>=3g/kg/day
Recovery rate	Proportion of U5 exists from SFP due to recovery	No of 6 – 59 months recovered/Total No. of U5 exits (recovered, died, defaulted)x 100	%	> 75%
Death rate	Proportion of U5 exits from SFP due to death	No. U5 deaths/Total No. of U5 exists (recovered, died, defaulted) x 100	%	< 3%
Default rate	Proportion of U5 exits from SFP due to default	No of U5 defaulters/Total No. of U5 exits (recovered, died, defaulted) x 100	%	< 15%

7.2 Instruments for Individual M&E

7.2.1 Individual Record Cards

In in-patient care, medical and nutrition data including follow-up data should be recorded in individual record cards to ensure that the child can be tracked through the therapeutic care programme. These cards facilitate follow up of defaulters, and are useful to monitor the effectiveness of the programme. Records are also critical for programme evaluation, lessons learning and training through review of cases of non recovery or deaths. When an eligible child arrives at the centre (inpatient or outpatient) the health worker begins to fill out an individual card. All cards should be kept in a file. These cards are stored once the patient is discharged[r].

7.2.2 Ration Cards

A ration card should be given to each child admitted into CMAM. They include key information about the child and basic information on their progress (weight, height, ration received) and should be updated on each visit. These cards should stay with the carer as a record of the child's progress. Carers should bring the card with them to the site each week. It is advisable to give a non-removable wristband to the child marked with his or her registration number and/or name.

7.2.3 Referral Slips

If the child is referred from outpatient care to inpatient, or vice versa, the carer is given a referral slip together with instructions on how and when to go. It is important that the child retains the same registration number throughout treatment (unique identification number), regardless of changes of facility and type of treatment.

7.3 Instruments for M&E of TFP and SFP Interventions

7.3.1 Tally Sheets

At the end of each programme day, the health worker or supervisor fills in a tally sheet that records the activity of the day and the outcomes (number of admissions, number of children seen, defaulters, number of discharged cured, etc.). These tally sheets are compiled at the end of the month and used to prepare a monthly statistical report of the centre. In inpatient care, a single multi-chart form is used where the evolution of the child's weight, clinical status, quantity and quality of feeds, and administered drugs are recorded.

7.3.2 Monthly Statistical Report

Each inpatient and outpatient facility should fill a monthly report. These reports should be compiled at the programme level to get a complete picture of how the programme is performing. The main components of the report are:

- Identification of the centre, month, agency, supervisor, etc.
- Number and type of admissions by gender breakdown:
  - New admissions: patient directly admitted to the programme
  - Old Cases (Transfers in / referrals from another facility, returned defaulter - in the last two weeks (in inpatient care) or in the last two months (outpatient care or supplementary feeding).
- Number and type of discharges by gender breakdown:
  - Cured: patient that has reached the discharge criteria.

[r] Discharged: all children leaving the treatment programme (cure, defaulting, death, non-response)

- Dead: patient that has died while in the programme from any cause. For outpatient care or supplementary feeding the death should be confirmed by a home visit.
- Defaulters: patient that is absent for 2 or 3 consecutive sessions (2 days in Inpatient, 3 sessions in outpatient therapeutic or supplementary feeding).
- Non-responders: Patient that has not reached the discharge criteria after 4 months under treatment .
- Medical transfers: patient referred to hospital or health facility
- Transfers: patients that change from one type of care to another without leaving the programme (e.g. from inpatient to outpatient)

- Total number of patients under care at the beginning and end of the month.
- Average weight gain and average duration of stay of patients discharged recovered.

The report should also include calculation of the following exit statistics by gender breakdown:

- Recovery rate: total "recovered" divided by total discharged
- Death rate: total "deaths" divided by total discharged
- Defaulting rate: total "defaulting" divided by total discharged.
- Non response rate: total "non-cured" divided by total discharged

Each of these rates is calculated using the number of patients recovered or dead, or defaulting, etc. divided by the total number of discharges during the month. While it is normal practice to calculate these rates by only using the number of patients that recovered, died or defaulted as the denominator as outlined in the sphere guidelines, the true performance of the centre can only be assessed if the *total* number of discharges is used as the denominator, i.e. including categories like 'non-responders' (IASC/Global Nutrition Cluster/HTT/Module 13 "Therapeutic Care" 2008) **[20]**.

The report could also include:

- Average weight gain of children discharged as cured, which is the sum of weight gains divided by the number of children cured
- Average duration of stay in the programme of children discharged as cured which is the sum of length of stay for each child divided by the number of children cured.

Samples of a tally sheet and reports are included in **[**Annex 6 Samples of Tally Sheets and Report**].** Other forms and registers can be downloaded from UNHCR website (http://www.unhcr.org/protect/4614bdf94.html).

7.4 Monitoring and Reporting on Commodity Distribution

Commodity distribution reports should be prepared. They should include quantitative information about the project including:

- Actual number of beneficiaries disaggregated by sex and age group
- Breakdown of stock movement including:
  - Commodity type
  - Opening stocks
  - Receipts
  - Distributed quantities
  - Food returns
  - Food losses
  - Closing balances
  - Loss reasons.

Examples of reporting formats are provided in WFP Food Distribution Guidelines (WFP 2007) **[76]**.

VIII. COMPLEMENTARY INTERVENTIONS

8.1 Health

The combination of malnutrition and infection causes most of the preventable deaths in emergency situations, particularly among young children. During infection there is an increased need for energy and other nutrients. Malnutrition and micronutrient deficiencies also affect immunity. As a result, people who are malnourished and have compromised immunity are more likely to suffer from diseases such as respiratory infections, tuberculosis, measles and diarrhoeal diseases. Furthermore, in malnourished individuals, episodes of these diseases are more frequent, more severe and prolonged. In addition to the effect of nutrition on disease, the presence of disease leads to further malnutrition, as a result of loss of appetite, fever, diarrhoea and vomiting, which affect nutrient intake and cause malabsorption of nutrients and altered metabolism.

8.1.1 Most Prevalent Communicable Diseases in Malnourished Populations

Key public health interventions must be instituted for the most prevalent communicable diseases in undernourished or malnourished populations (WHO 2005, WHO 2005)[86]:

8.1.1.1 Measles

Malnourished children are at particularly high risk of medical complications and death following an attack of measles. The disease can trigger SAM and worsen vitamin A deficiency. Measles morbidity and mortality in malnourished populations is easily preventable with vaccination targeting those aged 6 months through 14 years. Vitamin A supplementation is necessary in those under 5 years of age as it minimizes the complications of measles such as blindness, pneumonia and diarrhoea as previously discussed **[**3.4.2Vitamin and Mineral Supplements**]**.

8.1.1.2 Malaria

Severely malnourished individuals with malaria infection may have no fever, or be hypothermic. Symptoms of malaria infection usually only show up once the child starts to regain weight. All severely malnourished children in malaria endemic zones should be screened routinely for the presence of malaria parasites on admission, and weekly thereafter until discharge. The decision to treat a severely malnourished child for malaria is usually based on a positive laboratory test only. Initial diagnosis can be made using either a rapid diagnostic test (RDT) or microscopy (WHO 2006)[87]. TFCs therefore require access to quality malaria microscopy. The risk of further infections should be reduced by protecting all patients in TFCs from dusk till dawn with insecticide-treated mosquito nets (ITNs), and making ITNs available to take home on discharge. Children with moderate malnutrition will have symptoms of malaria in the same way as patients whose nutritional status is normal, so there is no need to screen these children for malaria in the absence of symptoms. Supplementary feeding programmes in malaria endemic areas should consider distributing ITNs (preferably long lasting variety) to every child on enrolment.

8.1.1.3 Diarrhoeal diseases

Providing safe water and improved sanitation, and community education on food safety in the household is essential for reducing the occurrence of diarrhoeal diseases, such as the Five Keys to Safer Food (WHO 2006)[88]. In addition to prevention and prompt treatment of dehydration, the most important measure in the treatment of diarrhoeal diseases in children under five is to ensure continued feeding, including

breastfeeding, during and after the diarrhoeal episode. Zinc supplementation for 10-14 days for children with acute diarrhoea (20mg daily and 10mg for infants under 6 months) can reduce the severity of the episode and prevent further occurrences in the next 2-3 months.

8.1.1.4 Tuberculosis

Although not a leading cause of mortality during the emergency phase, tuberculosis often emerges as a critical problem once measles and diarrhoeal diseases have been adequately controlled. Tuberculosis, often in combination with HIV/AIDS, is common in malnourished populations (WHO/UNHCR 2006)[89].

The consequent immune system dysfunction can both enhance susceptibility to tuberculosis infection and the progression of disease. Malnourished populations, especially malnourished children of all ages, are considered to be at particular risk of developing severe active tuberculosis. Case-finding among TB suspects through sputum-smear microscopy and appropriate treatment of TB patients in line with the requirements of the Directly Observed Therapy Short-Course (DOTS) strategy should be developed[s].

8.1.1.5 HIV/AIDS

People with HIV have increased energy and micronutrient requirements, and are particularly susceptible to malnutrition. With malnutrition, HIV-infected individuals have an increased risk of opportunistic infections and death. Furthermore, malnourished individuals with HIV have increased nutritional requirements and feeding programmes must take this into account.

UN agencies and nongovernmental organizations have on the whole been quick to embrace HIV as a key priority issue in emergencies; guiding principles and guidelines have been developed (USAID/AED/WFP 2007; IASC 2006; IASC 2004)[90,91,92]

8.1.2 Minimum Environmental Health Standards for Emergencies

The following are recommended benchmarks for basic environmental health-related needs for emergency affected populations:

8.1.2.1 Water

In an emergency, the affected populations need immediate access to a water supply in order to maintain health and to reduce the risk of epidemics. The average requirement is estimated at 20 litres per person per day, with no more than 250 people per water point. In a feeding centre 20-30 litres of water should be planned.

