ERITREA
MINISTRY OF HEALTH

National Guideline for Integrated Management of Acute Malnutrition (IMAM)

December 2010

unicef
unite for children

Acknowledgement

The Ministry of Health (MoH) extend its profound appreciation to UNICEF Eritrea for the generous financial and technical assistance in the production of our initial edition of Integrated Management of Acute Malnutrition (IMAM) guideline. MoH (Nutrition Unit) provided the overall direction to the production of this guideline.

The draft of this document was prepared by Mohamed B.K. Foh (PhD), UNICEF Consultant to whom we acknowledge his technical input, commitment and dedication.

Appreciation goes to all individuals who in one way or the other contributed in making the production of the guideline a reality. In particular, gratitude to MoH Units Heads, pediatricians, Medical directors, Zoba Health Coordinating offices, Health workers attached to nutrition programmes and UNICEF staffs, WHO staffs and other MoH partners for their time, technical contribution and devotion throughout the entire process.

Abbreviations

ACT	Artemisinin Combination Therapy
AIDS	Acquired Immunodeficiency Syndrome
ART	Anti-Retroviral Therapy
ARV	Anti-Retroviral (drugs used against HIV/AIDs)
BMI	Body Mass Index (Kg weight per height in metres squared – Kg/m2)
BSF	Blanket Supplementary Feeding
CBTF	Community-based therapeutic Feeding (SAM without medical Complication)
CHW	Community Health Worker
C-IMNCI	Community-Integrated Management of Neonatal and Childhood Illness
CMAM	Community Based Management of Acute Malnutrition
CMV	Combined Vitamins and Minerals (used in preparing therapeutic diets)
CTC	Community Therapeutic Care
CV	Community Volunteer
DHS	Demographic Health Survey
ENA	Essential Nutrition Action
EPI	Expanded Programme on Immunisation
FBTF	Facility-based Therapeutic Feeding (SAM with medical complication)
F100	Therapeutic milk used in Transition Phase and Phase 2 of treatment of SAM (for in-patients only)
F75	Therapeutic milk used only in Phase 1 of treatment for SAM
GAM	Global Acute Malnutrition
GM	Growth Monitoring
GMP	Growth Monitoring and Promotion
>	Greater than
≥	Greater than or equal to
HIV	Human Immunodeficiency Virus
IU	International units
IYCF	Infant and Young Child Feeding
LLINs	Long Lasting Insecticide Treated Nets
MAM	Moderate Acute Malnutrition
MoH	Ministry of Health
MNCH	Maternal, Newborn and Child Health Services
MUAC	Mid- Upper Arm Circumference
NCHS	National Centre for Health Statistics (USA anthropometric standards)
NGT	Naso-Gastric Tube

OTP	Outpatient Therapeutic Programme
ORS	Oral Rehydration Salts
PLW	Pregnant and Lactating Women
PMTCT	Prevention of Mother to Child Transmission
PLWHA	Person Living With HIV /AIDS
ReSoMal	REhydration SOlution for severely MALnourished patients
RUTF	Ready-to-Use Therapeutic Food
RWG	Rate of Weight Gain
SAM	Severe Acute Malnutrition
SD	Standard Deviations (= Z scores)
SFP	Supplementary Feeding Programme
SST	Supplementary Suckling Technique
TB	Tuberculosis
TFP	Therapeutic Feeding Program
UNICEF	United Nations Children Fund
VCT	Voluntary Counselling and Testing
WASH	Water, Sanitation and Hygiene
WFH	Weight-for-Height (Z scores)
WFP	World Food Programme
WHO	World Health Organisation
W/L	Weight for Length
Z score	Z score = Standard Deviations

Table of contents

Acknowledgment i
Abbreviations ii
Table of Contents iv
List of Annexes ix
List of Tables x
List of Figures x

Chapter 1

Introduction

1.1. Purpose of the guidelines 1
1.2. How to use the guidelines 1

Chapter 2

Community Mobilisation

2.1. Steps in Community Mobilisation for IMAM 2
2.1.1. Planning 2
2.1.2. Community Assessment 3
2.1.3. Formulating a Community Mobilisation Strategy 3
2.1.4. Developing messages and materials 3
2.1.5. Implementation strategy 4
2.1.6. Case Finding 4
2.1.7. Follow up activities 7

Chapter 3

Management of Acute Malnutrition

3.1. Overview of Malnutrition 8
3.2. Causes of acute malnutrition 8
3.3. Triage of Acute Malnutrition 9
3.3.1. Diagnosis and Referral of Acute Malnutrition 9
3.4. STEPS ON ADMISSION 11

Chapter 4

Facility-based Therapeutic Feeding (FBTF), Children (≥ 6 months) with SAM and Medical Complications

4.1. Admission procedure 13
4.1.1. Criteria for admission to FBTF 13
4.1.2. Proposed Condition of Admission room in FBTF 13
4.2. The supplies and staff requirement for FBTF: 14
4.3. Steps for routine care 14
4.4. MEDICAL COMPLICATIONS (Treatment and Prevention) 15
4.4.1. Hypoglycaemia 15
4.4.2. Hypothermia 15
4.4.3. Dehydration and Septic shock 16
4.4.4. Septic (or toxic) shock 21
4.4.5. Heart failure 22
4.4.6. Absent bowel sounds, gastric dilatation and intestinal splash with abdominal distension. 24
4.4.7. Severe anaemia 25
4.4.8. Infection 25
4.4.9. Micro-nutrients deficiency and supplementation 26
4.4.9.1.Vitamin A deficiency 26
4.4.9.2. Folic Acid 26
4.4.9.3. Iron Supplementation 26
4.4.9.4. If moderate anaemia is identified: 26
4.4.9.5. Other Nutrients (Micro-nutrients) 26
4.5. PHASE 1 26
4.5.1. Things NOT to do: 26
4.5.2. Diet to use 26
4.5.3. Preparation of F75 27
4.5.4. Feeding Technique for Severely Malnourished Children 27
4.5.4.1. Naso-gastric Feeding 28
4.5.4.2. The reasons for use of an NG tube are: 28
4.5.5. Routine Medication for Severe Acute Malnutrition 28
4.6. Criteria to progress from Phase 1 to Transition Phase 29
4.7. TRANSITION PHASE 29
4.7.1. Diet to use 29
4.7.2. Preparation of F100 30
4.7.3. Routine Medicine in Transition phase 30
4.7.4. Criteria to Progress from Transition Phase to Phase 2 30
4.8. PHASE 2 30
4.8.1. Diet to use 31
4.8.2. Preparation of F100 31
4.8.3. Routine Medication in Phase 2 31
4.8.3.1. Iron 31
4.8.3.2. De-worming 31
4.9. Monitoring Recovery 32
4.9.1. Surveillance in Phase 1 and in Transition Phase – 32
4.9.2. Surveillance in phase 2 32
4.9.3. Failure to respond to treatment 32
4.9.4. Preparation for Discharge 33

4.10. DISCHARGE 33
4.10.1. Discharge Criteria for Recovered Patients 33
4.10.2. Medications to Administer on Discharge 33

Management of Acute Malnutrition in Infants less than six months with a prospect of Being Breastfed

4.11. Introduction 34
4.12. Screening and Admission Procedure 34
4.12.1. Screening 34
4.12.2. Admission Criteria 34
4.13. Nutrition Support: Diet, Frequency, and Suckling Technique 34
4.13.1. Preparing of F100 DILUTED 35
4.13.2. Follow-up 35
4.13.3. Supplementary Suckling Technique 36
4.13.3.1. Cleaning the tube 37
4.14. Routine medicine 37
4.15. Care for the mother 37
4.16. Discharge criteria 38

Management of Acute Malnutrition in Infants less than six months without a prospect of Being Breastfed

4.13. Introduction 39
4.14. Screening and Admission Procedure 39
4.15. Nutrition Support: Diet and Frequency 39
4.15.1 Phase 1 39
4.15.2. Transition Phase 39
4.15.3. Phase 2 In-patient 40
4.16. Discharge Criteria 40

Chapter 5

Community Based Therapeutic Feeding (CBTF)
For Severe Acute Malnutrition without Medical Complications

5.1. Facility Planning (For expansion of CBTF) 41
5.1.1 Staff Planning 41
5.1.2. Equipment and supplies 42
5.2. Target Group 42
5.3. Admission criteria to CBTF 42
5.3.1. Admission Procedures 43
5.4. RUTF Administration and quantity. 43
5.4.1. Role of the Parent or Caregiver 43
5.4.2. Role of the Health Workers 44
5.5. Routine Medicines 44
5.5.1. Vitamin A 44
5.5.2. Folic acid 45
5.5.3. Other Micronutrients 45
5.5.4. Systemic Antibiotics 45
5.6. Follow Up Procedures 45
5.6.1. Treatment Success 46
5.6.2. Failure to Respond to Treatment 46
5.6.3. Possible causes of failure 46
5.7. Criteria for transfer from CBTF to FBTF 46
5.7.1. Criteria for failure to respond and transfer to FBTF 47
5.8. Discharge procedures 47

5.8.1. Discharge Criteria 47
5.9. Monitoring and Reporting CBTF activities 47

Chapter 6

Management of Moderate Acute Malnutrition in Supplementary Feeding Programme (SFP)

6.1. Introduction 48
6.2. Facility Planning 48
6.2.1. Staff planning 48
6.2.2. Equipment and Supply Planning 48
6.3. Target Group 49
6.3.1. Special target groups 49
6.4. Screening and Admission Procedures 49
6.4.1. Steps to identify moderately malnourished patients: 49
6.4.2. Admission and Discharge Criteria for Moderate Malnutrition 50
6.4.3. Standard Medical Examination 50
6.5. Nutritional management – Dry ration 50
6.5.1. Quantity and quality of the ration (UNIMIX), Annex 6.4 50
6.6. Link activities in the SFP 50
6.7. Routine Treatment 50
6.8. Procedure for follow up visits and monitoring 50
6.8.1. Nutrition Counselling 51
6.8.2. Possible reasons for failure to respond 51
6.8.3. Steps to take for failure to respond to treatment 51
6.9. Discharge Criteria 52
6.9.1. Referral for CBTF or FBTF 52
6.10. Monitoring and Reporting 52

Chapter 7

Services and programmes to prevent Acute Malnutrition

7.1. Infant and Young Child Feeding (IYCF) 54

7.1.1. Breastfeeding 54
7.1.2. Ten Steps to Successful Breastfeeding 54
7.1.3 Common breastfeeding difficulties 54
7.1.4. Infant feeding in the context of HIV
7.2. Nutrition, health and hygiene promotion 54
7.3. Growth Monitoring & Promotion & Counselling 56
7.4. Home management of Sick Children 56
7.5. Blanket Supplementary Feeding, BSF 56

Chapter 8

Management of Malnutrition in Children with HIV

8.1. Summary of General Nutrition Practices in HIV-infected infants & children .. 59
8.2. Some of the ways to encourage a child to eat 60
8.3. Infant Feeding for HIV-exposed Infants 62
8.4. Recommendation with regards to Breastfeeding 63

Chapter 9

Monitoring and Reporting

9.1. Introduction 64
9.2. Recording and referral system 64
9.2.1. The Registration book 64
9.2.2. "Multi-chart" 64
9.3. Preparing the monthly statistics report 65
9.3.1. Quantitative indicators 65
9.3.2. Monthly statistics report 65
9.4. Admission records 65
9.5. Discharge records 66
9.6. Total end of the month 66
9.7. Minimum standards 68

Chapter 10

Emotional and Physical Stimulation

10.1. Emotional stimulation and play 69
10.2. Physical activity 69

References 71

List of Annexes

Annex 2.1. Community Volunteer Screening Form 72
Annex 2.2. Community Volunteer Referral Form 72
Annex 2.3. Checklist for home Follow-up 73

Annex 3.1a. Checklist to Identify Reasons for Acute Malnutrition 74
Annex 3.1b. Characteristics of Acute Malnutrition 76
Annex 3.2. Appetite Test 77
Annex 3.3. Anthropometric Measurements Technique 80
Annex 3.4. Calculating Weight-for-height 85
Annex 3.5. Weight-for-Length and Weight-for-Height Charts for Boys and Girls 86
Annex 3.6. Guidance table to identify target weight 88
Annex 3.7. Weight-for-Age, Length/Height-for-Age WHO Chart 2006 (Boys and Girls) 89

Annex 4.1a. Criteria of admission and discharge 91
Annex 4.1b. In-patient (FBTF) Treatment Multi-Chart for Severe Acute Malnutrition 92
Annex 4.2. Recipes for F75, F100 and ReSoMal using CMV 96
Annex 4.3. Transition Phase RUTF quantity per kg of body weight 97
Annex 4.4. Example Registration book – in-patients and out-patients 98
Annex 4.5. History and Examination sheet for severe malnutrition 99
Annex 4.6. The physiological basis for the treatment of severe acute malnutrition 102
Annex 4.7. Transfer Form – SAM 104
Annex 4.8. Systematic Antibiotics 105

Annex 5.1. Out Patient Therapeutic Care (CBTF) Admission Card 107
Annex 5.2. Out Patient Therapeutic Care (CBTF) Ration Card 109
Annex 5.3. Out Patient Therapeutic Care (CBTF) Routine Medicines 110
Annex 5.4. RUTF Specification 111

Annex 6.1. Registration book – Supplementary Feeding Programme 112
Annex 6.2. Registration Form – Blanket Supplementary Feeding Programme (Children 6-59 months) 113
Annex 6.3. Registration Form – Blanket Supplementary Feeding Programme (Pregnant Women / Breastfeeding Mothers) 114
Annex 6.4. Quantity and quality of the ration (UNIMIX) 115

Annex 7.1. Recommended complementary feeding practices 116
Annex 7.2. Nutrition, Health and Hygiene Education 117
Annex 7.3. IYCF 3-step counselling /'Reaching an agreement' 118

Annex 9.1. Therapeutic feeding Monthly Reporting Format 120
Annex 9.2. Outpatient Therapeutic feeding Monthly Reporting Format 123
Annex 9.3. Supplementary Feeding Monthly Reporting Format 124
Annex 9.4. Out Patient Therapeutic care (CBTF) Ration card 125
Annex 9.5. Supervision Checklist 126
Annex 9.6. Monthly Stock Balance Report 129
Annex 9.7. Monthly Statistics report (From Zonal office to MoH Head Quarter) 130
Annex 9.8. Scaling-up Supplementary Feeding Programme Monthly report Form 131
Annex 9.9. Stages in Reporting 132

Annex 10.1. Examples of Handmade Toys for Malnourished Children 133

List of Tables

Table 3.1. Diagnostic criteria for SAM in children aged 6–59 months ……..……..... 10

Table 4.1. Routine Medication for severe Acute Malnutrition ……..….. 28
Table 4.2. Amounts of F100 diluted to give for infants ……...…... 35
Table 4.3a. Amounts of F100 diluted or F75 to give for infants not breast-fed in Phase 1 ……..…..……. 39
Table 4.3b. Amounts of F100 diluted to give for infants not breast-fed in Phase 2 ……... 40

Table 5.1. Vitamin A systematic treatment ……..…..… 44

Table 8.1. Energy needs of HIV-infected children (kcal/day) ……...…….. 60
Table 8.2. Clinical and Laboratory monitoring of HIV infected infants and children ……..… 62

Table 9.1: Reference values for the main indicators ©Sphere project …… 68

List of Figures

Figure 2.1. Stages in community mobilisation ……..……..…… 2
Figure 2.2. Community screening for acute malnutrition ……..……. 5

Figure 3.1. Classification of Acute Malnutrition ……...…… 8
Figure 3.2. UNICEF Conceptual Framework: Causes of Malnutrition ……..……... 9
Figure 3.3. Kwashiorkor and Marasmus ……...…… 9
Figure 3.4. Overview of Management of Acute Malnutrition …….....…….. 10

Figure 4.1. Supplemental Suckling Technique ……..…..… 37

Chapter 1

Introduction

Malnutrition is a serious public health concern across the world, especially for children under-five years of age who are at high risk of morbidity and mortality. While the global child mortality figure has seen a decline in recent years (approximately 8.8 million deaths per year in 2008, down from 12.5 million in 1990, UNICEF 2009), rates of child and maternal mortality across Sub-Saharan Africa remain high.

In the past few years, the nutritional status of young children under five years of age in Eritrea has been deteriorating. Official figures from 2005/2006 indicate acute under-nutrition rates in children under five-years to be between 11 per cent in zoba (region) Maekel and 21 per cent in zoba Gash Barka. These figures also accounted for micronutrient deficiencies in iodine (25 per cent), iron (34 per cent) and Vitamin A (42 per cent). Under-nutrition among women of child-bearing age is estimated at 38 per cent nationally and at 53 per cent in the most severely drought-affected regions again based on 2006 figures. The percentage of infants with low birth-weight rate increased from 11.3 per cent in 2002 (EDHS) to 14 per cent in 2006. The prevalence of underweight children is 40 per cent.

To prevent further deterioration in the nutritional status of children under five and pregnant and breastfeeding women, the Government of Eritrea with the support of different partners including UNICEF initiated short term measures, supplementary feeding to the moderately malnourished children, pregnant and breastfeeding mothers and therapeutic feeding for those children who are severely malnourished. HIV positive children are at high risk for malnutrition, and therefore should be closely monitored since their energy need is high and especially when found to have had weight loss. Adequate management of HIV infection in children with SAM is critical for effective treatment of malnutrition.

Ministry of Health with the support of UNICEF initiated integrated management of acute malnutrition (IMAM) in 2007 in Eritrea, making strong linkages with the communities through Facility Based Therapeutic Feeding (FBTF), Community Based Therapeutic Feeding (CBTF) and Supplementary Feeding Programme (SFP) to tackle malnutrition of under five-years children in a comprehensive way. Key for the implementation of IMAM is its integration into existing services and to establish links with other health and nutrition activities e.g. Infant and Young Child Feeding (IYCF), Community-Integrated Management of Neonatal and Childhood Illness (C-IMNCI), HIV/AIDS/TB, Community water and sanitation and related strategies.

There is an urgent need to develop the IMAM guideline, will serve as an operational tool for national, zonal, and community level MoH staff, as well as other partners, involved in implementing IMAM.

1.3. Purpose of the guidelines

The National Guideline for Integrated Management of Acute Malnutrition was developed as a tool to assist health workers; strengthen capacity to manage, plan, deliver, monitor and report IMAM services through existing health facilities. To treat acute malnutrition successfully, the guidelines must be used in their entirety. Strict implementation of the guidelines can significantly contribute towards reducing the under-five mortality rate due to acute malnutrition.

1.4. How to use the guideline

The National Guideline for Integrated Management of Acute Malnutrition is intended for use by health worker and community volunteers supported by the required level of training and with adequate resources to perform the activities and manage acute malnutrition in a safe and effective manner.

The guidelines will be used by training institutions to standardize the management of acute malnutrition. One chapter may refer to another section for additional information that will improve reader's understanding.

Chapter 2

Community Mobilisation

Community Mobilisation aims to engage and inform the community about acute malnutrition and IMAM, to achieve and sustain high coverage. The various activities in the mobilisation process allow IMAM health workers to understand and anticipate opportunities; challenges and constraints to community participation and access to service and uptake.

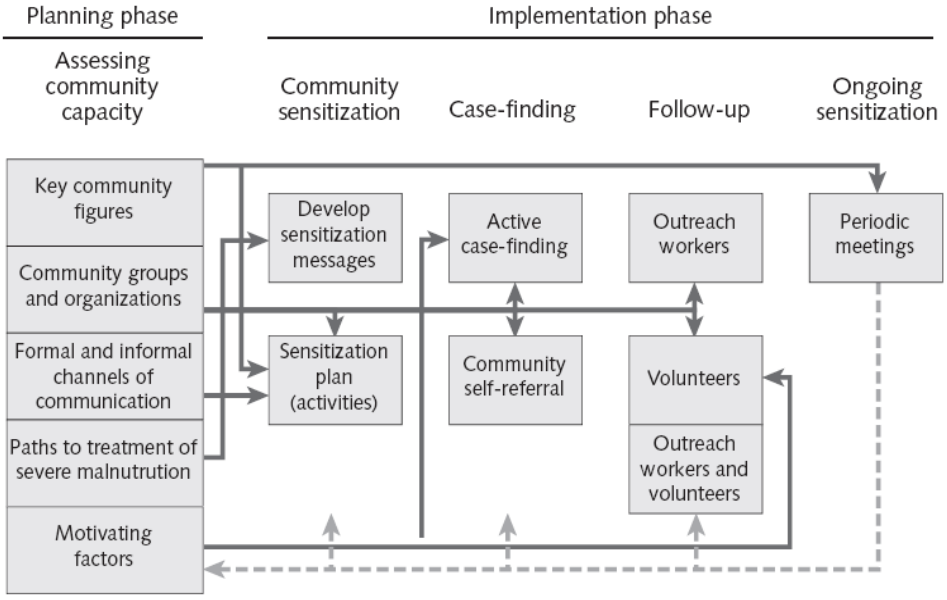
The key objectives for community mobilisation are:

- Providing accurate information about IMAM services and creating demand for interventions
- Increasing access to services, Strengthen early case-finding, referral and follow up
- Scaling up interventions to achieve maximum coverage
- Increasing effectiveness and efficiency of interventions
- Mobilizing and utilizing community resources for IMAM
- Strengthening the links between health care providers and the community
- Reaching the most vulnerable
- Addressing the underlying causes of malnutrition
- Increasing community ownership and sustainability

2.1. Steps in Community Mobilisation for IMAM

Although community mobilisation for IMAM is a continuous process, it can be conceptualised as being divided into 5 areas as follows:

Figure 2.1. Steps in community mobilisation



Collins S., et al. Key issues in the success of community based management of severe malnutrition. Food and Nutrition Bulletin, vol. 27, no. 3 (supplement) © 2006, The United Nations University

2.1.1. Planning

An initial assessment and the subsequent development of adapted messages and materials and planning for a community mobilisation strategy is the responsibility of the MoH, Zoba health coordinating office, Health workers, School groups, religious groups, business groups etc)

Community volunteers (CVs) should be trained on MUAC measurements and detection of oedema, home follow up of cases and sensitisation and work in collaboration with health facility staff.

2.1.2. Community Assessment

A community assessment is the first task and the learning phase in preparation for community mobilisation. It will provide planners with an idea of how the community is organised, how undernutrition is understood there, how the new service is likely to be received, and how the community can best support the IMAM service.

Information should be collected from local people in the target communities and from staff and caregivers of young children at selected health facilities using qualitative methodology. The following are likely to impact on service delivery, demand and access:

- Community perceptions of malnutrition and health seeking behaviour
- Key community figures
- Existing community-based organisations and groups
- Potential candidates for community health worker/community volunteer role
- Existing links and communication systems between health facilities and the community
- Formal and informal channels of communication
- Community Structure
- Barriers to Access

2.1.3. Formulating a Community Mobilisation Strategy

The community mobilisation strategy should:

- **Address the barriers to access identified in the assessment:** ensure cooperation of key community figure to gain community participation, including marginalised or difficult to reach populations, so as to maximise coverage. Identify cultural practices that exist which may prevent children attending treatment.
- **Build case-finding around the skills and resources identified during the assessment:** Designate health staff to take responsibility for supervising case finding efforts Assign health facility staff to make periodic home visits(e.g. for health or nutrition education) and active SAM case finding.

2.1.4. Developing messages and materials

The use of simple, standardised messages to explain IMAM (Why, how, to whom and when it is offered,) will help to build on accurate information. Messages need to be informative but concise – designed if necessary to be read aloud to an illiterate audience. They should be translated into the relevant local languages, and adapted as necessary for different audiences. Core information to be communicated in most settings includes the following:

- Description of the target children also using local descriptive terms for wasting (very thin) and oedema (swelling). Care should be taken to identify and avoid the use of local terms which may be associated with stigma.
- Explanation of the benefits of IMAM, noting that children with SAM who are not sick can be treated at home meaning that caregivers no longer need to leave the family.
- Explanation about the identification and referral process by community health worker/community volunteers in the community noting that very thin children can also self-refer to the nearest health facility to be checked.

- The time and date of Community based Therapeutic Feeding (CBTF) sessions at the nearest health facility.

Visual Aids

Visual aids enhance the impact of messages. Pictures depicting SAM children with the most easily recognisable symptoms of oedema and wasting for the community will strengthen communications, and are an important means of avoiding some of the cultural and linguistic obstacles to describing the target population.

Selecting a local term/name for RUTF (Ready to Use Therapeutic Food)

Identify and use an appropriate term in the local language to communicate that the RUTF is medicine. This will help to minimise misunderstandings about the services and the product when it is in use.

2.1.5. Implementation strategy

Raising Community Awareness

The community needs to be informed about the IMAM services available. If community members are unaware of the service, or the type of children it treats, or are confused or misinformed about its purpose, they may not benefit from it or may even prevent others from benefiting.

Raising community awareness works best through existing channels, organisations and structures within the community. The overall challenge is to provide access to IMAM in the most effective way. As new services are initiated, ineligible children should be discouraged from coming while as many eligible ones as possible must be encouraged to come. Rejection of children at health facilities is a referral mistake and can rapidly impact on community participation. Handling inadmissible children and their caregivers in a positive and informative way is paramount and can also contribute to raising awareness.

The following is a suggested order of priority through which IMAM awareness raising activities may be carried out:

- Start with **Key community figures**, and a meeting at the health facility to orient them to IMAM
- Use selected **formal channels of communication** e.g. Village meetings, committee meetings, health days and education sessions, church services or mosques, pharmacies
- Use **informal channels** e.g. Social gatherings, Encourage **Caregivers of beneficiaries** to bring other thin or swollen children that they know**.**

2.1.6. Case Finding

Early detection of acutely malnourished children is essential for the success of their treatment and should be done at community level and in health facilities. Health facilities play a critical role in confirming the eligibility of children referred by the community and ensuring they are enrolled in the appropriate service (nutrition/medical). In IMAM, case finding is categorised into active and passive.

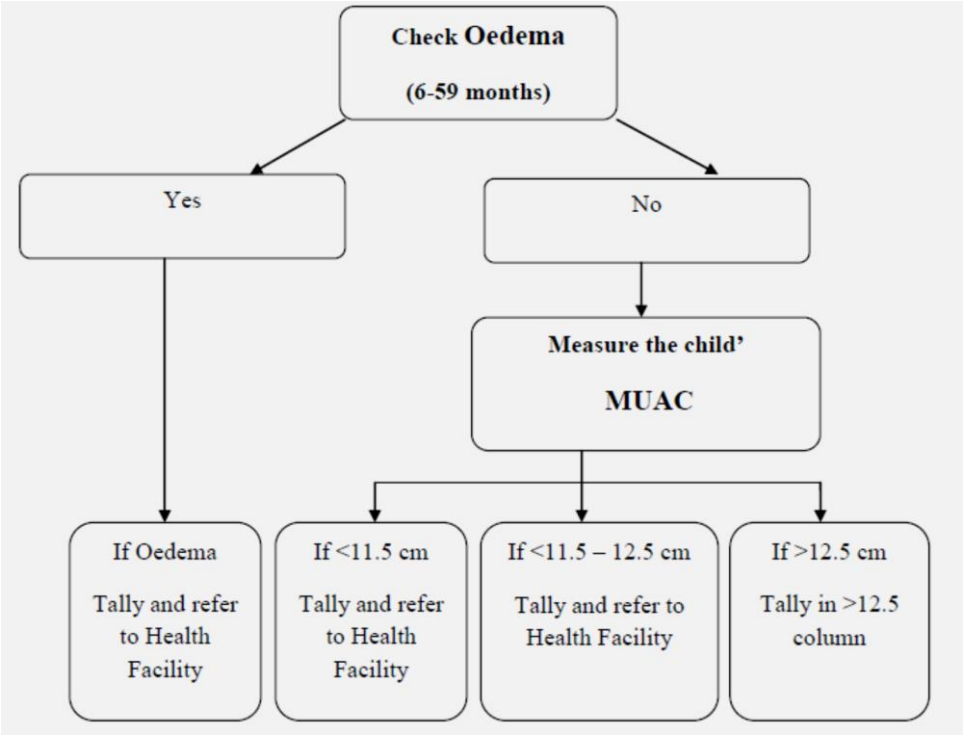
- **Active case finding**: - An early stage of identifying acutely malnourished children by community volunteers (CVs).
- **Passive case finding: -** refers to identification of acutely malnourished children by health workers during routine child visits and/ or consultation at the health facility.

Case Finding in Health Facilities

In health centres, clinics or health posts staff should also screen with MUAC and oedema checks, all children arriving to the facility including those who are growth faltering or registered in HIV or TB programmes. This should be regarded as a standard element of assessment and done

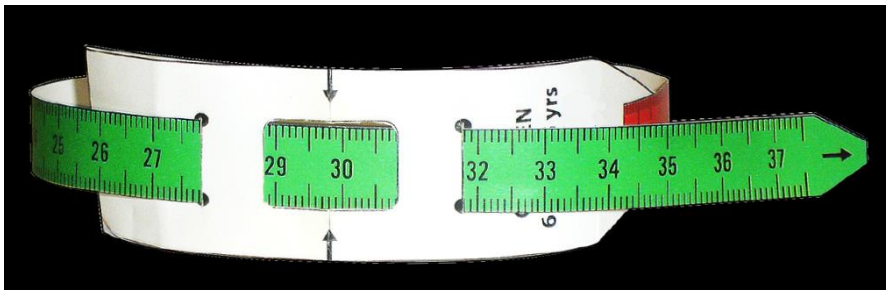
during regular child clinic visits (EPI, Growth Monitoring & Promotion etc) or when children are sick and attend other consultations.

Figure 2.2. Community screening for acute malnutrition









Severe Acute Malnutrition	Moderate Acute Malnutrition	Normal
• MUAC < 11.5 cm (**Red**) • WHM < -3 SD • Bilateral pitting oedema	• MUAC < 12.5cm (**Yellow**) • WHM < -2 SD • No oedema present	• MUAC > 12.5CM (**Green**) • WFH > - 2 SD • No oedema
Assess for; • Severe oedema +++ • Marasmic kwashiorkor • medical complications • Poor Appetite for RUTF	Give nutritional advice or refer to SFP. See chapter 6 Good appetite for supplementary foods	Praise mother and give advice for future nutrition needs to be sustained

Training of case finders - CVs
Practical training is a prerequisite for all those who will be directly involved in IMAM case-finding in the community. Training should be organised regularly. The selection of volunteers for training should not be restricted to those who are literate only

Community health worker/community volunteers will suffer a loss of credibility if children are referred yet not admitted due to the use of different criteria

Active case-finding in the community should be conducted on a regular and correct basis.

- Time devoted to IMAM activities should be acceptable by the CVs.
- A targeted approach of prioritising the measurement of children 6-59 who exhibit relevant signs and symptoms for malnutrition and/or associated illnesses is usually more effective than a 'blanket screening' approach where all children are involved.
- Measurements can be performed by health workers and community volunteers during scheduled community activities (e.g. growth monitoring & promotion, maternal, newborn & child health weeks) and in an unscheduled way at community events and gatherings where children will be present.

Note: Repeatedly (and unnecessarily) seeking to measure healthy children who are then not referred may lead to 'screening fatigue' and discourage caregivers, who assume their child can never benefit from the service (especially if this happens more than three times in succession). Screening for acute malnutrition should be coordinated and integrated at every opportunity into community based health activities such as Maternal Newborn & Child Health Week

REFERRAL: CVs should refer all children presenting with bilateral pitting oedema or with MUAC <12.5cm to the closest Health Facility

Pictorial guides on how to carry out accurate weight and height measurements are in (Annex 3.3) in addition to the weight for height charts (new WHO standards) used as references.

2.1.7. Follow up activities

An essential element of support in the community is in the follow up of beneficiaries at home. Follow up may be requested by the CBTF staff for the following reasons;

- Absenteeism

- Defaulting
- Death
- Children recently discharged from stabilisation care
- Children not progressing as expected during treatment in CBTF

The outcome of follow up visits should be documented by the volunteer and noted on the Child Health Card by the health worker. If the volunteer is illiterate then verbal reports should be documented by the health worker. The following three forms are working tools for CVs.

Annex 2.1. Community Volunteer Screening Form

Annex 2.2: Community Volunteer Referral Form

Annex 2.3: Checklist for home Follow-up

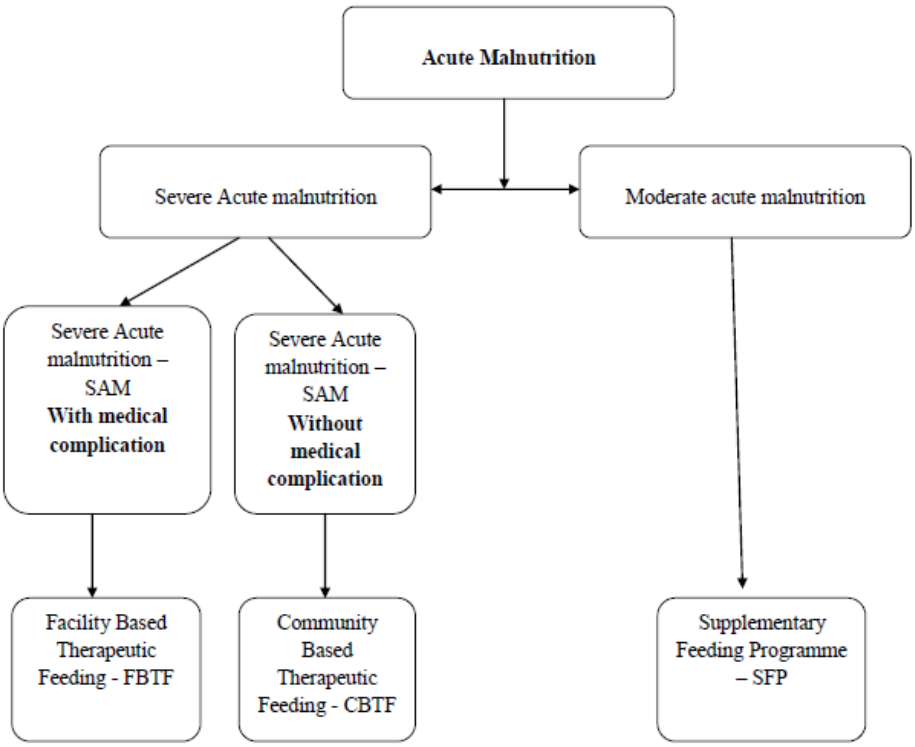
Chapter 3

Management of Acute Malnutrition

3.1. Overview of Malnutrition

Malnutrition is "a broad term commonly used as an alternative to under-nutrition but technically it also refers to over-nutrition. People are malnourished if their diet does not provide adequate calories and protein for growth and maintenance or they are unable to fully utilize the food they eat due to illness (under-nutrition). They are also malnourished if they consume too many calories (over-nutrition)." Malnutrition can also be seen in the form of micronutrient deficiencies due to lack of micronutrient intake in the diet. In the case of management of acute malnutrition, it is referred to children and adults who are at high risk for morbidity and mortality due to under-nutrition.

Figure 3.1. Classification of Acute Malnutrition

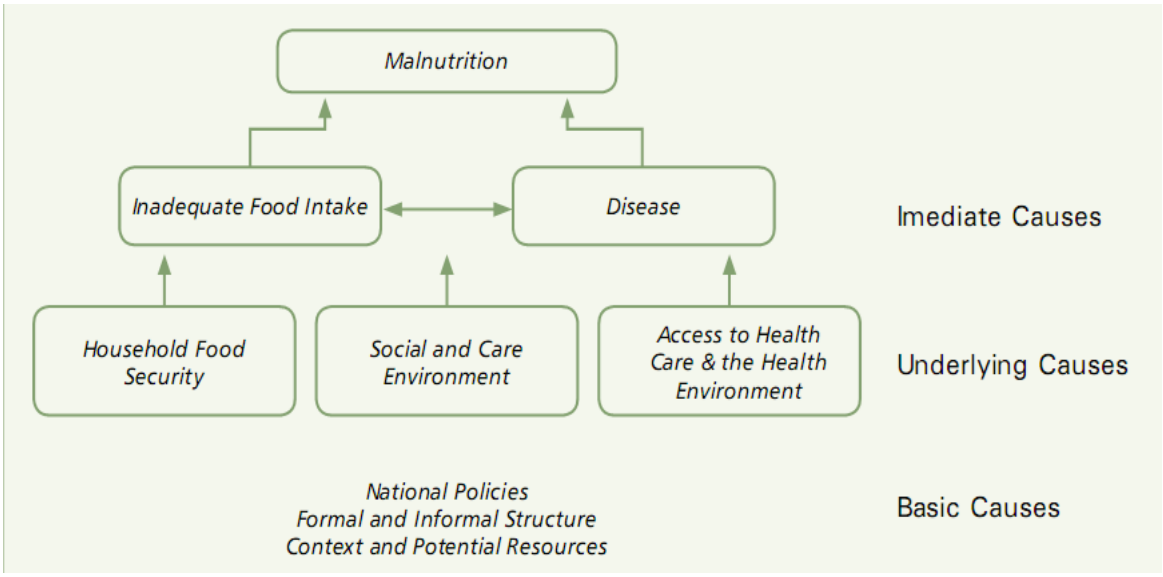


3.2. Causes of acute malnutrition

The causes of malnutrition are deep and span across many areas of social, cultural, and environmental consequences. Figure 3.2 outlines the three key areas: immediate causes, underlying causes, and basic causes. In this framework, the immediate causes of malnutrition are inadequate dietary intake and disease. Malnutrition is often exacerbated by a vicious cycle between these two factors. Inadequate food intake can lead to a higher risk of disease, and conversely disease can lead to inadequate food intake. Thus these two factors must be integral parts of management and prevention of malnutrition. However, in order to address these immediate causes, it is critical to understand main underlying factors: household food insecurity, inadequate social and care environment, and inadequate access to health services and environmental factors. These factors are further repercussions of income poverty, which is caused by basic lack of capital (financial, human, physical, social and natural) and a country's social, economic, and political context. The Integrated Management of Acute Malnutrition

(IMAM) Programme strives to address the causes of malnutrition in a holistic and integrated approach. The UNICEF conceptual framework, summarizes the causes of malnutrition.