8.1.2.2 Sanitation

The aim of a sanitation programme is to develop physical barriers against the transmission of disease, in order to protect the health of the emergency-affected population. These barriers include both engineering measures and personal hygiene measures. The provision of latrines and the development of methods of waste disposal are essential elements of the programme. Ideally, there should be one latrine per family, and for refuse disposal one communal pit per 500 people.

[s] For more information: http://www.who.int/bulletin/volumes/85/8/06-037630/en/#R22

8.2 Care

Care refers to care-giving behaviours such as breastfeeding, responsive child feeding, diagnosing illnesses, determining when a child is ready for supplementary feeding, stimulating language and other cognitive capacities and providing emotional support.

Emergencies will have implications for care behaviours and practices. Caring and feeding practices - such as breastfeeding and IYCF - are often compromised in emergency situations. The causes and magnitude of inadequate caring will vary depending on the nature of the emergency. Causes may include:

- Stress and additional demands placed on caregivers
- Time and resources allocated to the child are reduced as caregivers spend more time searching for income, water, and food
- Material barriers such as lack of fuel and cooking utensils,
- Fear, stress, anxiety
- Loss of community support structure
- Water can be in short supply, so food preparation may be inadequate and food contamination greater.

Households react to slow-onset emergencies by managing a declining resource with inevitable negative impacts on child care. Food intake declines. At the extreme of destitution, families may migrate to camps where children face health crises as large displaced populations congregate round contaminated water sources. Breastfeeding may cease. In war situations, populations including the children face extreme psychosocial stresses. Care interventions should improve the effectiveness of health, food, and psychosocial support.

In emergencies, children under five are more likely to become ill and die from malnutrition and disease than anyone else. In general, the younger they are, the more vulnerable they are. Inappropriate feeding increases their risks. Guiding principles for feeding infants and young children during emergencies have been developed by WHO as summarized in Annex 7 Guiding Principles on IYCF in Emergencies (WHO 2004) **[26]**.

Relief staff should receive training on IYCF in emergencies. Various policy guidance material and training tools have been developed to that effect:

- Infant Feeding in Emergencies (WHO/UNICEF/LINKAGES/IBFAN/ENN 2008)[93]
- Infant and Young Child Feeding in Emergencies - Operational Guidance for Emergency Relief Staff and Programme Managers (IFE Core Group 2007) **[17]**

IX. MANAGEMENT ISSUES

Responsibilities differ in different situations. For refugees it is UNHCR's responsibility to provide most of non food items as well as RUTF. In some cases where no UN agency or only one UN agency is present, depending on the technical capability of that agency, implementation arrangements can be made through international NGOs.

9.1 Mobilizing and Delivering Food

UNICEF has the mandate to mobilize therapeutic food for infants and children. Supplies provided by UNICEF include - in addition to therapeutic milk and/or RUTF - kits containing the materials needed for registering children and record keeping feeding[t]:

- Therapeutic milk for use in facility-based TFP
- RUTF

UNICEF is also responsible for covering any unmet micronutrient needs through the distribution of supplements within the context of therapeutic feeding programmes. WFP coordinates the organization of SFPs unless it is mutually agreed that UNICEF is in a better position to fulfil this responsibility. UNICEF supports and coordinates the organization of TFPs for severely malnourished people, programmes providing care, protection and feeding for unaccompanied children, and the distribution of micronutrient supplements.

9.2 Providing non-Food Items (NFIs)

WFP mobilizes and provides all NFIs necessary for the transport, storage and distribution of all the food commodities for joint operations, including vehicles, warehousing and monitoring equipment.

UNICEF provides NFIs related to food preparation and consumption (water containers, cooking equipment); other needs of the population (emergency shelter materials, soap); nutrition and health monitoring (scales), and selective feeding operations (kitchen equipment). Where UNICEF is not present, WFP support the provision of NFI through International or National NGOs.

[t] In 2007, the Supply Division procured $50 million worth of nutritional supplies, mainly for emergency situations and procurement of RUTF doubled reaching to nearly $ 18 million delivered to 41 countries. http://www.unicef.org/supply/index_39993.html and http://www.supply.unicef.dk/catalogue/

X. PENDING ISSUES

Box 1 Criteria for SAM with/without Medical Complications

- The IASC/Global Nutrition Cluster HTP uses the terms "Therapeutic Care" (which refers to both inpatient and outpatients) and CTC for outpatient therapeutic care. The term **community-based management of severe acute malnutrition (CMAM)** will be used throughout this manual (instead of CTC) to be consistent with the existing WHO nomenclature in the field of child health.
- There are differences in the recommended anthropometric criteria for measuring acute malnutrition between the various recent guidelines and publications:
    - Annex 5 of the IASC/Global Nutrition Cluster Toolkit **[19]**
    - Annex 5 of the IASC/Global Nutrition Cluster HTP/Module 13 "Therapeutic Care"-Part 2 2008 **[20]**
    - Page 10 of the Valid CTC Manual **[18]**
    - Annex 5 of the IASC/Global Nutrition Cluster Toolkit **[19]**
    - Annex 5 of the IASC/Global Nutrition Cluster HTP/Module 13 "Therapeutic Care"-Part 2 2008 **[20]**
- While the IASC HTP and Toolkit recommend **MUAC<110 mm for SAM**, The IASC Nutrition Cluster Informal Consultation **[32]** recommends: MUAC continues to be used as an independent criterion for admission. However, it is recommended that current cut-off points be reviewed and revised as follows:
    - **SAM-MUAC < 115 mm**
    - MAM MUAC $\geq$ 115 & 125 mm
- There are no discharge criteria set for children admitted on MUAC or z-score criteria. Based on some evidences, it has been proposed that the following be used for the interim period until more evidences becomes available:
    - Weight gain between 15% to 20% from the weight of admission
    - Weight-for-Height percentage of median as per NCHS reference
- The benchmark for classifying the severity of situation based on prevalence of acute malnutrition is likely to change with the use of WHO growth standard. Until the new thresholds are set, the existing guideline is still applicable. However, other underlying factors need to be taken into account for making the decision where the situation requires judgment for the initiation of a supplementary feeding programme.
- Prevention of acute malnutrition is an important area that needs to be addressed. In many programmes Lipid-Based Nutrient Supplements (LNS) are being increasingly used for prevention of malnutrition, but there is still lack of enough evidence on programme approach and on commodities of choice. The Lipid Nutrient Research group are working on establishing a sounder evidence base. There is an urgent need for guidelines on preventive approaches as part of a complete package of nutrition interventions.
- Management of Acute Malnutrition in Infants Working Group (refer to Box 3**).**

Box 2 Dietary Management of Severely Malnourished Young Infants (<6months)[74]

The management of malnutrition in infants under six months of age has been severely hampered by a poor evidence base upon which to base guidance materials, and consequently how best to support these infants in practice. Efforts have been made to 'stop-gap' the lack of guidance to support field practitioners and agencies have evolved guidance to meet the needs of infants.

Breastfeeding: Mothers whose infants are fed with therapeutic milk should be encouraged to continue breastfeeding (in HIV-affected populations appropriate decisions about breastfeeding should be made) and if that is not feasible, to express breast milk while the child is fed therapeutic milk, in order to keep up her supply of milk and make it easier to re-establish successful lactation. Therapeutic feeding combined with supportive care to re-establish successful lactation, is recommended. The supplementary Suckling technique has been successfully used in treatment of severely malnourished infants in emergency settings. The objective of therapeutic feeding for infants under 6 months of age is to ensure survival through adequate weight gain on breast milk alone.

Admission Criteria: The nutritional status of young infants can deteriorate rapidly and mortality rates amongst this age group tend to be higher than older infants or children. They are also more vulnerable to nosocomial infections from close contact with other sick children and caretakers. Admission of infants should be based on anthropometric criteria and also on their growth pattern – Mothers who have difficulties breastfeeding and their infant is loosing or not gaining weight appropriately should be referred to the inpatient therapeutic feeding centre for observation, advice and treatment if necessary.

***Nutritional Rehabilitation*:** There is no internationally recognised protocol for the treatment of severely malnourished infants less than 6 months of age. A range of different milks have been proposed including expressed breast milk, infant formula, diluted F-100 and F75 followed by diluted F-100. Full strength F100 should **never** be used for feeding infants as the Potential Renal Solute Load (PRSL) is too high. Treatment of severe malnutrition in infants under 6 months old MUST be in an inpatient centre. The 2004 consultation concluded that the results of comparative randomized trials will guide future decisions about appropriate formulations for feeding infants less than 6 months of age.

Box 3 Management of Acute Malnutrition in Infants (MAMI) Project

A retrospective review of the current field management of moderately and severely malnourished infants under six months of age

The Management of Acute Malnutrition in Infants (MAMI) Project is a collaborative effort between ENN, The Centre for International Health and Development (CIHD) at UCL, London and Action Contre la Faim, funded by the UNICEF-led IASC Nutrition Cluster.

The lead research team are based at CIHD, London. A Research Advisory Group (RAG), of leading academics, and an Inter-Agency Group (IAG), of international NGOs involved in emergency programming, has been formed.

The aim of the project is to investigate the management of acutely malnourished infants under six months of age in emergency programmes, in order to improve practice. There is currently a very limited evidence base for assessing and treating this group.