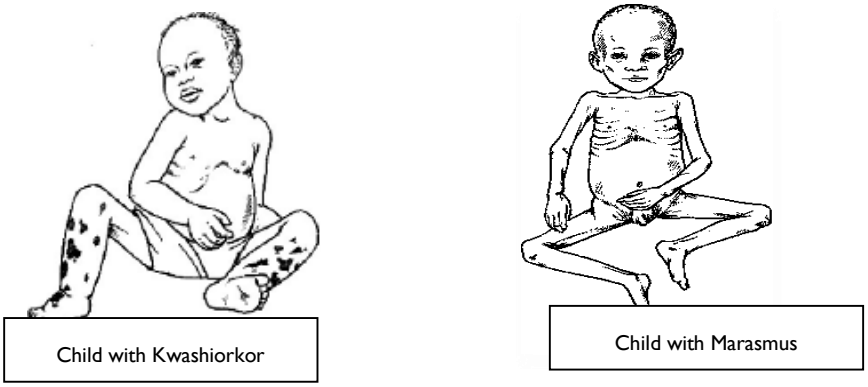
Figure 3.2. UNICEF Conceptual Framework: Causes of Malnutrition



3.3. Triage of Acute Malnutrition

Community Volunteers (CVs) can screen children in the community using MUAC and the presence of oedema. They refer those who are malnourished to a health facility. However, the diagnosis of malnutrition for children under five years old is the responsibility of health workers at a health facility. The procedure to determine a patient's medical history, physical examination, nutritional status and appropriate treatment is presented in the Table 3.1. This procedure conforms to the IMNCI Guidelines.

Figure 3.3. Kwashiorkor and Marasmus



3.3.1. Diagnosis and Referral of Acute Malnutrition

Classification of Acute Malnutrition using WHO Growth Standards of 2006

The World Health Organization (WHO) undertook a comprehensive survey in the early 1990's to review the existing National Centre for Health Statistics (NCHS) growth standards and develop more appropriate standards for use with a wider range of children globally. The outcome of this survey was the development of new growth standards, using the same cut-off points for weight-for-height, weight-for-age, and height-for-age z-scores, but shifting the cut-off points for mid-upper arm circumference (MUAC) measurement used in community-based active screening. The cut-off point was increased from a MUAC <11cm to <11.5cm for SAM diagnosis. This was necessary in order to use MUAC as an independent diagnostic criterion.

Table 3.1. Diagnostic criteria for SAM in children aged 6–59 months

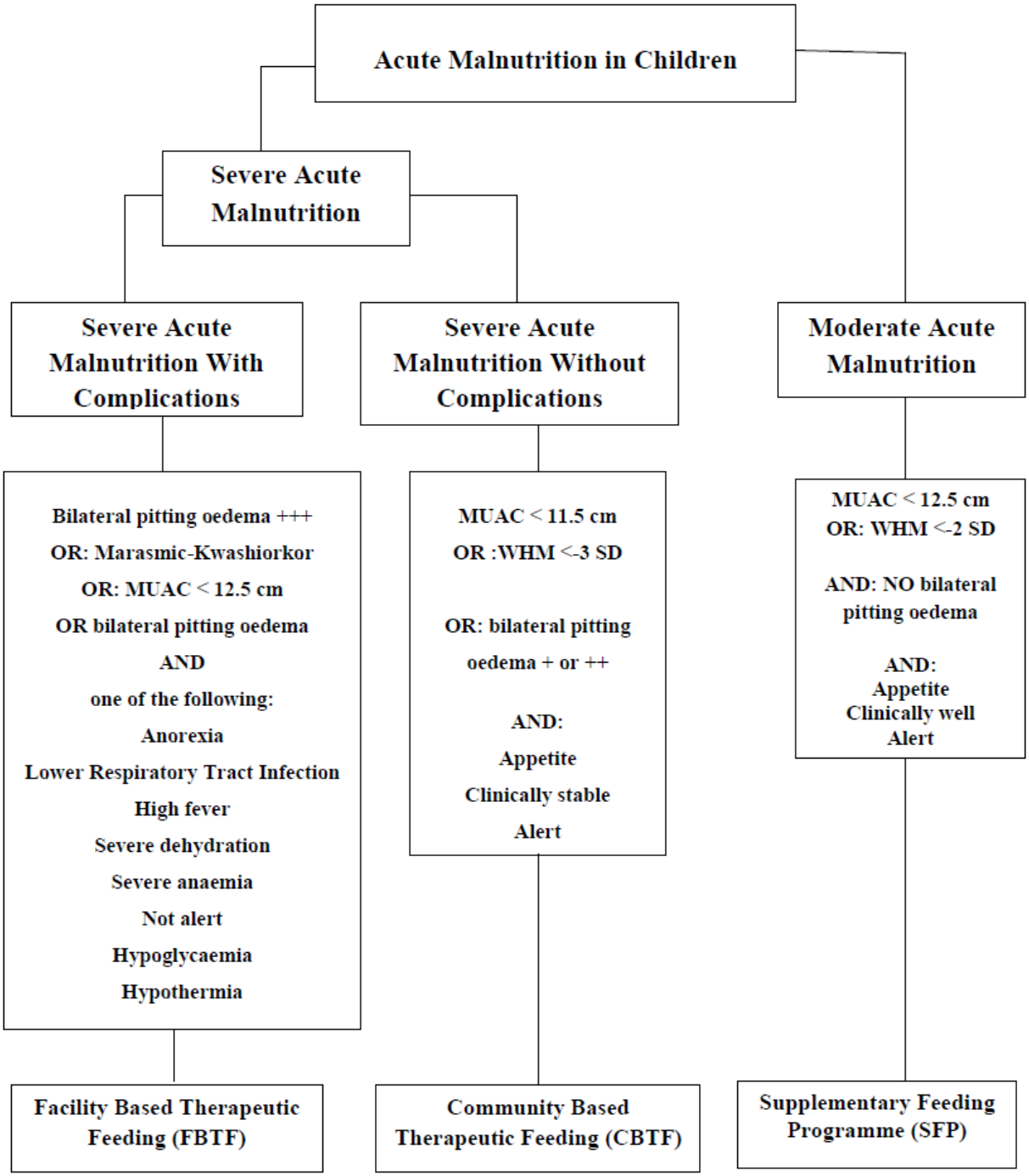
Indicator	Measure	Cut-off
Severe wasting[2]	**Weight-for-height**[1]	**< -3 SD**
Severe wasting[2]	**MUAC**	**< 11.5 cm (=115 mm)**
Bilateral oedema[3]	**Clinical sign**	

[1]Based on WHO Standard (www.who.int/childgrowth/standards)
[2,3]Independent indicators of SAM that require urgent action

When adopting the new growth standards the IMAM programme at all levels must be prepared for an increase in case load by ensuring:

- Facilities have adequate numbers staff
- Facility staff are trained on IMAM procedures, reporting, stock management, etc
- Stock capacity at national, zoba and facility levels are ensured to prevent pipeline breaks

Figure 3.4: Overview of Integrated Management of Acute Malnutrition



3.4. STEPS ON ADMISSION

When a malnourished child presents at the health facility, health workers should take the following steps to assess the degree of malnutrition and appropriate treatment course.

3.4.1. Step 1: Give sugar water solution to all malnourished children

SAM patients who are waiting for admission in the health facility waiting area should receive 50ml glucose 10% to prevent hypoglycaemia (1 rounded 5ml teaspoon of sugar in 50ml water) by a member of the health staff.

3.4.2. Step 2: Check for general signs of malnutrition and other medical complications (i.e. bi-lateral pitting oedema, respiratory distress, or unresponsiveness)

This MUST be conducted by a trained health worker: nurse or doctor

3.4.3. Step 3: Collect patient information;

Health facility staff does ALL of the following:

- Check for bi-lateral oedema
- Reconfirm (if referred from community) or take MUAC measurement
- Measure weight and height (if the patient's height is less than 87cms, or if the patient is younger than two years old, measure length instead), and calculate weight-for-height percentage median or z-score
- Record all measurements on patient card and register

3.4.4. Step 4: Conduct appetite test on severely malnourished patients

If outpatient therapeutic care (CBTF) is available, conduct the Appetite Test if a severe acute malnourished patient requires in-patient (FBTF) or out-patient treatment (CBTF).
See Annex 3.2 for details on "Appetite Test".

3.4.5. Step 5: Determine appropriate treatment

The acutely ill are examined and admitted quickly to the in-patient facility (FBTF) to start treatment immediately.

3.4.6. Step 6: Identify cause of malnutrition

Fill out a brief checklist to identify why the child is malnourished. See "Checklist to Identify Reasons for Acute Malnutrition" Annex 3.1.

It is important that the parent or caregiver who attends the health facility with a child screened by a CV is acknowledged for the visit. This is particularly important if the child is not considered malnourished by the anthropometry taken at the health centre. Every mother should be congratulated for taking good care of her child.

If there are consistent errors in the recorded MUACs when children who have been referred from the community arrive at the health facility, it is necessary to re-train CVs on the measurement techniques. This will avoid patients attending health clinics unnecessarily.

Annex 3.1a. Checklist to Identify Reasons for Acute Malnutrition
Annex 3.1b. Characteristics of Acute Malnutrition

Annex 3.2. Appetite Test

Annex 3.3. Anthropometric Measurements Technique

Annex 3.4. Calculating Weight-for-height

Annex 3.5. Weight-for-Length and Weight-for-Height Charts for Boys and Girls

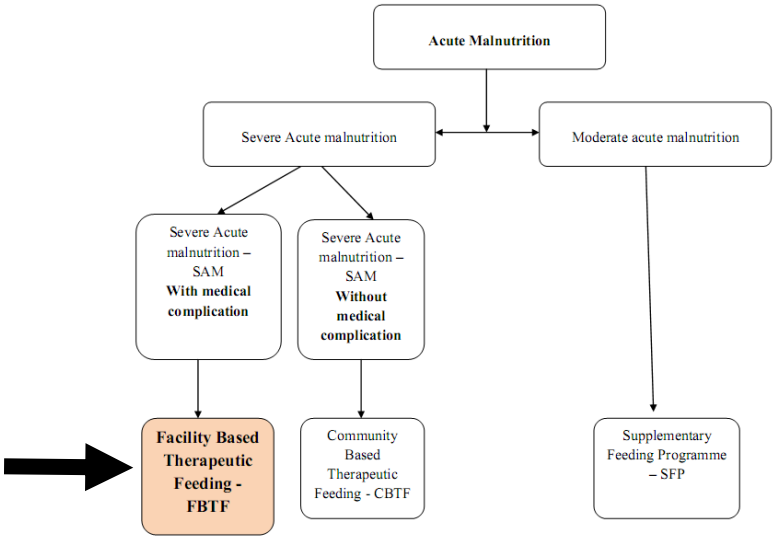
Annex 3.6. Guidance table to identify target weight

Annex 3.7. Weight-for-Age, Length/Height-for-Age WHO Chart 2006 (Boys and Girls)

Chapter 4

Facility-based Therapeutic Feeding (FBTF), Children (≥ 6 months) with SAM and Medical Complications

Severe acute malnutrition (already described in chapter 3) is often a life-threatening condition. These patients are very fragile, often with a serious electrolyte imbalance. Also, it can be very difficult to diagnose dehydration or anaemia however it is extremely important to do so accurately. A misdiagnosis can lead to a high risk of mortality. Specialized therapeutic products designed to support nutrition rehabilitation, must also be available.



4.1. Admission Procedure

Screening the patients in waiting area in the health facilities

Give severely malnourished sugar-water to drink (*Sugar water is approximately 10% sugar solution – 10g of sugar per 100ml of water*)

Do anthropometry (weight, height/ length, MUAC, oedema)

- If admission criteria fulfilled;

Check for complication and Do the appetite test
Register the patient
Fill out the multi-chart
Take history and examination
Explain to the caretaker the procedures of the facility

4.1.1. Criteria for admission to FBTF

- WHM <–3 Z-score (SD)
- MUAC < 11.5 cm

With medical complication and /or
Bi-lateral pitting oedema (Grade +++)

4.1.2. Proposed Condition of Admission room in FBTF

Severely malnourished children should be referred to hospital and admitted to 24-hour care unit to initiate immediate intensive medical and nutritional treatment.

Recently admitted children should be kept in a special area where they can be constantly monitored.

- Maintain room temperature at 25 to 30ºC

- Avoid prolong medical examination
- Avoid exposure to cold air or draft
- Cover properly with clothes, including hat and blankets
- Washing should be kept to minimum. If done during day-time, dry immediately and properly
- Change wet napkins, clothes and bedding to keep the child and bed dry
- Rooms brightly colored with decoration that interest children
- Let the child sleep with the mother for warmth in the night

4.2. The supplies and staff requirement for FBTF:

- Multichart for each patient
- F75, F100 therapeutic milk, and RUTF
- Essential medicines and medical equipment, including antibiotics, minerals and vitamins, and NG tubes
- Anthropometric equipment, including height board, Salter scales, infant scales, and MUAC tapes
- Food for the caregiver
- Soap for washing hands and general hygiene
- Reliable source of clean water
- Equipment for food preparation and distribution (pots, jugs, flasks, rubber buckets, spoons and cups etc.)
- Protocols and supporting documents

Staff

Staff adequately trained in management of acute malnutrition should be available at all times in the facility. New staff should receive training and be closely supervised until they have the required skills to take charge or work alone at night. All staff must be familiar with these guidelines and have received appropriate training.

4.3. *Steps for routine care

Phase 1 (Initial Phase): 1st 7 days
Transition Phase: 2-3 days
Phase 2 (Catch-up growth): 2-6 weeks
Follow-up: > 7 weeks

Time-frame for the management of a child with Severe Acute Malnutrition

Steps	Initial treatment		Rehabilitation	Follow-up
Treat or prevent;	Days 1-2	Days 3-7	Weeks 2-6	Weeks 7 +
Hypoglycemia	→			
Hypothermia	→			
Dehydration	→			
Correct electrolyte imbalance	→	→	→	
Treat infection	→	→		
Correct micronutrient deficiency	No iron	No iron	with iron	
Cautious feeding	→	→		
Catch-up growth			→	
Sensory stimulation	→	→	→	
Prepare for discharge and follow-up			→	

*Ashworth A, Jackson A, Khanum S, Schofield C, Ten steps to recovery: Child health dialogue, issue 3 and 4, 1996

4.4. MEDICAL COMPLICATIONS (Treatment and Prevention)

4.4.1. Hypoglycaemia

All severely malnourished patients can develop hypoglycaemia but this is very uncommon. However, all children that have travelled for long distances to attend the health facility should be given sugar-water as soon as they arrive.

Those that get hypothermia or have septic shock should be given extra sugar whether or not they have low blood glucose.

One sign of hypoglycaemia is eye-lid retraction. If a child sleeps with his eyes slightly open, then he should be woken up and given sugar-water to drink; the staff and the mothers should be taught to look for this sign during the night.

If the diet has not been taken during the day the mother should give at least one feed during the night. A child who has taken the diet during the day will not develop hypoglycaemia overnight and does not need to be woken for night-time feeding.

Treatment

- Patients who are conscious and able to drink should be given about 50 ml (approximately 5 to 10ml/kg) of sugar-water, or F75 diet (or F100) by mouth.
- Patients loosing consciousness should be given 50 ml (or 5 to 10ml/kg) of sugar-water by naso-gastric tube immediately. When consciousness is regained give milk feed frequently.
- Unconscious patients should also be given sugar-water by naso-gastric tube. They should also be given glucose as a single intravenous injection (approximately 5ml/kg of a sterile 10% glucose solution).
- All malnourished patients with suspected hypoglycaemia should be treated with second-line antibiotics.
- The response to treatment is dramatic and rapid. If a very lethargic or unconscious patient does not respond in this way, then there is another cause for the clinical condition that has to be found and treated.

4.4.2. Hypothermia

Severely malnourished patients are highly susceptible to hypothermia, (rectal temperature below 35.5°C or under arm temperature below 35°C).

- Use the "**kangaroo technique**" for children with a caretaker.
- Put a hat on the child and wrap mother and child together
- Give hot drinks to the mother so her skin gets warmer (plain water, tea or any other hot drink).
- Monitor body temperature during re-warming.
- The room should be kept warm, especially at night (between 28°C and 32°C): a maximum-minimum thermometer should be on the wall Phase 1 to monitor the temperature.
- Treat for hypoglycaemia and give antibiotic treatment.

NOTE: the thermo-neutral temperature range for malnourished patients is 28°C to 32°C. This is often uncomfortably warm for the staff and caretakers who may adjust the room to suit themselves. Children should always sleep with their mothers and not in traditional hospital child-cots/cages. There should be adequate blankets and a thick sleeping mat or adult bed. Most

heat is lost through the head; hats should be worn by malnourished children. Windows and doors should be kept closed at night.

4.4.3. Dehydration and Septic shock

Diagnosis of dehydration

Misdiagnosis and inappropriate treatment for dehydration is the commonest cause of death in the malnourished patient. IV infusions are rarely used. In malnutrition (both marasmus and, to a greater extent, kwashiorkor) there is a particular renal problem that makes the children sensitive to salt (sodium) overload. The standard protocol for the well-nourished dehydrated child should **not** be used.

A supply (bucket) of modified ORS or ReSoMal should never be freely available for the caretakers to give to their children whenever they have a loose stool. Although common practice, it is very dangerous for these children. This leads directly to heart failure, as well as failure to lose oedema, re-feeding oedema, and failure to report and record significant problems whilst the diet and phase remains unchanged.

If there is no dehydration, do not treat diarrhoea with rehydration fluids to "prevent" the onset of dehydration. This again leads to over-hydration and heart failure.

Diagnosis of dehydration in the marasmic patient

In marasmus **all** the classical signs of dehydration are unreliable and should **not** be used to make the diagnosis of dehydration in these patients. Thus:

- Marasmic skin normally lies in folds and is inelastic so that the "skin pinch" test is usually positive without there being any dehydration!

Do NOT use the skin pinch test to diagnose dehydration in malnourished children.

- Marasmic eyes are normally sunken without there being any dehydration.

Do NOT assume that malnourished patients with sunken eyes have dehydration.

Thus, the diagnosis in marasmus is much more uncertain and difficult than in normal children. Incorrect and over-diagnosis is very common and treatment given inappropriately. The consequences of over-hydration are very much more serious.

Do not make a definitive diagnosis of dehydration: if you think the child is dehydrated then make a *provisional* diagnosis and observe the response to treatment before confirming the diagnosis.

The main diagnosis comes from the HISTORY rather than from the examination.

There needs to be:

- ✓ A definite history of significant recent fluid loss - usually diarrhoea (>=4 watery stools) which is clearly like water (not just soft or mucus) and frequent with a sudden onset within the past few hours or days.
- ✓ There should also be a HISTORY of a recent CHANGE in the child's appearance.
- ✓ If the eyes are sunken then the mother must say that the eyes have changed to become sunken since the diarrhoea started.
- ✓ The child must not have any oedema.

Children with persistent or chronic diarrhoea (without an acute watery exacerbation) are NOT dehydrated and do not need acute rehydration therapy. They have adapted over the weeks to their altered hydration state and should not be rehydrated over a few hours or days.

Shock with dehydration

When there is definite dehydration from both the history and examination and:

- a weak or absent radial or femoral pulse **and**
- cool or cold hands and feet

Then, the patient is going into shock. When in addition to the above signs there is also:

- decrease in level of consciousness so that the patient is semi-conscious or cannot be roused

Then this is severe shock.

Toxic shock may also be caused by traditional medicines, self-treatment with other medicine such as aspirin, paracetamol, metronidazole, etc..

Hanging pants, used for surveys should not be used to weigh sick children or those likely to soil the pants and pass infection to the next child.

Treatment of dehydration in the marasmic patient

Whenever possible, a dehydrated patient with severe malnutrition should be re-hydrated orally. **Intra-venous infusions are very dangerous and not recommended unless there is 1) severe shock with 2) loss of consciousness from 3) confirmed dehydration.**

BEFORE starting any rehydration treatment:

- ✓ WEIGH the child (accurate measurements of weight).
- ✓ MARK the edge of the liver and the costal margin on the skin with an indelible marker pen.
- ✓ RECORD the respiration rate in the notes.
- ✓ RECORD the heart sounds (presence or absence of gallop rhythm) in the notes.
- ✓ RECORD the pulse rate in the notes.

The malnourished child is managed entirely by

- ➢ Weight changes and
- ➢ Clinical signs of improvement and
- ➢ Clinical signs of over-hydration

Step 1: Determine patient's target weight gain (5%)

For the severely malnourished child, a maximum of 5% of the child's body weight is replaced by fluids. To determine 5% of body weight, following the calculation below:

$$\frac{\text{Body weight (grams)}}{100} \times 5$$

For example, the calculation for a child of 4 kg would be as follows:
(4kg = 4000grams)

$$\frac{4000 \text{ grams}}{100} = 40 \times 5 = 200\text{grams} - \text{maximum weight gain}$$

This equates to 200ml of re-hydration fluid

It is estimated that a dehydrated child will lose a maximum of 5% of body weight in fluid; therefore, it is essential that weight gain be no more than 5% to prevent over-hydration and subsequent complications.

Step 2: Administer the re-hydration fluids

Start with 5ml/kg every 30 minutes for the first two hours orally or by naso-gastric tube (2% body weight), and then give 5-10 ml hourly. Weigh the child each hour and assess his/her liver size, respiration rate and pulse.

As the child gains weight, during re-hydration there should be definite clinical improvement and the signs of dehydration should disappear; if there is no improvement with weight gain then the initial diagnosis was wrong and rehydration therapy stopped.

Make a major reassessment at two hours.

If there is continued weight loss then:

- Increase the rate of administration of ReSoMal by 5ml/kg/hour
- Formally reassess in one hour

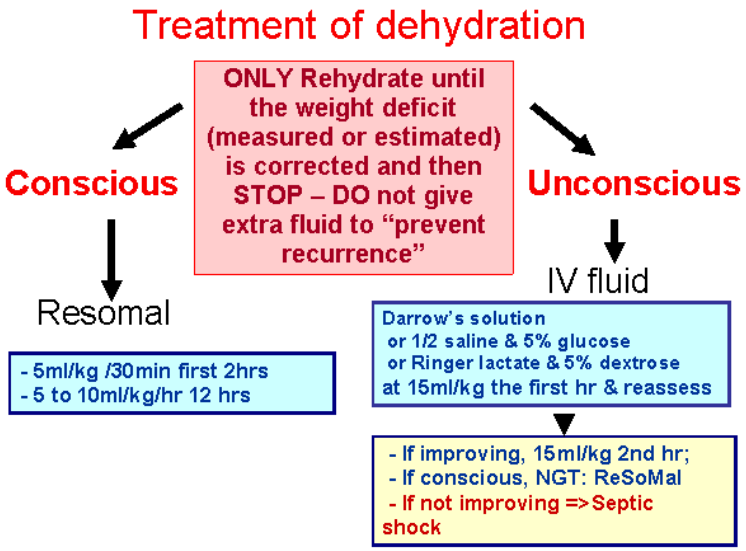
If there is no weight gain then:

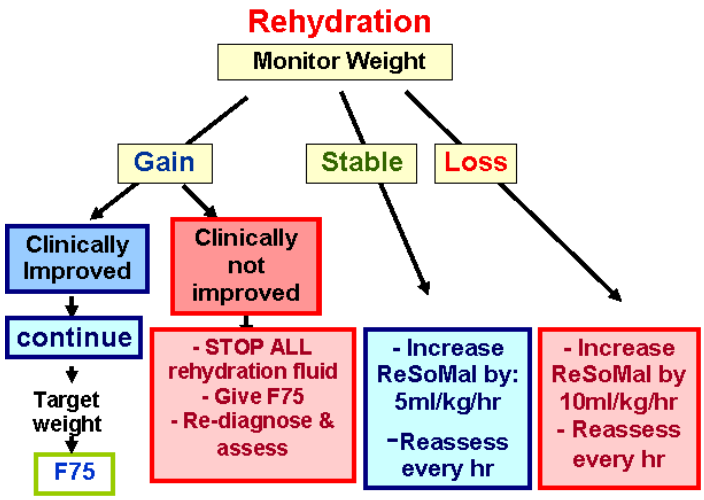
- Increase the rate of administration of ReSoMal by 5ml/kg/hour
- Formally reassess in one hour

If there is weight gain and:

- *Deterioration of the child's condition with the re-hydration therapy*,
  - ✓ Stop therapy and give F75 if conscious
  - ✓ Reassess and re-diagnose
- *No improvement in the mood and look of the child or reversal of the clinical signs*,
  - ✓ Either change to F75 or alternate F75 and ReSoMal
  - ✓ Re-assess and re-diagnose
- *Clinical improvement, but there are still signs of dehydration*
  - ✓ Continue with the treatment until the appropriate weight gain has been achieved.
  - ✓ Either continue with ReSoMal alone or F75 and ReSoMal can be alternated.
- *Resolution of the signs of dehydration*,
  - ✓ Stop re-hydration treatment and start the child on F75 diet.

Once re-hydration is complete and child has regained maximum target weight, stop re-hydration therapy immediately.





Target weight for rehydration with watery diarrhoea

1. If the child has been in under treatment for SAM and there is a pre-diarrhoeal weight when the diarrhoea starts:
    - If there has been no weight loss with the diarrhoea, rehydration treatment should not be given.
    - If there has been weight loss, the actual fluid loss is equal to the weight loss and the target rehydration-weight is the pre-diarrhoeal weight. Treatment should not be given to increase the weight beyond the pre-diarrhoeal weight. "Prophylactic" administration of Resomal to prevent recurrence of dehydration is not given.
2. If the patient is newly admitted, it is extremely difficult to judge the amount of fluid that has been lost in the child with marasmus. Because of the narrow therapeutic window and the danger of going from under-hydration to over-hydration, the estimated weight deficit should be very conservative. It is better and much less dangerous to slightly under-estimate the amount of weight deficit than to over-estimate the weight deficit.
    - In practice, the weight loss is generally 2% to 5% of body weight.
    - Do not attempt to increase body weight by more than 5% in conscious children.

- If there is weight gain of up to 5% of body weight with rehydration the truly dehydrated child will show dramatic clinical improvement and be out of immediate danger from death due to dehydration; treatment can then be continued with F75.

During re-hydration breastfeeding should not be interrupted. Begin to give F75 as soon as possible, orally or by naso-gastric tube. ReSoMal and F75 can be given in alternate hours if there is still some dehydration and continuing diarrhoea. Introduction of F75 is usually achieved within 2-3 hours of starting re-hydration.

Treatment of shock from dehydration in the marasmic patient

If there is definite dehydration (a history of fluid loss, a change in the appearance of the eyes) and the patient has **all** of the following:

- Semi-conscious or unconscious and
- Rapid weak pulse and
- Cold hands and feet

Then the patient should be treated with intravenous fluids. The amounts given should be half or less of that used in normally nourished children.

Use one of the following solutions

- Ringer-Lactate with 5% dextrose
- Half strength Saline with 5% dextrose
- Give 15 ml/kg IV over the first hour and reassess the child.
- If there is continued weight loss or the weight is stable, repeat the 15ml/kg IV over the next hour. Continue until there is weight gain with the infusion. (15mg/kg is 1.5% of body weight, so the expected weight gain after 2 hours is up to 3% of body weight)
- If there is no improvement and the child has gained weight, then assume that the child has toxic, septic or cardiogenic shock or live failure. Stop rehydration treatment. Search for other causes of loss of consciousness.
- As soon as the child regains consciousness or the pulse rate drops towards a normal level then stop the drip and treat the child orally or by NG-Tube with 10ml/kg/hour or ReSoMal. Continue with the protocol (above) for re-hydration of the child orally using weight change as the main indicator of progress.
- There should never be a drip present in a malnourished child who is able to drink or is absorbing fluid adequately from an NG-tube.

Monitoring of rehydration

All rehydration (oral or intravenous) therapy should be stopped immediately if any of the following are observed:

- The target weight for rehydration has been achieved (go to F75)
- The visible veins become full (go to F75)
- The development of oedema (over-hydration – go to F75)
- The development of prominent neck veins*
- The neck veins engorge when the abdomen (liver) is pressed*.
- An increase in the liver size by more than one centimetre.*
- The development of tenderness over the liver.*
- An increase in the respiration rate by 5 breaths per minute or more*

- The development of a "grunting" respiration (this is a noise on expiration NOT inspiration).*
- The development of râles or crepitations in the lungs*
- The development of a triple rhythm*

* If these signs develop then the child has fluid overload, an over-expanded circulation and is going into heart failure.

Dehydration in the kwashiorkor patient

ALL children with oedema have an increased total body water and sodium -- they are over-hydrated. Oedematous patients cannot be dehydrated although they are frequently hypovolaemic. The hypovolaemia (relatively low circulating blood volume) is due to a dilatation of the blood vessels with a low cardiac output.

If a child with kwashiorkor has definite watery diarrhoea and the child is deteriorating clinically, then the fluid lost can be replaced on the basis of 30ml of ReSoMal per watery stool.

The treatment of hypovolaemia in kwashiorkor is the same as the treatment for septic shock.

4.4.4. Septic (or toxic) shock

Septic shock presents with some of the signs of true dehydration and also of cardiogenic shock; the differential diagnosis is often very difficult.

Children that appear "very ill", may have septic shock, cardiogenic shock, liver failure, poisoning with traditional medicines, malaria, acute viral infection or other severe conditions. All "very ill" children should not be automatically diagnosed as having septic shock; the true reason for the condition should be sought.

If this develops after admission to the FBTF, then the treatment given to the child should be carefully reviewed to determine if the treatment is the cause of the clinical deterioration. Any "unusual" drugs should be stopped.

Diagnosis of septic shock

To make a diagnosis of developed septic shock requires the signs of hypovolaemic shock to be present

- A fast weak pulse with
- Cold peripheries.
- Disturbed consciousness
- Absence of signs of heart failure

Treatment of septic shock

All patients with signs of incipient or developed septic shock should immediately:

1. Give broad-spectrum antibiotics
2. Keep warm to prevent or treat hypothermia,
3. Receive sugar-water by mouth or naso-gastric tube as soon as the diagnosis is made (to prevent hypoglycaemia).
4. Be physically disturbed as little as possible (no washing, excess examination, investigations in other hospital departments, etc)
5. Never be transported to another facility – the stress of transport leads to dramatic deterioration.

Incipient septic shock: Give the standard F75 diet by NG-tube

Developed septic shock: If the patient is unconscious because of poor brain perfusion then a slow IV infusion of one of the following can be given:

10ml/kg/h for 2 hours of one of the following (do not give if there is a possibility of cardiogenic shock):

- Ringer's lactate solution with 5% glucose
- Half-normal (0.45%) saline with 5% glucose

Monitor every 10 minutes for signs of deterioration, especially over-hydration and heart failure.

- Increasing respiratory rate,
- Development of grunting respiration,
- Increasing liver size,
- Vein engorgement.

As soon as the patient improves (stronger radial pulse, regain of consciousness) stop all IV intake - continue with F75 diet.

4.4.5. Heart failure

Signs and symptoms

Heart failure should be diagnosed when there is:

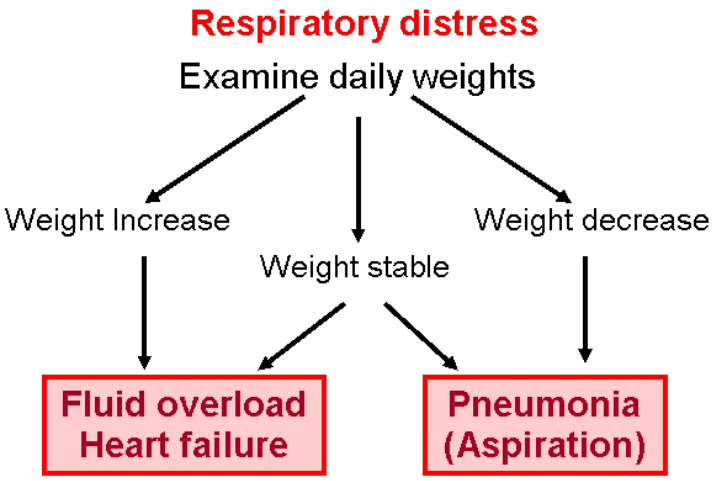
- Physical deterioration with a gain in weight
    - this is the most common way of making the diagnosis and does not require any equipment or particular clinical skill
- A sudden increase in liver size (this is why the liver is marked before starting any infusion).
- Tenderness developing over the liver
- An increase in respiration rate
    - an acute increase in respiration rate of more than 5 breaths per minute (particularly during rehydration treatment)
    - > 50 breaths/minute in infants and
    - >40 in children 1-5 years,
- Respiration that has or develops a "grunting" sound during each expiration.
- Crepitations or râles in the lungs
- Prominent superficial and neck veins
- Engorgement of the neck veins when the abdomen (liver) is pressed
- Enlargement of the heart (very difficult to assess in practice).
- Appearance of triple rhythm (very difficult to assess in practice).
- Increasing oedema or reappearance of oedema during treatment;
- An acute fall in haemoglobin concentration (needs laboratory).

All children have a fall in Hb during the early phase of treatment. This "dilutional anaemia" is due to the sodium coming of the cells and mobilization of oedema – it must not be treated.

At the last stage there is either 1) marked respiratory distress progressing to a rapid pulse, cold hands and feet, oedema and cyanosis or 2) sudden, unexpected death. This is cardiac shock, it commonly occurs in the severely malnourished child after treatment has started. It has to be differentiated from shock due to dehydration or sepsis because the treatment is quite different.

There is usually also weight gain. As heart failure usually starts after treatment, there is nearly always a record of the weight of the patient that was taken before the onset of heart failure.

Heart failure and pneumonia are clinically similar and very difficult to tell apart. If there is an increased respiratory rate AND any gain in weight then heart failure should be the first diagnosis. If there is an increased respiratory rate with a loss of weight then pneumonia can be diagnosed. If there is no change in weight (fluid balance) then the differentiation has to be made using the other signs of heart failure. Pneumonia should NOT be diagnosed if there has been a gain of weight just before the onset of respiratory distress.



Children with oedema can go into heart failure without a gain in weight, if the expanded circulation is due to oedema fluid being mobilised from the tissues to the vascular space.

During the initial treatment of SAM, any sodium containing fluid that has been given will have to be safely excreted later. Initial over-treatment can lead to death several days later from heart failure when intracellular sodium (marasmus and kwashiorkor) and oedema fluid are being mobilised.

As oedema fluid is mobilised (kwashiorkor) and the sodium is coming out of the cells (both kwashiorkor and marasmus), the plasma volume expands and there is a FALL IN HAEMOGLOBIN concentration. This DILUTIONAL anaemia happens to some extent in nearly all children as they recover. A substantial fall in haemoglobin, as a sign of an expanding circulation, is also a sign of impending or actual heart failure. These children should never be transfused.

Treatment

When heart failure is diagnosed,

- Stop all intakes of oral or IV fluids. **No fluid or food** should be given until the heart failure has improved even if this takes 24-48 hours. Small amounts of sugar-water can be given orally to prevent hypoglycaemia.
- Give frusemide (1mg/kg).
- Digoxin can be given in single dose (5 micrograms/kg – note that this is lower than the normal dose of digoxin. A loading dose is not given. Use the paediatric preparation, not small quantities of the adult preparation).

If heart failure is associated with severe anaemia the treatment of the heart failure takes precedence over the treatment of the anaemia. A patient in heart failure should never be transfused (unless there are facilities and experience with exchange-transfusion).

4.4.6. Absent bowel sounds, gastric dilatation and intestinal splash with abdominal distension.

The following measures should be taken:

- Give broad-spectrum antibiotic injection by intravenous injection.
- Stop all other drugs that may be causing toxicity (such as metronidazole)
- Give a single IM injection of magnesium sulphate (2ml of 50% solution).
- Pass an NG-tube and aspirate the contents of the stomach, then "irrigate" the stomach with isotonic clear fluid (5% dextrose or 10% sucrose solution). Do this by introducing 50ml of solution into the stomach and then gently aspirating all the fluid back again. This should be repeated until the fluid that returns from the stomach is clear.
- Put 5 ml/kg of sugar-water (10% sucrose solution) into the stomach and leave it there for one hour. Then aspirate the stomach and measure the volume that is retrieved. If the volume is less than the amount that was introduced then either a further dose of sugar-water should be given or the fluid returned to the stomach.
- There is frequently gastric and oesophageal candidiasis: give oral nystatin suspension or fluconazole.
- Keep the child warm.

If the child's level of consciousness is poor given intravenous glucose

- Do not put up a drip at this stage. Monitor the child carefully for 6 hours, without giving any other treatment
- Improvement is measured first by a change in intestinal function -- decrease in the distension of the abdomen, visible peristalsis seen through the abdominal wall, return of bowel sounds, decreasing size of gastric aspirates – and second by improvement in the general condition of the child.

If there is intestinal improvement then start to give small amounts of F75 by NG tube (half the quantities given in the feeding table – subsequently adjust by the volumes of gastric aspirated).

If there is no improvement after 6 hours then:

- Consider putting up an IV drip. It is very important that the fluid given contains adequate amounts of potassium. Sterile Potassium Chloride (20mmol/l) should be added to all solutions that do not contain potassium. If it is available use one-fifth normal saline in 5% dextrose, otherwise use Ringer-Lactate in 5% dextrose or half-strength saline in 5% dextrose. **The drip should be run VERY SLOWLY – the amount of fluid that is given should be NO MORE THAN 2 to 4 ml/kg/h**.
- Start to give the first and second line antibiotics intravenously.
- When the gastric aspirates decrease so that one half of the fluid given to the stomach is absorbed, discontinue the IV treatment and continue with oral treatment only.