Key project outputs (July 2009) will include:

- New 'Best Practice' interim guidelines
- Identification of research gaps to be addressed in future work

The project has involved both quantitative and qualitative data collection and analysis in order to:

- Establish what is currently is advised or recommended in the form of guidelines, policies and strategies by different organisations.
- Determine what is carried out in practice.

For more information, visit http://www.ucl.ac.uk/cihd/research/nutrition/mami or http://www.ennonline.net/research

XI. ANNEXES

Annex 1 Global Nutrition Cluster

The lead agency for the Global Nutrition Cluster is UNICEF. Within the Cluster, there are two working groups charged with addressing the gaps in nutrition in emergencies. The Capacity Development Working Group tackles a broad range of capacity-building activities, while the Assessment Working Group is concerned with issues surrounding information management.

The central concern of the IASC Global Nutrition Cluster is to improve:

- ✓ **Predictability**
- ✓ **Timeliness, and**
- ✓ **Effectiveness**

of the comprehensive nutrition response to humanitarian crises.

The four main focus areas of the Global Nutrition Cluster are:

COORDINATION

Organisations often focus on one or parts of the underlying causes of undernutrition often without coordination. Part of this is due to a lack of leadership among the normative agencies and part is the lack of incentives to work together as agencies compete for diminishing funds and position. Defined and measurable goals with negotiated strategies and benchmarks to achieve these goals will provide the basis to coordinate.

CAPACITY BUILDING

Changing needs combined with mobile technical staff and often depleted national capacity strongly suggests that to have a predictable, standardised and sufficient response in emergencies requires a strategy that understands the needs, organizes the materials and is flexible enough to start to meet the needs.

EMERGENCY PREPARDNESS, ASSESMENT, MONITORING SURVEILLANCE

A commonly agreed upon methodology for what to collect, from whom, by whom and a process for analysis, interpretation and reporting especially among nutrition, health, agriculture, and water to ensure the best information is available for resource allocation and response.

SUPPLY

Stockpiling of supplies, facilitation of country procurement, and clarification of operational procurement procedures to avoid delays in humanitarian response.

Annex 2 Public Health Cut-Off Points for Indicators of MNs

Micronutrient Deficiency Indicator	Recommended Age Group for Prevalence Surveys	Definition of a Public Health Problem	
		Severity	Prevalence (%)
Vitamin A Deficiency			
Clinical signs: Night Blindness (XN)[u]	24-71 months	Mild	> 0 – < 1
		Moderate	≥ 1 – < 5
		Severe	≥ 5
Bitots spots (X1B)	6-71 months	Not specified	> 0.5
Corneal Xerosis/ulceration/keratomalacia (X2, X3A, X3B)	6-71 months	Not specified > 0.01	
Corneal scars (XS)	6-71 months	Not specified > 0.05	
Biochemical tests: Breastmilk retinol (≤ 1.05 µmol/L)	Mothers	Mild	< 10
		Moderate	≥ 10 – < 25
		Severe	≥ 25
Serum retinol (≤ 0.7 µmol/L)	6-71 months	Mild	≥ 2 – < 10
		Moderate	≥10 – < 20
		Severe	≥ 20
Iodine Deficiency			
Clinical signs: Goitre (visible + palpable)	School-age children	Mild	5.0 – 19.9
		Moderate	20.0 – 29.9
		Severe	≥ 30.0
Biochemical tests: Median urinary iodine (µg/l)[v]	School-age children	Adequate	100 – 199 [w]
		Mild	50 – 99
		Moderate	20 – 49
		Severe	< 20
Iron Deficiency			
Biochemical tests: Anaemia: Non-pregnant women haemoglobin <12.0 g/dl; children 6-59 months <11.0 g/dl)[x]	Women, Children	Low	5 – 20
		Medium	20 – 40
		High	≥ 40

[u] The letter codes beginning in X, XN, X1B etc. are shorthand for the different types of xerophthalmia

[v] Most iodine absorbed in the body eventually appears in the urine. Therefore, urinary iodine excretion is a good marker of very recent dietary iodine intake.

[w] Figures given here are for the concentration of iodine in urine, not the prevalence.

[x] Cut-offs are given for < 1000m and may need to be adjusted according to age, sex and altitude

Micronutrient Deficiency Indicator	Recommended Age Group for Prevalence Surveys	Definition of a Public Health Problem	
		Severity	Prevalence (%)
Thiamine deficiency « Beriberi »			
Clinical Signs :	Whole population	Mild Moderate Severe	≥ 1 case & < 1% 1 – 4 ≥ 5
Biochemical tests: Thiamine pyrophosphate effect (TPPE) ≥ 25%	Whole population	Mild Moderate Severe	5 – 19 20 – 49 ≥ 50
Urinary thiamine per g creatinine (Age group specific cut-offs)	Whole population	Mild Moderate Severe	5 – 19 20 – 49 ≥ 50
Breastmilk thiamine (< 50 μg/L)	Lactating women	Mild Moderate Severe	5 – 19 20 – 49 ≥ 50
Dietary intake: (< 0.33 mg/1000 kcal)	Whole population	Mild Moderate Severe	5 – 19 20 – 49 ≥ 50
Niacin Deficiency « Pellagra »			
Clinical Signs: Dermatitis in surveyed age group	Whole population or women >15 years	Mild Moderate Severe	≥ 1 case & < 1% 1 – 4 ≥ 5
Biochemical tests: Urinary N-methyl nicotinamide < 0.5 mg/g creatinine [y, z]	Whole population or women >15 years	Mild Moderate Severe	5 – 19 20-49 ≥ 50
Vitamin C Deficiency « Scurvy »			
Clinical signs :	Whole population	Mild Moderate Severe	≥ 1 case & < 1% 1 – 4 ≥ 5
Biochemical tests: Deficient serum ascorbic acid (< 0.2 mg/100 ml)	Whole population	Mild Moderate Severe	10 – 29 30 – 49 ≥ 50
Low serum ascorbic acid (< 0.3 mg/100 ml)	Whole population	Mild Moderate Severe	30 – 49 50 – 69 ≥ 70

[y] Although the use of the urinary ratio of 2-pyridone:N-methyl nicotinamide is provisionally recommended in WHO publications, subsequent research has demonstrated that when urine is collected at a single time point, such as during a survey, the metabolite ratio is not a stable indicator of nutritional status.

[z] Recent survey work from an area of Angola where pellagra is endemic has suggested that this cut-off needs to be revised upwards to 1.6 mg/g creatinine, and that the measurement of the 2-pyridone metabolite provides is a more reliable analytical measure.

Annex 3 UNHCR Policy on Acceptance, Distribution and Use of Milk Products in Refugee Settings

Breastmilk Substitutes (BMS)

UNHCR will actively discourage the inappropriate distribution and use of breastmilk substitutes (BMS) in refugee settings. UNHCR will uphold and promote the provisions of the International Code of Marketing of Breastmilk Substitutes and subsequent relevant WHA resolutions.

UNHCR will not accept unsolicited donations of breastmilk substitutes, bottles and teats and commercial 'baby' foods. UNHCR will work with the co-ordinating agency to limit the risks of unsolicited donations that end up in circulation in refugee settings.

UNHCR will discourage the distribution and use of infant-feeding bottles and artificial teats in refugee settings. In any instance where an infant or young child is not breastfed, cup feeding is encouraged.

Dried Skim Milk (DSM)

UNHCR will accept, source and distribute dried skim milk (DSM) only if it has been fortified with vitamin A.

UNHCR advocates that when donations of DSM are supplied to refugee programmes, these specific donors are approached for cash contribution to be specially earmarked for operational costs of projects to ensure the safe use of this commodity.

Infant Formula

UNHCR will only accept solicited donations or source infant formula when based on infant feeding needs assessment by trained personnel using established and agreed criteria, where key conditions are met, in consultation with the designated co-ordinating body, UNICEF and WHO, and after review and approval by UNHCR HQ technical units.

Milk Products

UNHCR will accept, source and distribute milk products only if they can be used under strict control and in hygienic conditions, either for on-the-spot consumption in a strictly supervised environment or pre-mixed centrally with cereal flour, sugar and oil to produce a dry take-away premix for cooking at household level.

UNHCR will accept, source and distribute milk products only when received in a dry form. UNHCR will not accept donations of liquid or semi-liquid products, including evaporated, condensed and Ultra High Temperature (UHT) milk.

Therapeutic Milk (F75 & F100)

UNHCR will only accept, supply and distribute pre-formulated therapeutic milk products or DSM to prepare therapeutic milk for treatment of severe acute malnutrition in accordance with the current Memorandum of Understanding (MOU) with the WFP, in consultation with the co-ordinating body, with UNICEF and WHO, and after review and approval by UNHCR HQ technical units.

UNHCR supports the policy of the WHO concerning safe and appropriate infant and young child feeding, in particular by protecting, promoting and supporting **exclusive breastfeeding** for the first six months of life and continued breastfeeding for two years or beyond, with timely and correct use of adequate complementary foods. The use of milk products in refugee settings must conform to WHO policy.