4.4.7. Severe anaemia

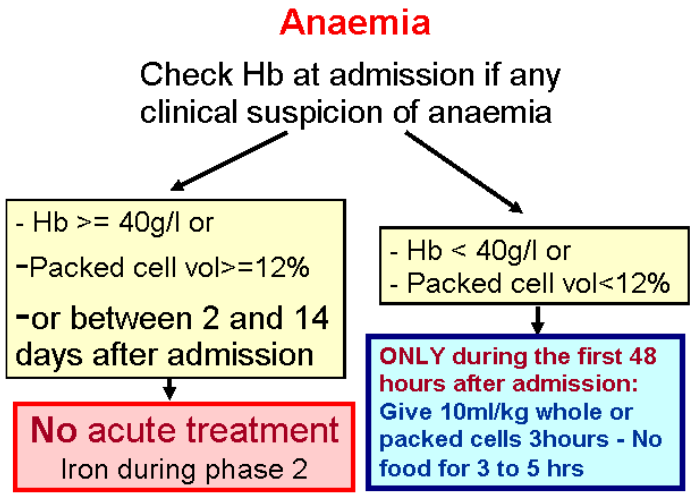
If the haemoglobin concentration is less than 4g/dl or the packed –cell volume is less than 12% in the first 24 hours after admission the child has very severe anaemia.

- ✓ Give 10ml per kg body weight of packed red cells or whole blood slowly over 3 hours.
- ✓ All children should be fasted during and for at least 3 hours after a blood transfusion.

- ✓ Do not transfuse a child between 48h after the start of treatment with F75 and 14 days later.
- ✓ Do not give iron during phase 1 of treatment
- ✓ If the facilities and expertise exist (neonatal units) it is preferable to give an exchange transfusion to severely malnourished children with severe anaemia.

If there is heart failure with very severe anaemia transfer the patient to a centre where there are the facilities to do an exchange transfusion. Heart failure due to anaemia is clinically different from "normal" heart failure – with anaemia there is "high output" failure with an over-active circulation.

Increasing anaemia and heart failure or respiratory distress is a sign of fluid overload and an expanding plasma volume – the heart failure is not being "caused" by the anaemia; these patients should never be given a straight transfusion of blood or even packed cells.



4.4.8. Infection

All severely malnourished children are prone to infections due to failure of the body defense mechanisms. The classical body reaction (e.g. fever) to infection is usually impaired. The level of conscious deterioration might be the only symptom. Treat all malnourished children with broad-spectrum antibiotics. Infection management protocol depends on local resistance patterns, drug availability in line with National essential Drug List and cost. *The National Guidelines is the reference for management of specific pathologies.*

For specific infections and or pathologies (like dysentery, Pneumonia, meningitis and sepsis, skin and urinary tract infections, candidiasis, malaria, measles, Tuberculosis etc.) should be treated rapidly to avoid progression or death. Treat all malnourished children bearing specific infections appropriately reference to the national treatment guidelines.

4.4.9. Micro-nutrients

4.4.9.1. Vitamin A deficiency

If the child shows **any eye signs** of deficiency, give orally:
• vitamin A on days 1, 2 and 14 (for age >12 months, give 200,000 IU; for age 6-12 months, give 100,000 IU; for age 0-5 months, give 50,000 IU). If first dose has been given in the referring centre, treat on days 1 and 14 only
If there is **corneal clouding or ulceration**, give additional eye care to prevent extrusion of the lens:
• instill chloramphenicol or tetracycline eye drops (1%) 2-3 hourly as required for 7-10 days in the affected eye
• instill atropine eye drops (1%), 1 drop three times daily for 3-5 days

• cover with eye pads soaked in saline solution and bandage

Note: *children with vitamin A deficiency are likely to be photophobic and have closed eyes. It is important to examine the eyes very gently to prevent rupture.*

F75, F100, and RUTF provide the adequate amount of Vitamin A to manage mild Vitamin A deficiency and to replace low liver stores of Vitamin A during treatment (A 10kg child taking maintenance amounts of F75 (1000kcal) will receive 7300 IU (2.2mg) of Vitamin A per day. The Recommended Daily Allowance (RDA) USA for such a child is 1700 IU (0.5mg) per day).

4.4.9.2. Folic Acid

There is sufficient folic acid in F75, F100 and RUTF to treat mild folate deficiency (A 10kg child taking maintenance amounts of RUTF will receive 400 micrograms of folic acid per day.

4.4.9.3. Iron Supplementation

High-dose iron tablets are contraindicated as they can increase the risk of severe infection in severe acute malnourished patients due to the presence of free iron in the blood.

4.4.9.4. If moderate anaemia is identified:

For in-patients receiving entire treatment of acute malnutrition in the in-patient health facility: Add iron to the F100 in Phase 2.

If severe anaemia is identified, see "Treatment of Medical Complications".

4.4.9.5. Other Nutrients (Micro-nutrients)

F75, F100, RUTF contain the micro-nutrients required to treat the malnourished child. Additional potassium, magnesium or zinc is not administered. A "double dose" (one coming from the diet and the other prescribed) is potentially toxic. Additional potassium should never be given with these diets. Even for the severe acute malnourished patient with diarrhoea, it is not advisable to give additional zinc.

4.5. PHASE 1

4.5.1. Things NOT to do:

Do not give diuretics to treat oedema
Do not give iron during initial feeding phase. Add iron only after the child has been on F100 for 2days (usually week 2).
Do not give high protein formula
Do not give IV fluids routinely

4.5.2. Diet to use

F75 (130ml =100kcal) should be given for patients except for the less than 6 months old infant without oedema. The formula (F75) promotes recovery of normal metabolic function and nutrition-electrolytic balance. **Rapid weight gain at this stage is dangerous**, that is why the quantities and formula are formulated so that patients do not gain weight during this stage

There should be 8 feeds per day. If this is not possible then give six or five feeds per day using the appropriate feed reference table.

Breast-fed children should be offered breast-milk before the diet and always on demand.

4.5.3. Preparation of F75

Add one (1) packet of F75 (410g) to two (2) litres of water. This gives 2.4 litres of F75. Water must be boiled and cooled prior to mixing. If five or less children are being treated for severe acute malnutrition, less quantities of F75 milk are necessary. Smaller volumes can be mixed using the red scoop (4.1g) included with the F75 package (20 ml water per red scoop/4.1g of F75). Prepare enough milk for the next three hours, not longer, to assure that it will not spoil or get contaminated. If there is access to a refrigerator, milk can be stored for a maximum of 12 hours.

Phase 1: amounts of F75 to give during Phase 1

Class of Weight (kg)	8 feeds per day ml for each feed	6 feeds per day	5 feeds per day
2.0 to 2.1 kg	40 ml per feed	50 ml per feed	75 ml per feed
2.2 - 2.4	45	60	70
2.5 - 2.7	50	65	75
2.8 - 2.9	55	70	80
3.0 - 3.4	60	75	85
3.5 - 3.9	65	80	95
4.0 - 4.4	70	85	110
4.5 - 4.9	80	95	120
5.0 - 5.4	90	110	130
5.5 - 5.9	100	120	150
6 - 6.9	110	140	175
7 - 7.9	125	160	200
8 - 8.9	140	180	225
9 - 9.9	155	190	250
10 - 10.9	170	200	275
11 - 11.9	190	230	275
12 - 12.9	205	250	300
13 - 13.9	230	275	350
14 - 14.9	250	290	375
15 - 19.9	260	300	400
20 - 24.9	290	320	450
25 - 29.9	300	350	450
30 - 39.9	320	370	500
40 - 60	350	400	500

4.5.4. Feeding Technique for Severely Malnourished Children

Due to muscle weakness and slow swallowing, the risk of aspiration pneumonia is high for malnourished children. Therefore, great care must be taken while feeding. The following information lessens the risk of aspiration pneumonia.

The child sits straight up (vertical) on the mother's lap, leaning against her chest with one arm behind her back. The mother's arm encircles the child. She holds a saucer under the child's chin.

Appropriate Feeding

- The milk feed is given by cup. Any dribbles that fall into the saucer are returned to the cup. This ensures the correct volume of milk is taken and or measured.
- The child is never force fed, never has his/her nose pinched, and never lies back and has the milk poured into the mouth.
- Meal times are best to be social. The mothers can sit together in a semi-circle around an assistant who encourages the mothers, talks to them, corrects any faulty feeding technique, and observes how the children are taking the milk.
- Caretakers do not take their meals beside the patient. The child is likely to demand some of the mother's meal and this sharing is not recommended as the child's appetite will reduce and then the milk will be refused.

4.5.4.1. Naso-gastric Feeding

Naso-gastric tube (NGT) feeding is used when a patient will not take sufficient diet by mouth. This is defined as an intake of less than 75% of the prescribed diet (for children about 75Kcal/kg/d).

4.5.4.2. The reasons for use of an NG tube are:

- Taking less than 75% of prescribed diet per 24 hours in Phase 1
- Pneumonia with a rapid respiration rate
- Painful lesions of the mouth
- Cleft palate or other physical deformity
- Disturbances of consciousness.

Each day, try patiently to give the patient F75 by mouth before using the NG tube. NG tube feeding should not exceed three days, and is only used in Phase 1.

4.5.5. Routine Medication for Severe Acute Malnutrition

Table 4.1. Routine Medication for Severe Acute Malnutrition

Name of Product	**Admission**	**Age**	**Prescription**	**Dose**	**Length of treatment**
[1]VITAMIN A	YES (**EXCEPT** children with [2]oedema)				
		< 6 months	**50 000 IU**	single dose	One dose at admission
		6 months to < 1 year	**100 000 IU**	single dose	
		> = 1 year	**200 000 IU**	single dose	
	DO NOT USE WITH OEDEMA ON ADMISSION (GIVE ONE DOSE ON DISCHARGE FROM OTP)				
FOLIC ACID	NO (give on second visit)	All beneficiaries	**5 mg**	Single dose	One dose on second visit
AMOXYCILLIN	YES (**EXCEPT** under 2 kg)	2.0 - 5.9 kg	**62.5 mg**	3 times / day	7 days (or 10 days if needed)
		6.0 - 9.9 kg	**125 mg**		
		10.0 - 30.0 kg	**250 mg**		
		> 30 kg	**500 mg**		
ANTI MALARIAL	YES (if in malarial area)	All beneficiaries **EXCEPT <2 months old**	**see National protocol**	**see National protocol**	**see National protocol**
***ALBENDA-ZOLE**	(In worm infested area)	< 1 year	**see National protocol**	**see National protocol**	**see National protocol**
		1 to < 2 years	**see National protocol**	**see National protocol**	**see National protocol**
		> = 2 years	**see National protocol**	**see National protocol**	

[1]Do not repeat the dosage of vitamin A if the child is readmitted or has already received curative dose of Vitamin A during the Last 30 days. [2]Also, there is increased risk of mortality in children with oedema
*****Albendazole (Worm infestation is not a public health problem in Eritrea. Use of anthelmintics should be in line with National protocol)

4.6. Criteria to progress from Phase 1 to Transition Phase

The following is criteria the patient must meet to progress from Phase 1 to Transition Phase:

- Appetite has improved and taking all prescribed volume of milk.

- Oedema, reduced from severe +++ to moderate++.
- Treatment for any medical complication has commenced and patient is recovering.
- IV fluids / treatment completed.
- NG feeding completed and cannula/tube removed.
- No IV and No NGT.

4.7. TRANSITION PHASE

A patient usually remains in Transition Phase for two to three days. In this phase the patient begins to gain some weight slowly. The objective of Transition Phase is to gradually increase the amount of calorie intake, increasing from 100kcal/kg to 130kcal/kg. This is to prevent overload and its potential complications. Transition Phase prepares the patient for Phase 2 treatment.

4.7.1. Diet to use

The ONLY change in the diet when transferring from Phase 1 to Transition Phase is that F75 is replaced by F100. The number of feeds, the timing, and the volume of the diet remains exactly the same in Transition Phase as in Phase 1 (130ml/kg/day).

If the patient takes all food and there is not excessive mal-absorption, the expected rate of weight gain for marasmic patients during Transition Phase is about 6g/kg/day.

In all cases, breastfed children should always be breastfed before taking F100.

Transition Phase: amounts of f100 to give

Class of Weight (kg)	8 feeds per day ml for each feed	6 feeds per day	5 feeds per day
Less than 3kg	F100 full strength should not be given - Only F100 diluted should be given		
3.0 to 3.4 kg	60 ml per feed	75 ml per feed	85 ml per feed
3.5 - 3.9	65	80	95
4.0 - 4.4	70	85	110
4.5 - 4.9	80	95	120
5.0 - 5.4	90	110	130
5.5 - 5.9	100	120	150
6 - 6.9	110	140	175
7 - 7.9	125	160	200
8 - 8.9	140	180	225
9 - 9.9	155	190	250
10 - 10.9	170	200	275
11 - 11.9	190	230	275
12 - 12.9	205	250	300
13 - 13.9	230	275	350
14 - 14.9	250	290	375
15 - 19.9	260	300	400
20 - 24.9	290	320	450
25 - 29.9	300	350	450
30 - 39.9	320	370	500
40 - 60	350	400	500

4.7.2. Preparation of F100

Prepare F100 by adding a sachet of F100 milk powder to two (2) litres of boiled cooled water. If small quantities of milk are required (few children in need of nutritional rehabilitation), add one (1) red scoop (4.1g) powder milk to 18ml boiled and cooled water. For small quantities of made-up milk see recipes Annex 4.2.

Warning: *F100 is never given out for use at home. It is always prepared and distributed in an in-patient unit. F100 is not kept in liquid form at room temperature for more than three hours before it is consumed.*

4.7.3. Routine Medicine in Transition phase

Routine antibiotic therapy should be continued for four days after Phase 1 or until the patient is transferred inpatient care phase 2. This is to ensure that any infection is treated.

4.7.4. Criteria to Progress from Transition Phase to Phase 2

- If the patient has a good appetite and is taking all F100 prescribed for Transition Phase.
- Marasmic patients spend a minimum of 2 days in Transition Phase.
- Patients should remain in Transition Phase until they have lost their oedema entirely.
- Severe medical complications must be resolved before the patient progresses to Phase 2.

4.8. PHASE 2

In Phase 2, the main objective is to achieve catch-up growth and resolve micronutrient deficiencies. However there are some variations in workload. As the patients are recovering the frequency of meals and some of the routine surveillance is less frequent as in Phase 1 and Transition Phase.

4.8.1. Diet to use

The main change in the diet is an increase in the amount of F100 when patients are transferred from Transition Phase to Phase 2. The volume of milk is increased from 130ml/kg/day to 200ml/kg/day (equivalent to 200kcal/kg/day).

F100 (100ml = 100 kcal)

- Give five feeds of F100 per day to patients who weigh less than 8kg
- One porridge meal may be given to patients who weigh more than 8kg (approximately 24 months of age); it is not necessary to give porridge unless the patient asks for it.
- Breastfed children always receive breast milk before they are given F100, and also always on demand.

4.8.2. Preparation of F100

Prepare F100 by adding a sachet of F100 powdered milk (net weight 456gms) to two (2) litres of boiled, cooled water.

Phase 2: Amount of F100 to give

Class of weight (kg)	6 feeds/day F100 ml/feed	5 feeds/day F100 ml/feed
<3 kg	Full strength F100 and RUTF not given to infants who weigh less than 3kg	
3.0 to 3.4	110	130
3.5 - 3.9	120	150
4.0 - 4.9	150	180
5.0 - 5.9	180	200
6.0 - 6.9	210	250
7.0 - 7.9	240	300
8.0 - 8.9	270	330
9.0 - 9.9	300	360
10.0 – 11.9	350	420
12.0 – 14.9	450	520
15.0 – 19.9	550	650
20.0 - 24.9	650	780
25.0 – 29.9	750	900
30.0 - 39.9	850	1000
40 - 60	1000	1200

4.8.3. Routine Medication in Phase 2

4.8.3.1. Iron

Iron is given to malnourished children in Phase 2. For convenience and ease for staff it is added to the F100 diet: Crush an iron tablet and add to 4mls of water and mix well (Iron Solution).

For one sachet of F100 (makes 2.4 litres of F100), add one (1) crushed tablet of ferrous sulphate (200mg) in the 4mls of water (Iron Solution).
For half a sachet of milk (1200ml of F100), add 2mls of the iron solution.
For 600ml of F100, add 1ml of the iron solution.

4.8.3.2. De-worming

Provided worm infestation is recorded in the area, Apply national guidelines on de-worming in Phase 2.

4.9. Monitoring Recovery

4.9.1. Surveillance in Phase 1 and in Transition Phase –

Each Day:

- ✓ Take patient's body temperature twice a day.
- ✓ Weigh the patient and record the weight. Plot weight on the Multi-chart
- ✓ Assess and record the degree of oedema (0, +, ++, +++).
- ✓ Record the patient's fluid intake and source (oral, NG tube or IV fluids). Record if patient is absent at mealtime, has refused diet or has vomited. Document the information in the multi-chart to monitor ongoing progress.
- ✓ Assess and note in the Multi-chart standard clinical sign (number of stools passed, vomiting, dehydration, cough, respiration, and liver size).
- ✓ Once a week, MUAC is measured.
- ✓ On admission and after 21 days (with each new Multi-chart), measure height (length)

4.9.2. Surveillance in phase 2

Patient surveillance in Phase 2 is less intensive and less frequent than during Phase 1 and Transition Phase. However, it is important to routinely monitor progress.

- ✓ Check weight and oedema, Three (3) times per week
- ✓ Measure height (length), Every three (3) weeks, with each new Multi-chart
- ✓ Take body temperature, Every morning
- ✓ Assess standard clinical signs, Every day
- ✓ Take MUAC, Every week
- ✓ Record diet intake daily in Multi-Chart

4.9.3. Failure to respond to treatment

Criteria	Time after Admission
Primary failure to respond	
Failure to regain appetite	Day 4
Failure to start to loose oedema	Day 4
Oedema still present	Day 10
Failure to gain at least 5g/kg of body weight per day	Day 10
Secondary failure to respond	
Failure to gain at least 5g/kg of body weight per day for 3 successive days	During rehabilitation

Criteria to Return to Phase 1

Move the severely malnourished child back to Phase 1 if any one of the following occurs:

- There is increasing oedema.
- A child who does not have oedema develops oedema.
- There is a rapid increase in the size of the liver.
- Any signs of fluid overload develop.
- Tense abdominal distension develops.
- The patient gets significant re-feeding diarrhoea so that there is weight loss.
- A complication arises that necessitates an intravenous infusion.

4.9.4. Preparation for Discharge

• Throughout in-patient care, keep the patient's family informed of the patient's progress and the discharge plan. Schedule routine health and nutrition education in groups and individually as necessary.

• If possible, during Phase 2 conduct cooking demonstrations with parents/caregivers on how to use local foods and maintain balanced diets. This is an effective way to transfer knowledge, especially where literacy is an issue.

• Discharge patient for Supplementary Feeding if available and with a food ration if possible. If there is no SFP, schedule a follow-up visit to the health facility in order to monitor patient's progress.

4.10. DISCHARGE

4.10.1. Discharge Criteria for Recovered Patients

- W/H >−2 Z-score (SD) for two consecutive weighs/measurements (if admitted by WFH Z-score)

- 15% weight gain (If admitted by MUAC)
- No oedema for 10 days

4.10.2. Medications to Administer on Discharge

• One dose of VitaminA.
• Measles vaccine - refer to the national guidelines on vaccination

Note:

RUTF can be used in the FBTF (Transition Phase and in phase 2). When the patient tolerates at least 75% of the amount of RUTF calculated for the individual child (Annex 4.3). Initially RUTF and F100 meals can alternate with RUTF given every other feed (20g of RUTF is equivalent to 100ml of F100). If the RUTF is tolerated, the patient's diet changes to RUTF for the remainder of Transition Phase. Patients may initially refuse RUTF. If this is the case, give the patient the F100 diet and offer RUTF again the next day. Patients should drink as much clean water as possible while taking and after consumption of RUTF.

Also, patients could be transferred to CBTF if the patient has good appetite and is taking at least 75% of the RUTF in Transition phase or phase 2. Oedematous patients discharged to CBTF remain in transition phase until there is a steady reduction in oedema (+ level)

Plumpy'nut® is nutritionally equivalent to F100, with the exception that it has an appropriate amount of iron added for children in Phase 2 or children who pass the appetite test.

4.11. Introduction

Infants should be exclusively breastfed for the first six months of their life, NO other foods, liquids or water. Breast milk contains all the essential nutrients and water that the baby needs for the first six months. All mothers should be supported by health workers, families and communities to exclusively breastfeed their infants until six months. However, some infants under six months can become malnourished. These children should always be treated in the inpatient unit (FBTF), and should not be admitted to the CBTF. RUTF **is not** suitable for infants under six months. Infants who are malnourished are weak and do not suckle strongly enough to stimulate an adequate production of breast milk. The mother often thinks that she herself has insufficient milk and is apprehensive about her ability to adequately feed her child. The low output of milk is due to inadequate stimulation by the weak infant.

The objective of treating malnourished infants less than six months is to return them to full exclusive breastfeeding.

4.12. Screening and Admission Procedure

4.12.1. Screening

Community structures, such as mother-to-mother support groups and other outreach services, should make efforts to identify infants less than six months who are not suckling well and faltering in their growth and development. Because traditional methods of screening, such as MUAC, cannot be used for infants under six months, the one of the best indicators at community level is observation. At health facilities, all infants should have their weight-for-length measurement taken and recorded in the child health card.

4.12.2. Admission Criteria

AGE	ADMISSION CRITERIA
Infant less than 6 months or less than 3 kg being breast-fed	➢ The infant is too weak or feeble to suckle effectively (independently of his/her weight-for-length) **or** ➢ The infant is not gaining weight at home **or** ➢ W/L (Weight-for-Length) < -3 SD **or** ➢ Presence of bilateral oedema.

The main admission criterion is failure of effective breast feeding and the main discharge criterion is gaining weight on breast milk alone.

4.13. Nutrition Support: Diet, Frequency, and Suckling Technique

The aim is to stimulate breast-feeding and to supplement the child until breast milk is sufficient to allow the child to grow properly. Breast milk output is stimulated by the Supplemental Suckling (SS) technique; it is important to put the child to the breast as often as possible.

- ✓ Breast-feed every 3 hours for at least 20 minutes, more often if the child cries or seems to want more.
- ✓ Between one half and one hour after a normal breast-feed give maintenance amounts of F100 diluted using the supplementary suckling technique:
- ✓ F100diluted: 130ml/kg/day (100kcal/kg/day), divided in 8 meals.

- ✓ Young infants should be nursed in a separate space from the older malnourished children. This can be a "breast-feeding corner".

There are not separate phases in the treatment of infants with the SS technique. There is no need to start with F75 and then switch to F100diluted *unless the infant has oedema*.

4.13.1. Preparing of F100 DILUTED

- ❖ Dilute **F100 one packet into 2.7 litres of water** instead of 2litres to make F100 diluted.
- ❖ To make small quantities of F100 diluted,

- ➢ Use 100ml of F100 already prepared and add 35ml of water, then you will get 135ml of F100diluted. Discard any excess waste. Don't make smaller quantities.
- ➢ If you need more than 135ml, use 200ml of F100 and add 70ml of water, to make 270ml of F100 diluted and discard any excess waste.

If F100 diluted is not readily available these infants can be fed with the same quantities of commercial infant formula diluted according to the instructions on the tin.

If there is a choice, use a formula designed for premature infants. However, infant formula is not designed to promote rapid catch up growth. Unmodified powdered whole milk should not be used.

Table 4.2. Amounts of F100 diluted to give for infants.

Class of Weight (kg)	ml of F100 diluted per feed (8 feeds/day)
	Diluted F100
>=1.2 kg	25 ml per feed
1.3 to 1.5 kg	30
1.6 – 1.7	35
1.8 – 2.1	40
2.2 - 2.4	45
2.5 - 2.7	50
2.8 – 2.9	55
3.0 - 3.4	60
3.5 – 3.9	65
4.0 – 4.4	70

Children less than 6 months, with oedema, should be on F75 and not on F100diluted.

F100 undiluted is never used for small infants (less than 3kg)

4.13.2. Follow-up

The progress of the child is monitored by the daily weight.

- ✓ If the child loses weight over 3 consecutive days yet seems hungry and is taking all his F100 dilute, add 5mls to each supplemental suckling feed.
- ✓ The supplementation is not increased during the stay in the facility. If the child grows regularly with the same quantity of milk, it means the quantity of breast milk is increasing.
- ✓ If after some days, the child does not finish all the supplemental food, but continues to gain weight, it means that the breast milk is increasing and that the child has enough.
- ✓ Weigh the child daily with a scale graduated to within 10g (or 20g).
- ✓ When a baby is gaining weight at 20g per day (what ever his weight):
  - ❖ Decrease the quantity of F100diluted to one half of the maintenance intake.
  - ❖ If the weight gain is maintained (10g per day whatever his weight) then stop supplement suckling completely.

- ❖ If the weight gain is not maintained then increase the amount given to 75% of the maintenance amount for 2 to 3 days and then reduce it again if weight gain is maintained.

✓ If the mother is agreeable, it is advisable to keep the child in the centre for a further few days on breast milk alone to make sure that s/he continues to gain weight. If the mother wishes to go home as soon as the child is taking ample amounts of the breast milk then they should be discharged.

✓ When it is certain that the child is gaining weight on breast milk alone s/he should be discharged, no matter what his current weight or weight-for-length.

4.13.3. Supplementary Suckling Technique

The supplementation is given using a tube the same size as n°8 NGT (a size n°5 tube can be used, but the milk should be strained through cotton wool to remove any small particles that would block the tube).

- ➢ F100 diluted is put in a cup. The mother holds it.
- ➢ The end of the tube is put in the cup.
- ➢ The tip of the tube is put on the breast at the nipple and the infant is offered the breast in the normal way so that the infant attaches properly. Sometimes at the beginning the mothers find it better to attach the tube to the breast with some tape.
- ➢ When the infant suckles on the breast, with the tube in his mouth, the milk from the cup is sucked up through the tube and taken by the infant. It is like taking a drink through a straw.
- ➢ At first an assistant needs to help the mother by holding the cup and the tube in place. She encourages the mother confidently. Later the mothers nearly always manage to hold the cup and tube without assistance.
- ➢ At first, the cup should be placed at about 5 to 10cm below the level of the nipple so the milk does not flow too quickly and distress the infant. And the weak infant does not have to suckle excessively to take the milk. As the infant becomes stronger the cup should be lowered progressively to about 30cm below the breast.
- ➢ The mother holds the tube at the breast with one hand and uses the other for holding the cup. Some mothers find it more convenient if the tube is held in place with a strip of tape, but this is not normally necessary.
- ➢ It may take one or two days for the infant to get used of the tube and the taste of the mixture of milks, but it is important to persevere.
- ➢ By far the best person to show the mother the technique is another mother who is using the technique successfully. Once one mother is using the SS technique successfully the other mothers find it quite easy to copy her.
- ➢ The mother should be relaxed. Excessive or officious instructions about the correct positioning or attachment positions often inhibit the mothers and make her think the technique is much more difficult than it is. Any way in which the mother is comfortable and finds that the technique works is satisfactory.
- ➢ If the formula diet is changed then the infant normally takes a few days to become used to the new taste. It is preferable to continue with the same supplementary diet throughout the treatment.

4.13.3.1. Cleaning the tube

After feeding, the tube is flushed through with clean water using a syringe. It is then spun (twirled) rapidly to remove the water in the lumen of the tube by centrifugal force. If convenient the tube is then left exposed to direct sunlight.

Figure 4.1. Supplemental Suckling Technique



This infant is suckling the breast and also getting the F100 diluted (130ml/kg/d) by the supplemental suckling technique.

Raising or lowering the cup determines the ease with which the infant gets the supplement: for very weak infants it can be at the level of the infant's mouth. If it is above this level the feed can go into the child by siphonage when there is a danger of aspiration.

4.14. Routine medicine

These children have to be seen by a nurse everyday because they are vulnerable.

- **Vitamin A**: 50,000UI at admission only
- **Folic acid**: 2.5mg (1tab) in one single dose
- **Ferrous sulphate**: when the child suckles well and starts to grow. Use the F100, which has been enriched with ferrous sulphate (phase 2). Dilute this with 1/3 water to obtain the correct dilution. Children below 6 months are relatively few and it is much easier and safer to use the F100 prepared for the older patients than to calculate and add ferrous sulphate to very small amounts of diet.
- **Antibiotics**: Amoxycillin (from 2kg): 30mg/kg 2 times a day (60mg/day) in association with Gentamycin (do not use Chloramphenicol in young infants)

The surveillance is the same for infants as for older patients in Phase 1

4.15. Care for the mother

As the aim is to increase breast milk, the mothers learn from each other and the treatment is different from older patients, the babies should be together in a specific room that can be monitored and kept quiet.

- ✓ Check mother's MUAC and the presence of oedema.
- ✓ Explain to the mother what the aim of treatment is and what is expected of her; do not make the mother feel guilty for the state of her child or blame her for giving other foods.
- ✓ Strongly reassure the mother that the technique works and that she will get enough milk herself to make her baby better.
- ✓ Be attentive to her and introduce her to the other mothers in the phase.
- ✓ She should drink at least 2 litres per day
- ✓ She must eat enough - about 2500kcal/day (1 porridge in the morning, 1 or 2 family meals, 1 porridge in the afternoon)

- ✓ The mother who is admitted in the centre with her child should receive Vitamin A: 1) If the child is below 2 months: 200.000UI (there should be no risk of pregnancy), 2) If the child is above 2 months: 25.000UI once a week
- ✓ Micronutrients' supplementation must also be given to the mother. The quality of the milk with respect to many type I nutrients depends upon the mother's nutritional status. It is critical that the mother is properly fed during this procedure and any deficiency in the infant is corrected by giving good nutrition to the mother.
- ✓ The length of stay in the facility should be as short as possible.

4.16. Discharge criteria

AGE	DISCHARGE CRITERIA
Infant less than 6 months or less than 3 kg being breast-fed	➢ It is clear that he/she is gaining weight on breast milk alone after the Supplemented Suckling technique has been used, ➢ There is no medical problem ➢ The mother has been adequately supplemented with vitamins and minerals, so that she has accumulated body stores of the type 1 nutrients.

***Note**: There are no anthropometric criteria for discharge of the fully breast-fed infant who is gaining weight.*

Follow-up for these children is very important. The mother should be included in the SFP programme and receive high quality food to improve the quantity and quality of breast milk.

4.13. Introduction

In special situations when an infant cannot be breastfed exclusively, such as abandonment, death of the mother, or medical conditions, infants can be treated according to the standard protocols of management of severe acute malnutrition in Phase 1 and Transition Phase, in Chapter 4. However, dietary modifications are necessary.

4.14. Screening Admission Procedure

AGE	ADMISSION CRITERIA
Infant less than 6 months or less than 3 kg with no prospect of being breast-fed	➢ W/L (weight-for-length) < -3SD **or** ➢ Presence of bilateral oedema.

There are no standards for infants below 49cm and the increments to judge nutritional status require precise scales that are not generally available. The in-patient therapeutic unit is not appropriate for treating premature and low-birth-weight non-breast-fed infants below 49cm in length. These infants should be referred to the nursery and given infant formula.

4.15. Nutrition Support: Diet and Frequency

When there is no prospect of being given breast milk then severely malnourished, less than 6 month' old infants, should be treated according to the standard protocol with the following modifications.

4.15.1. Phase 1

Wasted, marasmic infants of less than 6 months can be given F100 diluted in Phase 1. Oedematous infants of less than 6 months should always be given F75 during phase one.

Table 4.3a. Amounts of F100 diluted or F75 to give for infants not breast-fed in Phase 1

Class of Weight (kg)	ml of F100 per feed in Phase 1 (8 feeds/day)
	Diluted F100
=< 1.5 kg	30 ml per feed
1.6 to 1.8 kg	35
1.9 – 2.1	40
2.2 - 2.4	45
2.5 - 2.7	50
2.8 – 2.9	55
3.0 - 3.4	60
3.5 – 3.9	65
4.0 – 4.4	70

Children less than 6 months, with oedema, should be on F75 and not on F100 diluted.

4.15.2. Transition Phase

During Transition Phase, only F100 diluted should be used. The volume of the diet is increased by on third. These small infants should not be treated with full strength F100.

4.15.3. Phase 2 In-patient

During Phase 2, twice the volume of F100 diluted that has been given during Phase 1 should be offered to the infants.

Table 4.3b. Amounts of F100 diluted to give for infants not breast-fed in Phase 2

Class of Weight (kg)	ml of F100 per feed in Phase 2 (6 to 8 feeds/day)
	Diluted F100
=< 1.5 kg	60 ml
1.6 to 1.8 kg	70
1.9 – 2.1	80
2.2 - 2.4	90
2.5 - 2.7	100
2.8 – 2.9	110
3.0 - 3.4	120
3.5 – 3.9	130
4.0 – 4.4	140

4.16. Discharge Criteria

AGE	DISCHARGE CRITERIA
Infant less than 6 months or less than 3 kg with no prospect of being breast-fed	➢ When they reach weight for length > -2 SD they can be switched to infant formula.

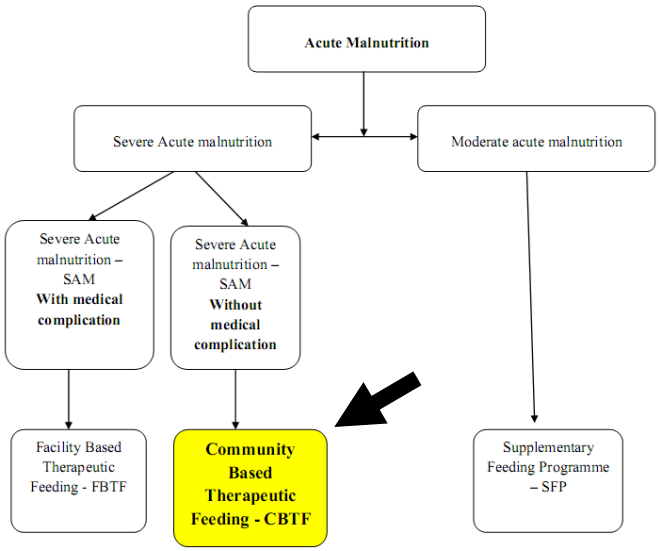
Follow-up for these children is very important and to be organised by the MoH/Community Health Workers (CHW).

Annexes

Annex 4.1a. Admission and Discharge criteria
Annex 4.1b. In-patient (FBTF) Treatment Multi-Chart for Severe Acute Malnutrition
Annex 4.2. Recipes for F75, F100 and ReSoMal using CMV
Annex 4.3. Transition Phase RUTF quantity per kg of body weight
Annex 4.4. Example **Registration book – in-patients and out-patients**
Annex 4.5. History and Examination sheet for severe malnutrition
Annex 4.6. The physiological basis for the treatment of severe acute malnutrition
Annex 4.7. Transfer Form - Inpatient Therapeutic Care (FBTF) to Outpatient Therapeutic Care (CBTF)
Annex 4.8. Systematic Antibiotics

Chapter 5

Community Based Therapeutic Feeding (CBTF)
For Severe Acute Malnutrition without Medical Complications



The Community Based Therapeutic Feeding (CBTF) programme is designed specifically for children with severe acute malnutrition (without medical complication) to be treated and followed at the community level, without requiring long stays at an inpatient facility. Most patients with severe acute malnutrition can be managed entirely on an out-patient basis. Health facilities are the primary locale for all CBTF sites as they are decentralized throughout all communities. Community Volunteers (CVs) must be given training on community-based screening and referral of children to CBTF for treatment. In uncomplicated cases of severe malnutrition – patients with a good appetite, free from medical complications and with no severe oedema - can be treated with routine medicines and RUTF at home.

Patients attending the IMNCI, TB and ART programmes should be systematically screened for severe malnutrition and referred to the CBTF programme provided they fulfil the admission criteria.

The child must be taken to the CBTF site on a weekly basis for monitoring and to replenish RUTF supply. Health workers at CBTF sites will need to have training on the IMAM programme. When adequately in place, an out-patient nutrition care programme can effectively reach 85-90% of children with severe acute malnutrition.

Outreach therapeutic feeding is amongst other strategies that have contributed to saving more lives in communities. Health workers are provided with outreach schedule where treatment (routine medicine, RUTF) is given to malnourished children and including IMNCI, EPI, IYCF, Nutrition Education, and HIV/AIDS services. Very long distances, mountainous terrains, weather conditions, farming activities, illness of a family member are among reasons that contribute to poor CBTF coverage.

5.1. Facility Planning (For expansion of CBTF)

When considering a facility location, the following should be considered:

- Availability and capacity of existing health workers
- Distance people will need to walk to reach the service; ideally, CBTF facilities should be a maximum of three hours' walk away (a one-day round trip)
- How access to sites can be affected by climate (i.e. heavy rains) or other factors
- The opinions of key community figures on appropriate sites

- Areas with the highest malnutrition levels, either according to existing data or local opinion where data are lacking
- The timing of market days and general distribution days, and the schedule for health facilities' outreach activity (i.e. days when health workers are away from their facility)
- The predicted number of target beneficiaries according to nutrition survey findings

5.1.1 Staff Planning

✓ Health Facilities with CBTF should be run by a Health worker who has been trained in IMAM.
✓ Caseload and predicted malnutrition rates should be taken into consideration as some facilities with relatively low numbers can make use of fewer staff for all screening, assessments, and monitoring of patients.
✓ Conversely, sites with potentially high numbers should be recognized as needing more trained staff to manage caseload on distribution days.
✓ All staff must also be trained and held accountable for stock management at their facility and for accurate reporting to the zonal coordinating office.
✓ Community volunteers (CVs) conducting active screening in Health facility catchment areas should have constant contact with their Health facility to ensure the continuum of care and that referred patients actually reach the CBTF site and are managed accordingly.
✓ Similarly, Health facility staff should train, monitor all CVs in their catchment area and encourage them to conduct screening on regular basis to ensure that all children are screened and referred.

5.1.2. Equipment and supplies

The following equipment is necessary for the CBTF:

- CBTF registration book
- Stationary: marker pens, stapler/staples, clipboard, scissors, pens, notebook, calculator
- Small clock with second hand
- Bucket with lid
- Water jug with lid and scoop
- Soap for hand washing
- Small bowl and small jug
- Hand towel or paper towels
- Plastic cups and metal spoons
- Teaspoons and medicine cups
- Thermometer
- Salter scale (25kg) with pants, height board, MUAC tapes, Uniscale
- Scale/balance to measure food ration or calibrated container that holds known weight of food ration
- CBTF Card
- CBTF Ration Card
- Sugar to make 10% sugar water solution

5.2. Target Group

The target group for IMAM is primarily children under five years old. Other severely acutely malnourished individuals, such as adolescents and adults who are identified according to the standard assessment criteria may be admitted to the CBTF, as indicated in the tables below. Infants less than six months with severe acute malnutrition should be transferred to a stabilization centre (FBTF) for treatment.
Chapter 3 and the annexes demonstrate a practical view on Screening and Admission

5.3. Admission criteria to CBTF

- W/H <-3 Z-score (SD)
- MUAC < 11.5 cm

Without medical complication and /or Bi-lateral pitting oedema (Grade + and ++)

5.3.1. Admission Procedures

- At the CBTF site, retake the anthropometric measurements (both MUAC and W/H) and check oedema. Annex 3.

When a child fulfils the criteria for admission, the health worker must:

- Conduct the appetite test for RUTF
- Complete the CBTF Card with the required information
- Register the case in the Registration Book
- Give explanations to the caregiver about the functioning of CBTF and the expected progress of the child while in treatment until he/she reaches discharge criteria, including expected length of stay
- Conduct a thorough medical examination to check for complications
- Prescribe and give routine medications and any other treatment the child may need (*see annex 5.3*)
- Verify immunisation status and update vaccinations if needed
- Prescribe and give RUTF. Stress key messages making sure they have been well understood. Caregivers shall repeat advice regarding medicines and RUTF.
- Complete the Child Health Card and give to the caregiver.
- Give health/nutrition, hygiene and sanitation education (i.e. IYCF messages)
- Link the child's family with the assigned CV for home visit and follow up.
- Give appointment for the next visit to CBTF (the same day each week).
- For children that are first admitted directly into CBTF, the amount of RUTF should be enough for the next visit to the CBTF site.

Note: Children should be admitted on any day of the week when SAM is identified and then followed up weekly. Follow up visits may be organised on the same day of the week for all beneficiaries to facilitate organisation, staffing and logistics for the health facility staff.

5.4. RUTF Administration and quantity.

RUTF is an energy-dense mineral and vitamin-enriched food designed to treat severe acute malnutrition. It has a similar nutrient profile but greater energy and nutrient density than F100 the diet recommended by the WHO in the recovery phase of the treatment of severe acute malnutrition (Briend et al., 1999).

Quantity RUTF per class body weight

Class of weight (kg)	RUTF	
	Sachet per day	Sachets per week
3.0 - 3.4	1 ¼	8
3.5 - 4.9	1 ½	10
5.0 – 6.9	2	15
7.0 – 9.9	3	20
10.0 - 14.9	4	30
15.0 – 19.9	5	35
20.0 – 29.9	6	40
30.0 - 39.9	7	50
40 - 60	8	55

5.4.1. Role of the Parent or Caregiver

Discuss the following points with the parent/caregiver when the child begins treatment, and make sure they feel confident in their role

- ✓ RUTF is a medicine for malnourished children only. It should not be shared with the other family members even if the child does not consume all the diet offered.

- ✓ The quantity of RUTF to give the patient daily (Annex 4.3c.)
- ✓ If the mother is still breastfeeding, she is advised to continue breastfeeding as before and give the RUTF after breast milk. Apart from breast milk, carers are advised to give RUTF and no other foods to the child during treatment.
- ✓ Hand washing
- ✓ When giving a whole sachet of RUTF, it is more hygienic and safe to simply cut the top corner of the sachet and give RUTF directly from the packet.
- ✓ Give plenty of safe drinking water to the child throughout the day (on demand)
- ✓ Seek the CV if concerned about the child's condition, for example if the child is not eating, is losing weight, vomiting, having diarrhoea, sick, or increasing oedema. Child should be taken directly to a health facility for medical review and advice.
- ✓ Give routine medicines as advised by the health worker
- ✓ Attend the health Facility weekly for monitoring and to receive more RUTF supplies.
- ✓ Return empty RUTF sachets weekly to replenish RUTF – ensure parents/caregivers understand that if they do not bring the empty sachets, they will not be given more RUTF.
- ✓ Malnourished children need to be kept warm.

5.4.2. Role of the Health Workers

- ✓ In the presence of the CVs, health worker review the child's health card and highlight areas to address when the CVs conducts a home visit
- ✓ Hold nutrition education sessions with all parents/caregivers and patients during weekly monitoring days (Nutrition, hygiene and health education. Annex 7.2)
- ✓ Take weight/height measurement and plot on child health card at each weekly visit
- ✓ Link with other community-based support programmes.
- ✓ Promote RUTF as medicine and NOT as food to be shared
- ✓ A child who has been in the programme for five weeks with no weight gain, Special attention should be paid to these children during medical assessment.
- ✓ If a child has any clinical signs that suggest HIV/AIDS, encourage the parent/caregiver to bring the child for voluntary and confidential counselling and testing (VCCT) for HIV. Refer to National HIV Policy and Guidelines.

5.5. Routine Medicines

Routine medicines are given to all children admitted to the CBTF

5.5.1. Vitamin A

There is an adequate amount of vitamin A in the RUTF to manage mild vitamin A deficiencies during treatment.

Vitamin A should be given to <u>every</u> patient at the 4th week of the treatment as at this time there should be sufficient recovery to store the massive dose of vitamin A in the liver.

Any child with signs of vitamin A deficiency should initially be treated as an in-patient as the condition of their eyes can deteriorate very rapidly.

Table 5.1. Vitamin A systematic treatment

Age	Vitamin A IU orally in day 1
6 to 11 months	100,000IU
12 months (or 8 kg) and more	200,000IU

5.5.2. Folic acid

There is sufficient folic acid in RUTF to treat mild folate deficiency.
On the day of admission, one single dose of folic acid (5mg) can be given to children with severe clinical signs of anaemia. If the dose on the first day is missed, it should not be given during subsequent visits as the amount in the RUTF will have replete the body folate store within one week.

5.5.3. Other Micronutrients

The RUTF is commercially manufactured and already contains all the other nutrients required to treat the malnourished child. Additional potassium, magnesium or zinc should not be given to the patients. Such a "double dose", one coming from the diet and the other prescribed, is potentially toxic. In particular, additional potassium should never be given with these diets. Even for children with diarrhoea it is not advisable to give additional zinc.

5.5.4. Systemic Antibiotics

Small bowel bacterial overgrowth occurs in ***all*** these children (including those with moderate malnutrition, and some with good appetites). These enteric bacteria frequently are the source of systemic infection by translocation across the bowel wall. They also cause malabsorption of nutrients; failure to eliminate substances excreted in the bile, fatty liver, intestinal damage and can cause chronic diarrhoea. The antibiotic chosen for routine treatment must be active against small bowel bacterial overgrowth. (Annex 4.8)

5.5.4.1. Duration and administration of antibiotic treatment:

Amoxicillin is given for 7 days, three times daily. For out-patient care antibiotic syrup is preferred. Antibiotics for outpatients are always administered orally. If the child needs an IV for antibiotics, s/he must be admitted to the FBTF.

5.5.5. Malaria

- Refer to national guideline for malaria treatment.

5.5.6. Measles

- Refer to national guideline for EPI.

5.6. Follow Up Procedures

Follow-up tasks should be conducted as listed below for all patients in the CBTF. All results of follow-up procedures should be noted in the patient's records or child health card;

- ✓ Patient attends health facility (Weekly)
- ✓ Patient receives replacement RUTF (Weekly)
- ✓ Health worker checks weight (Weekly)
- ✓ Health worker checks MUAC (Weekly)
- ✓ Health worker checks height (Monthly)
- ✓ Health worker conducts standard medical examination including: vital signs (temperature, pulse and respiration rate) (Weekly)
- ✓ Health worker conducts Appetite Test (Weekly)
- ✓ Health worker fills in patient card and ration card (Weekly)

Based on the results of the follow up, the health worker should guide (counsel) the mother.

5.6.1. Treatment Success

For children who gain weight appropriately and begin to show improvement congratulate the mother or caregiver on the child's progress. Continue with follow up until the child is ready for discharge, based on the criteria under *Discharge Procedures*, below.

5.6.2. Failure to Respond to Treatment

Children may fail to respond to treatment after five months in the CBTF for several reasons. These include problems with the treatment facility, problems of individual children, and home or social problems.

5.6.3. Possible causes of failure

1.Problems of the treatment facility include:

- Inappropriate selection of patients to go directly to CBTF
- Appetite Test Poorly conducted
- Inadequate instructions given to caregivers
- Incorrect amounts of RUTF dispensed to children
- Too much time between CBTF distributions (e.g. two weekly rations give significantly worse outcomes than weekly rations)

2.Problems with individual children and home/social circumstances include:

- Insufficient food given
- RUTF taken by siblings or caregiver
- Sharing of caregiver's food
- Caregiver overwhelmed with work, other children, and other responsibilities
- Vitamin and mineral deficiency
- Malabsorption
- Psychological trauma (i.e. families living with HIV/AIDS)
- Rumination
- Other serious underlying disease/condition: HIV infection, tuberculosis, congenital abnormalities, neurological damage, inborn errors of metabolism

Action to be taken when failure to respond is seen:

- Follow-up through home visits by CVs or other community workers to check whether a child should be referred back to the clinic between visits for further assessment
- Discuss with caregiver on aspects of home environment that may be affecting the child's recovery progress
- At the health facility, carry out medical check and Appetite Test
- Children presenting with any serious medical complication and/or meeting any criteria listed below for primary or secondary failure to respond should be referred immediately to the inpatient FBTF until stabilized.
- A follow-up home visit is essential when:
    - Caregiver has refused admission to in-patient care despite advice
    - Failure to attend appointments at the CBTF

5.7. Criteria for transfer from CBTF to FBTF

Outpatients who develop the signs of a serious medical complication (pneumonia, dehydration, etc.) should be offered transfer to the FBTF for management of their condition until they are fit to return to CBTF. In addition, if the patient in CBTF develops any of the conditions listed below, s/he should be transferred to the in-patient facility, FBTF. For patients who were originally transferred from FBTF to CBTF, and are now transferring back to FBTF, the protocol for FBTF is initially applied (see chapter 4), however, the routine drugs are individually prescribed depending upon what has already been given and the cause of the transfer.

5.7.1. Criteria for failure to respond and transfer to FBTF	Time After Admission
Primary Failure to Respond	
Failure to gain any weight (non-oedematous children)	3 weeks
Failure to start to lose oedema	2 weeks
Oedema still present	3 weeks
Weight loss since admission to programme (non-oedematous children)	2 weeks
Secondary Failure to Respond	
Failure of appetite test	At any visit
Weight loss of 5% of body weight	At any visit
Weight loss for two consecutive visits	During CBTF care
Failure to gain more than 2.5 g/kg/d for 21 days (after loss of oedema in kwashiorkor or after day 14 in marasmus)	During CBTF care

Make it a routine by testing all CBTF cases for HIV

5.8. Discharge procedures

- ✓ Give feedback to the parent/caregiver on the patient's final outcome
- ✓ Ensure the parent/caregiver understands importance of follow-up care (supplementary feeding programme)
- ✓ Give a final ration of seven (7) packets RUTF as a weaning off ration
- ✓ Fill in date of discharge on the register
- ✓ Counsel parent/caregiver on good nutrition, hygienic practices and water safety.
- ✓ Counsel parent/caregiver on return to the nearest health facility if child becomes sick or is losing weight
- ✓ Refer patient to the nearest supplementary feeding programme (SFP)

5.8.1. Discharge Criteria

- W/H >-2 Z-score
  (SD) for two consecutive weighs/measurements (if admitted by WFH Z-score)
- 15% weight gain (If admitted by MUAC)

No oedema for two consecutive visits

5.9. Monitoring and Reporting CBTF activities

5.9.1. Reporting Procedures for CBTF

Use standardized reporting forms (Annexed) provided by the National Nutrition Programme to complete monthly reporting and weekly tally of all CBTF patients seen at each health facility. This information is critical for tracking progress and effectiveness of the programme.

Annex 5.1. Out Patient Therapeutic Care (CBTF) Admission Card

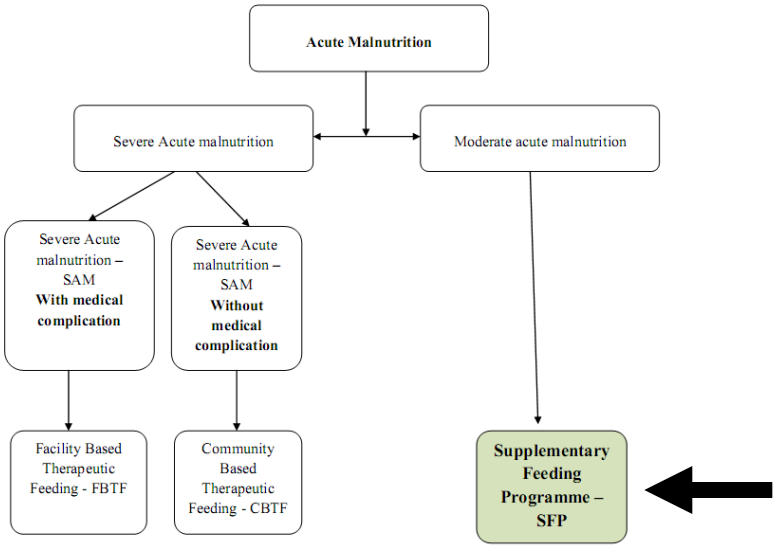
Annex 5.2. Out Patient Therapeutic Care (CBTF) Ration Card

Annex 5.3. Out Patient Therapeutic Care (CBTF) Routine Medicines

Annex 5.4. RUTF Specification

Chapter 6

Management of Moderate Acute Malnutrition in Supplementary Feeding Programme (SFP)



6.1. Introduction

This chapter details the process of implementing a supplementary feeding programme for moderately malnourished children and pregnant and lactating women, involving planning, admission and discharge criteria, treatment protocols, and monitoring and evaluation. The objective is to correct moderate malnutrition, focusing particularly on children, and undernourished pregnant women and lactating mothers. In most situations, an SFP acts as a safety net preventing excess mortality among vulnerable groups. The rations provided should be in addition to, and not a substitute for, the normal diet.

6.2. Facility Planning

In the Eritrean context, SFP is implemented through a number of decentralised sites. These are mostly at the same place as, or near to, the sites chosen for the CBTF, and should be within a maximum of three hours' walk (a one-day round trip) for all target communities. Space constraints and considerations of other ongoing activities (IYCF, IMCI, EPI, Malaria, WASH, and HIV/AIDS) may necessitate placing an SFP nearby, or in the health structure itself.

6.2.1. Staff planning

An adequate number of well-trained staff is crucial to an effective supplementary feeding programme, including;

- One zonal nutritionist to manage the programme and organize refresher trainings
- One sub-zonal focal person to assist the zonal nutritionist in programme management
- Facility level nurses to asses patients for common ailments, provide nutrition and other health counselling,
- One storekeeper to manage supplies and make returns or compile stock reports

6.2.2. Equipment and Supply Planning

The following supplies are essential for SFP programme:

- Weight for height charts (Laminated)
- SFP registration book for children and pregnant & lactating mothers
- SFP individual record card

- SFP monthly reporting forms
- Ration cards
- Scales, length/height board, MUAC tape
- Food products (UNIMIX)
- Plastic bags
- Basins, buckets
- Weighing bowls
- Pots & cooking utensils (For cooking demonstration)
- Health and nutrition materials

6.3. Target Group

- **C**hildren 6-59 months, moderately malnourished and/or those discharged from therapeutic treatment FBTF or CBTF.
- Pregnant and lactating women, second and third trimester pregnant women & lactating mothers of first six months after delivery
- Individuals with social and medical problems, Twins, orphans, unaccompanied children, the physically and emotionally challenged, HIV-infected and affected people, people suffering from tuberculosis.

6.3.1. Special target groups

1) Teenage mothers (<18 years) are an especially vulnerable group and may also have supplemental food, but they should be part of an obstetric management program to prevent low birth weight.

2) All mothers who have had a previous unsatisfactory outcome of pregnancy – particularly a previous low birth weight child.

3) Lactating mothers with children less than 6 months where the child has a W/H < -2SD to > -3 SD should have supplemental food, but only as part of an integrated lactation support program.

6.4. Screening and Admission Procedures

Refer to Chapters 2 (two) and 3 (three).

6.4.1. Steps to identify moderately malnourished patients:

1. Check for oedema
   - If oedema is + or ++, the patient should be referred to CBTF
   - If oedema is +++, the patient should be referred immediately to FBTF
2. Take anthropometric measurements:
   - In children: MUAC or W/H z-score
3. Register mother and/or child in the registration books and give ration cards (Annex 6.1)
4. Administer routine treatment: de-worming, Iron and vitamin A supplementation,
5. Distribute the food ration which should last for two weeks or one month depending on the distribution plan and indicate amount on ration card
6. Distribute non- food items such as mosquito nets, soap, blankets, buckets (If available)
7. Give beneficiary or caretaker routine nutritional counseling
8. Counsel caregiver and explain the meaning of additional food ration, what it is meant for and/or the separate supplementary ration meant for child only
9. Give the next follow up appointment date

6.4.2. Admission and Discharge Criteria for Moderate Malnutrition

Targeted SF	Admission	Discharge
	Children with a weight-for-height ≥ - 3 to < −2 Z-score (SD)	weight-for-height > − 2 SD for two consecutive weighs/measurements

6.4.3. Standard Medical Examination

Health workers should use the medical examination form (Annex 4.4) to assess the medical condition of patients admitted to the SFP. If the patient shows signs of any medical complications, they should be referred immediately to an inpatient facility and for treatment in the FBTF.

6.5. Nutritional management – Dry ration

A dry food ration (UNIMIX) is provided weekly, every two weeks or monthly. The frequency of provision depends on resources, the need of the target population and ease of access to SFP sites. Food is distributed by weight using a balance or calibrated container and, wherever possible, should be transported home by mothers/caretakers in their own containers. Where this is not possible, bags can be provided.

The regular distribution of UNIMIX should be prepared at home.

Give carers appropriate nutrition and hygiene education on feeding the intended beneficiary with the ration, including:

- How to cook the ration
- Frequency of feeding, amount to give, etc
- What to do if child gets sick

The ration for malnourished children under five could be given weekly and the ration for the pregnant and the lactating mothers fortnightly

6.5.1. Quantity and quality of the ration (UNIMIX), Annex 6.4

Note: Quantity (UNIMIX) estimated at 8 kgs per person per month 2 kgs per person per week (about 250 grams per person per day). This is worked out to provide 1000 kcal per person per day for a take home supplementary ration

6.6. Link activities in the SFP

- Health and nutrition education e.g. environmental sanitation and personal hygiene. Annex 7.2.
- Promotion of other health services e.g. growth monitoring, nutrition surveillance, immunisation, family planning, safe motherhood
- Food demonstration using local foods
- HIV/AIDS education
- Strengthening of household food security programmes-promotion of local food production and consumption

6.7. Routine Treatment

A table with dosages is given in annex 5.3.; it should be used in conjunction with national guidelines.

6.8. Procedure for follow up visits and monitoring

1. Conduct health education session before ration distribution

2. Counsel all mothers/caregivers on home preparation of nutritious foods for the child, using locally available foods to prevent relapse. Refer families to initiatives, such as gardening projects as necessary.
3. Take measurements of children and PW/LW
   - Measure weight using hanging scale or adult standing scale
   - Measure MUAC
   - Measure height once a month
   - Assess for Oedema (children with oedema should be referred to the CBTF)
   - Check for medical conditions at each visit and refer for additional medical assessment and treatment if necessary
4. Provide routine medications (iron/folate) and treat any infection such as skin infection or eye infection. Where the patient develops a medical complication refer to the nearest hospital
5. Record results on the SFP registration card and in the registration book
6. Monitor child's or P/LW's health and weight gain/loss and keep caregiver informed
7. Record medications and ration given

The beneficiary's progress should be monitored at every visit. This is normally done by reviewing the registrar and taking note of improvement or deterioration. The following actions should be taken:

- If the child is gaining weight, congratulate the caregiver and explain that the child is improving
- If the child has lost weight since the last visit, or has not gained weight in 3 visits, explain the situation to the caregiver and remind her of the importance of not sharing the food rations
- If the child or P/LW fails to reach the target weight within three months, or loses weight on two consecutive visits, refer him/her to the outpatient department for a medical check-up

6.8.1. Nutrition Counselling

- The patient or caregiver must receive appropriate counselling on the causes of their malnutrition, requirements for full recovery, and prevention of relapse
- Provide patients or caregivers with nutrition counselling along with provision of food rations
- After counselling, ask the patient or caregiver to describe how s/he will prepare the food at home, as well as other approaches to improving their nutrition status at home
- Explain that a CVs will be conducting a home visit for follow-up, and that this is part of the programme to provide support at the household level to the patient/caregiver, if needed
- Discuss all key health message with patient/caregiver to reinforce messages for follow-up visits

6.8.2. Possible reasons for failure to respond;

1. Problems with the application of the protocol
2. An underlying physical condition/ illness
3. Nutritional deficiencies that are not being corrected by the diet supplied in the SFP
4. Home/ Social circumstances of the patient
5. Other causes

6.8.3. Steps to take for failure to respond to treatment

Step 1: Re-examine the patient's register and confirm that the protocol for SFP has been adhered to correctly.

Step 2: Conduct a full medical examination and nutrition assessment. If the patient presents with any signs of medical complications or nutrition deficiencies, refer immediately to the nearest FBTF/SC for treatment

Step 3: Assess home/social situation. Assess whether food is being used for others in the household instead of the child (Annex 2.3.)

6.9. Discharge Criteria – 6.4.2.

The discharge criteria must match up with the admission criteria. For example, if a child was admitted based on MUAC, they should not be discharged based on weight-for-height median percentage. They must be discharged based on MUAC or target weight gain (15%).

6.9.1. Referral for CBTF or FBTF

Children should be referred to the CBTF for screening if:

- Oedema develops
- MUAC drops below 11.5cm
- WHM decreases to < -3SD
- Child tests HIV-positive (this should also include referral for ART services)

The Health officer in the CBTF will then determine if the child should be admitted to CBTF or to the FBTF.

Children should be referred for medical care in the FBTF if:

- Serious medical complications occur
- Child loses weight on two consecutive visits
- Child has not reached target weight after 3 months in the programme

P/LW should be referred for medical care if their condition deteriorates.

6.10. Monitoring and Reporting

A report should be given for each supplementary feeding centre, monthly at all level by the implementing facility. Feedback from collated reports should be given by the Zonal health coordinating office for review and progress of the programme.

6.10.1. Information to include in the report

- Attendance to the SFP
    - Can be divided into monthly and weekly attendance.
    - The monthly attendance is divided into admissions and discharges. For admissions the following numbers are entered: 1) the total at start of the month (same as the persons enrolled at the end of the previous month), 2) The new admissions, 3) admissions who were previous defaulters, 4) admissions who were previously cured but who have relapsed, 5) The admissions who were previously severely malnourished and have been referred from the CBTF.
- There needs to be clear definitions of relapse and defaulter standardised at national level.
    - "Defaulters" are patients admitted with MUAC < 12.5cm or a W/H -2SD to -3SD who then failed to attend for two consecutive sessions of dry feeding (or one week for wet feeding).
    - "Relapses" are patients who previously reached the discharge criteria and then present again with MUAC < 12.5cm or a W/H between -2SD to -3SD
    - Pregnant women and lactating mothers are not considered as relapsing.
- After treatment in an CBTF, severely malnourished children need special follow-up in SFP to prevent their relapse even though they have a weight for height between -2 and -3 SD: this follow up should be for at least 3 months (and preferably 6 months). They are treated as "special cases" and a separate record is taken of their progress and outcome.

- Discharged patients are divided into 5 categories: 1) Dead, 2) Cured (they reach the discharge criteria), 3) Transfer to CBTF or FBTF (they deteriorate to reach the criteria of admission to either), 4) Failures-Non Respondent (These are children and PW and LM whose weight is static and are not cured after a 4 month period.), 5) Defaulters Non – response to treatment for Moderate malnutrition.

- **Annex 6.1. Registration book – Supplementary Feeding Programme**
- **Annex 6.2. Registration Form – Blanket Supplementary Feeding Programme (Children 6-59 months)**
- **Annex 6.3. Registration Form – Blanket Supplementary Feeding Programme (Pregnant Women / Breastfeeding Mothers)**
- **Annex 6.4. Quantity and quality of the ration (UNIMIX)**

Chapter 7

Services and programmes to prevent Acute Malnutrition

7.1. Infant and Young Child Feeding (IYCF)

The WHO and UNICEF developed The Global Strategy for Infant and Young Child Feeding to revitalize world attention to the impact that feeding practices have on the nutritional status, growth, development, health, and survival of infants and young children.

7.1.1. Breastfeeding

This strategy involves global public health recommendation to protect, promote and support **exclusive breastfeeding for six months and to provide safe and appropriate complementary foods with continued breastfeeding for up to two years of age or beyond by observing;**

• All newborns are initiated to breastfeeding within one hour after birth
• All infants are exclusively breastfed for 6 months
• All infants are given timely, adequate, and safe complementary foods
• Breastfeeding is continued up to two years and beyond

Appropriate care, counseling, and other services for IYCF are provided to all infants and young children and their families, including children in special circumstances (such as times of emergency), and for HIV-positive mothers and their infants, and for children during times of illness.

7.1.2. Ten Steps to Successful Breastfeeding

Every facility providing maternity services and care for newborn infants should:

1. Have a written breastfeeding policy that is routinely communicated to all health care staff.
2. Train all health care staff in skills necessary to implement this policy.
3. Inform all pregnant women about the benefits and management of breastfeeding.
4. Help mothers initiate breastfeeding within half an hour of birth.
5. Show mothers how to breastfeed, and how to maintain lactation even if they should be separated from their infants.
6. Give newborn infants no food or drink other than breast milk, unless medically indicated.
7. Practise rooming-in - that is, allow mothers and infants to remain together - 24 hours a day.
8. Encourage breastfeeding on demand.
9. Give no artificial teats or pacifiers (also called dummies or soothers) to breastfeeding infants.
10. Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or clinic.

Source: *Protecting, Promoting and Supporting Breastfeeding: The Special Role of Maternity Services,* a joint WHO/UNICEF statement published by the World Health Organization.

7.1.3. Common breastfeeding difficulties

The following are common breastfeeding difficulties:

- Engorgement
- Sore or cracked nipples
- Blocked Ducts and Mastitis
- Insufficient breast milk.

7.1.4. Infant feeding in the context of HIV

A baby born to a HIV infected mother can get HIV from the mother during pregnancy, labour and delivery, and breastfeeding.

Therefore it is recommended that

1. Mothers known to be HIV-infected (and whose infants are HIV uninfected or of unknown HIV status) should exclusively breastfeed their infants for the first 6 months of life, introducing appropriate complementary foods thereafter, and continue breastfeeding for the first 12 months of life.
2. Breastfeeding should then only stop once a nutritionally adequate and safe diet without breast milk can be provided. Avoid mix feeding
3. When HIV-infected mothers decide to stop breastfeeding (at any time) they should do so gradually.

It is recommended to refer to ART Guideline 2010, MoH Eritrea

(Infant Feeding in the context of HIV: Revised WHO Principles and Recommendations 2010)

7.2. Nutrition, health and hygiene promotion

The five key principles of food hygiene, according to WHO are;

1. Prevent contaminating food with pathogen spreading from people, pets, and pests.
2. Separate raw and cooked foods to prevent contaminating the cooked foods.
3. Cook foods for the appropriate length of time and at the appropriate temperature to kill pathogens.
4. Store food at the proper temperature.
5. Use safe water and raw materials

7.2.1. Recommended practices for complementary feeding

- **Continue frequent, on-demand breastfeeding, including night feeding for infants**
- **Introduce complementary foods beginning at six months of age**
- **Increase food quantity as the child ages– while maintaining frequent breastfeeding**
    - Provide 6– 8 month old infants *approximately* 200 kcal per day from complementary foods.
    - Provide 9– 11 month old infants *approximately* 300 kcal per day from complementary foods.
    - Provide 12– 24 month old children *approximately* 550 kcal per day from complementary foods.
    - Local research is needed to determine the best combinations of foods and practices to achieve these levels of energy intake.
- **Increase feeding frequency as the child ages**
    - Feed 6– 8 month old infants complementary foods 2– 3 times per day.
    - Feed 9– 11 month old infants complementary foods 3– 4 times per day.
    - Feed 12– 24 month old children complementary foods 3– 4 times per day.
    - Offer nutritious snacks 1– 2 times per day, as desired.
- **Gradually increase food consistency and variety as the child ages, adapting the diet to the infant's requirements and abilities**
    - Feed mashed and semi-solid foods, softened with breastmilk, if possible, beginning at 6 months of age.
    - Feed energy-dense combinations of soft foods to 6– 11 month olds.
    - Introduce "finger foods" (snacks that can be eaten by children alone) beginning around 8 months of age.
    - Make the transition to the family diet at about 12 months of age.
- **Diversify the diet to improve quality and micronutrient intake**
    - Feed vitamin A-rich fruits and vegetables daily.

- Feed meat, poultry, or fish daily or as often as possible, if feasible and acceptable.
- Use fortified foods, such as iodized salt, vitamin A-enriched sugar, iron-enriched flour or other staples, when available.
- Give vitamin-mineral supplements when animal products and/ or fortified foods are not available.
- Avoid giving drinks with low nutrient value, such as tea, coffee and sugary beverages.

- **Practice responsive feeding**
  - Feed infants directly and assist older children when they feed themselves.
  - Offer favorite foods and encourage children to eat when they lose interest or have depressed appetites.
  - If children refuse many foods, experiment with different food combinations, tastes, textures, and methods for encouragement.
  - Talk to children during feeding.
  - Feed slowly and patiently and minimize distractions during meals.
  - Do not force children to eat.
- **Practice frequent and responsive feeding during and after illness**
  - During illness, increase fluid intake by more frequent breastfeeding, and patiently encourage children to eat favorite foods.
  - After illness, breastfeed and give foods more often than usual, and encourage children to eat more food at each sitting.
- **Practice good hygiene and proper food handling**
  - Wash caregivers' and children's hands before food preparation and eating.
  - Store foods safely and serve foods immediately after preparation.
  - Use clean utensils to prepare and serve food.
  - Serve children using clean cups and bowls, and never use feeding bottles.

7.3. Growth Monitoring & Promotion & Counselling

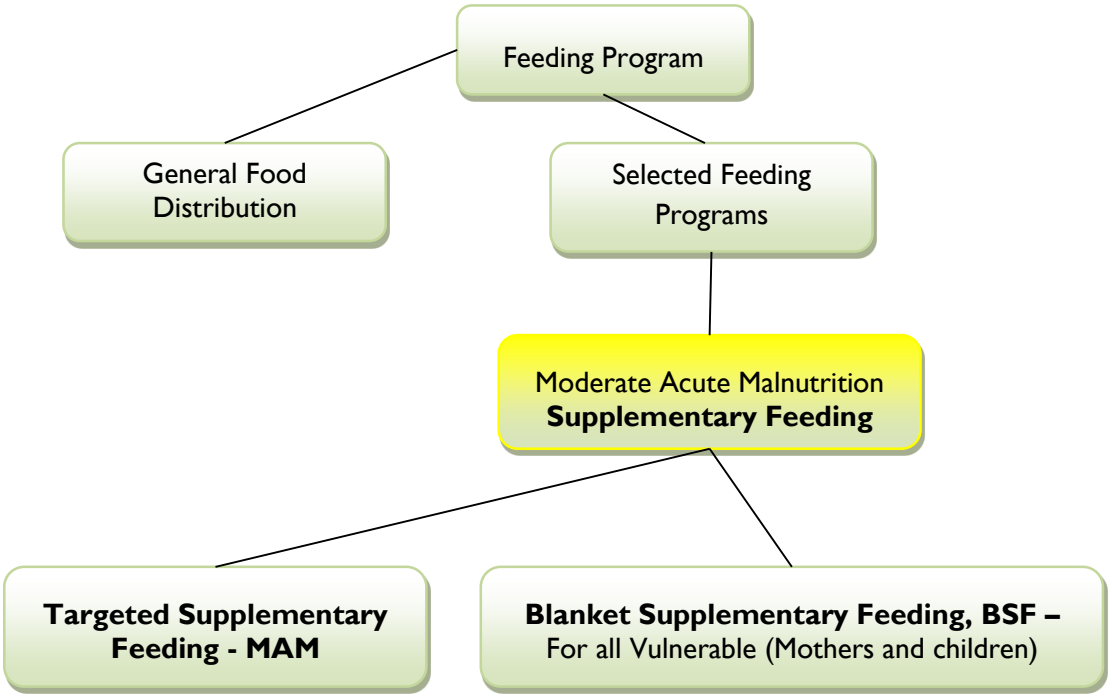
- Conduct in the health facility and community by weighing the child and plotting on the Child Health Card every month to check (see) how the child is growing
- Advice on caring for the child
- Advice on proper feeding
- Advice on prevention of diseases.

7.4. Home management of Sick Children

- A Sick child losses water and energy requiring more food and drinks.
- Encourage child to eat and drink plenty of fluids
- Give little at a time frequently
- Remove clothes, lukewarm sponge when feverish.
- Give antipyretic (paracetamol)
- De-worm children 1 year and above every 6 months. (Where worm infestation is notable)
- Take the child to the nearest health facility, if there is no improvement on home remedies

7.5. Blanket Supplementary Feeding, BSF

Scaling-up Supplementary feeding (Blanket Supplementary Feeding, **BSF**) is an effective supplementary feeding programme to ensure that the nutritional needs of children are met. It is fundamentally a described operational elements of scaling up of supplementary feeding programmes for children 6-59 months and pregnant and breastfeeding mothers.



7.5.1. Objectives

• To provide a nutritious supplement to those with increased nutritional requirements
• To reduce the risk of mortality, and morbidity associated with moderate malnutrition
• To increase awareness of mothers/caregivers targeted on optimal child feeding practices

7.5.2. Target group

• Children 6-59 months
• Second and third trimester of pregnant women
• Breastfeeding women of first 6 months after delivery

7.5.3. Distribution of Supplies and Logistics:

1. Registration and monthly report forms (Annexed)
2. Nutrition supply

Orientation: Orientation will be conducted for health workers and community volunteers at the zoba level.

7.5.4. Activities at Health Facility: All children 6-59 months and all pregnant women in their second and third trimester, and all breastfeeding women of first 6 months after delivery, in the intervention area will receive the supplementary foods and requested to visit health facility every month for at least six months. This could be used as an opportunity for additional activities.

7.5.5. Storage, quality control and distribution: Supplementary foods should be stored on pallets to prevent contamination. Regular inspection of warehouse and fumigation can be done as a strategy for preventing pests. A Stock Control System should be put in place and expiry dates of supplementary food received monitored very closely.

If the food is suspected to be of a poor quality, samples can be tested in a laboratory (where feasible) to determine whether it is fit for human consumption, and the report shared with the supplier. The MOH/local authorities must advice what corrective action to take for food commodities not fit for human consumption. The food commodities should not be distributed and the food commodities could be disposed following the standard guideline of MOH.

7.5.6. Registration and Record-Keeping: Registration form will be completed for each child

(Annexed) as well each pregnant and breastfeeding mother (Annexed) and kept in the health facilities. Registration card (Annexed) will also be completed for each child and also for each

pregnant and breastfeeding mother and kept by the mother for follow-up visits. The health workers should make sure that mothers/ caregivers must bring EPI/Vaccination card with registration card. The health workers will compile the informations and fill up in the Monthly reporting format (Annexed) and send to Zoba to onward transmission to Nutrition Unit of MOH

7.5.7. Follow-up of beneficiaries: The community volunteers will follow up the target beneficiaries and explain to consume the food provided and suggest them to provide at least one additional meal daily, and on a regular basis, and other care concerns for the child, pregnant and breastfeeding mothers.

7.5.8. Monitoring and evaluation: Monitoring will be carried out jointly by the Ministry of Health on regular basis, to provide on-the-job training to the health facility staff. Regular field monitoring will be conducted to identify the progress, constraints and problems. UNICEF will provide technical support to Ministry of Health in development of standard indicators to measure the progress of interventions. The findings of the monitoring results will be used for programme management to ensure the set objectives are met; the evaluation will be conducted by the end of the project using standard indicators to see the impact of the project. In addition, the nutrition status of the target population will be reviewed through nutrition assessments linked with National Child Health and Nutrition Week at the end of 6 months.