Annex 4 Definition of AFASS Replacement Feeding

The following definitions of acceptable, feasible, affordable, sustainable and safe should be adapted in the light of local conditions and formative research:

- **Acceptable:** The mother perceives no barrier to replacement feeding. Barriers may have cultural or social reasons, or be due to fear of stigma or discrimination. According to this concept, the mother is under no social or cultural pressure not to use replacement feeding - she is supported by family and community in opting for replacement feeding, or she will be able to cope with pressure from family and friends to breastfeed, and she can deal with possible stigma attached to being seen with replacement food.
- **Feasible:** The mother (or family) has adequate time, knowledge, skills and other resources to prepare the replacement food and feed the infant up to 12 times in 24 hours. According to this concept, the mother can understand and follow the instructions for preparing infant formula, and with support from the family can prepare enough replacement feeds correctly every day, and at night, despite disruptions to preparation of family food or other work.
- **Affordable:** The mother and family, with community or health-system support if necessary, can pay the cost of purchasing/producing, preparing and using replacement feeding, including all ingredients, fuel, clean water, soap and equipment, without compromising the health and nutrition of the family. This concept also includes access to medical care if necessary for diarrhoea and the cost of such care.
- **Sustainable:** Availability of a continuous and uninterrupted supply and dependable system of distribution for all ingredients and products needed for safe replacement feeding, for as long as the infant needs it, up to one year of age or longer. According to this concept, there is little risk that infant formula (for example) will ever be unavailable or inaccessible, and another person is available to feed the child in the mother's absence, and can prepare and give replacement feeds.
- **Safe:** Replacement foods are correctly and hygienically prepared and stored, and fed in nutritionally adequate quantities, with clean hands and using clean utensils, preferably by cup. This concept means that the mother or caregiver:
  - Has access to a reliable supply of safe water (from a piped or protected-well source)
  - Prepares replacement feeds that are nutritionally sound and free of pathogens
  - Is able to wash hands and utensils thoroughly with soap, and to regularly boil the utensils to sterilise them
  - Can store unprepared feeds in clean, covered containers and protect them from rodents, insects and other animals.

Annex 5 Various Formulations of CSB

The nutritive value of CSB according to WFP and USAID specifications is based on the figures provided in NutVal; and that of UNIMIX is from UNICEF's supply website.

COMMODITY	Nutrients per 100 grams of raw portion									
	ENERGY (kcal)	PROTEIN (g)	FAT (g)	CALCIUM (mg)	IRON (mg)	IODINE (µg)	VIT. A (µg RE)	THIAMINE (mg)	VIT. B2 (mg)	NIACIN (mg NE)	VIT. C (mg)
CSB (USA)	376	17,2	6,9	831	17,5	56,9	784	0,53	0,48	6,2	40
CSB (WFP SPECS.)	400	18,0	6,0	181	12,8	2	501	0,44	0,70	10,0	50
UNIMIX (UNICEF)	400	14,0	6,0	260	8,0	50	690	0,28	0,82	5,0	60

Annex 6 Samples of Tally Sheets and Reports

Annex 6.1 Sample of a Consolidated Report for Therapeutic Inpatient Care

This example of a consolidated report is taken from the IASC HTP Module 13 "Therapeutic Care"/Part 3

CONSOLIDATED REPORT

Group age	Total beginning of the month	new admissions			Re-admissions	TOTAL ADMISSIONS to PROGRAMME	
		W/H or MUAC	Oedema	Relapse			
6 – 59 months	248	153	74	19	11	257	

DISCHARGES					TOTAL DISCHARGES from PROGRAMME	Transfer out		TOTAL END OF THE MONTH
Cured	Death	Defaulter	Non-responder	MEDICAL TRANSFER		Inpatients to Outpatients	Outpatients to Inpatients	
152	5	27	23	3	210	15 of 17	9 of 10	292 OR 295 ?
72.3 %	2.4 %	12.8 %	11.0 %	1.4 %	100%			

Annex 6.2 Site Tally Sheets for the Management of SAM

Health Facility Name	
District	
SITE	Outpatient Care Inpatient care

Week					
Date					**TOTAL (4) weeks**
Total start of week (A)					
New cases 6-59m SAM **(B1)**					
Other new cases SAM **(B2)** (adults, adolescents, children >5y, infants < 6 m)					
Old cases **(C)** Referred from Outpatient care/Inpatient care; or Returned defaulters)					
TOTAL ADMISSIONS (D) (D= B+C)					
Cured **(E1)**					
Died **(E2)**					
Defaulted **(E3)**					
Non-Recovered **(E4)**					
TOTAL DISCHARGES (E) (E=E1+E2+E3+E4)					
Referrals To Outpatient care/Inpatient care **(F)**					
TOTAL EXITS (G) (G= E + F)					
Total end of week (H) (H=A+D-G)					

MONTHLYSITE REPORT FOR THE MANAGEMENT OF SAM

SITE	
REGION	
DISTRICT	

IMPLEMENTED BY		
MONTH / YEAR		
TYPE OF MANAGEMENT (CIRCLE)	***Inpatient***	***Outpatient***
ESTIMATED MAXIMUM CAPACITY		
ESTIMATED TARGET malnourished <5's (based on latest survey data and admission criteria)		
RUTF Consumption	**packets/pots**	**kg equivalent**

Total beginning of the month (A)	**New Cases (B)**		**Old Cases (C)**	**TOTAL ADMISSIONS (D)** **(B+C=D)**	**Discharges (E)**				**Referral (F)**	**TOTAL EXITS (G)** **(E+F=G)**	**Total end of the month (H)** **(A+D-G=H)**
	6-59m (according to admission criteria) **(B1)**	Other (adults, adolescent, children >5y, infants <6m) **(B2)**	Referral from outpatient care or inpatient care, or Returned Defaulters		CURED (E1)	DIED (E2)	DEFAULTED (E3)	NON-RECOVERED (E4)	To Inpatient or Outpatient Care		
					% (E1/E x 100)	**% (E2/E x 100)**	**% (E3/E x 100)**	**% (E4/E x 100)**			
				TARGET (Sphere Standards)	**>75%**	**<10%**	**<15%**				

E1: Cured = reaches discharge criteria
E3: Defaulted = absent for 3 consecutive visits
E4: Non recovered = does not reach the discharge criteria after 4 months in outpatient care

REPORT FOR THE MANAGEMENT OF SAM
(Combining outpatient care and inpatient care)

COUNTRY/State/District		**IMPLEMENTING PARTNER(S)**	
NUMBER OF TREATMENT SITES	**OUTPATIENT CARE**		
	INPATIENT CARE	**REPORTING PERIOD**	
	ESTIMATED MAXIMUM CAPACITY		
	ESTIMATED TARGET malnourished <5's (based on latest survey data and admission criteria)		
	ESTIMATED COVERAGE (from coverage survey or estimated from target and admissions)		
	RUTF Consumption	**kg**	

Total at beginning of reporting period (A)	**NEW CASES (B)**		**TOTAL NEW CASES (B)** **(B1+B2=B)**	**DISCHARGES (E)**				**TOTAL DISCHARGES (E)** **(E1+E2+E3+E4=E)**	**Total end of reporting period (H)** **(A+B-E=H)**
	6-59m (according to admission criteria)(B1)	Other (adults, adolescents, children > 5y, infants < 6m)(B2)		CURED (E1)	DIED (E2)	DEFAULTED (E3)	NON-RECOVERED (E4)		
				% (E1/E x 100)	**% (E2/E x 100)**	**% (E3/E x 100)**	**% (E4/E x 100)**		
			TARGET (Sphere Standards)	**>75%**	**<10%**	**<15%**			

E1: Cured = reaches discharge criteria
E3: Defaulted = absent for 3 consecutive visits
E4: Non recovered = does not reach the discharge criteria after 4 months in outpatient care

Note: Old cases and referrals are excluded from national/programme reporting as they are movements within the service/programme rather than entries and exits

Annex 7 Guiding Principles on IYCF in Emergencies

Breastfeeding

Principle 1: Infants born into populations affected by emergencies should normally be exclusively breastfed from birth to 6 months of age.

Principle 2: The aim should be to create and sustain an environment that encourages frequent breastfeeding for children up to two years or beyond.

Breastmilk substitutes

Principle 3: The quantity, distribution and use of breastmilk substitutes at emergency sites should be strictly controlled.

Complementary feeding

Principle 4: To sustain growth, development and health, infants from 6 months onwards and older children need hygienically prepared and easy-to-eat digest, foods that nutritionally complement breastmilk.

Principle 5: Caregivers need secure uninterrupted access to appropriate ingredients with which to prepare and feed nutrient-dense foods to older infants and young children.

Caring for caregivers

Principle 6: Because the number of caregivers is often reduced during emergencies as stress levels increase, promoting caregivers' coping capacity is an essential part of fostering good feeding practices for infants and young children.

Protecting children

Principle 7: The health and vigour of infants and children should be protected so they are able to suckle frequently and well and maintain their appetite for complementary foods.

Malnutrition

Principle 8: Nutritional status should be continually monitored to identify malnourished children so that their condition can be assessed and treated, and prevented from deteriorating further. Malnutrition's underlying causes should be investigated and corrected.

The acute phase of emergencies

Principle 9: To minimize an emergency's negative impact on feeding practices, interventions should begin immediately. The focus should be on supporting caregivers and channelling scarce resources to meet the nutritional needs of the infants and young children in their charge.

Assessment, intervention and monitoring

Principle 10: Promoting optimal feeding for infants and young children in emergencies requires a flexible approach based on continual careful monitoring.

XII. GLOSSARY

Acute Malnutrition

Acute malnutrition is a form of undernutrition. It is caused by a decrease in food consumption and/or illness resulting in bilateral pitting oedema or sudden weight loss. It is defined by the presence of bilateral pitting oedema or wasting (low mid-upper arm circumference [MUAC] or low weight-for-height [WFH]). Note:
The MUAC indicator cut-offs are being debated (see "Mid-Upper Arm Circumference [MUAC] Indicator" below). The WFH indicator is expressed as a z-score below two standard deviations (SDs) of the median (or WFH z-score < -2) of the World Health Organization (WHO) child growth standards (WHO standards), or as a percentage of the median < 80% of the National Centre for Health Statistics (NCHS) child growth references (NCHS references).