7.5.9. Nutrition, Health and Hygiene Education : The distribution sessions are opportunities to deliver to the mothers/caregivers appropriate messages focusing on household and personal hygiene, use of safe drinking water, hygienic preparation and protection of foods, use of nutritious local ingredients for proper child feeding etc. (Annexed)

Annex 7.1. Recommended complementary feeding practices
Annex 7.2. Nutrition, Health and Hygiene Education
Annex 7.3. IYCF 3-step counselling /'Reaching an agreement'

Chapter 8

Management of Malnutrition in Children with HIV

Most children with HIV infection respond to the treatment of severe malnutrition in the same way as those without HIV infection. The treatment of the malnutrition is the same whether the patient is HIV positive or negative.

The treatment of malnutrition should be started at least one week before the introduction of anti-retroviral drugs to diminish the risk of serious side effects from the anti-retroviral drugs.

8.1. Summary of General Nutrition Practices in HIV-infected infants and children

- For children with HIV, conduct nutrition assessment at all clinic visits and regular community based screening for asymptomatic children. Symptomatic children should be admitted to the therapeutic feeding programme according to this guideline.
- Increase energy needs for the disease stage through consumption of balanced diet.
- Patients with no AIDS symptoms require 10% more energy (one snack) per day than the recommended daily allowance for HIV-negative individuals of the same age, sex, physical activity level and physiological state. Patients with AIDS symptoms require 20-30% more energy (2-3 snacks) per day than the recommended daily allowance for HIV-negative individuals. Children with weight decline or faltering need 50-100% more energy than HIV-negative children of same age, sex. The additional energy can be achieved by consuming sufficient amounts of balanced diet.
- Maintain high levels of sanitation, food hygiene, and food/water safety at all times. If living in hookworm endemic areas one should be de-wormed bi-annually with an appropriate broad-spectrum anti-helminthic drug, like AlbendazoleTM or MebendazoleTM. (Ref. to National guideline on drug use)
- Carry out physical activity or exercises to strengthen or build muscles, increase appetite and health.
- Encourage patient to drink plenty of clean safe water. All water used to swallow medicines and to prepare juices should be clean and safe (e.g. filtered and boiled).
- Seek prompt treatment for all opportunistic infections and other diseases, and dietary-manage symptoms especially those that may interfere with food intake, absorption and utilization.
- Those on medicine, including ARVs, should manage the drug-food interactions and side-effects by following the drug-food schedule, use dietary approaches to manage side-effect symptoms. If taking traditional remedies (herbs, medicines) or other nutritional supplements, the clinician should be informed.
- Children (below 6 months) born to HIV+ mothers whose mothers/caregivers have opted for exclusive replacement feeding, should be supplemented with 50,000 IU of Vitamin A and put on multivitamins every day.

Table 8.1. Energy needs of HIV-infected children (kcal/day)

*Daily energy needs of HIV uninfected children**	*HIV infected and asymptomatic 10% additional energy*	*HIV infected and poor weight gain or other symptoms*	*20% additional energy*	*Severely malnourished and HIV infected50-100% additional energy***
6–11 mo	690	760	830v	150-220 kc al/kg/day
12-23 mo	900	990	1080	150-220 kcal/kg/day
24-59 mo	1260	1390	1510	150-220 kcal/kg/day
6-9 yrs	1650	1815	1980	75-100 kcal/kg/day
10-14 yrs	2020	2220	2420	60-90 kcal/kg/day

* Based on average of total energy requirements for light and moderate habitual physical activity levels for girls and boys by age group. Joint FAO/WHO/UNU Expert Consultation, October 2001. ftp://ftp.fao.org/docrep/fao/007/y5686e/y5686e00.pdf

** Management of Severe Malnutrition: a manual for physicians and other senior health workers. WHO. 1999.

Most HIV-infected children do not need any more protein than uninfected children, but they should receive a balanced diet where protein contributes approximately10-15% of total energy intake. HIV-infected children frequently have low levels of vitamins and other micronutrients. They may not be receiving enough from their diet or their bodies are using up more to fight the HIV infection itself or opportunistic infections. Vitamin A supplements, as in children without HIV infection, reduce diarrhoeal morbidity and mortality especially in young children. Zinc supplements also help HIV-infected children to recover from diarrhoeal illnesses.

Micronutrient intakes at recommended levels need to be assured in HIV-infected children through varied diets, fortified foods, and micronutrient supplements when adequate intakes cannot be guaranteed through local foods. At present, all WHO recommendations for micronutrient supplementation in the general population (e.g. vitamin A, zinc and iron) are the same as for HIV-infected children.

All HIV positive children should receive daily cotrimoxazole prophylaxis according to national protocol. However this antibiotic alone is inadequate to treat and protect the severely malnourished against other infection. Amoxicillin should then be given in ADDITION to cotrimoxazole to all severely malnourished children with and without complications

8.2. Some of the ways to encourage a child to eat.

- Make the child comfortable
- Be patient and feed slowly
- Feed small amounts frequently. Children may tired easily while eating, making it difficult to eat sufficient food at a sitting. Offering feeds frequently may be needed to increase food intake
- Give foods that the child likes
- Give a variety of foods and extra fluids
- If the child is thirsty give fluids that have some energy e.g. milk, rather than juices or fizzy drinks that have very little energy value
- Pay attention to the child and make feeding a happy time

Sick children need extra drinks and food during illness, for example if they have fever or diarrhoea. A sick child may prefer breastfeeding to eating other foods. Do not withhold food from a sick child unless there is a medical reason.

8.2.1. Children with diarrhoea

When a child passes a loose or watery stool three or more times a day, he/she has diarrhoea. It can be a side effect of medicines or a symptom of disease. Diarrhoea is often caused by contamination of water or food from poor hygiene and sanitation.

Most diarrhoea will cease after a few days. A child should be seen at the clinic if the diarrhoea lasts for more than three days or if there is a fever or blood in the stool. An infant or young child who is not able to drink or breastfeed or is drinking poorly, becomes sicker and weak, has blood in the stool or develops a fever should be seen by a health worker immediately. A child should be referred to hospital if the diarrhoea lasts more than 14 days and there is loss of weight.

Zinc supplements – Until there is national guidelines for Zinc supplementation, any child with diarrhoea (acute, persistent or dysentery) should receive zinc in the following dose: **<6 months: 10mg daily for 2 weeks >6 months: 20 mg daily for 2 weeks**

Vitamin A supplements - children with diarrhoea should also receive an extra dose of vitamin A if they have not received their routine supplement in the previous month. This dose helps protect against serious later relapses of diarrhoea.

Suggestions for managing diarrhoea:

- Eat easily digested foods: bananas, mashed fruits, boiled white rice, and porridge
- Avoid adding to much fat or oil to foods
- Take extra fluids and ORS to prevent dehydration
- For children, continue breastfeeding more often

8.2.2. Anaemia

Anaemia is common in HIV-infected children and may be due to chronic opportunistic infections or direct effects on the bone marrow. Even in areas with iron deficiency, anaemia in HIV-infected children cannot be assumed to be due to iron deficiency.

Children with palmar or severe palmar pallor should be referred for investigation. **Iron supplements should only be started if iron deficiency is confirmed.**

Table 8.2. Clinical and Laboratory monitoring of HIV infected infants and children (Source: *Eritrean ART Guideline 2010*)

Visit Schedule	Baseline	Week 2	Week 4	Week 8	Week 12	>12 Weeks
Growth & Development	√	√	√	√	√	Every visit
Physical exam	√	√	√	√	√	Every visit
Clinical stage	√	√	√	√	√	Every visit
CTZ Prophylaxis	Assess eligibility and continue					
Adherence	√	√	√	√	√	Every visit
Disclosure	Discuss disclosure at every visit dependent on the maturity of the child and readiness of the care giver.					
CBC/Hgb	√	√ If on AZT	√	√	√	Every 6 months
CD4% or count	√				√	Every 6 months
ALT	√	If on NVP			√	As required
Creatinine	√					As required
Cholesterol/TG	√ (if on PI)					As required
Pregnancy test	For all adolescent girls before initiation of EFV					
Tb screening	√	Watch for TB symptoms and contact history at every visit				
VL						At 6 months and as required

8.3. Infant Feeding for HIV-exposed Infants

Given the challenges around safe infant feeding in the context of HIV/AIDS, health care workers should provide mothers and families with appropriate support for infant feeding and all the information on HIV transmission risks and the feeding options, allowing the families to make an informed decision. After weighing the evidence of the poverty and poor infrastructure situation in Eritrea with the risk of HIV transmission through breastfeeding, two primary options for infant feeding for an HIV-positive mother are recommended;

- The first feeding option for an HIV-positive mother is to give exclusive breastfeeding from birth until six months. "Exclusive" means that the baby does not receive any other liquids or foods, even water, from birth until six months. It is acceptable for a mother to express her milk and give it in a cup to the baby.

- The second feeding option for an HIV-positive mother is to give exclusive replacement feeding. "Exclusive" in this case refers to giving only replacement feeding without any breastfeeding. This option is only safe and suitable if the replacement feeding is acceptable, feasible, affordable, safe and sustainable. If even one of these conditions is not met, then the risks of the baby falling ill or dying from diarrhoea or other infections may be greater than the risk of HIV infection from breastfeeding.

Refer to the National Guidelines on Infant and Young Child Feeding for more details on infant feeding recommendations for HIV-exposed infants.

8.4. *Recommendation with regards to Breastfeeding

Mothers known to be HIV-infected (and whose infants are HIV unifected or unknown HIV status) should exclusively breastfeed their infants for the first 6 months of life while introducing appropriate complementary foods thereafter, and continue breastfeeding for the first 12 months of life. Breastfeeding should then only stop once a nutritionally adequate and safe diet without breastmilk can be provided.

**Rapid Advice - Revised WHO Principles and Recommendations on Infant Feeding in the Context of HIV, 22&23 October 2009*

Chapter 9

Monitoring and Reporting

9.1. Introduction

Monitoring and evaluation is an integral part of all integrated feeding programs, and can be useful for quickly identifying problems in the programme implementation. In turn, this allows for effective changes and adjustments to be made accordingly. Indicators should be graphed to help in interpreting trends as the programme proceeds. To prevent poor data collection, ongoing monitoring by zones and national level staff is essential.

9.2. Recording and referral system

A good registration and recording system is critical to integrated management of acute malnutrition (IMAM). It allows both close monitoring and successful management of the individual patient and also provides easily accessible information that can be compiled to give the appropriate indicators and statistics to monitor the functioning of the feeding programme.

The importance of registration and being able to follow a patient as they are transferred from one component of the program to another is critical. With patients being referred from the community to the health facility (HF) and further between the feeding programmes, (SFC, CBTF and FBTF), tracking patients can become very difficult. Double tracking of patients can be a common problem with patients being transferred from one programme to another.

To overcome these problems and to ensure the continuity IMAM programme, each case is given a UNIQUE SAM number by the first program that starts treatment of the person. For example, the first patient to start the treatment in the facility will be given 000001. The patient then keeps this same number during all transfers. The individual program can also give a registration number to the patient for their own internal use and filing – a site specific number – but they must also use the SAM-Unique Number on all transfer forms and documents related to that patient.

This Unique SAM number is assigned where the patient is first treated, whether it is at the SFC, CBTF or FBTF. This Unique number should always be reported as the SAM Unique No. in all the documents of the patient, e.g. for in-patient care, on the Multi charts and registration book and transfer form; for Outpatient community care, in the individual chart, registration book and transfer forms.

It is however suggested that, the code for each zone, zoba, sub-zoba and the feeding site (SFC, CBTF and FBTF) will be agreed by the Zoba Health office in collaboration with Nutrition Unit.

All information regarding the patients under the programme needs to be compiled in the

9.2.1. Registration book. The following information is needed: identification information (SAM Unique Number), anthropometric measurements, diagnosis and outcome (defaulters, discharge cured, death, medical transfer, transfer between FBTF and CBTF, or non-responder). Discharge to the SFP is not considered as a transfer. In the case of CBTF programmes there is an additional category of outcome – UNKNOWN. This is used for patients that fail to attend the CBTF programme and are not yet determined to have defaulted, moved away or died based on the home visit.

9.2.2. "Multi-chart" is the term used for the single folded A3 sheet which contains all the charts and other information for the management of the patients (it is a multi-chart). Each sheet lasts a patient for three weeks.

It should be filled for each patient. It is the primary tool for managing malnutrition in in-patients and is recommended for all facilities looking after these patients. Other documents and local hospital records should not be used for these patients. Experience has shown that where two sets of records are kept the mortality rate is higher and quality of care lower. The multi-chart is designed so that it:

1) allows proper control of all aspects of the care of the patient (from admission to follow-up and throughout his/her stay in the FBTF);
2) Gives detailed information for each individual case's progression (changes in health and nutritional status, treatment phase and diet, medical treatments, clinical signs, temperature, etc.).
3) As all the staff uses the same chart, each has ready access to the information collected by other grades of staff, and all the essential information is recorded systematically in the same predetermined part of the chart. The information can thus be found easily and quickly for each patient.
4) Inspection of the Charts allows the clinician in charge to quickly see if a patient needs special attention and allows all supervisors to control the quality of work of their staff.
5) The charts and registration book contain all the information needed to analyse and report the results of the centre in a standard way.

OUTCOME: defaulters, discharge cured, death, medical transfer, and transfer out to continue the treatment of severe malnutrition in another component of the program.

Discharge to the SFP is not considered as a transfer but as a discharge from the program for severe malnutrition with complications and to be followed up in SFP. Nevertheless, it is very important that the UNIQUE SAM number is recorded in the SFP registration book.

If possible the SFP should have a separate section, place or day for seeing the patients discharged from the Therapeutic Feeding Program for severe malnutrition.

9.3. PREPARING THE MONTHLY STATISTICS REPORT

9.3.1. Quantitative indicators

Statistics can be obtained directly from the registration books (or, alternatively, from individual multi-charts).

9.3.2. Monthly statistic report

Indicators should be calculated for infants less than 6 months, children below 5 and those above 5 years of age separately as well as for any other groups included in the programme Annex 9.1.

9.4. ADMISSION RECORDS:

9.4.1. New admission (B)

Patients that are directly admitted to the programme to start the nutritional treatment are new admissions. They are recorded into 3 different columns:

1- "Wasted patients" (B1)
2- "Oedematous patients" (B2)
3- "Relapses" (B3)

Note: "Relapses": A case is considered to be a relapse if that patient has ever been severely malnourished before and cured. The same "SAM Unique ID No" should be used with a hyphen after the main number. So that case number *Reg/Zoba/Facility/01245-2* would be the second admission for case *Reg/Zoba/Facility/01245*. If the original "SAM Unique ID No" cannot be

found a new SAM Unique ID No" can be given but it should always have xxx-2 to denote a second admission to the program. Relapses should normally start treatment as in-patients.

If the patient previously defaulted before reaching the discharge criteria, it is considered to be a separate episode of malnutrition if the readmission occurs more than 2 months after defaulting. It is considered to be the same episode if the patient returns within 2 months.

Transfer In (C)

Patients who have started the nutritional therapeutic treatment in a different CBTF site or FBTF or other facility and is referred to your programme to continue the treatment that has already started

Readmission after defaulting for <2mo

If the patient previously absconded before reaching the discharge criteria, it is considered to be the same episode of malnutrition if the patient is readmitted within 2 months. If the patient presents after that time it is a separate episode of malnutrition.

9.5. DISCHARGE RECORDS

Cured (E1): Patient that has reached the discharge criteria

Death (E2): Patient has died while he was in the programme at your facility or in transit to another component of the program but has not yet been admitted to that facility. For the CBTF programme, the death has to be confirmed by a CV or a home visit.

Defaulter (E3): Patient that is absent for 2 consecutive weighing (2 days in in-patient and 14 days in out-patient), confirmed by a CV or home visit for out-patient component of the program

Unknown (E4): Patient that has not come to CBTF site on the due date but his outcome (actual defaulting or death) is not confirmed/ verified by a CV or home visit.

Non-responder (E5): Patient that has not reached the discharge criteria after 40 days in the in-patient programme or 2 months in the out-patient programme. Non-responders from the CBTF program should be transferred to the FBTF for detailed investigation.

Medical transfer (E6)

Patient that is referred to a health facility/ hospital for medical reasons and this health facility will not continue the nutritional treatment or transfer the patient back to the program.

Transfer Out (F) – This is not a discharge. The "transfers out" from an CBTF program who do not return can be considered to be a discharge with UNKNOWN outcome, unless the outcome is otherwise determined.

"Transfer Out to CBTF" (F1): patient referred to CBTF.

"Transfer Out to In-patient care" (F2): patient referred to In-patient care.

9.6. TOTAL END OF THE MONTH (H)

= Total beginning of the month (A) + Total admissions (D) – (minus) Total discharges – (minus) Total Transfers out (G)

Recovery rate

The definition of successful recovery is of a patient that achieves the discharge criteria used by the programme. This is usually the standard criteria outlined in this document:

Recovery rate = No of patient discharged for recovery / Total No of exits

Death rate

Death rate = No of patient died in the programme / Total No of exits

Defaulter rate

The normal definition of a defaulter is a patient who is absent from the programme for 2 consecutive weighing (without the agreement of the staff).

Defaulter rate = No of true defaulters / Total No of exits

Medical transfer rate

A patient that is transferred is one that is sent to another health facility for more specialist treatment. The proportion of transferred patients is usually very small if the programme is functioning appropriately.

These are not « rates » in the sense of the number of events occurring in a set period of time, although the reporting period is standardised to one month. Rather they are proportions or percentages over that period. However, the term « rate » is retained because it has traditionally been used in this context, although it is an incorrect usage

Medical transfer rate = No of patient transferred for medical reason /Total No of exits

Transfer out rate

Transfer Out rate = No of patient transferred to another nutrition programme /Total No of exits

9.6.1. Mean length of stay for wasted cured children

This indicator should be calculated for ONLY the recovered patients for each category.

Mean length of stay =*sum of (Number of days for each recovered patient) / number of recovered patients*

9.6.2. Mean rate of weight gain for wasted cured children

This indicator is particularly useful to show the quality of feeding. The average weight gain is calculated for all RECOVERED patients for each patient category.

The rate of weight gain for an individual is calculated as the discharge weight minus the minimum weight multiplied by 1000 to convert the weight gain to grams. This is then divided by the minimum weight to give grams of weight gained per kilo body weight. Lastly, this total weight gain is divided by the number of days from the day of minimum weight to the day of discharge, to give g/kg/d. The Average rate of weight gain is then:

Average weight gain (g/kg/day) = Total individual weight gains/Total No of individuals

To facilitate the calculation and speed up data processing a simple programme can be written in Excel. If the following data are entered into the computer then it is simple to calculate the length of stay and rate of weight gain (you can also calculate additional information such as the risk of death according to the Prudhon index, weight loss during loss of oedema). Date of Admission (DoA), Date of Minimum weight (Dmin), Date of discharge (DoD), Admission weight (WtAdm), Minimum weight (WtMin) discharge weight (WtDis), height (HtAdm) and outcome (to analyse only the recovered patients). The data can also be taken directly into programs that calculate anthropometric indices automatically. These data should all be recorded in the admission book to make data entry easy.

9.6.3. Consolidated report for whole program

The reports for the individual components of the program operating within an area are examined and collated to produce a CONSOLIDATED report. The transfer-out for one component should match the transfer in for another component. When the reports are compiled the transfers from one component to another are not reported or calculated as “exits” from the program. The sum of the deaths (most should occur for the in-patient facility), default, unknown outcome, medical transfer and cured from all components of the program is related to the total exits from the program (most of these will be recorded with the CBTF component reports). It is useful to report the average length of stay of patients in the FBTF separately to ensure that the majority of

patients are not being kept in the FBTF for phase 2 but are being appropriately transferred to the CBTF program. The individual or consolidated reports from the different programs are compiled centrally.

9.7. Minimum standards

Reference values have been developed by the Sphere project. They provide benchmarks against which to interpret the functioning of individual programmes. They give an indication of what might be considered "acceptable" and "bad" functioning under average conditions where the other programs are also functioning. With the treatment outlined in this manual experience has shown that the mortality rate can be consistently below 5% in "good" centres although the death rate of the sphere standard cites 10% as acceptable, this is no longer the case with best practice management.

Table 9.1: Reference values for the main indicators ©Sphere project

	Acceptable	**Alarming**
Recovery rate	> 75%	< 50%
Death rate	< 5%	> 10%
Defaulter rate	< 15%	> 25%
Weight gain	>= 8 g/kg/day	< 8 g/kg/day
Length of stay	< 4 weeks	> 6 weeks
Coverage	> 50-70%	< 40%

The rate of weight gain in CBTF programs is frequently less than 8g/kg/d and the length of stay more than 6 weeks. This is not alarming in terms of the individual patient's probable outcome, as the patients are at home. However, a CBTF program with low rate of weight gain and prolonged stay should be evaluated as this leads to excessive numbers of children in the program at any one time and increases the cost of the program in terms of staff time and consumption of RUTF considerably,

This should be compiled by the Nutrition Focal Persons and sent to the office of the National Nutrition programme Manager and copied to Partners every month. The National Nutrition Programme Manager's Office will collate all the reports from FBTF, CBTF and SFP and give feedback to partners. on a quarterly basis.

Fill out every month the statistical report (Annexes 9.1, 9.2,) and send it to your Zoba health office and the MoHS National Nutrition Programme.

Annex 9.1. Therapeutic feeding Monthly Reporting Format

Annex 9.2. Outpatient Therapeutic feeding Monthly Reporting Format

Annex 9.3. Supplementary Feeding Monthly Reporting Format

Annex 9.4. Out Patient Therapeutic Care (CBTF) Ration Card

Annex 9.5. Supervision Checklist

Annex 9.6. Monthly Stock Balance Report

Annex 9.7. Monthly Statistics report (From Zonal office to MoH Head Quarter)

Annex 9.8. Scaling-up Supplementary Feeding Programme Monthly report Form

Annex 9.9. Stages of reporting (Suggested)

Chapter 10

Emotional and Physical Stimulation

As children become malnourished they gradually reduce their activity. When fully malnourished they do not play, cry, smile, complain or show normal emotions – they become lethargic and feeble. Because they do not cry when they are hungry thirsty or distressed a busy mother thinks that her child does not need more attention than she is giving the child. Nurses also neglect children in hospital for the same reason. Adults respond to the demands of children, if the child does not demand then it is ignored. This is the main reason why these children should be treated together and separately from children with other conditions.

Because they do not play, they do not learn. With time this leads to delayed mental and behavioral development. If this is not treated it is the most serious long-term result of malnutrition. Emotional and physical stimulation through play programs that start during rehabilitation and continue after discharge can substantially reduce the risk of permanent mental and emotional damage.

Many children have witnessed events that are very traumatic emotionally. Children of parents with HIV/AIDS for example may have seen their mother and father become ill and die in most distressing ways. Orphans are particularly vulnerable. With serious famine they may have been discriminated against within the family by siblings and relatives. In emergency situations they may have witnessed extreme violence to loved ones. Such psychological trauma frequently leads to post-traumatic stress disorder and, particularly in older children, can be a major impediment to recovery.

It is essential that the staff understand the emotional needs of these children and create a friendly supportive atmosphere. Caretakers must never be chastised and the staff should never shout or become angry. Unsmiling children need to be picked up, cuddled and kissed. There must be an educational session that teaches the mothers the importance of play and exploration as part of the emotional, physical and mental stimulation that the children need. This is an integral part of treatment. In out-patient settings it is critical that the mothers understand the importance of this aspect of treatment.

It is essential that the mother be with her child in hospital and at the NRC, and that she be encouraged to feed, hold, comfort and play with her child as much as possible. Toys should be available in the child's cot and room, as well as the play area. Inexpensive and safe toys made from cardboard boxes, plastic bottles, tin cans, old clothes, blocks of wood and similar materials. They are best because mothers are taught to make them themselves and continue to make toys for their children after discharge.

10.1. Emotional stimulation and play

Care must be taken to avoid sensory deprivation. The child's face must not be covered; the child must be able to see and hear what is happening around him or her. The child should never be wrapped or tied. The malnourished child needs interaction with other children during rehabilitation. After the first few days of treatment, the child should spend prolonged periods with other children on large play mats, and with the mother or a play guide. There is no evidence that this increases nosocomial infections.

10.2. Physical activity

Physical activity itself promotes the development of essential motor skills and may also enhance growth during rehabilitation. For immobile children, passive limb movements and splashing in a

warm bath are helpful. For mobile children, play should include such activities as rolling or tumbling on a mattress, kicking and tossing a ball, climbing stairs, and walking uphill and down. The duration and intensity of physical activities should increase as the child's condition improves. There should be a member of staff nominated who has overall responsibility for all these aspects of care of the malnourished.

The toys shown in the diagram (Annex 10.1) should be made and used in both the in-patient units and the homes of the malnourished children.

Annex 10.1. Examples of Handmade Toys for Malnourished Children

References

1. Ashworth A, Jackson A, Khanum S, Schofield C, Ten steps to recovery: Child health dialogue, issue 3 and 4, 1996
2. Collins S., et al. Key issues in the success of community based management of severe malnutrition. Food and Nutrition Bulletin, vol. 27, no. 3 (supplement) © 2006, The United Nations University
3. ENN: www.ennonline.net
4. FANTA: Review of Community-based Management of Acute Malnutrition (CMAM) in the Post-emergency Context: Synthesis of Lessons on Integration of CMAM into National Health Systems Ethiopia, Malawi and Niger, April – June 2007, www.fantaproject.org.
5. Golden, M. and Grellety Y, '*The Management of Severe Acute Malnutrition'* (UNICEF, Ethiopia: 2002, Sierra Leone: 2007)
6. Joint FAO/WHO/UNU Expert Consultation, October 2001, ftp://fao.org/docrep/fao/007/y5686e00.pdf
7. IMCI: www.who.int/child-adolescent-health/integr.htm
8. Management of Severe Malnutrition: A manual for physicians and other health workers. WHO, 1999
9. National Guideline for Integrated Management of Acute Malnutrition (Republic of Kenya MoH, Version 1: October, 2008)
10. (SPHERE, 2004) SPHERE Project Team. '*The SPHERE Humanitarian Charter and Minimum Standards in Disaster Response'*. 2 ed. Geneva: The SPHERE Project, 2004
11. (UNICEF, 1990) UNICEF. *Strategy for Improved Nutrition of Children and Women in Developing Countries,* UNICEF, New York, 1990 (Report)
12. 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. Available from http:// www.who.int/nutrition/publications/severe malnutrition/9789241598163/en/index.html.
13. WHO/UNICEF, Baby Friendly Hospital Initiative (BFHI) materials: Revised, Updated and Expanded for Integrated Care. 2008
14. World Health Organization, Global strategy for infant and young child feeding. 2003
15. World Health Organization. *Management of severe malnutrition: a manual for physicians and other senior health workers*. Geneva, 1999. Available at: http://www.who.int/nutrition/ publications/en/manage_severe_malnutrition_eng.pdf
16. WHO. Child growth standards. Arm circumference for age. Available at: http://www.who.int/ childgrowth/standards/ac_ for_age/en/index.html
17. http://www.scribd.com/doc/8368324/Integrated-Management-of-Acute-Malnutrition

Annexes

Annex 2.1: Community Volunteer Screening Form

Ministry of Health, Nutrition Unit

Community Volunteer Screening Form

(Acute Malnutrition)

Zoba _____

Village: _____ Date: _____

Name of Volunteer_____

Household with 6-59 months children	Oedema	MUAC <11.5 Cm	MUAC 11.5-12.5 Cm	MUAC >12.5 Cm	Total

Annex 2.2: Community Volunteer Referral Form

Ministry of Health, Nutrition Unit

Community Volunteer Referral Form

(Acute Malnutrition)

Zoba _____

Village: _____ Date: _____

Name of Child: _____ Name of Mother/Father _____

Age (Months) _____ Sex (M/F) _____ MUAC (Cm): _____ Oedema: _____

Weight (Kg) _____ Height (cm) _____ W/H-SD _____

Comment (If any): ----------

Annex 2.3: Checklist for home Follow-up

Volunteer / Outreach worker's Name: _____ Date of Visit: _____ Child's Name: _____		
Feeding		
Is the ration of RUTF present in the home?	Yes	No
If not, where is the ration?		
Is the available RUTF enough to last until the next CBTF session?	Yes	No
Is the RUTF being shared or eaten only by the sick child?	Shared	Sick child only
Is food other than RUTF given to the sick child?	Yes	No
If yes, what type of food?		
How many times per day is the sick child given food/RUTF to eat?		
Does someone help/encourage the sick child to eat?	Yes	No
What does the caregiver do if the sick child does not want to eat?		
Is the child currently breastfeeding? (for children < 2yrs)	Yes	No
Is clean water available?	Yes	No
Is water given to the child when eating RUTF?	Yes	No
Caring		
Are both parents alive and healthy?		
Who cares for the sick child during the day?		
Is the sick child clean?	Yes	No
Health		
What is the households main source of water?		
Is there soap for washing in the house?	Yes	No
Do the caregiver and child wash hands and face before the child is fed?	Yes	No
Is food/RUTF covered and free from flies?	Yes	No
What action does the caregiver take when the child has diarrhoea?		

Annex 3.1a. Checklist to Identify Reasons for Acute Malnutrition

Child Name:----------

Child Age:----------

Illness:

Has the child been sick in the past week? Yes ☐ No☐

If Yes:

What was the sickness?----------

Did the child go for treatment for the illness? Yes ☐ No ☐

If Yes:

Where did the child go for treatment?----------

What treatment did the child receive?----------

Nutrition

1. Is the child still breastfeeding? Yes ☐ No☐

If No, when did the breast feeding stop?----------

If yes:

Has there been a change in breastfeeding pattern in the last 2 weeks? ----------

Feeding less because the child is not interested in breast milk?----------

Mother has been away from the home so breast milk not available?----------

List any other reasons:----------

---

2. Has the child commenced complementary feeding Yes ☐ No☐

If yes, how often did you feed the child yesterday:

1 time ☐ 2 times ☐ 3 times ☐ More frequently ☐

3. List the foods given yesterday at each meal:

Meal 1:----------

Meal 2:----------

Meal 3:----------

Other meals:----------

4. Does the child eat from own plate? Yes ☐ No☐

5. Has the feeding pattern of the child changed in the last 1-2 weeks? Yes ☐ No ☐

If yes how has it changed?----------

Why has it changed?----------

Family Illness

Has any other member of the family been ill in the last month? Yes ☐ No ☐

If Yes, who was sick?----------

What was the illness?----------

Environment

What is your water source?

Piped water/river/stream/pond/deep well/shallow well/other (circle)

Have you a latrine or access to latrine/toilet? Yes ☐ No ☐

Economic Issues

Who is the main income generator?----------

How does this person make an income?----------

Has access to work changed in the last month? Yes ☐ No ☐

In what way has it changed?

Is there less money for basic foods?

Do you plant anything at home? Yes ☐ No ☐

If yes, list what you plant:

When is it harvested?

Have you any domestic animals? Yes ☐ No ☐ (cows, goats, sheep, camels)

If Yes, how many of each animal:

- Number of Cattle? ----------
- Number of goats?----------
- Number of sheep?----------
- Number of camels?----------

Analysis

What is the main reason for malnutrition for this child?----------

---

Annex 3.1b. Characteristics of Acute Malnutrition

Types of malnutrition

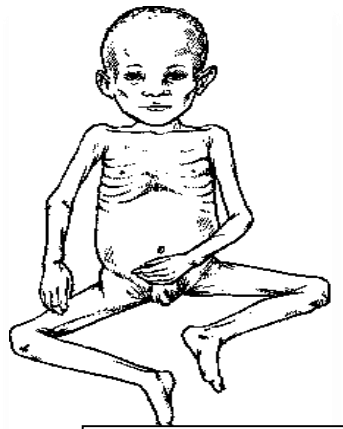
There are two categories of malnutrition: Acute Malnutrition and Chronic Malnutrition. Children can present with a combination of both acute and chronic.

- Acute malnutrition is categorized into Moderate Acute Malnutrition (MAM) and Severe Acute Malnutrition (SAM), based on the degree of wasting seen in the patient. Furthermore, all cases of bi-lateral oedema are classified as SAM. This guideline addresses treatment and prevention of both MAM and SAM.

- Chronic malnutrition is determined by a patient's degree of stunting, or when the child has not reached his/her expected height for a given age. To treat a patient with chronic malnutrition requires a long-term focus that considers household food insecurity in the long run; home care practices (feeding and hygiene practices); and issues related to public health and environment.

SAM is further classified into two categories: Marasmus and Kwashiorkor. Patients may present with a combination of both, known as Marasmic Kwashiorkor. Patients diagnosed with Kwashiorkor are extremely malnourished and at great risk of death.

Characteristics of Marasmus and Kwashiorkor

Marasmus	**Kwashiorkor**
Severe weight loss and wasting	**B**i-lateral oedema and fluid accumulation
Face of an "old man"	**L**oss of appetite
Ribs prominent	**B**rittle thinning hair
Limbs emaciated	**H**air colour change
Muscle wasting	**A**pathetic (uninterested) and irritable
May have good appetite	**F**ace may be swollen (moon shaped)
With correct treatment, good prognosis	**H**igh risk of death
 Child with Marasmus	 Child with Kwashiorkor

Marasmic Kwashiorkor; Child presents with symptoms from both marasmus and kwashiorkor

Annex 3.2. Appetite Test

Reason for doing the Appetite Test

- Malnutrition changes the way infections and other diseases express themselves – children severely affected by the classical IMNCI diseases, who are malnourished, frequently show no signs of these diseases. However, the major complications lead to a loss of appetite. Most importantly, the signs of severe malnutrition itself are often interpreted as dehydration in a child that is not actually dehydrated. The diagnosis and treatment of dehydration are different in these patients. Giving conventional treatment for dehydration to the severely malnourished is very dangerous.
- Even though the definition and identification of the severely malnourished is by anthropometric measurements, there is not a perfect correlation between anthropometric and metabolic malnutrition. It is mainly metabolic malnutrition that causes death. Often the only sign of severe ***metabolic*** malnutrition is a reduction in appetite. By far the most important criterion to decide if a patient should be sent to in- or out- patient management is the Appetite Test.
- A poor appetite means that the child has a significant infection or a major metabolic abnormality such as liver dysfunction, electrolyte imbalance, cell membrane damage or damaged biochemical pathways. These are the patients at immediate risk of death. Furthermore, a child with a poor appetite will not take the diet at home and will continue to deteriorate or die. As the patient does not eat the special therapeutic food (RUTF) the family will take the surplus and become habituated to sharing.
- Appetite Tests also offer an opportunity to teach mothers and caregivers about hygiene and hand-washing techniques. At this time, mothers and caregivers can also be observed on caring and feeding practices for the child. Health workers should carefully observe feeding techniques and, where necessary, gently counsel the mother on improving techniques to help the child's progress.

When to do the Appetite Test

The Appetite Test should be done on <u>all</u> children presenting with severe acute malnutrition and during each follow-up visit at CBTF.

How to do the Appetite Test

- The appetite test should be conducted in a separate quiet area, away from noise and crowds that can distract the mother and the child. Sometimes a child will not eat the RUTF because he or she is frightened, distressed or fearful of the environment or staff. This is particularly likely if there is a crowd, a lot of noise, other distressed children or intimidating health professionals (white coats, awe-inspiring tone). If a quiet area is not possible then the appetite can be tested outside.
- Explain to the carer the purpose of the appetite test and how it will be carried out.
- The carer and child should ALWAYS wash their hands with soap and clean water.
- The carer should sit comfortably with the child on his or her lap and either offers the RUTF from the packet or put a small amount on his and her finger and give it to the child.
- The carer should offer the child the RUTF gently, encouraging the child all the time. If the child refuses then the carer should continue to quietly encourage the child and take time over the test. The test usually takes a short time but may take up to one hour. The child **must not** be forced to take the RUTF.
- The child needs to be offered plenty of water to drink from a cup as he or she is taking the RUTF.
- If there is a small scale (the sort that is used in a domestic kitchen to weight portions of food) then the sachet of RUTF is weighed before given to the child to check for appetite. Re-weigh the sachet every 10 minutes to monitor intake. At the end of the test, the RUTF package is weighed again to calculate how much the child has eaten. Use Table 3.3 to assess appetite based on amount eaten. If there is no scale and commercial RUTF is being used then gives the MINIMUM amount that should be taken. This is less accurate than using a small scale and the amount disappearing from the packet is difficult to judge.

How to determine results of the Appetite Test

Table 1: Minimum amount of Plumpy nut per kg of body weight required to pass Appetite Test

APPETITE TEST **Minimum amount of RUTF per kg of body weight required to pass the test**	
Body weight (kg)	***Sachet***
Less than 4 kg	1/8 to ¼
4 – 6.9	¼ to 1/3
7 – 9.9	1/3 to ½
10 – 14.9	½ to ¾
15 – 29	¾ to 1
Over 30 kg	More than 1

Table 2: Appetite Test Results Using Scale Measurement

APPETITE TEST ***To pass the appetite test the intake of a test meal has to be at least in the moderate range.***			
Body weight	**POOR APPETITE**	**MODERATE APPETITE**	**GOOD APPETITE**
Kg	**Gram of RUTF**		
3 - 3.9	<= 15	15 - 20	> 20
4 - 5.9	<= 20	20 - 25	> 25
6 - 6.9	<= 20	20 - 30	> 30
7 - 7.9	<= 25	25 - 35	> 35
8 - 8.9	<= 30	30 - 40	> 40
9 - 9.9	<= 30	30 - 45	> 45
10 - 11.9	<= 35	35 - 50	> 50
12 - 14.9	<= 40	40 - 60	> 60
15 - 14.9	<= 55	55 - 75	> 75
25 - 39	<= 65	65 - 90	> 90
40 - 60	<= 70	70 - 100	> 100

If the patient takes the amount shown 5 times each day, those with a moderate appetite should maintain their weight; this is approximately 70% of the amount taken in transition phase which is equivalent to a maintenance intake. Those with a good appetite should gain weight and mobilize oedema at home – it is approximately equal to the amount a person would take during transition phase.

Pass

A child that shows *moderate* to *good* appetite in Table 2 (Using scale) or takes at least the amount shown in Table 1 (Sachets) passes the appetite test.

Fail

- A child that shows *poor* appetite in Table 3.2 or does not take at least the amount of RUTF shown in Table 3.3 should be referred for in-patient care.
- Explain to the carer the types of treatment and the reasons for recommending in-patient care; decide *with the carer* whether the patient will be treated as an in-patient or out-patient.
- Refer the patient to the nearest FBTF for phase 1, inpatient therapeutic care
- Start treatment of phase 1, and complications appropriate for in-patients.

Notes on Appetite Test:

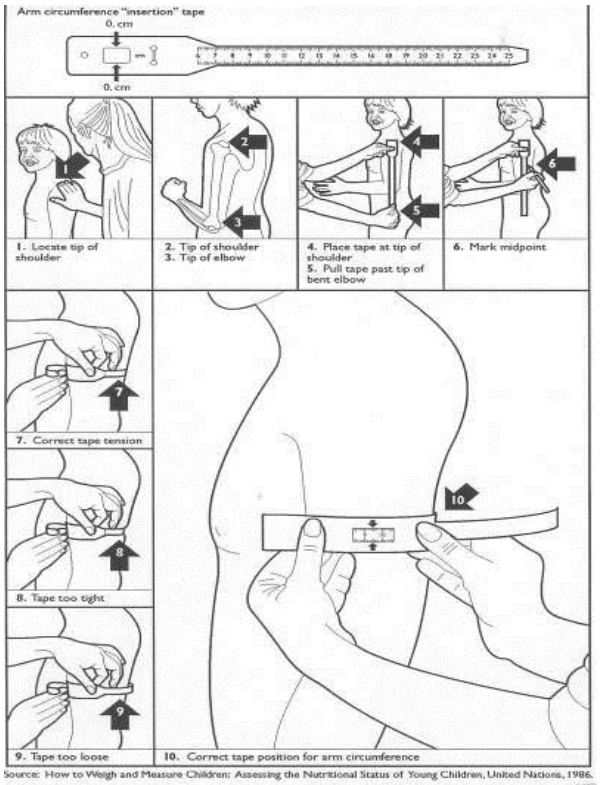
- Even if the carer/health worker thinks the child is not taking the RUTF because he or she doesn't like the taste or is frightened, the child still needs to be referred to in-patient care for least a short time. If it is later found that the child actually takes sufficient RUTF to pass the Test then they can be immediately transferred to the out-patient treatment.
- The appetite test should always be performed carefully. Patients who fail their appetite tests should always be offered treatment as in-patients. If there is any doubt, then the patient should be referred for in-patient treatment until the appetite returns (this is also the main criterion for an in-patient to continue treatment as an out-patient).
- The patient has to take at least the amount that will maintain body weight. A patient should not be sent home if they are likely to continue to deteriorate because they will not take sufficient Therapeutic food. Ideally they should take at least the amount that children are given during the transition phase of in-patient treatment before they progress to CBTF (good appetite during the test).
- Failure of an appetite test at any time is an indication for full evaluation and probably transfer for in-patient (FBTF) assessment and treatment.
- During the second and subsequent visits the intake should be in the "good" range if the patient is to recover reasonably quickly.
- If the appetite is "moderate/good" during the appetite test and the rate of weight gain at home is poor then a home visit should be arranged. It may then be necessary to bring a child into in-patient care to do a simple "trial of feeding" to differentiate i) a metabolic problem with the patient from ii) a difficulty with the home environment; such a trial-of-feeding, in a structured environment (e.g. FBTF), is also frequently the first step in investigating failure to respond to treatment.

Annex 3.3. Anthropometric Measurements Technique

Taking the MUAC

MUAC is used as an alternative measure of "thinness" to weight-for-height. It is particularly used in children from one to five years: however, its use has been extended to include children of over 65cm in height – or children of walking age.

1. Ask the mother to remove clothing that may cover the child's left arm.
2. Calculate the midpoint of the child's left upper arm by first locating the tip of the child's shoulder (arrows 1 and 2) with your finger tips. Bend the child's elbow to make the right angle (arrow 3). Place the tape at zero, which is indicated by two arrows, on the tip of the shoulder (arrow 4) and pull the tape straight down past the tip of the elbow (arrow 5). Read the number at the tip of the elbow to the nearest centimetre. Divide this number by two to estimate the midpoint. As an alternative, bend the tape up to the middle length to estimate the midpoint. A piece of string can also be used for this purpose; it is more convenient and avoids damage to the tape. Mark the midpoint with a pen on the arm (arrow 6).
3. Straighten the child's arm and wrap the tape around the arm at the midpoint. Make sure the numbers are right side up. Make sure the tape is flat around the skin (arrow 7).
4. Inspect the tension of the tape on the child's arm. Make sure the tape has the proper tension (arrow 7) and is not too tight or too loose (arrows 8 and 9). Repeat any step as necessary.
5. When the tape is in the correct position on the arm with correct tension, read and call out the measurement to the nearest 0.1cm (arrow 10).
6. Immediately record the measurement.



Source: How to Weigh and Measure Children: Assessing the Nutritional Status of Young Children, United Nations, 1986.

Checking for bilateral oedema

Bilateral oedema is the sign of Kwashiorkor. Kwashiorkor is *always* a severe form of malnutrition. Children with bilateral oedema are directly identified to be acutely malnourished. These children are at high risk of mortality and need to be treated in a therapeutic feeding programme urgently.

In order to determine the presence of oedema, normal thumb pressure is applied to the both feet for three seconds. If a shallow print persists on the both feet, then the child presents oedema. Only children with bilateral oedema are recorded as having nutritional oedema.

You must formally test for oedema with finger pressure
you cannot tell by just looking

Mild oedema: usually confined to feet or pretibial area	+
Moderate oedema on feet and legs: Intermediate between mild and severe	++
Severe oedema generalised over the whole body: deep lasting pit formed	+++





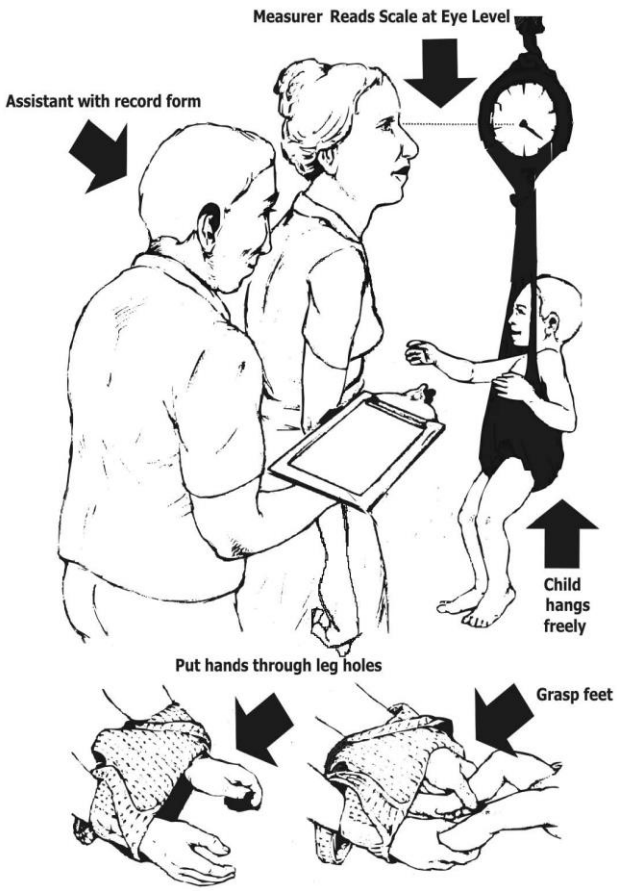
Taking a Child's Weight

Children are weighed with a 25 kg hanging sprint scale, graduated to 0.100 kg. Do not forget to re-adjust the scale to zero before each weighing.A plastic wash basin should be supported by four ropes that attach (are knotted) underneath the basin. The basin is close to the ground in case the child falls out and to make the child feel secure during weighing. If the basin is soiled, first clean it with disinfectant. The basin is more comfortable and familiar for the child, can be used for ill children, and is easily cleaned. In the absence of a basin, weighing pants can be used although are sometimes inappropriate for very sick children. When the pant is soiled, it can be cleaned and disinfected to reduce the risk to pass an infection to the next patient. When the child is steady in the basin or pant, record the measurement to the nearest 100 grams, recording with the frame of the scale at eye level. Each day, the scales must be checked for accuracy by using a known weight.

Taking a child's weight

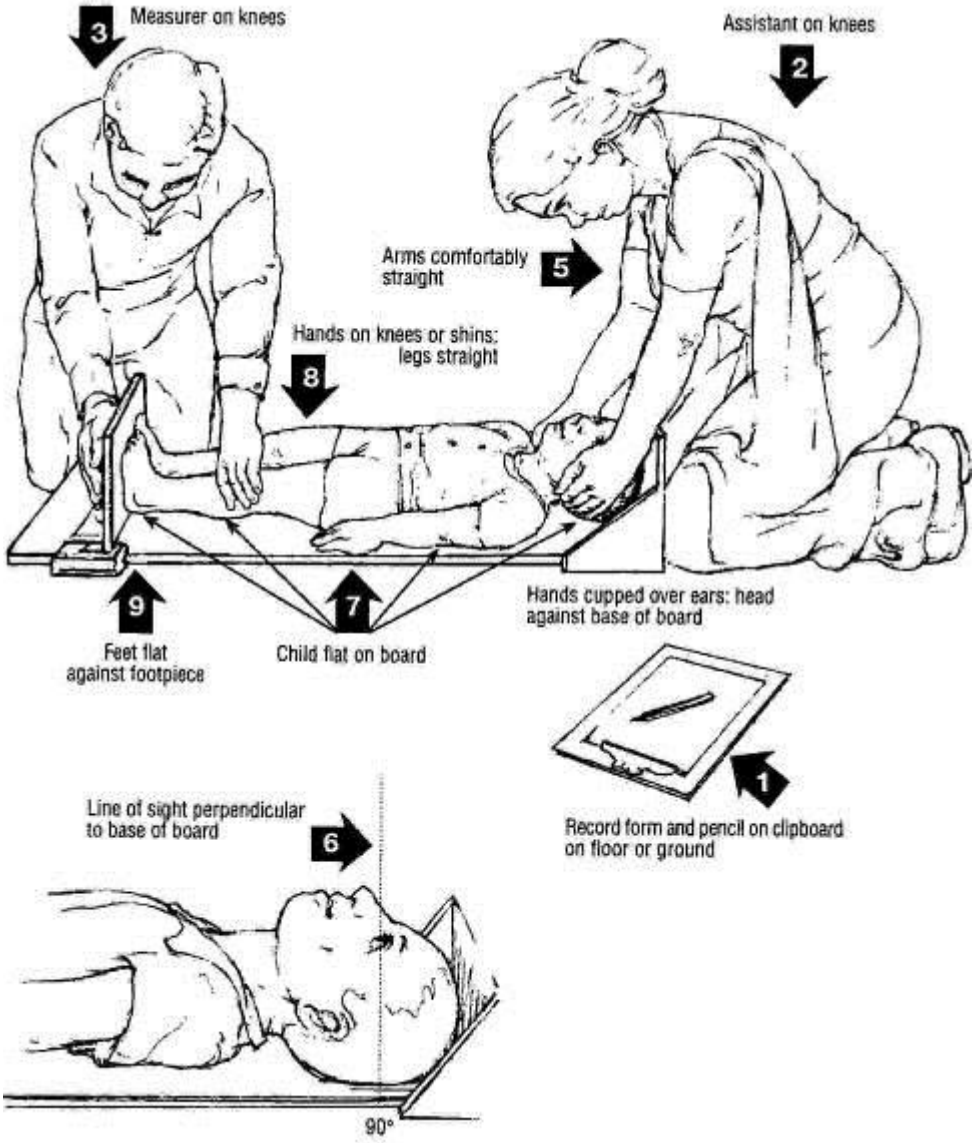
Instructions on Taking the Weight

1. Before weighing the child, take all his/her clothes off
2. Zero the weighing scale (i.e. make sure the arrow is on 0)
3. Ensure that the weighing scale is at eye level
4. Place the child in the weighing pans
5. Make sure the child is not holding onto anything
6. Read the child's weight. The arrow must be steady.
7. Record the weight in kg to the nearest 100g e.g. 6.6 kg
8. Do not hold the scale when reading the weight

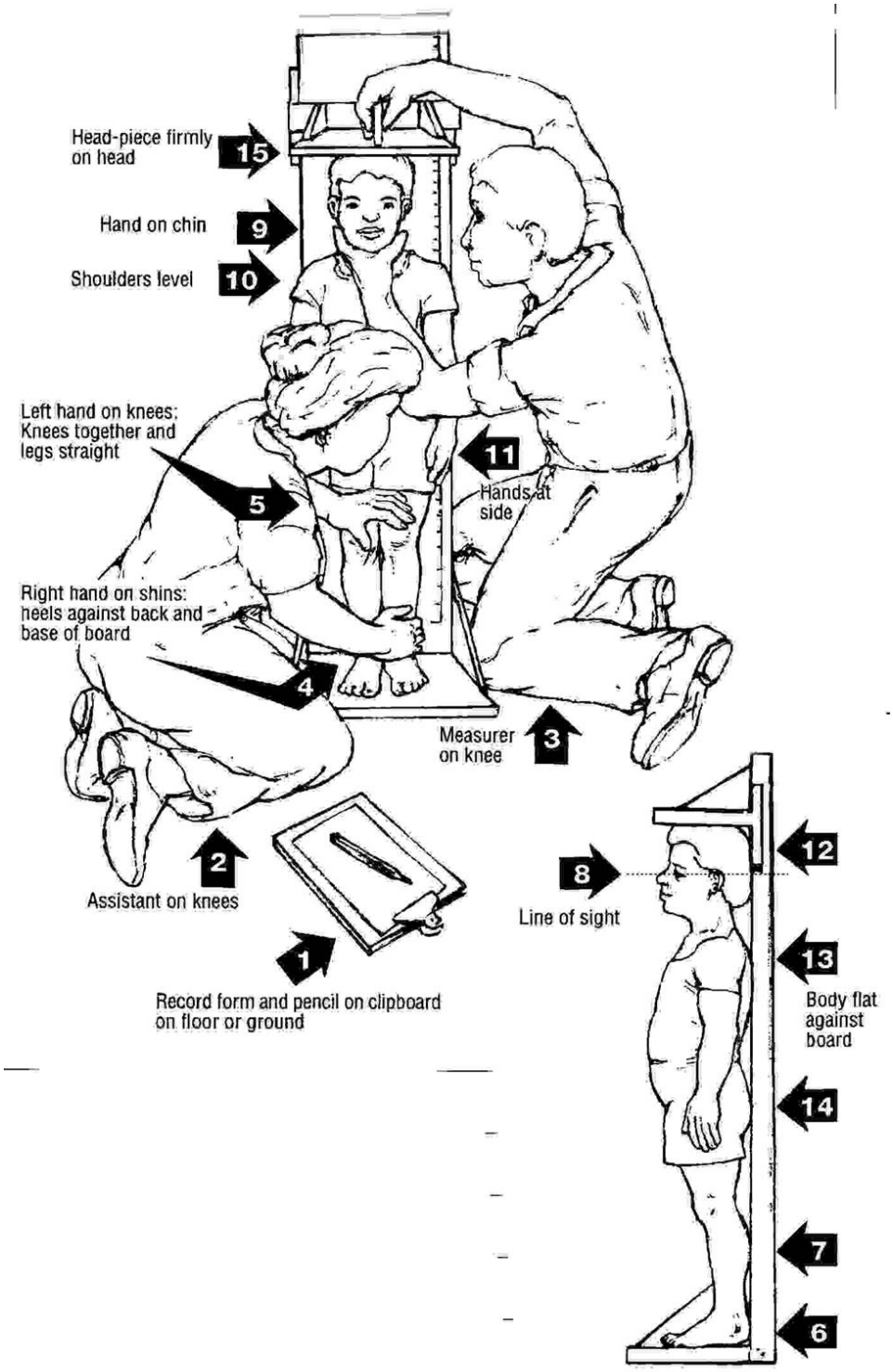


Taking the length/height

For children less than 85 cm, the measuring board is placed on the ground. The child is placed, lying along the middle of the board. The assistant holds the sides of the child's head and positions the head until it firmly touches the fixed headboard with the hair compressed. The measurer places her hands on the child's legs, gently stretches the child and then keeps one hand on the thighs to prevent flexion. While positioning the child's legs, the sliding foot-plate is pushed firmly against the bottom of the child's feet. To read the measure, the foot-plate must be perpendicular to the axis of the board and vertical. The height is read to the nearest 0.1 centimetre.



For children more than 85 cm, the measuring board is fixed upright where the ground is level. The child stands, upright in the middle, against the measuring board. The child's head, shoulders, buttocks, knees, heels are held against the board by the assistant, while the measurer positions the head and the cursor. The height is read to the nearest 0.1 centimeter.


Head-piece firmly on head
15
Hand on chin
9
Shoulders level
10
Left hand on knees: Knees together and legs straight
5
Right hand on shins: heels against back and base of board
4
11
Hands at side
Measurer on knee
3
2
Assistant on knees
1
Record form and pencil on clipboard on floor or ground
8
Line of sight
12
13
Body flat against board
14
7
6

Annex 3.4. Calculating Weight-for-height

Example 1: A child is 63 cm tall and weighs 6.5 kg.

• Look in the table's first column for the figure 63 (the height).

• Take a ruler or a piece of card, place it under the figure 63 and look across to the other figures on the same line.

• Find the figure corresponding to the weight of the child, in this case 6.5kg.

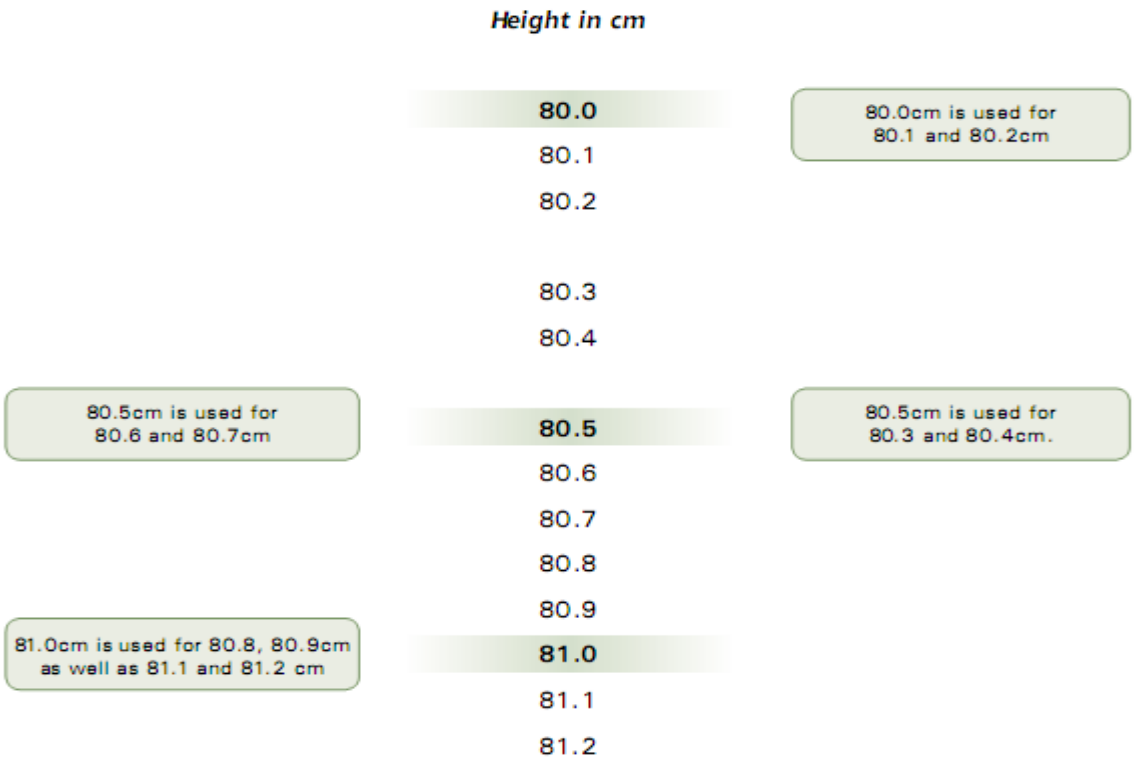
• Look to see what column this figure is in. In this case it is in the "Weight Normal" column. In this example the child's weight is normal in relation to his height. He therefore has an appropriate weight for height.

Example 2: A child is 78 cm tall and weighs 8.2 kg.

This child's weight is in -2SD column. He is too thin in relation to his height. He is moderately malnourished.

NOTE: It may be that the weight or the height is not a whole number.

Example 3: A child is 80.4 cm tall and weighs 7.9 kg. These exact figures are not in the table. For the height: The height measurement has to be rounded to the nearest 0.5cm, see example below.



For the weight: Looking at the chart, for a height of 80.5 cm the weight is 7.9 kg. This is between 7.6 and 8.3 kg. To express the fact that the child is between these two weight measurements, write down that this child's is between -4SD and -3SD. He is severely malnourished

Annex 3.5. Weight-for-Length and Weight-for-Height Charts for Boys and Girls

Weight-for-Height Reference Table (WHO)

Boys weight (kg)						Girls weight (kg)				
-4SD	-3SD	-2SD	-1SD	Median	Length (cm)[a]	Median	-1SD	-2SD	-3SD	-4SD
1,7	1,9	2,0	2,2	2,4	**45,0**	2,5	2,3	2,1	1,9	1,7
1,8	1,9	2,1	2,3	2,5	**45,5**	2,5	2,3	2,1	2,0	1,8
1,8	2,0	2,2	2,4	2,6	**46,0**	2,6	2,4	2,2	2,0	1,9
1,9	2,1	2,3	2,5	2,7	**46,5**	2,7	2,5	2,3	2,1	1,9
2,0	2,1	2,3	2,5	2,8	**47,0**	2,8	2,6	2,4	2,2	2,0
2,0	2,2	2,4	2,6	2,9	**47,5**	2,9	2,6	2,4	2,2	2,0
2,1	2,3	2,5	2,7	2,9	**48,0**	3,0	2,7	2,5	2,3	2,1
2,1	2,3	2,6	2,8	3,0	**48,5**	3,1	2,8	2,6	2,4	2,2
2,2	2,4	2,6	2,9	3,1	**49,0**	3,2	2,9	2,6	2,4	2,2
2,3	2,5	2,7	3,0	3,2	**49,5**	3,3	3,0	2,7	2,5	2,3
2,4	2,6	2,8	3,0	3,3	**50,0**	3,4	3,1	2,8	2,6	2,4
2,4	2,7	2,9	3,1	3,4	**50,5**	3,5	3,2	2,9	2,7	2,4
2,5	2,7	3,0	3,2	3,5	**51,0**	3,6	3,3	3,0	2,8	2,5
2,6	2,8	3,1	3,3	3,6	**51,5**	3,7	3,4	3,1	2,8	2,6
2,7	2,9	3,2	3,5	3,8	**52,0**	3,8	3,5	3,2	2,9	2,7
2,8	3,0	3,3	3,6	3,9	**52,5**	3,9	3,6	3,3	3,0	2,8
2,9	3,1	3,4	3,7	4,0	**53,0**	4,0	3,7	3,4	3,1	2,8
3,0	3,2	3,5	3,8	4,1	**53,5**	4,2	3,8	3,5	3,2	2,9
3,1	3,3	3,6	3,9	4,3	**54,0**	4,3	3,9	3,6	3,3	3,0
3,2	3,4	3,7	4,0	4,4	**54,5**	4,4	4,0	3,7	3,4	3,1
3,3	3,6	3,8	4,2	4,5	**55,0**	4,6	4,2	3,8	3,5	3,2
3,4	3,7	4,0	4,3	4,7	**55,5**	4,7	4,3	3,9	3,6	3,3
3,5	3,8	4,1	4,4	4,8	**56,0**	4,8	4,4	4,0	3,7	3,4
3,6	3,9	4,2	4,6	5,0	**56,5**	5,0	4,5	4,2	3,8	3,5
3,7	4,0	4,3	4,7	5,1	**57,0**	5,1	4,6	4,3	3,9	3,6
3,8	4,1	4,5	4,9	5,3	**57,5**	5,2	4,8	4,4	4,0	3,7
3,9	4,3	4,6	5,0	5,4	**58,0**	5,4	4,9	4,5	4,1	3,8
4,0	4,4	4,7	5,1	5,6	**58,5**	5,5	5,0	4,6	4,2	3,9
4,1	4,5	4,8	5,3	5,7	**59,0**	5,6	5,1	4,7	4,3	3,9
4,2	4,6	5,0	5,4	5,9	**59,5**	5,7	5,3	4,8	4,4	4,0
4,3	4,7	5,1	5,5	6,0	**60,0**	5,9	5,4	4,9	4,5	4,1
4,4	4,8	5,2	5,6	6,1	**60,5**	6,0	5,5	5,0	4,6	4,2
4,5	4,9	5,3	5,8	6,3	**61,0**	6,1	5,6	5,1	4,7	4,3
4,6	5,0	5,4	5,9	6,4	**61,5**	6,3	5,7	5,2	4,8	4,4
4,7	5,1	5,6	6,0	6,5	**62,0**	6,4	5,8	5,3	4,9	4,5
4,8	5,2	5,7	6,1	6,7	**62,5**	6,5	5,9	5,4	5,0	4,6
4,9	5,3	5,8	6,2	6,8	**63,0**	6,6	6,0	5,5	5,1	4,7
5,0	5,4	5,9	6,4	6,9	**63,5**	6,7	6,2	5,6	5,2	4,7
5,1	5,5	6,0	6,5	7,0	**64,0**	6,9	6,3	5,7	5,3	4,8
5,2	5,6	6,1	6,6	7,1	**64,5**	7,0	6,4	5,8	5,4	4,9
5,3	5,7	6,2	6,7	7,3	**65,0**	7,1	6,5	5,9	5,5	5,0
5,4	5,8	6,3	6,8	7,4	**65,5**	7,2	6,6	6,0	5,5	5,1
5,5	5,9	6,4	6,9	7,5	**66,0**	7,3	6,7	6,1	5,6	5,1
5,5	6,0	6,5	7,0	7,6	**66,5**	7,4	6,8	6,2	5,7	5,2
5,6	6,1	6,6	7,1	7,7	**67,0**	7,5	6,9	6,3	5,8	5,3
5,7	6,2	6,7	7,2	7,9	**67,5**	7,6	7,0	6,4	5,9	5,4
5,8	6,3	6,8	7,3	8,0	**68,0**	7,7	7,1	6,5	6,0	5,5
5,9	6,4	6,9	7,5	8,1	**68,5**	7,9	7,2	6,6	6,1	5,5
6,0	6,5	7,0	7,6	8,2	**69,0**	8,0	7,3	6,7	6,1	5,6
6,0	6,6	7,1	7,7	8,3	**69,5**	8,1	7,4	6,8	6,2	5,7
6,1	6,6	7,2	7,8	8,4	**70,0**	8,2	7,5	6,9	6,3	5,8
6,2	6,7	7,3	7,9	8,5	**70,5**	8,3	7,6	6,9	6,4	5,8
6,3	6,8	7,4	8,0	8,6	**71,0**	8,4	7,7	7,0	6,5	5,9
6,4	6,9	7,5	8,1	8,8	**71,5**	8,5	7,7	7,1	6,5	6,0
6,4	7,0	7,6	8,2	8,9	**72,0**	8,6	7,8	7,2	6,6	6,0
6,5	7,1	7,6	8,3	9,0	**72,5**	8,7	7,9	7,3	6,7	6,1
6,6	7,2	7,7	8,4	9,1	**73,0**	8,8	8,0	7,4	6,8	6,2
6,7	7,2	7,8	8,5	9,2	**73,5**	8,9	8,1	7,4	6,9	6,3
6,7	7,3	7,9	8,6	9,3	**74,0**	9,0	8,2	7,5	6,9	6,3
6,8	7,4	8,0	8,7	9,4	**74,5**	9,1	8,3	7,6	7,0	6,4
6,9	7,5	8,1	8,8	9,5	**75,0**	9,1	8,4	7,7	7,1	6,5
7,0	7,6	8,2	8,9	9,6	**75,5**	9,2	8,5	7,8	7,1	6,5
7,0	7,6	8,3	8,9	9,7	**76,0**	9,3	8,5	7,8	7,2	6,6
7,1	7,7	8,3	9,0	9,8	**76,5**	9,4	8,6	7,9	7,3	6,7
7,2	7,8	8,4	9,1	9,9	**77,0**	9,5	8,7	8,0	7,4	6,7
7,2	7,9	8,5	9,2	10,0	**77,5**	9,6	8,8	8,1	7,4	6,8
7,3	7,9	8,6	9,3	10,1	**78,0**	9,7	8,9	8,2	7,5	6,9
7,4	8,0	8,7	9,4	10,2	**78,5**	9,8	9,0	8,2	7,6	6,9
7,4	8,1	8,7	9,5	10,3	**79,0**	9,9	9,1	8,3	7,7	7,0
7,5	8,2	8,8	9,5	10,4	**79,5**	10,0	9,1	8,4	7,7	7,1
7,6	8,2	8,9	9,6	10,4	**80,0**	10,1	9,2	8,5	7,8	7,1
7,6	8,3	9,0	9,7	10,5	**80,5**	10,2	9,3	8,6	7,9	7,2
7,7	8,4	9,1	9,8	10,6	**81,0**	10,3	9,4	8,7	8,0	7,3
7,8	8,5	9,1	9,9	10,7	**81,5**	10,4	9,5	8,8	8,1	7,4
7,9	8,5	9,2	10,0	10,8	**82,0**	10,5	9,6	8,8	8,2	7,5
7,9	8,6	9,3	10,1	10,9	**82,5**	10,6	9,7	8,9	8,2	7,5
8,0	8,7	9,4	10,2	11,0	**83,0**	10,7	9,8	9,0	8,3	7,6
8,1	8,8	9,5	10,3	11,2	**83,5**	10,9	9,9	9,1	8,4	7,7
8,2	8,9	9,6	10,4	11,3	**84,0**	11,0	10,1	9,2	8,5	7,8
8,3	9,0	9,7	10,5	11,4	**84,5**	11,1	10,2	9,3	8,6	7,9

Weight-for-Height Reference Table (WHO)

Boys weight (kg)						Girls weight (kg)				
-4SD	-3SD	-2SD	-1SD	Median	Height (cm)[a]	Median	-1SD	-2SD	-3SD	-4SD
8,4	9,1	9,8	10,6	11,5	**85,0**	11,2	10,3	9,4	8,7	8,0
8,5	9,2	9,9	10,7	11,6	**85,5**	11,3	10,4	9,6	8,8	8,0
8,6	9,3	10,0	10,8	11,7	**86,0**	11,5	10,5	9,7	8,9	8,1
8,7	9,4	10,1	11,0	11,9	**86,5**	11,6	10,6	9,8	9,0	8,2
8,9	9,6	10,4	11,2	12,2	**87,0**	11,9	10,9	10,0	9,2	8,4
9,0	9,7	10,5	11,3	12,3	**87,5**	12,0	11,0	10,1	9,3	8,5
9,1	9,8	10,6	11,5	12,4	**88,0**	12,1	11,1	10,2	9,4	8,6
9,2	9,9	10,7	11,6	12,5	**88,5**	12,3	11,2	10,3	9,5	8,7
9,3	10,0	10,8	11,7	12,7	**89,0**	12,4	11,4	10,4	9,6	8,8
9,3	10,1	10,9	11,8	12,8	**89,5**	12,5	11,5	10,5	9,7	8,9
9,4	10,2	11,0	11,9	12,9	**90,0**	12,6	11,6	10,6	9,8	9,0
9,5	10,3	11,1	12,0	13,0	**90,5**	12,8	11,7	10,7	9,9	9,1
9,6	10,4	11,2	12,1	13,1	**91,0**	12,9	11,8	10,9	10,0	9,1
9,7	10,5	11,3	12,2	13,2	**91,5**	13,0	11,9	11,0	10,1	9,2
9,8	10,6	11,4	12,3	13,4	**92,0**	13,1	12,0	11,1	10,2	9,3
9,9	10,7	11,5	12,4	13,5	**92,5**	13,3	12,1	11,2	10,3	9,4
9,9	10,8	11,6	12,6	13,6	**93,0**	13,4	12,3	11,3	10,4	9,5
10,0	10,9	11,7	12,7	13,7	**93,5**	13,5	12,4	11,4	10,5	9,6
10,1	11,0	11,8	12,8	13,8	**94,0**	13,6	12,5	11,5	10,6	9,7
10,2	11,1	11,9	12,9	13,9	**94,5**	13,8	12,6	11,6	10,7	9,7
10,3	11,1	12,0	13,0	14,1	**95,0**	13,9	12,7	11,7	10,8	9,8
10,4	11,2	12,1	13,1	14,2	**95,5**	14,0	12,8	11,8	10,8	9,9
10,4	11,3	12,2	13,2	14,3	**96,0**	14,1	12,9	11,9	10,9	10,0
10,5	11,4	12,3	13,3	14,4	**96,5**	14,3	13,1	12,0	11,0	10,1
10,6	11,5	12,4	13,4	14,6	**97,0**	14,4	13,2	12,1	11,1	10,2
10,7	11,6	12,5	13,6	14,7	**97,5**	14,5	13,3	12,2	11,2	10,3
10,8	11,7	12,6	13,7	14,8	**98,0**	14,7	13,4	12,3	11,3	10,4
10,9	11,8	12,8	13,8	14,9	**98,5**	14,8	13,5	12,4	11,4	10,4
11,0	11,9	12,9	13,9	15,1	**99,0**	14,9	13,7	12,5	11,5	10,5
11,1	12,0	13,0	14,0	15,2	**99,5**	15,1	13,8	12,7	11,6	10,6
11,2	12,1	13,1	14,2	15,4	**100,0**	15,2	13,9	12,8	11,7	10,7
11,2	12,2	13,2	14,3	15,5	**100,5**	15,4	14,1	12,9	11,9	10,8
11,3	12,3	13,3	14,4	15,6	**101,0**	15,5	14,2	13,0	12,0	10,9
11,4	12,4	13,4	14,5	15,8	**101,5**	15,7	14,3	13,1	12,1	11,0
11,5	12,5	13,6	14,7	15,9	**102,0**	15,8	14,5	13,3	12,2	11,1
11,6	12,6	13,7	14,8	16,1	**102,5**	16,0	14,6	13,4	12,3	11,2
11,7	12,8	13,8	14,9	16,2	**103,0**	16,1	14,7	13,5	12,4	11,3
11,8	12,9	13,9	15,1	16,4	**103,5**	16,3	14,9	13,6	12,5	11,4
11,9	13,0	14,0	15,2	16,5	**104,0**	16,4	15,0	13,8	12,7	11,5
12,0	13,1	14,2	15,4	16,7	**104,5**	16,6	15,2	13,9	12,8	11,6
12,1	13,2	14,3	15,5	16,8	**105,0**	16,8	15,3	14,0	12,9	11,8
12,2	13,3	14,4	15,6	17,0	**105,5**	17,0	15,5	14,2	13,0	11,9
12,3	13,4	14,5	15,8	17,2	**106,0**	17,1	15,6	14,3	13,1	12,0
12,4	13,5	14,7	15,9	17,3	**106,5**	17,3	15,8	14,5	13,3	12,1
12,5	13,7	14,8	16,1	17,5	**107,0**	17,5	15,9	14,6	13,4	12,2
12,6	13,8	14,9	16,2	17,7	**107,5**	17,7	16,1	14,7	13,5	12,3
12,7	13,9	15,1	16,4	17,8	**108,0**	17,8	16,3	14,9	13,7	12,4
12,8	14,0	15,2	16,5	18,0	**108,5**	18,0	16,4	15,0	13,8	12,6
12,9	14,1	15,3	16,7	18,2	**109,0**	18,2	16,6	15,2	13,9	12,7
13,1	14,3	15,5	16,8	18,3	**109,5**	18,4	16,8	15,4	14,1	12,8
13,2	14,4	15,6	17,0	18,5	**110,0**	18,6	17,0	15,5	14,2	12,9
13,3	14,5	15,8	17,1	18,7	**110,5**	18,8	17,1	15,7	14,4	13,1
13,4	14,6	15,9	17,3	18,9	**111,0**	19,0	17,3	15,8	14,5	13,2
13,5	14,8	16,0	17,5	19,1	**111,5**	19,2	17,5	16,0	14,7	13,3
13,6	14,9	16,2	17,6	19,2	**112,0**	19,4	17,7	16,2	14,8	13,5
13,7	15,0	16,3	17,8	19,4	**112,5**	19,6	17,9	16,3	15,0	13,6
13,8	15,2	16,5	18,0	19,6	**113,0**	19,8	18,0	16,5	15,1	13,7
14,0	15,3	16,6	18,1	19,8	**113,5**	20,0	18,2	16,7	15,3	13,9
14,1	15,4	16,8	18,3	20,0	**114,0**	20,2	18,4	16,8	15,4	14,0
14,2	15,6	16,9	18,5	20,2	**114,5**	20,5	18,6	17,0	15,6	14,1
14,3	15,7	17,1	18,6	20,4	**115,0**	20,7	18,8	17,2	15,7	14,3
14,4	15,8	17,2	18,8	20,6	**115,5**	20,9	19,0	17,3	15,9	14,4
14,6	16,0	17,4	19,0	20,8	**116,0**	21,1	19,2	17,5	16,0	14,5
14,7	16,1	17,5	19,2	21,0	**116,5**	21,3	19,4	17,7	16,2	14,7
14,8	16,2	17,7	19,3	21,2	**117,0**	21,5	19,6	17,8	16,3	14,8
14,9	16,4	17,9	19,5	21,4	**117,5**	21,7	19,8	18,0	16,5	15,0
15,0	16,5	18,0	19,7	21,6	**118,0**	22,0	20,0	18,2	16,6	15,1
15,2	16,7	18,2	19,9	21,8	**118,5**	22,2	20,1	18,4	16,8	15,2
15,3	16,8	18,3	20,0	22,0	**119,0**	22,4	20,3	18,5	16,9	15,4
15,4	16,9	18,5	20,2	22,2	**119,5**	22,6	20,5	18,7	17,1	15,5
15,5	17,1	18,6	20,4	22,4	**120,0**	22,8	20,7	18,9	17,3	15,6

[a] Using this table, length should be measured from 45 to 86,9 cm and height should be measured from 87 to 120 cm.