Anthropometry

Anthropometry is the study and technique of human body measurement. It is used to measure and monitor the nutritional status of an individual or population group.

Appetite

Appetite is the decisive criteria for participation in outpatient care. The test is done at admission and at all outpatient care follow-on sessions to ensure that the child can eat ready-to-use therapeutic food (RUTF). If the child has no appetite, s/he must receive inpatient care.

Artificial feeding

Feeding an infant on a breastmilk substitute.

Beri Beri

A clinical syndrome that arises insidiously as a result of a severe, prolonged deficiency of thiamine. Thiamine deficiency occurs where the diet consists mainly of milled white cereals, including polished rice, and wheat flour, all very poor sources of thiamine.

Bilateral Pitting Oedema

Bilateral pitting oedema, also known as nutritional oedema, kwashiorkor or oedematous malnutrition, is a sign of severe acute malnutrition (SAM). It is defined by bilateral pitting oedema of the feet and verified when thumb pressure applied on top of both feet for three seconds leaves a pit (indentation) in the foot after the thumb is lifted. It is an abnormal infiltration and excess accumulation of serous fluid in connective tissue or in a serous cavity. The categories of bilateral pitting oedema are:

- Mild : Both feet (can include ankles), Grade +
- Moderate: Both feet, lower legs, hands or lower arms, Grade + +
- Severe: Generalized bilateral pitting oedema including both feet, legs, hands, arms and face, Grade + + +

Bitot's spots

Superficial, irregularly-shaped, foamy grey or white patches that appear on the conjunctiva, the membrane that covers most of the eyeball, resulting from vitamin A deficiency.

Blanket supplementary feeding

Feeding of all affected population without targeting specific population groups.

BMI A number that indicates a person's weight in proportion to height/length, calculated as kg divided by square meters.

Bottle-feeding Feeding an infant from a bottle, whatever is in the bottle, including expressed breastmilk or water.

BP5 A type of high-energy biscuit often used in refugee emergencies.

Breastmilk substitute Any food marketed or otherwise represented as partial or total replacement of breastmilk, whether or not it is suitable for that purpose.

Chronic malnutrition See Stunting

Codex Alimentarius The Codex Alimentarius Commission was created in 1963 by FAO and WHO to develop food standards, guidelines and related texts such as codes of practice under the Joint FAO/WHO Food Standards Programme. The main purposes of this Programme are protecting health of the consumers and ensuring fair trade practices in the food trade, and promoting coordination of all food standards work undertaken by international governmental and non-governmental organizations.

Commercial infant formula A breastmilk substitute formulated industrially in accordance with applicable *Codex Alimentarius* standards to satisfy the nutritional requirements of infants during the first six months of life up to the introduction of complementary food.

Community-based Management of Acute Malnutrition (CMAM)

Refers to treatment and feeding of SAM without medical complications that is implemented at home with some external input, for example, from a health worker, or in a community day-care centre.

Community health worker (CHW)

A trained health worker who lives in the community and who works with other health and development workers as part of a team. He/she provides the first contact between the individual and the health system. The types of CHW will vary between countries and communities, according to different needs and available resources. A CHW may work on a voluntary basis, but could also be rewarded in cash or kind by the community and/or the formal health services.

Complementary feeding The process starting when breastmilk alone is no longer sufficient to meet the nutritional requirements of infants, and therefore other foods and liquids are needed, along with breastmilk. The target age range for complementary feeding is generally taken to be 6 to 24 months of age, even though breastfeeding may continue beyond two years.

Community therapeutic care (CTC)

See CMAM

Complex emergency A humanitarian crisis where a significant breakdown of authority has resulted from internal or external conflict, requiring an international response that extends beyond the mandate of one single agency. Such emergencies have a devastating effect on great numbers of children and women, and call for a complex range of responses.

Conjunctival xerosis Or drying, represents the earliest clinically detectable, structural change on the surface of the eye due to vitamin A deficiency.

Cretinism A condition of severely stunted physical and mental growth due to untreated congenital deficiency of thyroid hormones (hypothyroidism).

Crude mortality rate (CMR) The rate of death in the entire population, including both sexes and all ages. The CMR can be expressed with different standard population denominators and for different time periods, e.g. deaths per 1,000 population per month or deaths per 1,000 population per year.

Emergency A situation that threatens the lives and well-being of large numbers of a population, extraordinary action being required to ensure the survival, care and protection of those affected. Emergencies include natural crises such as hurricanes, droughts, earthquakes, and floods, as well as situations of armed conflict.

Emergency Nutrition Assessment (ENA) for **SMART**

The purpose of this software is to make nutrition assessments and mortality rate calculations in emergency situations as easy and reliable as possible. To achieve this it focuses on the most important indicators (anthropometric and mortality data), checks the plausibility of the entered data and gives out an automatic report. Since the software cannot explain why children are malnourished or mortality rates are high the results of the survey have to be complemented with other information (e.g. from discussions with key informants). http://www.nutrisurvey.de/ena/ena.html

Exclusive breastfeeding Breastfeeding while giving no other food or liquid, not even water, with the exception of drops or syrups consisting of vitamins and minerals.

Food fortification The practice of deliberately increasing the content of an essential micronutrient, i.e. vitamins and minerals (including trace elements) in a food, so as to improve the nutritional quality of the food supply and provide a public health benefit with minimal risk to health.

Fortified blended food A precooked mixture of cereals and other ingredients such as pulses, dried skim milk (DSM) and vegetable oil, which is fortified with micronutrients.

F-75 Formula 75 (75 kcal/100ml) is the milk-based diet recommended by WHO for the stabilisation of children with SAM in inpatient care.

F-100 Formula 100 (100 kcal/100ml) is the milk-based diet recommended by WHO for the nutrition rehabilitation of children with SAM after stabilisation in inpatient care and was used in this context before RUTF was available. Its current principal use in CMAM services is for children with SAM who have severe mouth lesions and cannot swallow RUTF, and who are being treated in inpatient care. Diluted F100 is used for the stabilisation and rehabilitation of infants under 6 months of age in inpatient care.A formula diet (DSM, cereal flour, sugar, vegetable oil, mineral and vitamin mix and water) used during the rehabilitation phase of severely malnourished children, after the appetite has returned.

GAM GAM is a population-level indicator referring to overall acute malnutrition defined by the presence of bilateral pitting oedema or

	wasting defined by WFH < -2 z-score (WHO standards or NCHS references). GAM is divided into moderate and severe acute malnutrition (GAM = SAM + MAM).
Goitre	Enlargement of the thyroid gland, causing a swelling in the front part of the neck, observed when the thyroid gland is unable to meet the demands of the body for iodine.
Hypoglycaemia	An extreme low blood sugar level, common cause of death among severely malnourished children during the first 2 days of treatment. It is caused by a serious infection or when a malnourished child has not been fed for 4-6 hours.
Hypothermia	An extreme low body temperature, occurring usually together with hypoglycaemia among severely malnourished children and forms a common cause of death.
Incidence	Number of new cases.
Infant	A child less than 12 months of age.
IYCF	Term used to describe the feeding of infants and young children (aged 12 to 23 months).
IASC	The primary mechanism for inter-agency coordination of humanitarian assistance, Under the leadership of the Emergency Relief Coordinator (ERC), the IASC develops humanitarian policies, agrees on a clear division of responsibility for the various aspects of humanitarian assistance, identifies and addresses gaps in response, and advocates for effective application of humanitarian principles.
IDP	Persons or groups of persons who have been forced or obliged to flee or to leave their homes or places of habitual residence, in particular as a result of/or in order to avoid the effects of armed conflicts, situations of generalized violence, violations of human rights or natural or human-made disasters, and who have not crossed an internationally recognized State border.
Kwashiorkor	See Bilateral Pitting Oedema
Maltodextrin	Maltodextrin is a polysaccharide that is used as a food additive. It is produced from starch and is usually found as a creamy-white hygroscopic powder. Maltodextrin is easily digestible, being absorbed as rapidly as glucose.
Moderate Acute Malnutrition (MAM)	
Moderate Wasting	MAM, or moderate wasting, is defined by a MUAC ≥ 110 mm and < 125 mm (the cut-off is being debated) or a WFH ≥ -3 z-score and < -2 z-score of the median (WHO standards) or WFH as a percentage of the median ≥ 70% and < 80% (NCHS references). MAM can also be used as a population-level indicator defined by WFH ≥ -3 z-score and < -2 z-score (WHO standards or NCHS references).
Mother to child transmission (MTCT)	
	Transmission of HIV to a child from an HIV-infected woman during pregnancy, delivery or breastfeeding.

MUAC Low MUAC is an indicator for wasting, used for a child that is 6 to 59 months old. MUAC < 110 mm indicates severe wasting or SAM. MUAC ≥ 110 mm and < 125 mm indicates moderate wasting or MAM. MUAC cut-offs are being debated; for example, new suggestions could be MUAC < 115 mm for SAM and ≥ 115 and <125 for MAM. MUAC is a better indicator of mortality risk associated with acute malnutrition than WFH.

NCHS/WHO Reference The 1977 NCHS/WHO growth reference, which is based on the weights and heights of a statistically valid population of healthy infants and children in the United States, has been and still is widely used to assess, monitor and evaluate the nutritional status of individual children or groups of children.

New WHO Growth Charts Developed using data collected in the WHO Multicentre Growth Reference Study in Brazil, Ghana, India, Norway, Oman, and the United States between 1997 and 2003 to generate new curves for assessing the growth and development of children from birth to five years of age under optimal environmental conditions. They are intended to be used to assess children everywhere, regardless of ethnicity, socioeconomic status and type of feeding. They show how children should grow.