Annex 3.6. Guidance table to identify target weight

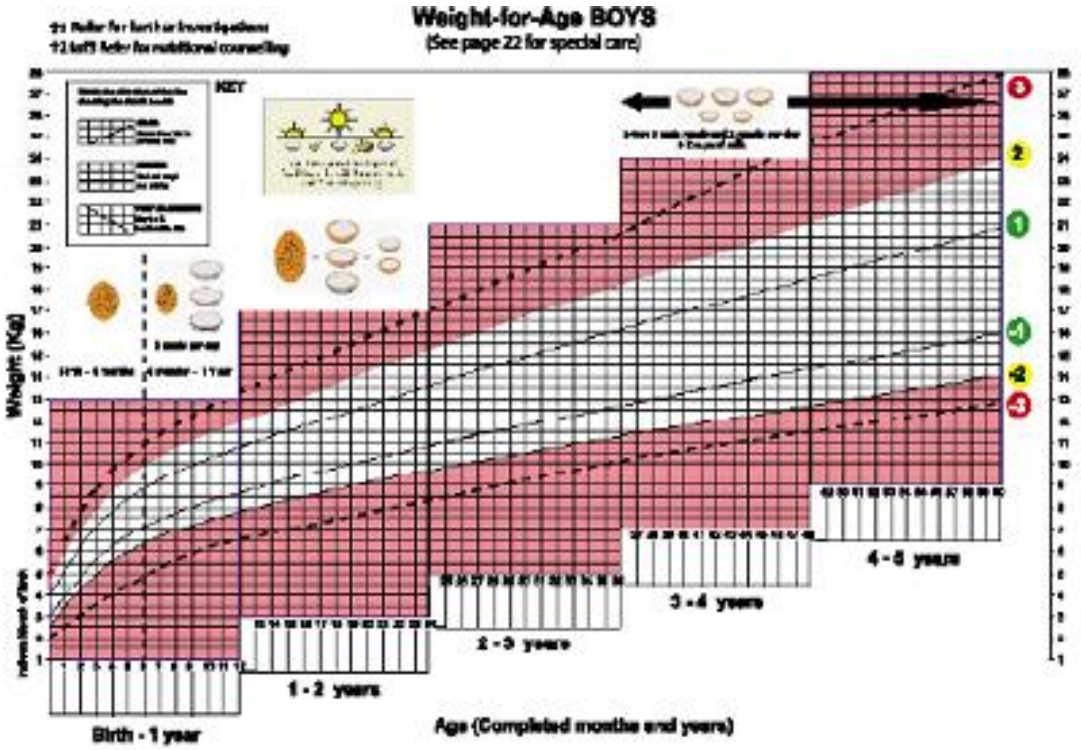
Guidance Table to Identify the target weight	
Weight on Admission*	Target weight: 15% weight gain
4.1	4.7
4.3	4.9
4.5	5.2
4.7	5.4
4.9	5.6
5.1	5.9
5.3	6.1
5.5	6.3
5.7	6.6
5.9	6.8
6.1	7.0
6.3	7.2
6.5	7.5
6.7	7.7
6.9	7.9
7.1	8.2
7.3	8.4
7.5	8.6
7.7	8.9
7.9	9.1
8.1	9.3
8.3	9.5
8.5	9.8
8.7	10.0
8.9	10.2
9.1	10.5
9.3	10.7
9.5	10.9
9.7	11.2
9.9	11.4
10.1	11.6
10.3	11.8
10.5	12.1

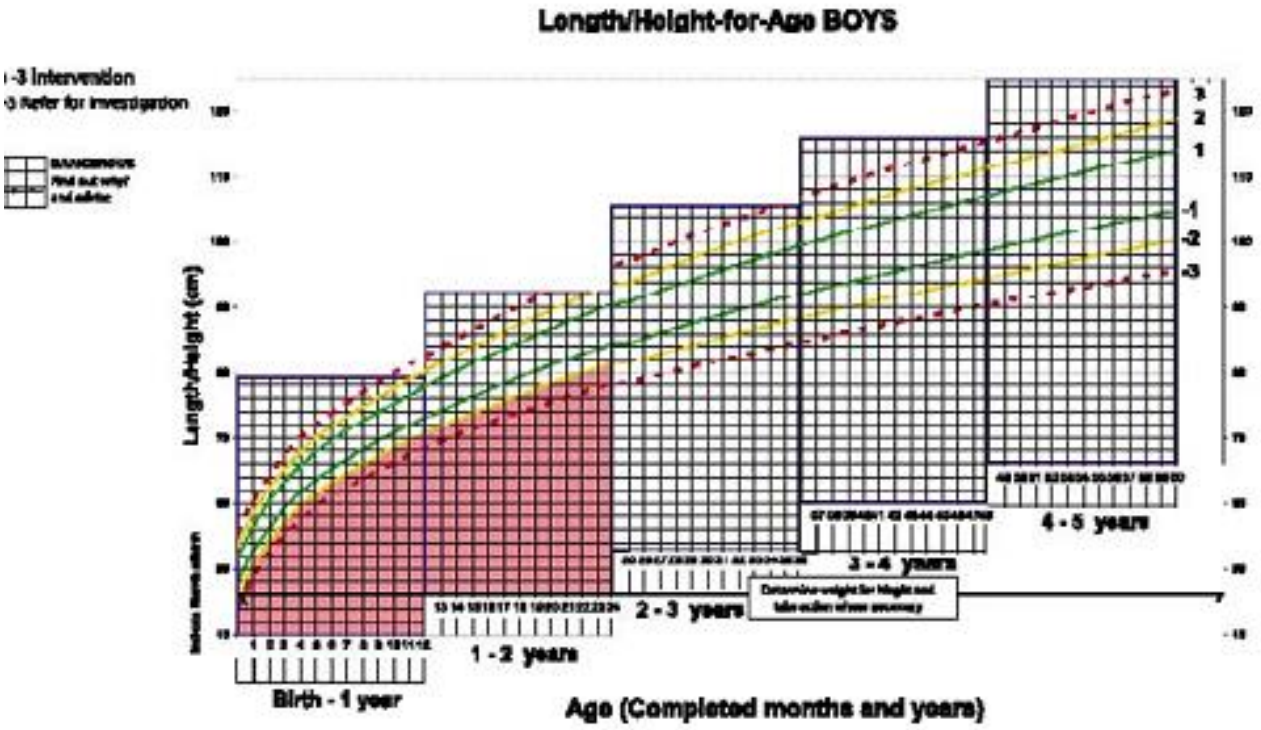
* Or wieght, free of oedema

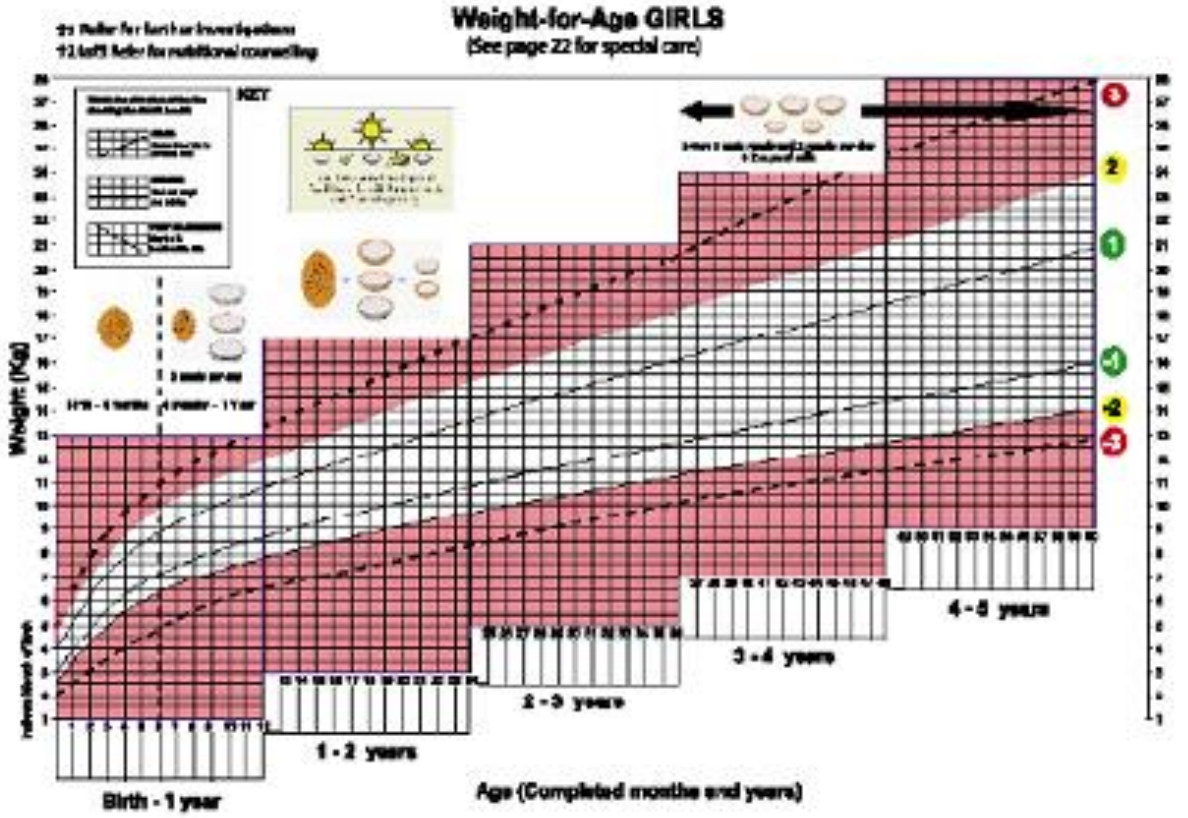
Guidance Table to Identify the target weight	
Weight on Admission*	Target weight: 15% weight gain
10.7	12.3
10.9	12.5
11.1	12.8
11.3	13.0
11.5	13.2
11.7	13.5
11.9	13.7
12.1	13.9
12.3	14.1
12.5	14.4
12.7	14.6
12.9	14.8
13.1	15.1
13.3	15.3
13.5	15.5
13.7	15.8
13.9	16.0
14.1	16.2
14.3	16.4
14.5	16.7
14.7	16.9
14.9	17.1
15.1	17.4
15.3	17.6
15.5	17.8
15.7	18.1
15.9	18.3
16.1	18.5
16.3	18.7
16.5	19.0
16.7	19.2
16.9	19.4
17.1	19.7

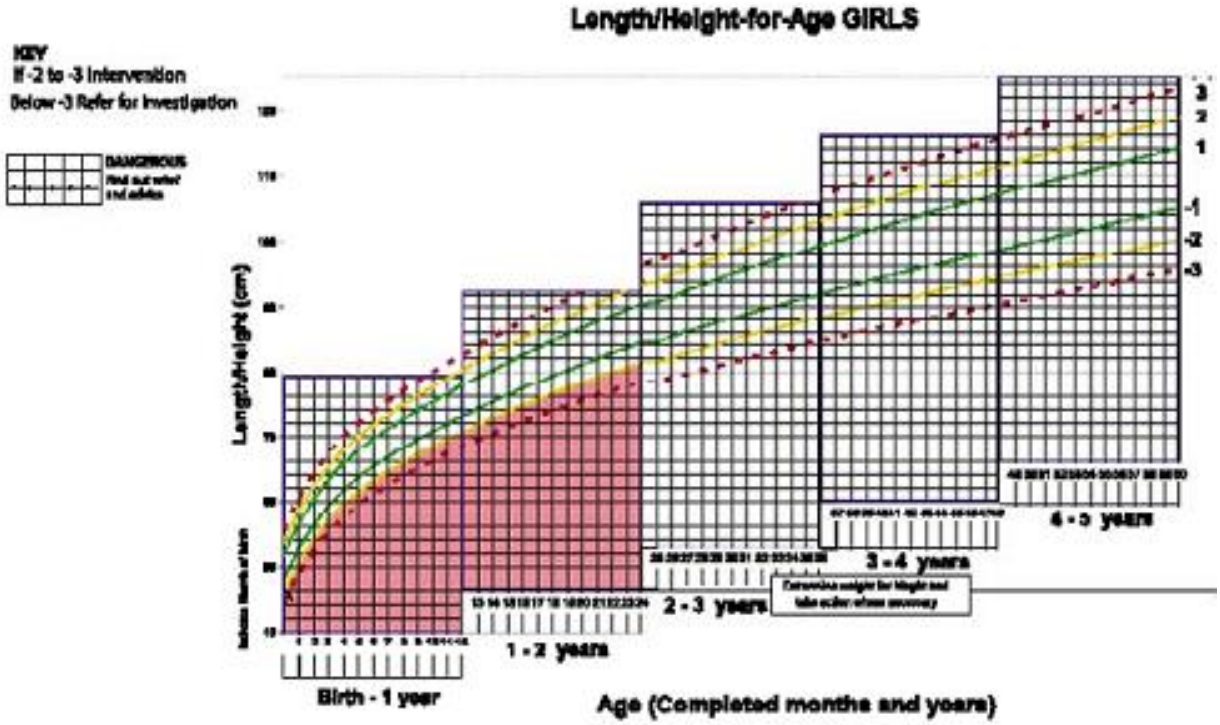
* Or weight, free of oedema

Annex 3.7. Weight-for-Age, Length/Height-for-Age WHO Chart 2006 (Boys and Girls)






Weight-for-Age GIRLS
(See page 22 for special care)
KEY
Weight (Kg)
Birth - 1 year
1 - 2 years
2 - 3 years
3 - 4 years
4 - 5 years
Age (Completed months and years)


Length/Height-for-Age GIRLS
KEY
If -2 to -3 Intervention
Below -3 Refer for Investigation
Length/Height (cm)
Birth - 1 year
1 - 2 years
2 - 3 years
3 - 4 years
4 - 5 years
Age (Completed months and years)

Annex 4.1a

Ministry of Health – Nutrition Unit
Admission and Discharge criteria therapeutic and
Targeted supplementary feeding

TF and SF	Admission criteria	Discharge criteria
FBTF	• W/H <−3 Z-score (SD) • MUAC < 11.5 cm With medical complication and /or • Bi-lateral pitting oedema (Grade +++)	• W/H >−2 Z-score (SD) for two consecutive weighs/measurements (if admitted by WFH Z-score) • 15% weight gain (If admitted by MUAC) • No oedema for 10 days
CBTF	• W/H <−3 Z-score (SD) • MUAC < 11.5 cm Without medical complication and /or Bi-lateral pitting oedema (Grade + and ++)	• W/H >−2 Z-score (SD) for two consecutive weighs/measurements (if admitted by WFH Z-score) • 15% weight gain (If admitted by MUAC) No oedema for two consecutive visits
Targeted SF	Children with a weight-for-height ≥ - 3 to < −2 Z-score (SD)	weight-for-height > − 2 SD for two consecutive weighs/measurements

Annex 4.1b. In-patient (FBTF) Treatment Multi-Chart for Severe Acute Malnutrition

Therapeutic Treatment Multi-Chart for Severe Malnutrition

SAM Unique No

Registration No…… Country……

Sheet No…… Centre……

Father's name Care hosp-ward/hosp-SNU/TFC

First Name…… Day-care/Day-care-non-res

Address…… Age (d/m/y)……

…… Birthdate___/___/___

Distance to house…… Sex……

Major Problems

1 ……

2 ……

3 ……

Breastfeeding……..Y / N

Complementary feeding…..Y / N

Admission Date___/___/__

Time……..am/pm

Transfer In Y/N

If Y from……

Readmission Y / N

If Y, Type

Reg No ……

Discharge Date___/___/___

Cured ☐ Abandoned ☐ Cause

Dead ☐ Time ……..am/pm ……

Med transfer ☐ To…… ……

Transfer Out ☐ To…… ……

Nutritional referral ☐ To……

Anthropometric Chart	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Date																					
Height (cm)																					
Weight (kg)																					
Wt for Ht (%)																					
MUAC (cm)																					
Oedema (0 to +++)																					

Weight to reach

……..%

☐

Weight Chart

Therapeutic Diet

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Date																					
Phase																					
# meals/day																					
F75/F100/F100D																					
ml / feed																					
ml /day																					
Iron added																					
RUTF																					
gr / feed																					
gr or sachet /day																					

A=Absent
V=Vomit
R=Refused
NG=tube
IV=IV Fluid

Amount taken

100% 
3/4 
1/2 
1/4 
=ml=extra

Time	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1																					
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					

Stool (IIII)																					
Vomit (IIII)																					
Dehydrated (0 to +++)																					
Cough (0 to +++)																					
Septic Shock (0 to +++)																					
Respiration rate																					
Pale conjunctives																					
Temp. AM (Ax/Rec)																					
Temp. PM (Ax/Rec)																					
Scabies (0 to +++)																					
Liver size (cm)																					
Candidosis -/+																					

Routine Medicines																						
Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
Vitamin A …….IU																						
Folic Acid 2.5mg (po)																						
Antibiotic 1 Time																						
Antibiotic 2 Time																						
Malaria Rx																						
Worm rx in phase II																						

Special Medicines*																						
Antibiotic 3 Time																						
Resomal ml																						
IV fluid/blood																						
NG tube																						

*Enter Name, dose and route of administration (oral-po, intramuscular-IM, or intravenous-IV) for each drug. Enter an X in the upper left corner if prescribed - the nurse signs the box when the drug is given.

Test Results																						
Hb/Pcv																						
Malaria smear																						
Glucose																						
TB test																						

OBSERVATION

OBSERVATION

Card Y☐ N☐	IMMUNISATION DATES Birth	1	2	3	4
BCG					
Polio					
DPT					
Measles			Extra	Extra	

DISCHARGE Education Given On	Dates	Sig.
Causes of malnutrition		
Diarrhoea, RTI, Fever		
Skin, eye and ear infection		
Play and stimulation		
Child nutrition		
Child care		
Hygiene		
Sexually Transmitted Disease		
Family Planning		
Other……..		
Vitamin A given	Y	N
Immunisation up to date	Y	N
Breastfeeding on discharge	Y	N

Annex 4.2. Recipes for F75, F100 and ReSoMal using CMV.

* F75

Type of milk	Milk (g)	Eggs (g)	Sugar (g)	Oil (g)	Cereal powder (g)*	CMV** (red scoop=6g)	Water (ml)
Dry Skim Milk	25	0	70	27	35	2	Up to 1000
Dry Whole Milk	35	0	70	20	35	2	Up to 1000
Fresh cow milk	280	0	65	20	35	2	Up to 1000
Fresh goat milk	280	0	65	20	40	2	Up to 1000
Whole Eggs	0	80	70	20	40	2	Up to 1000
Egg yolks	0	50	70	15	40	2	Up to 1000

* Cereal powder should be cooked for around 10 minutes and then the other ingredients should be added.

** CMV = Special Mineral and Vitamin mix adapted to severe acute malnutrition treatment (® Nutriset)

* F100

Type of milk	Milk (g)	Eggs (g)	Sugar (g)	Oil (g)	CMV** (red scoop=6g)	Water (ml)
Dry Skim Milk	80	0	50	60	2	Up to 1000
Dry Whole Milk	110	0	50	30	2	Up to 1000
Fresh cow milk	900	0	50	25	2	Up to 1000
Fresh goat milk	900	0	50	30	2	Up to 1000
Whole eggs	0	220	90	35	2	Up to 1000
Egg yolks	0	170	90	10	2	Up to 1000

* ReSoMal

Ingredient	Amount
Standard WHO-ORS	one 1_litre packet
CMV (Mineral &Vitamin mix)**	**1 red scoop (6 gr.)**
Sucrose (sugar)	50 g
Water	**2000 ml**

- **For small quantities of ReSoMal – F75 – F100 using the red scoop**

Product	One red scoop	Water to add
ReSoMal	5.9g	140 ml
F75 (powder)	4.1 g	20 ml
F100 (powder)	4.1 g	18 ml

Annex 4.3. Transition Phase RUTF quantity per kg of body weight

Class of weight (kg)	RUTF	
	Sachet per day	Sachets per week
3.0 - 3.4	1 ¼	8
3.5 - 4.9	1 ½	10
5.0 – 6.9	2	15
7.0 – 9.9	3	20
10.0 - 14.9	4	30
15.0 – 19.9	5	35
20.0 – 29.9	6	40
30.0 - 39.9	7	50
40 – 60	8	55

Annex 4.4. Example Registration book – in-patients and out-patients

#	Reg. No.	Adm. date	Name	Address	Age (Month)	Sex (M/F)	Adm. Crit.[1]	T/f to Inpatient[2]	Disch. date	Discharge Outcome[c]	Observation
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Admission criteria (Adm. Crit[1]) options: oedema, weight for height, MUAC or other admission

Discharge[c] type options: Cured, Defaulter, Died, Transfer (indicate centre), Non-respondent

Children transferred to inpatient[2] care are still under therapeutic care and may return, so the discharge outcome column is filled only when there is a final outcome #

Annex 4.5. History and Examination sheet for severe malnutrition

History and Examination sheet for severe malnutrition - page 1 - Examination

Reg· N°..... **Parent's name:**..... **First name:**..... **Age**.....*d/m/y* **Sex** .....

Date of examination: ...../...../..... **Examiner's name**..... **Status** .....

Who is giving the history? patient/mother/ father/ sister/ grandmother/ aunt/ other.....

Is this person the main **caretaker** for the patient at home? *yes/ no* If not, who is the **caretaker**?.....

History of present illness

How long has the patient been ill? .....*h/ d/ wk/ mo/ yr*

What are the **complaints** - in the patients own words - and how long has each been present?

1..... .....*h/ d/ wk/ mo/ yr*
2..... .....*h/ d/ wk/ mo/ yr*
3..... .....*h/ d/ wk/ mo/ yr*
4..... .....*h/ d/ wk/ mo/ yr*

Describe the details of the complaints, how they have progressed, and the factors associated with each one

.....
.....
.....
.....

Systematic questions (give additional details of abnormalities above)
Appetite hungry/ normal/ poor/ very poor **Weight** is decreasing/ steady/ increasing .....d/ wk/ mo
Swelling: none/ feet/ legs/ face/ all over.....d/ wk/ mo**Eyes** sunken no/ recent/ longstanding
Diarrhoea N Y .....h/d/wk/mo stools per day ..... Normal/ watery/ soft/ blood/ mucus/ green/ pale
Vomiting *N Y* .. ..*h/d/wk/mo*. No per day..... Repeated episodes of Diarrhoea *N Y*
Breathing: normal/ fast/ noisy/ difficult for .....h/d/wk **Cough**: N Y - for.....d/wk/mo
Fever *N Y* **Convulsions** *N Y* **Unconsiousness** *N Y*
Treatment: Patient has already seen Dr/ Clinic/ Hospital/ Traditional healer .....times for this illness.
Treatment given .....
Past and social history
Past diseases: describe.....
Mother / father absent N Y reason..... .....wk/mo/yr **Patient**: twin/ fostered/ adopted/ orphan
Gestation: *early/ normal* or.....*wk/ mo* **Birth weight**: *large/ normal/ small* or .....*Kg/Lb*
Mother's age .....yr n° live births ..... n° Living children .....
Family eating together: n° adults..... n° children.....
Resources (food income crops livestock).....
Diet history
breast feed alone for .....*wk/ mo* age stopped breast feeding.....*wk/mo*

Food before ill breast/ milk/ porridge/ family plate/ fruit/ leaves/ drinks/ other

---

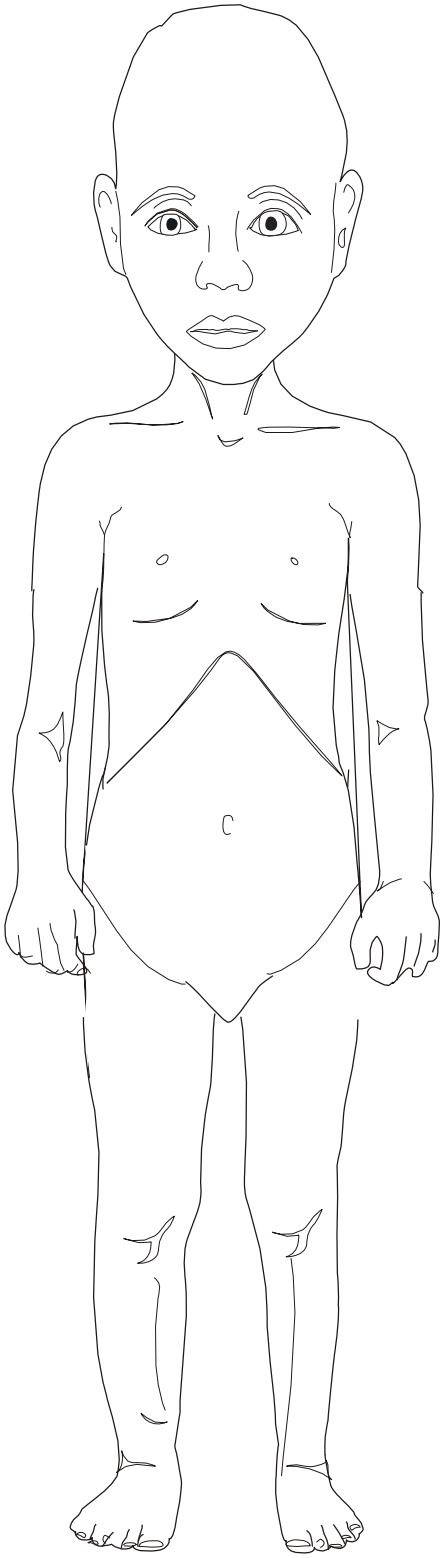
Food since ill breast/ milk/ porridge/ family plate/ fruit/ leaves/ drinks/ other

---

Last 24h –describe

History and Examination sheet for severe malnutrition - page 2 - Examination

Reg· N°..... Parent's name:..... First name:..... Age.....*d/m/y* Sex .....



General does the patient look: not-ill/ ill/ very ill/ comatose

Mood and behaviour normal/apathetic/ inactive/ irritable/repeated movements

Development / regression Patient can: *sit/ crawl/ stand/ walk*

Ear Nose & Throat

Eyes normal/ conjunctivitis/ xerosis/ keratomalacia mild/ mod/ severe

Mouth normal/sore/red/smooth tongue/candida/herpes/angular stomatitis

Membrane Colour: normal/pale/jaundiced/cyanosed
Gums normal/ bleeding

Ears normal/ discharging **Teeth** number —/— normal/ caries/ plaque

Respiratory system & Chest

Breathing normal/ noisy/ asymmetrical/ laboured/ wheeze/ indrawing

Rate ...../min or more /less **than** 50 /60 **Chest** normal/ asymmetric/ pigeon**/** sulcus

Cardiovascular system & Hydration

Oedema none/+/++/+++/uncertain feet/ pretibial /hands/ face**/** generalised

Hydratation *normal/ dehydrated/ shock/ uncertain* Passing urine N Y

Eyes normal/ sunken/ staring **Peripheries** normal/ warm/ cold

Pulse rate ...../min normal/ strong/ weak **Heart sounds** normal/ gallop/ murmur

Gastro-Intestinal

Stool not seen/ normal/ soft/ watery/ green/ pale/ mucus/ blood**/**

Abdomen: normal/ distended/ tender/ visible peristalsis

bowel sounds: normal/ active/ quiet/ absent **splash** N / Y

Liver .....cm below costal margin normal/ firm/ hard smooth/ irregular

Spleen not felt/ felt/ large - normal/ firm/ hard - tender/ painless

Nervous system

Tone normal/ stiff/ floppy

Meninges normal/stiff neck/Brudzinski/fontanelle bulging

Reflexes normal/ increased/ decreased/ absent

Skin Hair Bone Lymph Nodes

Skin change none/mild/mod/severe peeling/raw/ulcers infection/ cuts/ bruises

Perineum normal/rash/raw /candida **Purpura** N Y

Hair black/ brown/ red/ blond normal/easily plucked/ balding

Scabies none/ local/generalised **Eyelash** normal/ long

Lymph nodes none/ groin/ axilla/ neck Tender/ painless Soft/ firm/ hard/ fixed

Ribs ends normal/ swollen/ displaced **Gynecomastia** N Y

Describe abnormalities below and draw on diagram

Diagnoses 1: 2: 3:

Annex 4.6. The physiological basis for the treatment of severe acute malnutrition

The physiology of the malnourished patient is seriously disturbed; how this affects the management of the child is summarized below.

Affected organ or system	Treatment
Cardio-vascular system Blood pressure is low. Pulse rate is normal but may not increase with stress. The cardiac output and stroke volume are reduced. Saline infusion leads to greatly increased venous pressure. Overload of the heart readily leads to heart failure. Renal perfusion is reduced. The circulation time is increased. Plasma volume is usually normal and red cell volume reduced.	The patient is vulnerable to both an increase and decrease in blood volume. Any decrease will further compromise tissue perfusion; an increase can easily produce acute heart failure. If the patient is definitely dehydrated, give small amounts of ReSoMal not ORS; do not give ReSoMal to "prevent" dehydration – only to restore circulation. Do not give intravenous fluid unless unconscious with severe shock. Restrict blood transfusion to 10 ml/kg per day and give a diuretic. Restrict dietary sodium.
Liver The synthesis of all hepatic export proteins is reduced. Abnormal metabolites of amino acids are produced. The ability of the liver to take up, metabolize and excrete toxins is severely limited. Energy production from substrates, such as galactose and fructose, is much slower than normal. The capacity for gluconeogenesis is limited, predisposing to hypoglycemia. Biliary secretion is reduced. The liver contains large amounts of fat.	Do not give large meals. The amount of protein should be within the capacity of the liver to metabolize, but sufficient to support synthesis of export proteins (not more than 1-2 g/kg per day). Drugs which depend upon hepatic disposal or are hepatotoxic should be given in reduced dosage. Do not use paracetamol or aspirin. Sufficient carbohydrate should be given to avoid the need for gluconeogenesis. Reduced transferrin makes iron treatment dangerous. Prevent further tissue breakdown by treating infection and giving adequate energy (80-100 kcal/kg per day). Do not give more protein than is needed to sustain tissue. Protein should be high quality, with balanced amino acids.
Genito-urinary system Glomerular filtration is reduced. The excretion of acid and of a solute load is greatly reduced. Urinary phosphate output is very low. Sodium excretion is lower than normal. The kidney is physiologically unresponsive, so that an expanded extra-cellular volume does not lead to increased sodium excretion. This makes the patients very sensitive to sodium in the diet and to rehydration fluid. Urinary tract infection is common in both boys and girls.	Avoid nutrients that can give an acid load, e.g. magnesium chloride, excess protein. Use a milk-based diet to provide enough phosphate in the diet. Ensure sufficient intake of water intake. DO NOT give IV infusions, ORS or high sodium diets. Never give fluids to "prevent" dehydration – only treat the deficit measuring weight gain to make sure that excess is not given.
Gastro-intestinal system. The stomach produces much less acid than normal. The motility of the whole intestine is reduced. The pancreas is atrophied & produces a reduced amount of digestive enzymes. The small	Feed the child often and with small amounts at each feed. If food is malabsorbed, the first step is to increase the frequency and reduce the size of each feed. Food is necessary to stimulate the intestine to re-grow. Addition of pancreatic

intestinal mucosa is atrophic with reduced levels of digestive enzymes. Absorption is reduced when the load of nutrients is high. There is overgrowth of the intestinal lumen with bacteria which can cause diarrhoea and malabsorption.	enzymes is useful if there is fat malabsorption.

Immune system All aspects of immunity are diminished. Lymph glands, tonsils and the thymus are atrophic. Cell mediated (T cell) immunity is particularly depressed. There is reduced IgA in secretions. Circulating IgG may be high. Complement components are low. Phagocytes do not kill ingested bacteria efficiently. Tissue damage is not associated with inflammation, White cells do not migrate into areas of damage – there is no pus formation. The acute phase response is diminished. There may be no fever with infection. This nutritionally acquired immune deficiency (NAIDS) fulfils the criteria for clinical AIDS even in HIV negative patients. Do not assume that children are positive without serological testing.	Typical signs of infection are often absent. Localized infection, such as lobar pneumonia, is uncommon Diffuse infection, e.g. bronchopneumonia, is common and may be present with no radiographic or other signs. Raised white cell count and fever are not necessary. Otitis usually does not give an inflamed or bulging ear. Urinary tract infection is normally symptom-less. Hypoglycemia and hypothermia are both signs of severe infection. They can give septic shock. Broad spectrum antimicrobial treatment should be given on admission to every child. Treatment should continue until appetite returns and weight gain begins. Because the child is vulnerable to cross infection, new admissions should be separated from recovering children.
Endocrine system Insulin is reduced and there is glucose intolerance. IGF-I is very low, although growth hormone is high. Cortisol is usually high.	The endocrine system may not be able to respond appropriately to large meals. Give small frequent meals. Do not give steroids.
Metabolism and temperature regulation The basal metabolic rate is reduced by about 30%. The energy expenditure due to activity is very low. The child is poikilothermic. Both heat generation in the cold and sweating when hot are impaired. The child becomes hypothermic in a cold environment and feverish in a hot one.	Internal heat production is limited. The child easily becomes hypothermic. Cover the child with clothes and blankets. Keep windows closed at night. Keep environment at 28-32°C. Dry the child quickly and well after washing and clothe him or her. Cool a febrile child with tepid (not cold) water. Never use alcohol rubs to cool. Do not use paracetamol.
Cellular function The activity of the sodium pump is reduced and cell membranes are more leaky than normal. This leads to an increase in intracellular sodium and a decrease in intracellular potassium and magnesium. Protein synthesis is reduced. There is a reduced membrane potential. Skeletal, smooth and cardiac muscles are weak with a reduced tone and are very easily fatigued.	Every child needs large doses of potassium and magnesium. Sodium intake should be restricted. During recovery the sodium leaves the cells and potassium enters. This easily leads to cardiac overload and hypokalaemia. Reversal of the electrolyte abnormalities should be gradual and occur after the kidney has recovered. There is always a fall in Hb (hematocrit) during this movement of sodium from the cells to the circulation giving a "dilutional anemia" – this should never be treated with a transfusion as it leads to heart failure/ sudden death at this time.

	The weak muscle leads to cardiac failure, reduced peristalsis with bacterial overgrowth, bladder infection and difficulty swallowing. The slow swallowing frequently results in choking or inhalation of bits of food/milk. This is a main cause of bronchopneumonia.
Skin, muscles and glands There is marked atrophy of the skin, subcutaneous fat and muscle. Fat is lost from the orbit. There is atrophy of many glands, including the sweat, tear and salivary glands.	Most signs of dehydration are unreliable: eyes may be sunken from loss of orbital fat. Atrophy leads to folds of skin. Mouth and eyes are dry. The child has limited reserves of energy. The respiratory muscles are very easily fatigued.

Annex 4.7. Transfer Form - Inpatient Therapeutic Care (FBTF) to Outpatient Therapeutic Care (CBTF) and also for Outpatient Therapeutic Care (CBTF) to Inpatient Therapeutic Care (FBTF)

Transfer Form: CBTF to FBTF, FBTF to CBTF

Name:

Age: ……Sex: ……Date of Admission:……..

Admission Data Weight (kg):……. MUAC (cm): ……Facility:

Height (cm):……. WHZ/WHM:

Oedema: (circle) +, ++, +++ REG. No:……..

Date of Transfer:

Criteria for Transfer: (circle)

Good appetite
Medically stable
Oedema reduced to +
Weight Gain

Other:

Treatment given: ……

Comments……:……..

Annex 4.8. Systematic Antibiotics

All severe acute malnourished children receive antibiotic treatment upon admission, regardless if they have clinical signs and symptoms of systemic infection or not. Nearly all these children have infections even if they are not symptomatic. Children who have a poor appetite and require admission to Phase 1 should be treated blindly for infections. Small bowel bacterial over-growth occurs in all severe acute malnourished children (including those with moderate appetite and some with good appetite). Enteric bacteria are frequently the source of systemic infection by translocation across the bowel wall. This can also cause mal-absorption of nutrients and failure to eliminate the substances excreted in the bile, fatty liver, intestinal damage, and can cause chronic diarrhoea. The antibiotic administered for routine treatment must be active against small bowel bacterial overgrowth. Children with Kwashiorkor have free iron in their blood: this can lead to bacteria that are not normally invasive, such as Staphylococcus epidermidis, and "exotic bacteria" to trans-locate and can cause systemic infection or septicaemia. Amoxycillin is recommended in Eritrea as the first line antibiotic to give systematically. If Amoxycillin is not available then the doctor will decide on the most appropriate antibiotic to give instead. If staphylococcus is suspected, administer an antibiotic that is active against staphylococcus.

Amoxicillin is active against small bowel bacterial overgrowth in most patients. Where this is used as the first line antibiotic, metronidazole does not need to be given. WHO (Technical meeting, Geneva, June 2007) also recommends the use of Amoxycillin as first line systematic antibiotic therapy on admission for all SAM cases).

Antibiotic Regime

First line antibiotic treatment - Oral Amoxicillin (If not available, doctor to decide appropriate alternative)

Second line antibiotic treatment -

• Add chloromphenicol (do not stop amoxicillin) OR

• Add gentamycin (do not stop amoxicillin) OR

Switch to amoxicillin/clavulinic acid (Augmentin®). In in-patient settings where severe infection is common, this may sometimes be considered as the first line antibiotic combination.