Night blindness Inability to see in dim light due to vitamin A deficiency.

Nutrition rehabilitation centre (NRC)

Day hospital, primary health centre or similar facility that provides daytime care by staff trained in the rehabilitation of severely malnourished children

Nutrition rehabilitation unit (NRU)

Area in a general hospital that is dedicated to the initial management and rehabilitation of severely malnourished children.

Oedema Excessive accumulation of extra-cellular fluid in the body. Bilateral pitting oedema is a clinical sign of SAM.

Older persons The United Nations defines older people as those over 60 years of age, and the oldest old as those aged over 80 years (Hutton 2008)

Pellagra A disorder due to inadequate dietary intake of niacin and/or tryptophan as a result of an unbalanced maize-based diet.

Plumpy'nut A commercial brand of a ready to eat therapeutic food (RUTF).

Prevalence rate The proportion of the population that has the health problem under study (for example prevalence of GAM).

Ready-to-Use Therapeutic Food (RUTF)

RUTF is an energy-dense, mineral- and vitamin-enriched food specifically designed to treat SAM. RUTF has a similar nutrient composition to F100. RUTF is soft, crushable food that can be consumed easily by children from the age of 6 months without adding water. Unlike F100, RUTF is not water-based, meaning that bacteria cannot grow in it and that it can be used safely at home without refrigeration and in areas where hygiene conditions are not optimal. It does not require preparation before

consumption. Plumpy'nut® is an example of a commonly known lipid-based RUTF.

Recommended nutrient intake (RNI)

The daily intake which meets the nutrient requirements of almost all (97.5%) apparently healthy individuals in an age- and sex-specific population.

Referral

A referral is a child who is moved to a different component of CMAM (e.g., from outpatient care to inpatient care for medical reasons) but has not left the programme.

Severe Acute Malnutrition (SAM)

Severe Wasting

SAM is defined by the presence of bilateral pitting oedema or severe wasting (MUAC < 110 mm [cutoff being debated] or a WFH < -3 z-score [WHO standards] or WFH < 70% of the median [NCHS references]). A child with SAM is highly vulnerable and has a high mortality risk.
SAM can also be used as a population-based indicator defined by the presence of bilateral pitting oedema or severe wasting (WFH < -3 z-score [WHO standards or NCHS references]).

Scurvy

A disease caused by prolonged severe dietary deficiency of ascorbic acid (vitamin C).

Selective feeding Programmes

Therapeutic (for severely malnourished) and supplementary feeding programmes

SMART

The SMART system was developed with coordination work led by UNICEF and the United States Agency for International Development (USAID) with funding also provided by the Canadian International Development Agency (CIDA) to improve the reporting, monitoring and evaluation of humanitarian assistance interventions.

SPHERE PROJECT

The Sphere Project was launched in 1997 by a group of humanitarian NGOs and the Red Cross and Red Crescent movement. Sphere is three things:

- A handbook
- A broad process of collaboration
- An expression of commitment to quality and accountability.

Stunting

Stunting, or chronic undernutrition, is a form of undernutrition. It is defined by a height-for-age (HFA) z-score below two SDs of the median WHO standards). Stunting is a result of prolonged or repeated episodes of undernutrition starting before birth. This type of undernutrition is best addressed through preventive maternal health programmes aimed at pregnant women, infants, and children under age 2. Programme responses to stunting require longer-term planning and policy development.

Severe Stunting

HFA below -3 z score line

Supplementary feeding (SF)

Provision of an additional food ration for moderately malnourished children or adults "targeted SF;" or to the most nutritionally vulnerable groups "blanket SF".

Targeting	A method of delivering goods (such as food assistance) and/or services to a selected group of individuals or households, rather than to every individual or household in the population.
Therapeutic feeding	Provision of medical and dietary treatment to children with SAM.
Therapeutic milk	Milk-based products developed to meet the energy, macro and micronutrient needs of the severely malnourished (F75 and F100).
Undernourished	Any of the following: ▪ Stunted ▪ Underweight ▪ Wasted
Undernutrition	Undernutrition is a consequence of a deficiency in nutrient intake and/or absorption in the body. The different forms of undernutrition that can appear isolated or in combination are acute malnutrition (bilateral pitting oedema and/or wasting), stunting, underweight (combined form of wasting and stunting), and micronutrient deficiencies.
Underweight	Underweight is a composite form of undernutrition including elements of stunting and wasting and is defined by a weight-for-age (WFA) z-score below 2 SDs of the median (WHO standards). This indicator is commonly used in growth monitoring and promotion (GMP) and child health and nutrition programmes aimed at the prevention and treatment of undernutrition.
Wasting	Wasting is a form of acute malnutrition. It is defined by a MUAC < 125 mm (cut-off being debated) or a WFH < -2 z-score (WHO standards) or WFH < 80% of the median (NCHS references). See Acute Malnutrition.
Z-score	A score that indicates how far a measurement is from the median - also known as standard deviation (SD) score. The reference lines on the growth charts (labelled 1, 2, 3, -1, -2, -3) are called **z-score lines**; they indicate how far points are above or below the median (z-score 0).

XIII. BIBLIOGRAPHY

[1] Humanitarian Response Review Team of Consultants. Humanitarian Response Review-An independent report commissioned by the United Nations Emergency Relief Coordinator and Under-Secretary-General for Humanitarian Affairs. Office for the Coordination of Humanitarian Affairs (OCHA), 2005. http://www.humanitarianinfo.org/iasc/content/documents/other/Humanitarian%20Response%20Review%202005.pdf

[2] IASC Task Team on the Cluster Approach. Operational Guidance on Designating Sector/Cluster Leads in Major New Emergencies. Inter-Agency Standing Committee, 2007. http://www.humanitarianreform.org/humanitarianreform/Portals/1/cluster%20approach%20page/OPGUIDANCE-new%20emergencies-F.doc

[3] UN/CAP. Cluster Appeal for Improving Humanitarian Response Capacity. Geneva, Office for Coordination of Humanitarian Affairs (OCHA), 2006. http://www.reliefweb.int/cap/2006CAPs/2006_Cluster_Appeal.doc

[4] IASC. IASC Nutrition Cluster: Things to Know. Interagency Standing Committee, 2007. http://www.humanitarianreform.org/humanitarianreform/Portals/1/cluster%20approach%20page/clusters%20pages/Nutrition/IASC%20Nutrition%20Cluster%20Things%20to%20know%2021%20March.doc

[5] UNHCR/WFP. UNHCR/WFP Guidelines for Selective Feeding Programmes in Emergency Situations. Geneva, High Commissioner for Refugees, 1999. http://www.who.int/nutrition/publications/en/selective_feeding_emergencies.pdf

[6] IASC. Inter-Agency Contingency Planning Guidelines for Humanitarian Assistance. Developed by the IASC Sub-Working Group on Preparedness and Contingency Planning, 2007. http://www.humanitarianreform.org/humanitarianreform/Portals/1/cluster%20approach%20page/IA%20CP%20Guidelines%20Publication_%20Final%20version%20Dec%202007.pdf

[7] UNHCR. Handbook for Emergencies. Geneva, United Nations High Commissioner for Refugees, 2007. http://www.unhcr.org/publ/PUBL/471db4c92.html

[8] UNICEF. Emergency Field Handbook - A Guide for UNICEF Staff. New York, United Nations Children's Fund, 2005. http://www.unicef.org/publications/files/UNICEF_EFH_2005.pdf

[9] UNHCR/WFP. UNHCR/WFP Joint Assessment Guidelines (with Tools and Resource Materials). Geneva, United Nations High Commissioner for Refugees, 2004. http://www.unhcr.org/publ/PUBL/45f81d2f2.pdf

[10] WFP. Emergency Field Operations Pocketbook. Rome, World Food Programme, 2002. http://www.unicef.org/emerg/files/WFP_manual.pdf

[11] The Sphere Project. Humanitarian Charter and Minimum Standards in Disaster Response. Geneva, The Sphere Project, 2004. http://www.sphereproject.org/component/option,com_docman/task,cat_view/gid,17/Itemid,26/lang,English/

[12] CDC/WFP. A Manual: Measuring and Interpreting Malnutrition and Mortality. Rome, World Food Programme, 2007. http://www.unhcr.org/publ/PUBL/45f6abc92.pdf

[13] UNHCR/CDC. Fact Sheet on Nutrition Surveys. Geneva, High Commissioner for Refugees, 2007. http://www.unhcr.org/protect/PROTECTION/47b40c912.pdf

[14] WFP. Emergency Food Security Assessment Handbook- First Edition. Rome, World Food Programme, 2005.

[15] SMART Measuring Mortality, Nutritional Status and Food Security in Crisis Situations - SMART Methodology. SMART, 2006. http://www.smartindicators.org/SMART_Methodology_08-07-2006.pdf

[16] NUTRISURVEY SOFTWARE[16] Standardized Monitoring and Assessment of Relief and Transitions (SMART) Software and Software for Emergency Nutrition Assessment (ENA for SMART). http://www.nutrisurvey.de/ena/ena.html

[17] IFE CORE GROUP. Infant and Young Child Feeding in Emergencies - Operational Guidance for Emergency Relief Staff and Programme Managers. Oxford, IFE Core Group, 2007. http://www.ennonline.net/ife/view.aspx?resid=6

[18] VALID. Community-Based Therapeutic Care – A Field Manual. Oxford, Valid International, 2006. http://www.validinternational.org/docs/CTC%20Field%20Manual%20First%20Edition,%2020064.pdf

[19] IASC/Global Nutrition Cluster. A Toolkit for Addressing Nutrition in Emergency Situations. IASC Global Nutrition Cluster, UNICEF, New York, NY, 2008.

[20] IASC/Global Nutrition Cluster/Nutrition Works. Harmonized Training Materials Package. IASC Global Nutrition Cluster, UNICEF, New York, NY, 2008.

[21] WHO/WFP/UNICEF. Preventing and Controlling Micronutrient Deficiencies in Populations Affected by an Emergency/ Multiple Vitamin and Mineral Supplements for Pregnant and Lactating Women, and for Children aged 6 to 59 Months. Joint Statement, 2006. http://www.unicef.org/nutrition/files/Joint_Statement_Micronutrients_March_2006.pdf

[22] WHO/UNHCR/IFRC/WFP. The Management of Nutrition in Major Emergencies. Geneva, World Health Organization, 2000. http://whqlibdoc.who.int/publications/2000/9241545208.pdf

[23] WFP Consolidated Framework of WFP Policies- An Updated Version (October 2007). Rome, World Food Programme, 2007. http://www.wfp.org/eb/docs/2007/wfp137486~2.pdf

[24]WFP. Definition of Emergencies. Rome, World Food Programme, 2005. http://www.wfp.org/eb/docs/2005/wfp043676~2.pdf

[25]OCHA. OCHA Orientation Handbook on Complex Emergencies, 1999, http://www.reliefweb.int/library/documents/ocha__orientation__handbook_on__.htm

[26] WHO. Guiding Principles for Feeding Infants and Young Children during Emergencies. Geneva, World Health Organization, 2004. http://whqlibdoc.who.int/hq/2004/9241546069.pdf

[27] WHO. WHO Child Growth Standards - Length/height-for-age, weight-for-age, weight-for-length, weight-for-height and body mass index-for-age –Methods and Development. Geneva, World Health Organization, 2006. http://www.who.int/childgrowth/standards/Technical_report.pdf

[28] Myatt M and Duffield A. Weight-for-height and MUAC for estimating the prevalence of acute undernutrition? - A review of survey data collected between September 1992 and October 2006. London, University college London, 2007. http://www.humanitarianreform.org/humanitarianreform/Portals/1/cluster%20approach%20page

/clusters%20pages/Nutrition/Myatt_SAVE_UK_MUAC_Nutrition_Cluster_Oct22_07_Section1_2_Optimized.pdf

[29] Seal A and Kerac M. Operational implications of using 2006 World Health Organization growth standards in nutrition programmes: secondary data analysis. British Medical Journal, 2007. http://www.bmj.com/cgi/content/full/334/7596/733

[30] de Onis M, Onyango AW, Borghi E, Garza C and Yang H; WHO Multicentre Growth Reference Study Group. Comparison of the World Health Organization (WHO) Child Growth Standards and the National Center for Health Statistics/WHO international growth reference: implications for child health programmes. Public Health Nutrition. 2006 Oct; 9(7):942-7. http://www.who.int/childgrowth/publications/Comparison_implications.pdf

[31] de Onis M and Yang H. Algorithms for converting estimates of child malnutrition based on the NCHS reference into estimates based on the WHO Child Growth Standards. BMC Pediatrics 2008, 8:19. http://www.who.int/childgrowth/publications/algorithms.pdf

[32] IASC. Transitioning to the WHO Growth Standards: Implications for Emergency Nutrition Programmes. IASC Nutrition Cluster Informal Consultation Meeting Report. Geneva, 2008.

[33] IASC Global Nutrition Cluster, and Standing Committee on Nutrition (SCN) Task Force on Assessment, Monitoring, and Evaluation, Fact sheet on the implementation of 2006 WHO Child Growth Standards for emergency nutrition programmes for children aged 6-59 months, March 2009. http://ocha.unog.ch/humanitarianreform/Portals/1/cluster%20approach%20page/clusters%20pages/Nutrition/Factsheet%20WHO%20Growth%20Standards%20in%20Emergencies%20March%2009.pdf

[34] WHO/UNICEF. WHO Child Growth Standards and the Identification of Severe Acute Malnutrition in Infants and Children – A Joint Statement by the World Health Organization and the United Nations Children's Fund, 2009.

[35] WHO/WFP/UNSCN/UNICEF. Community-Based Management of Severe Acute Malnutrition. A Joint Statement by the World Health Organization, the World Food Programme, the United Nations System Standing Committee on Nutrition and the United Nations Children's Fund, 2007. http://www.who.int/nutrition/topics/statement_commbased_malnutrition/en/

[36] WHO. Management of Severe Malnutrition: a Manual for Physicians and Other Senior Health Workers. Geneva: World Health Organization, 1999. http://whqlibdoc.who.int/hq/1999/a57361.pdf

[37] UNSCN (in collaboration with IFPRI). Fourth Report on the World Nutrition Situation - Nutrition Throughout the Life Cycle. Geneva, UNS/Standing Committee on Nutrition, 2000. http://www.unsystem.org/scn/archives/rwns04/begin.htm#Contents

[38] Collins S, Duffield A and Myatt M. Adults: Assessment of Nutritional Status in Emergency-Affected Populations. Geneva, the United Nations System Standing Committee on Nutrition, 2000. http://www.unsystem.org/scn/publications/RNIS/adultrnissupplement.pdf

[39] WHO. Physical Status: The Use and Interpretation of Anthropometry – Report of a WHO Expert Committee. Technical Report Series 854. Geneva, World Health Organization, 1995. http://www.helid.desastres.net/?e=d-000who--000--1-0--010---4-----0--0-10l--11en-5000---50-about-0---01131-001-110utfZz-8-0-0&a=d&cl=CL5.8&d=Jh0211e

[40] Collins, S. and Sadler, K. Outpatient care for severely malnourished children in emergency relief programmes: a retrospective cohort study. The Lancet 360, 2002: 1824-30. http://www.thelancet.com/journals/lancet/article/PIIS0140673602117703/fulltext

[41] WHO/UNICEF/UNSCN. WHO, UNICEF and SCN Informal Consultation on Community-Based Management of Severe Acute Malnutrition – SCN Nutrition Policy Paper No. 21. Geneva, World Health Organization, 2005. http://www.who.int/nutrition/topics/Meeting_report.pdf

[42] Khara T and Collins S. Community-Based Therapeutic Care (CTC) - ENN Special Supplement Series, No. 2. . Oxford, Emergency Nutrition Network, 2004. http://www.ennonline.net/fex/23/supplement23.pdf

[43] Collins S. Community-Based Therapeutic care - A New Paradigm for Selective Feeding in Nutritional Crises. London, Humanitarian Practice Network (HPN)/ Overseas Development Institute (ODI), 2004. http://www.odihpn.org/documents/networkpaper048.pdf

[44] Grobler-Tanner C. and Collins S. Community Therapeutic Care (CTC): A New Approach to Managing Acute Malnutrition in Emergencies and Beyond. Washington, D.C., Food and Nutrition Technical Assistance, 2004. http://www.proventionconsortium.org/themes/default/pdfs/71600-Guidelines-for-emergency-en.pdf http://www.fantaproject.org/downloads/pdfs/TN8_CTC.pd

[45] UNHCR/UNICEF/WFP/WHO. Food and Nutrition Needs in Emergencies. Geneva, World Health Organization, 2003. http://www.unhcr.org/publ/PUBL/45fa745b2.pdf

[46] WHO/UNICEF/ICCIDD. Assessment of Iodine Deficiency Disorders and Monitoring their Elimination. A guide for Programme Managers.' (2007) 3rd Ed.[Chapter 4] http://whqlibdoc.who.int/publications/2007/9789241595827_eng.pdf

[47] WHO/UNICEF/UNU. Iron Deficiency Anaemia Assessment, Prevention and Control - A Guide for Programme Managers. Geneva, World Health Organization, 2001. http://www.who.int/nutrition/publications/en/ida_assessment_prevention_control.pdf

[48] WHO/CDC Assessing the Iron Status of Populations. World Health Organization/Centre for Disease Control and Prevention (CD) - Technical Consultation on the Assessment of Iron Status at the Population Level. Geneva, 2004. http://whqlibdoc.who.int/publications/2004/9241593156_eng.pdf

[49] WHO/FAO. Vitamin and Mineral Requirements in Human Nutrition (Second edition). Geneva, World Health Organization, 2005.

[50] FAO/WHO. Vitamin A (chapter 7) in: Human Vitamin and Mineral Requirement: Report of a Joint FAO/WHO Expert Consultation Bangkok, Thailand. Rome, Food and Agriculture Organization, 2002. http://www.fao.org/DOCREP/004/Y2809E/y2809e0d.htm#bm13

[51] WHO/FAO. Guidelines on Food Fortification with Micronutrients. Geneva**,** World Health Organization, 2006. http://www.who.int/nutrition/publications/guide_food_fortification_micronutrients.pdf

[52] WHO. The World Health Report 2002 - Reducing Risks, Promoting Healthy Life. Geneva, World Health Organization, 2002. http://www.who.int/whr/2002/en/

[53] WHO/UNHCR. Thiamine Deficiency and its Prevention and Control in Major Emergencies. Geneva, World Health Organization, 1999. http://whqlibdoc.who.int/hq/1999/WHO_NHD_99.13.pdf

[54] WHO/UNHCR. Pellagra and Its Prevention and Control in Major Emergencies. Geneva, World Health Organization, 2000. http://www.wpro.who.int/internet/files/eha/toolkit/Technical%20Guidelines/Nutrition/Pellagra%20in%20Emergencies.pdf

[55] WHO/UNHCR. Scurvy and its Prevention and Control in Major Emergencies. Geneva, World Health Organization, 1999. http://whqlibdoc.who.int/hq/1999/WHO_NHD_99.11.pdf

[56] Seal A and Pruhdon C. Assessing Micronutrient Deficiencies in Emergencies - Current Practice and Future Directions. Geneva, UNS/Standing Committee on Nutrition, 2007. http://www.unsystem.org/SCN/Publications/RNIS/MicronutrientsSup.pdf

[57] Gorstein J, Sullivan KM, Parvanta I, Begin F. Indicators and Methods for Cross-Sectional Surveys of Vitamin and Mineral Status of Populations. The Micronutrient Initiative (Ottawa) and the Centre for Disease Control and Prevention (Atlanta), 2007.