Third line antibiotic treatment

Third line treatment is at the discretion of the medical doctor and is dependent on each patient's medical condition or complications. Frequently, a systemic anti-fungal (fluconazole) is added for patients who have signs of severe sepsis or systemic candidiasis.

NOTE: - Co-trimoxazole is not active against small bowel bacterial overgrowth and is not adequate for the severely malnourished child. If Co-trimoxazole is administered as a prophylaxis against pneumocystis pneumonia in HIV-positive patients, the above recommended antibiotics should be administered in addition.

Please note;
The use of antibiotics is purely at the discretion of the paediatrician and should be in line with prevailing national guidelines in the use of antibiotics.

Dosage of Amoxycillin, Gentamycin and Chloramphenicol

Weight range	Amoxycillin (50 – 100 mg/kg/d) Dosage – twice per day		Gentamycin Dosage once per day	Chloramphenicol (50mg/kg/d) Dosage - three times per day	
Kg	in mg	Cap/tab	In mg	In mg	Cap/tab
<5kg	125 mg * 2	½ cap.*2	5 mg/kg IM daily	62.5 mg * 3	¼ cap.*3
5 – 10	250 mg * 2	1 cap * 2	As above	125 mg * 3	½ cap * 3
10 – 20	500 mg * 2	2 cap * 2	As above	250 mg * 3	1 caps * 3
20 - 35	750 mg * 2	3 cap * 2	As above	500 mg * 3	2 caps * 3
> 35	1000 mg * 2	4 cap * 2	As above	1000 mg * 3	4 caps * 3

Note: The 20mg Gentamycin ampoule (10mg/ml) should be used. It is most accurate for small doses for children with a low body weight. Chloramphenicol should never be used in babies less than 2 months of age and with caution in infants less than 6 months of age (If other antibiotics are not available).

Annex 5.1. Out Patient Therapeutic Care (CBTF) Admission Card

Ministry of Health, Nutrition Unit, Eritrea - Outpatient Therapeutic Programme

Mother 's Name					Reg. number:	*Dist Centre # / Pt serial # /Origin* / /OTP		
Child's Name							Sex (M/F)	
Date of admission						Age (months)		
Sub Zone						Date returned from Health Centre		
Distribution site				Refuse referral (Y/N)			Readmssion (Y/N)	
Village							Returned Defaulter (Y/N)	
Admission Wt		Ht.		WFH Z-score				
Oedema (Y/N)		MUAC					Admission Criteria	
HISTORY								
Appetite	good	poor	none			Vomiting	yes	no
Diarrhoea	yes	no			Stools / day	1-3	3-5	5+
Breast feeding	yes	no				Passing urine	yes	no
Fever	yes	no				Convulsions	yes	no
Swelling	none	feet	legs	other		How long swollen	days	weeks
Measles Vaccination		yes	no	If No refer for vaccination				
EXAMINATION								
Temperature °C						Abscesses	yes	no
Hand Palm	pale	normal				Tongue	normal	dry
Mouth	normal	sore	candida			Ears	normal	discharge
Breathing/min	<40	40-49	50+			Chest inclinations	yes	no
Oedema depth	Feet	Legs	Whole Body					
Dehydration	No	Moderate	Severe			Passing urine	yes	no
Radial pulse	present	weak	absent	rate /min		Peripheral Extremities	normal	cold
Skin changes	No	Ulcers	peeling			Disability	yes	no
Social History								
Distance to home (hours)						who is main carer		
# siblings <5						Family received general ration in the last month	yes	no
Sibling or Mother attend SFP (Y/N)						Father alive	yes	no
Mother alive	yes	no				Father Support family	yes	no
Medication								
	date	*dosage*				*date*	*dosage*	
Vitamin A:					Folic acid:			
Mebendazole:								
Cotymoxazole								
Fansidar								
Compiled by - name				Volunteer assigned				

Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Anthropometry																
Weight																
if no WT. gain by week 5 refer																
Admission Wt ⟹																
if below admission WT. on week 3 refer																
Height																
Wt/Ht* (SD)																
* Target (cured) Wt/Ht is >-2SD for two consecutive weighing; or 15% wt. gain for two consecutiv weighing if admitted by MUAC																
MUAC																
Oedema[1] (+,++,+++)																
History																
Appetite (Y/N)																
Diarrhoea (# days)																
Vomiting (# days)																
Fever (# days)																
Cough (# days)																
Any treatment Y/N																
Physical examination																
Temp °C																
Dehydrated (Y/N)																
Resp. Rate #/min																
Anaemia (Y/N)																
Superficial Infection (Y/N)																
Ate test dose of plumpy(Y/N)																
other problems																
medicine																
ALERT (Y/N)			WT ↓		WT →											
Action if Alert																
# of sachets of plumpynut																
Date																
Examiner																

OUTCOME/ DISCHARGE (Please tick in appropriate box)

Cured: ☐ Date:_____ Death: ☐ Date:_____ Defaulter[2]: ☐ Date:_____ Unknown: ☐ Date:_____ Non-responder: ☐ Date:_____ Medical-Transfer: ☐ Date:_____ Transfer-out: ☐ Date:_____

[1] Oedema: + = feet ,++ = legs,+++ = whole body

[2] Defaulter: Patient that is absent for 2 consecutive weighing.

Note:- Please check monthly report form for definition of all outcomes/discharges.

Annex 5.2. Out Patient Therapeutic Care (CBTF) Ration Card

Ministry of Health, Nutrition Unit – Eritrea

Outpatient Therapeutic Programme

Mother's Name	*Registration Number*								*Distr Centre #*	*Pt serial #*	*Origin*				
Child's Name									/ /CBTF						
Date of admission								*Sex (M/F)*		*Age (Months)*					
Distribution sit								*Sub Zone*							
								Village							
Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Plumpynut																
Premix																
Date																

Note: If a child will migrate, please

1. *Fill up the referral slip and give it to mother/carer.*
2. *Write the information on the top of CBTF card. "Name of the CBTF site where the child will continue his/her treatment"*

Annex 5.3. Out Patient Therapeutic Care (CBTF) Routine Medicines

ROUTINE MEDICINES FOR SEVERE MALNUTRITION: CBTF

Name of Product	When	Age/Weight	Prescription	Dose
VITAMIN A*	At admission (EXCEPT children with oedema)	< 6 months	50 000 IU	Single dose on admission (for children with oedema - single dose on discharge).
		6 months to 12 months	100 000 IU	
		> 12 months	200 000 IU	
		DO NOT USE WITH OEDEMA		
AMOXYCILLIN	At admission	All beneficiaries	See protocol	3 times a day for 7 days
ANTI MALARIAL (follow national protocol)	At admission in malarial areas	All beneficiaries > 2 months old and > 2 kg	See protocol	Single dose on admission (when using ACT treat only Paracheck positive cases).
MEBENDAZOLE**	Second visit	< 12 months	**DO NOT GIVE**	None
		12-23 months	250 mg	Single dose on second visit
		≥ 24 months	500 mg	
MEASLES VACCINATION	On week 4	From 6 months	Standard	Once on week 4

* **VITAMIN A:** Do not give, if the child has already received Vitamin A in the last one month. Do not give to children with oedema until discharge from OTP, unless there are signs of Vitamin A deficiency.

** **MEBENDAZOLE**: Or other antihelminth according to national guidelines e.g. ALBENDAZOLE: 12-23 months 200mg, ≥ 24 months 400mg: both can be given again after 3 months if signs of reinfection appear.

IRON and FOLIC ACID: Not to be given routinely. Where anaemia is identified according to IMCI Guidelines treatment should begin after 14 days in the programme and not before and given according to National/WHO Guidelines (INACG, 1998). For severe anaemia refer to inpatient care.

Community-based Therapeutic Care - A Field Manual. First edition. Valid International 2006.

Annex 5.4. RUTF Specification

Ready to Use Therapeutic Food (RUTF)

Severely malnourished children or adults require specialized therapeutic food to recover, such as Formula 100 (F100) and Formula 75 (F75), according to the World Health Organization protocol recommendations. Ready to use therapeutic food (RUTF) is an integral part of outpatient programmes as it allows children/adults to be treated at home rather than by milks in a feeding centre. RUTF is an energy dense mineral/vitamin enriched food, which is equivalent to Formula 100 (F100).

Plumpy Nut is a ready-to-eat therapeutic spread, presented in individual sachets. It is a paste of groundnut composed of vegetable fat, peanut butter, skimmed milk powder, lactoserum, maltodextrin, sugar, mineral and vitamin complex.

Instructions for use: Clean drinking water must be made available to children during consumption of ready-to-eat therapeutic spread. The product should only be given to children who can express their thirst. It is contra-indicated for children who are allergic to cow's milk, proteins or peanuts and asthmatic people (risk of allergy).

Recommendations for use: In the management of severe acute malnutrition in therapeutic feeding, it is recommended to use the product in phase 2 (two) in the dietetic management of severe acute malnutrition. In phase 1 (one) use milk based diet (F75).

Storage of Plumpy Nut: Plumpy Nut has a shelf life of 24 months from manufacturing date. Keep stored in a cool and dry place.

Packaging: Plumpy Nut is presented in sachets of 92 g. Each carton (around 15.1 kg) contains 150 sachets. One sachet = 92 g = 500 Kcal.

Mean Nutritional Value of plumpy'nut®

	For 100 g	Per sachet of 92 g		For 100 g	Per sachet of 92 g
Energy	**545 kcal**	**500 kcal**	**Vitamin A**	**910 mcg**	**840 mcg**
Proteins	**13.6 g**	**12.5 g**	**Vitamin D**	**16 mcg**	**15 mcg**
Lipids	**35.7 g**	**32.86 g**	**Vitamin E**	**20 mg**	**18.4 mg**
Calcium	**300 mg**	**276 mg**	**Vitamin C**	**53 mg**	**49 mg**
Phosphorus	**300 mg**	**276 mg**	**Vitamin B1**	**0.6 mg**	**0.55 mg**
Potassium	**1 111 mg**	**1 022 mg**	**Vitamin B2**	**1.8 mg**	**1.66 mg**
Magnesium	**92 mg**	**84.6 mg**	**Vitamin B6**	**0.6 mg**	**0.55 mg**
Zinc	**14 mg**	**12.9 mg**	**Vitamin B12**	**1.8 mcg**	**1.7 mcg**
Copper	**1.8 mg**	**1.6 mg**	**Vitamin K**	**21 mcg**	**19.3 mcg**
Iron	**11.5 mg**	**10.6 mg**	**Biotin**	**65 mcg**	**60 mcg**
Iodine	**100 mcg**	**92 mcg**	**Folic acid**	**210 mcg**	**193 mcg**
Selenium	**30 mcg**	**27.6 mcg**	**Pantothenic acid**	**3.1 mg**	**2.85 mg**
Sodium	**< 290 mg**	**< 267 mg**	**Niacin**	**5.3 mg**	**4.88 mg**

Annex 6.1. Registration book – Supplementary Feeding Programme

Sample of register for Children under five years

Serial No.	Card No.	Name	Address	Sex	Age	Admission					Vitamin A		De-worming		Others		Round 2		Round 3				
						Date	Weight	Height	Z-scores	Target Weight	Date	Dose	Date	Dose	Date	Dose	Date	Wt	Date	Wt	Ht	W/H Z	Target wt
1																							
2																							

Sample register for pregnant and lactating mothers

Card No.	Name	Address (Name of village and location)	Age of mother	Age infant (<6 months)	Months of Pregnancy	Vitamin A		Iron/Folic acid		Deworming		Admission			Round 2		Round 3	
						Date	Dose	Date	Dose	Date	Dose	Date	MUAC	Target MUAC	Date	MUAC	Date	MUAC
1																		
2																		
3																		

Annex 6.2. Registration Form – Blanket Supplementary Feeding Programme (Children 6-59 months)

Scaling-up of Supplementary Feeding Programme

Registration Form for CHILDREN 6-59 MONTHS

Zoba:_____ Sub/Zoba:_____ Name of HF:_____

Se. No.	Full name	Address	Age in months	Distribution Date					
				Month-1	Month-2	Month-3	Month-4	Month-5	Month-6

Annex 6.3. Registration Form – Blanket Supplementary Feeding Programme (Pregnant Women / Breastfeeding Mothers)

Scaling-up of Supplementary Feeding Programme

Registration Form for *PREGNANT WOMEN / BREASTFEEDING MOTHERS

Zoba:_____ Sub/Zoba:_____ Name of HF:_____

Se. No.	Full name	Address	Age in months	Distribution Date					
				Month-1	Month-2	Month-3	Month-4	Month-5	Month-6

*Use separate registration form for one beneficiary type (e.g. pregnant woman or breastfeeding mother) using tick or underline

Annex 6.4. Quantity and quality of the ration (UNIMIX)

Nutritional value:
Contains not less than the following nutritional value per 100g dry product:
Total energy 400 kcal
14 % protein (Nx6.25)
6% fat.
Energy density:
Contain, when prepared as gruel, not less than 100 kcal/100 ml
Packaging:
Packed in 25 kg bags;
Technical Specifications:
Composition:
Whole maize: 70-80%
Whole soya beans: 20-30%
Sugar: 5%
Revised Vitamin/Mineral Premix:
Vitamin premix:
Amounts for 1kg of finished UNIMIX:

Thiamine mononitrate 2.8 mg	Ca-d-pantothenate 28 mg
Riboflavin 8.2 mg	Folic acid 2 mg
Vitamin C (stabilized ethyl-cellulose coated) 600 mg	Vitamin B-12 13 mcg
Pyridoxine hydrochloride 1.65 mg	Vitamin A palmitate (stabilized) 23000 IU
Niacin 50 mg	Vitamin D (stabilized) 2000 IU
Vitamin E (as tocopherol) 75 IU	

Mineral Mix:
Calcium carbonate, food grade FCC or equiv. 2600 mg
Zinc sulphate, hydrated FCC grade (ZnSO4.7H2O) 120 mg
Ferrous fumarate, purified FCC grade 80 mg
Copper sulphate, pentahydrate, FCC grade 7 mg
Iodized salt (0.007%/Iodine) 6500 mg
Total weight: 9307 mg

Preparation
Mix one (1) part UNIMIX with three (3) parts cold water, stir until boiling and cook as necessary for a maximum of 10 minutes.
Storage:
Store preferably in dry place under 30°C.
Hazards Analysis and Critical Control Point (HACCP)
The production process is in accordance with the 'Code of Hygienic Practice for Foods for Infants and Children' and 'Code of Sound Manufacturing Practices' of the Codex Alimentarius (Volume 4, Second Edition, FAO Rome 1994).

Annex 7.1. Recommended complementary feeding practices

Age	Frequency (Per day)	Amount of Food an average child will usually eat at each serving (in addition to breastmilk)	Texture (thickness/ consistency)	Variety
6 - 8 months	2 - 3 times food	2 - 3 tablespoons 'Tastes' up to ½ cup (250 ml)	Thick porridge/pap Mashed/ pureed family foods	Breastfeeding + Staples (porridge, other local examples) Legumes (local examples) Vegetables/ Fruits (local examples) Animal foods (local examples) Vegetables/ Fruits (local examples) Animal foods (local examples
9-11 months	4 times foods and snacks	½ cup/bowl (250 ml)	Finely chopped family foods Finger foods Sliced foods	
12-23 months	5 times foods and snacks	¾ -1 cup/bowl (250 ml)	Family foods Sliced foods	
Note: If baby is not breastfed	Add 1-2 extra times food and snacks			Add 1-2 cups of milk per day
Responsive/Active Feeding		Be patient and actively encourage your baby to eat		
Hygiene		Feed your baby using a clean cup and spoon, never a bottle as this is difficult to clean and may cause your baby to get diarrhoea. Wash your hands with soap and water before preparing food, before eating, and before feeding young children.		

Annex 7.2 – Nutrition, Health and Hygiene Education

1. Importance of Immunization (HW/CHW must use IMCI book let and Flip chart)

2. Breastfeeding and Feeding practices: (HW/CHW must use IMCI book let and Flip chart)

- ✓ Exclusive breastfeeding for about 6 months.
- ✓ Initiation of breastfeeding within first half to one hour of birth.
- ✓ Breastfeeding on demand.
- ✓ Introduction of complementary foods at 6 months.
- ✓ Breastfeeding into the second year.
- ✓ Adequate complementary foods (energy and nutrient dense).
- ✓ Small frequent feeds because a child's stomach is very small.
- ✓ Ensure adequate intra-household food distribution.
- ✓ Promote household consumption of iodized salt.
- ✓ Appropriate response to poor appetite in young children.
- ✓ Clean household food preparation, cooking and storage.

3. Hygiene Practices:

- ✓ Washing fresh fruits and vegetables before eating.
- ✓ Cleaning of house and children's play area/compound regularly.
- ✓ Adequate disposal of child's feaces
- ✓ Use of sanitary facilities for disposal of refuse.
- ✓ Making water safe for drinking.

4. Home health practices: (HW/CHW must use IMCI book let and Flip chart)

- ✓ Prevention of illness.
- ✓ Recognizing sick child.
- ✓ Using appropriate home remedies e.g. Rice water etc for
- ✓ ORT promotion.
- ✓ Timely seeking of health services.

5. Nutrition in pregnancy: (HW/CHW must use Nutrition flip chart)

- ✓ Provision of extra amount of family food.
- ✓ Household support to reduce workload of the pregnant woman.
- ✓ Facilitating ANC attendance and safe delivery of baby.
- ✓ Promoting use of Iron, folic acid and low dose vitamin A capsules.
- ✓ Promoting post partum rest.
- ✓ Reduction of stress.

Annex 7.3. – IYCF 3-step counselling /'Reaching an agreement'

Step 1: Assess

• Greet the mother/caregiver and ask questions that encourage her/him to talk, using *listening and learning, building confidence and giving support* skills.

• Asking the following questions:

a) What is your name and your child's name?

b) Observe the general condition of mother/caregiver.

c) What is the age of your child (in completed months): 0 – 5; 6 – 8; 9 – 11; 12 – 23

d) Ask mother/caregiver if you can check child's growth card. Is growth curve increasing? Is it decreasing, levelling off? (If decreasing or levelling off, mark 'no' to question: is growth curve increasing?)

e) Ask about breastfeeding:

- About how many times/day do you usually breastfeed your baby? = frequency

- How is breastfeeding going for you? = possible difficulties

- Observe mother and baby's general condition

- Observe baby's attachment, baby's position.

Ask about complementary foods:

- Is your child getting anything else to eat? = what type/kinds

- How many times/days are you feeding your child? = frequency

- How much are you feeding your child? = amount

- How thick are the foods you give your child? = texture (thickness/consistency).

Ask about other milks:

- Is your child drinking other milks?

- How many times/day does your child drink milk? = frequency

- How much milk? = amount.

Ask about other liquids:

- Is your child drinking other liquids? = what kinds?

- How many times/day does your child drink "other liquids"? = frequency

- How much? = amount.

f) Does your child use a feeding bottle?

g) Who assists child to eat?

h) Has child been recently sick?

Step 2: Analyze

• Identify feeding difficulty (if any)

• If there is more than one difficulty, prioritize difficulties

• Answer the mother's questions (if any).

Step 3: Act

• Depending on the age of the baby and your analysis (above), select a small amount of INFORMATION RELEVANT to the mother's situation. (If there are no difficulties, praise the mother for carrying out the recommended breastfeeding and complementary feeding practices)
• For any difficulty, discuss with mother/caregiver how to overcome the difficulty
• Present options/small do-able actions (time-bound) and help mother select one that she can try to overcome the difficulty
• Ask mother to repeat the agreed upon new behaviour to check her understanding
• Let mother know that you will follow-up with her at the next weekly visit
• Suggest where mother can find additional support (e.g. attend educational talk at IMAM site, IYCF Support Groups in community, and refer to Community Volunteer)
• Refer as necessary
• Thank mother for her time.

Annex 9.1. Therapeutic feeding (FBTF) Monthly Reporting Format

THERAPEUTIC FEEDING MONTHLY REPORTING FORMAT

NAME OF HEALTH FACILITY:		
ZOBA:	**S/ZOBA:**	**MONTH:**
REPORTING OFFICER:	**DATE OF REPORT:**	

Status			Boys <5 Yrs (<110 cm)	Girls <5 Yrs (<110 cm)	Total Children < 5 Yrs. (<110 cm)
Total Admission from last month not yet discharged		**A**			
New admissions		**B**			
Readmissions		**C**			
Total admissions	**(B+C)**	**D**			
Discharge - Cured/Recovered		**E**			
Deaths		**F**			
Defaulters (> 2 days absence)		**G**			
Transferred (To CBTF)		**H**			
Referred		**I**			
Total Exit	**(E+F+G+H+I)**	**J**			
Total end of month	**(A+D-J)**	**K**			
Average length of stay		**L**			
Average weight gain (g/kg/day)		**M**			

Remarks: Children are admitted in the FBTF if they have WHM<-3SD or MUAC<11.5cm or Oedema+++ with medical complications

Children are discharged from FBTF if WHM >-2SD for two consecutive weighings, 15% Wt gain if admitted by MUAC, No oedema for 10 days and no medical complications.

Status of Therapeutic food stock during the reporting Month

Commodity	Previous stock (A)	Expiry Date	Qty received this month B	Expiry date of (B)	Total Quantity in store C = (A+B)	Quantity Distributed (D)	Loss or Damage (E)	End Balance C - (D+E)
F75								
F100								
UNIMIX								
Resomal								
Others								

NB . Measuring unit for F75, F100, Resomal and Plumpynut is Box/Carton.

UNIMIX is measured in bags.

FBTF:

A **Total Admission from last month not yet discharged:**

These are patients that have been admitted in the programme but not discharged and brought forward to this month

B **New admissions:**

These are newly admitted patients. Admitted according to the admission criteria of the programme.

C **Readmissions:**

These are patients admitted again to the programme after defaulting for not more than 15 days from the programme.

D **Total admissions:**

This is the sum total of readmissions and the new admissions of the month.

E **Discharges Cured**

These are patients that have been discharged out from the programme for being cured after treatment in the programme.

F **Deaths:**

These are cases that have died after admission and whilst receiving care and treatment in the programme

G **Defaulters (> 2 days absence)**

These are patients that have been absent from the programme for more than two days.

H **Transferred:**

These are cases transfrred out to CBTF before reaching the discharge cirteria of 85%.

I **Referred:**

These are patients that have been transferred to higher level of care and treatment.

J **Total Exit:**

This is the sum total of all cured, deaths, defaulters and transferred patients that have left out the the programme during the reporting month.

K **Total end of month: A+D - J**

This is simply = Admissions from last month **(A)**+Total admission **(D)** - Total Exit **(J); (A+D - J**)

L **Average length of stay:**

Sum of stay days of the cured ones Divided by the # of cured Children.

M **Average weight gain:**

Sum of Wt gains of every cured child divided by the # of cured children.It is calculated as follows:

(Discharge Wt in gm - Admission Wt in gm/Admission wt in kg X # of days stayed)

Annex 9.2. Outpatient Therapeutic feeding Monthly Reporting Format

MONTHLY STATISTICS REPORT

MANAGEMENT OF SEVERE AND MODERATE ACUTE MALNUTRITION - THERAPEUTIC/SUPPLEMENTARY PROGRAMMES

ZOBA	
SUB-ZOBA	
KEBABI/VILLAGE	
ENING DATE/MONTH	
Implementing agency/ Health facility	
Report prepared by	
MONTH / YEAR of reporting	
TYPE OF PROGRAMME	*CBTF/OTP* SFP

Table 1: Out Patient Therapeutic Programme Report (Severe AM); CBTF

			New admissions							Discharges (D)						Transfer out (E)		
	Severe MN Children	Total beginning of the month (A)	WHZ<-3SD or MUAC<11.5 cm (B1)	OEDEMA (B2)	Trasfered from in-patient to OTP (B3)	Relapse (B4)	Re-admission after defaulting (B5)	Transer in from another therapeutic unit (B6)	**Total admissions (C=B1+B2+B3 +B4+B5+B6)**	CURED (D1)	DEATH (D2)	DE FAULTER (D3)	UN KNOWN (D4)	NON-RESPONDER (D5)	MEDICAL TRANSFER (D6)	Transfer out (E1)	**Total dischar-ges (F) (F=D+E)**	**Total end of the month (G=A+C-F)**
OTP	Age 6-59 months																	

OTP:	Average weight gain and average length of stay (only for cured children 6-59months)	
Average weight gain	g/kg/day	#
Average length of stay	day	#

Weight gain = {discharge weight(g) - *admission weight(g)} / {*admission weight (kg) x number of days between *admission and discharge day}

 # Average weight gain = sum of weight gains/ Number of children 6-59 months cured;

 # Average length of stay = sum of length of stay/ Number of children 6-59 months cured

** If the child has oedema on both feet **grade +** or **grade++**, please weight the child after the oedema subsides and record the weight in place of admission weight.*

Annex 9.3. Supplementary Feeding Monthly Reporting Format

Table 2: Supplemantry Feeding Programme Report (Moderate AM)

SFP	Moderate MN Childre n	Total beginning of the month (A)	New admissions			Re-admission after defaulting (B4)	Transfer in from another SFP unit (B5)	Total admissions (C=B1+B2+B3 +B4+B5)	Discharges (D)						Transfer out (E)	Total dischar-ges (F) (F=D+E)	Total end of the month (G=A+C-F)
			WHZ>-3SD to<-2SD (B1)	Trasfered in from out-patient (OTP) (B2)	Relapse (B3)				CURED WHZ>-2SD (D1)	DEATH (D2)	DEFAULTER (D3)	UN-KNOWN (D4)	NON-RESPONDER (D5)	MEDICAL TRANSFER (D6)	Transfer out (E1) to out-patient (OTP)		
	Age 6-59 months																

SFP:	Average weight gain and average length of stay (only for cured children 6-59months)	
Average weight gain	g/kg/day	#
Average length of stay	day	#

Weight gain = {discharge weight(g) - admission weight(g)} / {admission weight (kg) x number of days between admission and discharge day}

 # Average weight gain = sum of weight gains/ Number of children 6-59 months cured;
 # Average length of stay = sum of length of stay/ Number of children 6-59 months cured

MONTHLY LOGISTICS REPORT

List of Commodty	Previous month stock balance (A)	Expiry Date	Quantity received in this month (B)	Expiry Date	Quantity distributed in this month (C)	Total Balance end of month (A+B-C)
Unimix (bags)						
Plumpynut (cartons)						
F-75 (cartons)						
F-100 (cartons)						
Resomal (cartons)						

Annex 9.4. Out Patient Therapeutic Care (CBTF) Ration Card

Ministry of Health, Nutrition Unit – Eritrea

Outpatient Therapeutic Programme

Mother's Name	*Registration Number*									*Distr Centre #*	*Pt serial #*	*Origin*				
Child's Name										/ /CBTF						
Date of admission								*Sex (M/F)*			*Age (Months)*					
Distribution sit								*Sub Zone*								
								Village								
Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Plumpynut																
Premix																
Date																

Note: If a child will migrate, please

1. *Fill up the referral slip and give it to mother/carer.*
2. *Write the information on the top of CBTF card. "Name of the CBTF site where the child will continue his/her treatment"*

Annex 9.5. Supervision Checklist

Supervision Checklist

FBTF/CBTF/SFP

Health Facility/site: _____ **Date:**_____

Supervisor:_____

Name of head of HF/Contact person _____ **Tel:-**

No._____

Activities	Quality (poor, average, good)			
	FBTF	CBTF	SFP	Action taken
Registration numbers allocated correctly				
Weight measured accurately				
Height measured accurately				
Weight for height calculated correctly				
MUAC is measured accurately for children >12 months				
Oedema is checked properly				
Admission criteria recorded accurately				
Admission history recorded accurately				
Admission examination performed accurately. (Check each data entry)				
Child correctly referred on admission to either CBTF or hospital (FBTF)				
Admission medication given according to protocol and recorded accurately				
Skin lesions treated appropriately				
Eye infections treated appropriately				
Children with no measles vaccination referred to nearest clinic for vaccine				
Mothers with children who are not measles vaccinated know where to go for				

vaccine				
Grade of oedema measured accurately				
Appetite assessed correctly				
Amount of plumpynut distributed is correctly calculated				
Follow up weight graphed correctly				
Follow up history recorded accurately				
Follow up examination performed accurately. (Check each data entry)				
Follow up medication given according to protocol and recorded accurately				
ALERT is correctly completed and appropriate referral made.				
All those referred by the medical assistant are transferred to the hospital/FBTF				
Transportation arrangement working without problems				
Beneficiaries discharged according to protocols.				
Assigned volunteers for children				
Counselling on IYCF given to mothers				
Use of IMCI chart for counselling on IYCF				
Mothers know the importance of giving plenty of drinking water with plumpynut				
Mother understands that plumpynut is for the sick child only				
Mothers know how to use the premix				
Mothers know the name of their assigned volunteer				
Appropriate education given to volunteers				

Correct number of absentees passed to volunteers				
Volunteers understand what to follow up for each child				
Whether on readmission/relapse after the introduction of the new WHO standard				
CBTF patient Card is filled and given to the mother				
Out come/discharge with explanation recorded properly in CBTF card				
Monthly Report is recorded properly (with logistics)				
Please write the number against each programme				
Number of H/W				
Number of support staff/volunteers				

Note: Please attach monthly reports (minimum two months) of FBTF, CBTF and SFP with this supervision checklist.

Nutrition Supply Items Stock balance during the visit			
Items	**Qty**	**Expiry Date**	**Remarks**
UNIMIX			
Plumpy-nut			
F-75			
F-100			
ReSomal			

Key Findings of the visit	**Feedback given to HWs/head of the health facility:**

Annex 9.6. Monthly Stock Balance Report

MONTHLY STATISTICS REPORT (From Zonal office to MoH head quarter)

MANAGEMENT OF SEVERE AND MODERATE ACUTE MALNUTRITION - THERAPEUTIC/SUPPLEMENTARY PROGRAMMES

Monthly Stock Balance Report

Month/Year _____

Se. No.	Name of Sites	Total balance end of the month						
		Unimix (carton)	Plumpynut (carton)	F-75 (carton)	F-100 (carton)	Resomal (carton)	BP-5 (carton)	Others (if any)

Annex 9.7. Monthly Statistics report (From Zonal office to MoH Head Quarter)

MONTHLY STATISTICS REPORT (From Zonal office to MoH head quarter)

MANAGEMENT OF SEVERE ACUTE MALNUTRITION

Facility Based Therapeutic Feeding/FBTF/	Reporter:			Zoba: _____							Month:		
Name of Sites	Total beginning of the month A	New admissions		Total admissions D (B+C)	Discharges						Total end of the month K (A+D-J)	Length of stay (days) L	Weight gain (g/kg/day) M
		New Admission B	Readmission C		CURED E	DEATH F	Defaulter > 2 days G	Transferred (to OTP/CBTF) H	Referred I	Total Exit J (E+F+G+H+I)			

Annex 9.8. Scaling-up Supplementary Feeding Programme Monthly report Form

Scaling-up Supplementary Feeding Programme

Monthly report Form

Zoba:_____ Sub/Zoba:_____ Name of HF:_____

Month of report:_____

	Category			Total
	Children 6-59 months	**Pregnant women**	**Breastfeeding mothers**	
Total at end of last month (A)				
Total New Admissions in this month (B)				
Discharge in this month (C)				
Total end of this month (D) (D=A+B-C)				

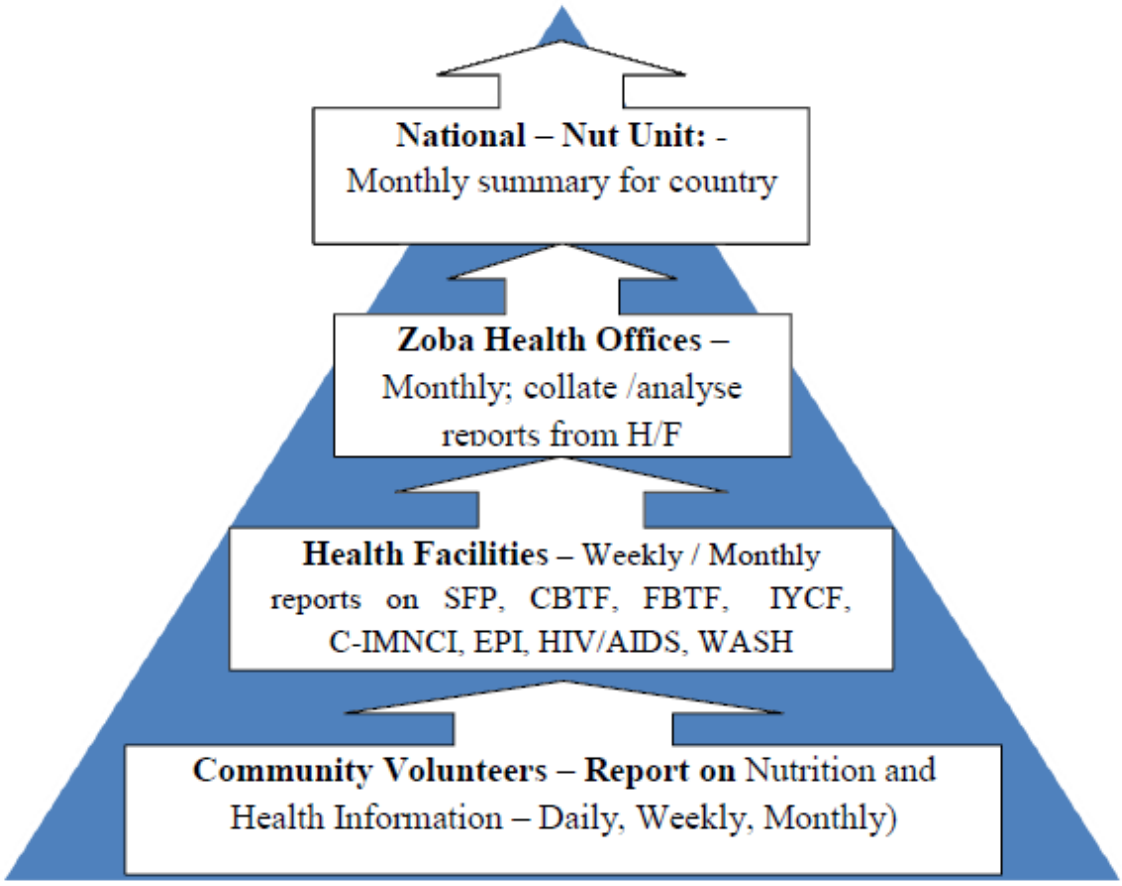
Monthly UNIMIX report

List of Commodity	Previous month stock balance (A)	Expiry Date	Quantity received in this month (B)	Expiry Date	Quantity distributed in this month (C)	Total Balance end of month (A+B-C)
UNIMIX (bags)						

Name of Staff _____

Signature of Staff _____

Annex 9.9. Stages of Reporting (Suggested)

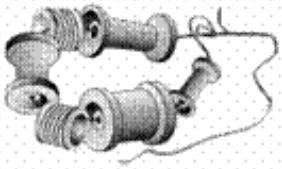


Note: To avoid over-reporting / double reporting new admissions (for cases transferred from FBTF to CBTF), **At Zoba and at National levels**, It is recommended that when reporting;

- *You minus the number of transfers from FBTF to CBTF from the total new admissions*
- *Also remember to keep patient number coming from FBTF to CBTF in separate column*
- *Cross-check number of transfers from FBTF with number received in CBTF.*

Annex 10.1. Examples of Handmade Toys for Malnourished Children

Ring on a string (from 6 months)
Thread cotton reels and other small objects (e.g. cut from the neck of plastic bottles) on to a string. Tie the string in a ring, leaving a long piece of string hanging.



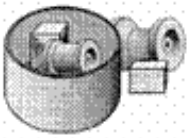
Rattle (from 12 months)
Cut long strips of plastic from coloured plastic bottles. Place them in a small transparent plastic bottle and glue the top on firmly.



Drum (from 12 months)
Any tin with a tightly fitting lid.

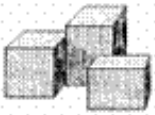
Mirror (from 18 months)
A tin lid with no sharp edges.

In-and-out toy (from 9 months)
Any plastic or cardboard container and small objects (not small enough to be swallowed).



Posting bottle (from 12 months)
A large transparent plastic bottle with a small neck and small long objects that fit through the neck (not small enough to be swallowed).





Blocks (from 9 months)
Small blocks of wood. Smooth the surfaces with sandpaper and paint in bright colours, if possible.

Push-along toy (from 12 months)
Make a hole in the centre of the base and lid of a cylindrical-shaped tin. Thread a piece of wire (about 60 cm long) through each hole and tie the ends inside the tin. Put some metal bottle tops inside the tin and close the lid.

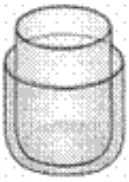
Stacking bottle tops (from 12 months)
Cut at least three identical round plastic bottles in half and stack them.





Pull-along toy (from 12 months)
As above, except that string is used instead of wire.

Nesting toys (from 9 months)
Cut off the bottom of two bottles of identical shape, but different size. The smaller bottle should be placed inside the larger bottle.





Doll (from 12 months)
Cut out two doll shapes from a piece of cloth and sew the edges together, leaving a small opening. Turn the doll inside-out and stuff with scraps of materials. Stitch up the opening and sew or draw a face on the doll.

Puzzle (from 18 months)
Draw a figure (e.g. a doll) in a crayon on a square- or rectangular-shaped piece of cardboard. Cut the figure in half or quarters.



Book (from 18 months)
Cut out three rectangular-shaped pieces of the same size from a cardboard box. Glue or draw a picture on both sides of each piece. Make two holes down one side of each piece and thread string through to make a book.



WHO 97402