[58] UCL/UNHCR. Micronutrient Malnutrition - Detection, Measurement and Intervention: A Training Package for Field Staff. (Handouts for Group Training). Geneva, UNHCR, 2003 http://www.ucl.ac.uk/cihd/research/nutrition/tools/mntraining

[59] WFP. Micronutrient Fortification: WFP Experiences and Ways Forward. Rome, World Food Programme, 2004. [Policy Document WFP/EB.A/2004/5-A/2] http://www.wfp.org/eb/docs/2004/wfp030132~2.pdf

[60] WHO. Salt as a Vehicle for Fortification - Report of a WHO Expert Consultation. Geneva, World Health Organization, 2008. http://whqlibdoc.who.int/publications/2008/9789241596787_eng.pdf

[61] UNICEF. Vitamin A Supplementation - A Decade of Progress. New York, The United Nations Children's Fund, 2007. http://www.unicef.org/publications/files/Vitamin_A_Supplementation.pdf

[62] WHO. Iron supplementation of Young Children in Regions where Malaria Transmission is Intense and Infectious Disease Highly Prevalent. Geneva, World Health Organization, 2006. http://www.who.int/child_adolescent_health/documents/pdfs/who_statement_iron.pdf

[63] WFP. Food and Nutrition Handbook. Rome, World Food Programme, 2000.

[64] WHO/UNICEF. Management of the Child with Serious Infection or Severe Malnutrition - Guidelines for Care at the First-Referral Level in Developing Countries. Geneva, World Health Organization, 2000. http://whqlibdoc.who.int/hq/2000/WHO_FCH_CAH_00.1.pdf

[65] The Partnership for Maternal, Newborn and Child Health. Opportunities for Africa's Newborns - Practical data, policy and programmatic support for newborn care in Africa. Geneva, World Health Organization, 2006. http://www.who.int/pmnch/media/publications/oanfullreport.pdf

[66] WHO/UNICEF/UNAIDS/UNFPA. HIV and Infant Feeding: New Evidence and Programmatic Experience. Report of a Technical Consultation held in Geneva, 25-27 October 2006. Geneva, World Health Organization, 2007 http://whqlibdoc.who.int/publications/2007/9789241595971_eng.pdf

[67] UNHCR. Guidance on Infant feeding and HIV in the Context of Refugees and Displaced Populations. Geneva, United Nations High Commissioner for Refugees, 2008. http://www.unhcr.org/publ/PUBL/488d85882.pdf

[68] WFP. Fortified Blended Foods Recipes-Facts and Practical Uses. Rome, World Food Programme, 2002. http://www.usaid.gov/our_work/humanitarian_assistance/ffp/50th/wfp_recipes.pdf

[69] Manary, MJ. Local production and provision of ready-to-use therapeutic food (RUTF) spread for the treatment of severe childhood malnutrition. Food and Nutrition Bulletin, vol. 27, No. 3 (supplement. The United Nations University, 2006. http://www.fantaproject.org/downloads/pdfs/FNB_27_3_2006_e.pdf

[70] WHO. Diet, Nutrition and the Prevention of Chronic Diseases. Report of a Joint WHO/FAO Expert Consultation on. Geneva, World Health Organization, 2003 (WHO Technical Report Series, No. 916). http://whqlibdoc.who.int/trs/WHO_TRS_916.pdf

[71] UNHCR. Procurement of Relief Items – Prequalification of Suppliers (Pre-qualifications of Therapeutic Milk and Ready-To-Use Food). Geneva, United Nations High Commissioner for Refugees, 2006. http://www.unhcr.org/admin/ADMIN/4860c3d34.pdf

[72] WFP/UNHCR. NutVal. Rome, World food Programme 2008. http://www.nutval.net/ or http://www.nutval.net/2008/05/download-page.html

[73] UCL/ENN/ACF. A Retrospective Review of the Current Field Management of Acutely Malnourished Infants under 6 Months of Age. London, UCL Centre for International Health and Development Institute of Child Health, 2008 http://www.ucl.ac.uk/cihd/research/nutrition/mami and http://www.ennonline.net/ife/

[74] WHO. Severe Malnutrition: Report of a Consultation to Review Current Literature 6-7 September 2004. Geneva, World Health Organization, 2004. http://www.who.int/nutrition/publications/Lit_review_report.pdf

[75] WHO. WHO Child Growth Standards: Training Course on Child Growth Assessment Modules. Geneva, World Health Organization, 2006. http://www.who.int/childgrowth/training/en/

[76] WFP. Food Distribution Guidelines. Rome, World Food Programme, 2007.

[77] FAO/WHO/UNU. Human Energy Requirements. Report of a Joint FAO/WHO/UNU Expert Consultation, 17-24 October 2001, Rome, Italy. Rome, UNU/WHO/FAO, 2004 http://www.fao.org/docrep/007/y5686e/y5686e00.htm

[78] WHO. Nutrient Requirements for People Living with HIV/AIDS - Report of a Technical Consultation. Geneva, World Health Organization, 2003. http://www.who.int/nutrition/publications/Content_nutrient_requirements.pdf

[79] IASC. Guidelines for HIV/AIDS Interventions in Emergency Settings. Interagency Standing Committee, 2004. http://www.unfpa.org/upload/lib_pub_file/249_filename_guidelines-hiv-emer.pdf

[80] UNAIDS/UNHCR/WFP. The Development of Programme Strategies for Integration of HIV, Food and Nutrition Activities in Refugee Settings. UNAIDS Best Practice Collection. Geneva, Joint United Nations Programme on HIV/AIDS, 2006. http://www.who.int/hac/techguidance/pht/UNAIDS_BP_HIV_Nut_in_Refs2006.pdf

[81] Hutton D. Older People in Emergencies: Considerations for Action and Policy Development. Geneva, World Health Organization, 2008. http://www.who.int/ageing/publications/Hutton_report_small.pdf

[82] HelpAge International. Addressing the Nutritional Needs of Older People in Emergency Situations in Africa: ideas for action. London, HelpAge International, 2001. http://www.helpage.org/Resources/Manuals

[83] UNHCR. Health Information System (HIS) - A Training Manual to Support Implementation in Refugee Operations. Geneva, High Commissioner for Refugees, 2007. http://www.unhcr.org/protect/461e56404.html

[84] Navarro-Colorado, C; Mason, F; Shoham, J. *Measuring the effectiveness of Supplementary Feeding Programmes in emergencies.* ODI Humanitarian Practice Network. Network Paper n.63. September 2008. http://www.ennonline.net/pool/files/research/Retrospective_Study_of_Emergency_Supplementary_Feeding_Programmes_June%202007.pdf

[85] UNHCR. Health Information System (HIS) – Standards and Indicators Guide (Revised February 2008). Geneva, High Commissioner for Refugees, 2008. http://www.unhcr.org/protect/PROTECTION/4614ab8e2.pdf

[86] WHO. Communicable Disease Control in Emergencies - A Manual. Geneva, World Health Organization, 2005. http://whqlibdoc.who.int/publications/2005/9241546166_eng.pdf

[87] WHO. The Use of Malaria Rapid Diagnostic Tests (2nd edition). Geneva, world Health Organization, 2006. http://www.wpro.who.int/NR/rdonlyres/A30D47E1-1612-4674-8DF8-FCA031CDB9BA/0/Reduced_web2_MalariaRDT_20062ndedition.pdf

[88] WHO. Five Keys to Safer Food Manual. Geneva, World Health Organization, 2006. http://www.who.int/foodsafety/publications/consumer/manual_keys.pdf

[89] WHO/UNHCR. Tuberculosis Care and Control in Refugee and Displaced Populations: an Interagency Field Manual. Stop TB. Geneva, World Health Organization, 2006. http://whqlibdoc.who.int/publications/2007/9789241595421_eng.pdf

[90] USAID/AED/WFP. Food Assistance Programming in the Context of HIV. Washington, DC: FANTA Project, Academy for Educational Development, 2007. http://www.wfp.org/food_aid/doc/Food_Assistance_Context_of_HIV_Oct_edits.pdf

[91] IASC. The Need for HIV/AIDS Interventions in Emergency Settings. Interagency Standing Committee, 2006. http://data.unaids.org/Publications/External-Documents/IASC_EmergencyBrochure_en.pdf

[92] IASC. Guidelines for HIV/AIDS Interventions in Emergency Settings. Interagency Standing Committee, 2004. http://www.unfpa.org/upload/lib_pub_file/249_filename_guidelines-hiv-emer.pdf

[93] WHO/UNICEF/LINKAGES/IBFAN/ENN. Infant Feeding in Emergencies – Module 1 Slides for Emergency Relief Staff. Oxford, Emergency Nutrition Network (ENN), 2008. http://www.ennonline.net/pool/files/ife/mod-1-pwrpoint-updated-feb-2008(3).ppt