

THE REPUBLIC OF UGANDA

*Ministry of Health*

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# Integrated Management of Acute Malnutrition Guidelines

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December 2010

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# **Integrated Management of Acute Malnutrition Guidelines**

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## ◆ Acronyms and Abbreviations

AFASS	Acceptable, Feasible, Affordable, Sustainable and Safe
AIDS	Acquired Immuno-Deficiency Syndrome
ANC	Antenatal Care
BMI	Body Mass Index
CBO	Community Based Organization
CHW	Community Health Worker
CMF	Clinical Monitoring Form
CMV	Combined Mineral Vitamin Mix
CSB	Corn Soya Blend
DF	District Facilitators
DHT	District Health Team
DSM	Dry Skimmed Milk
DWM	Dried Whole Milk
EPI	Expanded Immunisation Programme
EPR	Emergency Preparedness and Response
GFD	General Food Distribution
GMP	Growth and Monitoring Programme
HC	Health Centre
HIV	Human Immuno-deficiency Virus
IEC	Information, Education and Communication
IM	Intramuscular
IMCI	Integrated Management of Childhood Illnesses
IMAM	Integrated Management of Acute Malnutrition
ITC	Inpatient Therapeutic Care
IV	Intravenous
MAM	Moderate Acute Malnutrition
MCH	Maternal and Child Health
MoH	Ministry of Health
MUAC	Mid Upper Arm Circumference
NGO	Non-Governmental Organisation
NGT	Naso-gastric tube
NWC	National Working Committee
OPD	Outpatient Department
OTC	Outpatient Therapeutic Care
PCP	Pneumocysts Carinii Pneumonia
PMTCT	Prevention of Mother-to-child Transmission
RTC	Routine Testing and Counselling
RUTF	Ready to Use Therapeutic Food
SAM	Severe Acute Malnutrition
SF	Supplementary Feeding
SFP	Supplementary Feeding Programme
SST	Supplemental Suckling Technique
TB	Tuberculosis
TFP	Therapeutic Feeding Programme
UDHS	Uganda Demographic Health Survey
UNICEF	United Nations Children's Fund
VHT	Village Health Team
W/L	Weight for Length
WFH	Weight for Height
WFP	World Food Programme
WHO	World Health Organisation
YCC	Young Children Clinic

## ◆ Glossary of Terms

Term	Definition
Client	Any individual, whether child or adult, that is under any form of management for acute malnutrition. In some instances they are also referred to as patients.
Community mobilisation	Community mobilisation includes community assessment, community sensitization and engagement, active case-finding and referral, and case follow-up.
Defaulted	Client is classified as defaulter on the third consecutive absence (i.e., three weeks absent). (For Supplementary feeding programme is two consecutive absences).
Died	Client dies while in care.
Discharged cured	Client meets discharge cured criteria.
Non-cured	Client does not reach discharge criteria after four months (16 weeks) in treatment (medical investigation previously done).
Oedema + / Grade 1 ++ / Grade 2 +++ / Grade 3	This is the reference for the classification of nutrition oedema. The grading of +/++/+++ or Grade 1,2,3 classifies the oedema ranging from moderate to severe.
Sachets of RUTF	The quantities of the ready-to-use therapeutic foods are usually measured in sachets. In some other instances, it has also been measured in packets.
Shock	A dangerous condition presenting with severe weakness, lethargy or unconsciousness, cold extremities and a fast, weak pulse.
The ABCD Concept	Used for identifying serious illness or injury during triage (i.e. airway, breathing, circulation/consciousness and dehydration).
Transferred to more intensive care (i.e. from OTC to ITC)	Client's condition is deteriorating (according to action protocol).
Triage	The word triage means sorting. Triage is the sorting out of patients into priority groups according to their needs and the resources available.

## ◆ Foreword

Malnutrition is a significant public health problem which is often neglected. The five-part Lancet series of 2008 on maternal and child under nutrition, documented the up-to-date evidence justifying the urgent prioritisation of global and countrywide nutrition interventions. Management of acute malnutrition drew attention in Uganda from 2003/2004 at the peak of the Lord's Resistance Army (LRA) insurgency in Northern Uganda. Elsewhere in the country, management of malnutrition remains mostly at hospital level in paediatric wards with only a few staff familiar with appropriate treatment protocols. A few of the regional hospitals provide a basic form of therapeutic treatment for those with Severe Acute Malnutrition, without the appropriate protocols.

The traditional hospital-based management of acute malnutrition and rehabilitation poses some constraints such as limited coverage, minimal impact and long stay often up to 2 months, which is too high a cost for both the facility and families. A shift has evolved since the late 1990s towards an outpatient, community-based therapeutic care model after the successful application of this approach in various emergency situations. The evidence suggested that early case finding at community level, coupled with improved access to treatment and a novel treatment regime resulted in reduced mortality rates at less than 5% both at facility and community level.

Consequently, global recommendations are being adopted by numerous countries as a comprehensive strategy with a focus on integration of the management of acute malnutrition. Integration combines and links inpatient treatment (severe with complications) with outpatient care (severe without complications), management of children with moderate acute malnutrition (where possible) and comprehensive community mobilisation and involvement.

In response to the need to standardise treatment guidelines, in 2005/2006 Uganda updated and disseminated national guidelines for the treatment of moderate and severe acute malnutrition as separate documents. In 2006 UNICEF supported the Ministry of Health (MoH) to develop the first version of guidelines on the Integrated Management of Acute Malnutrition (IMAM) with support from VALID INTERNATIONAL. The resulting document combined existing guidelines with community therapeutic care (CTC) and integrated aspects of treatment of malnourished HIV/AIDS children and adults. The present IMAM guidelines have gone further and incorporated treatment of malnourished adolescents, adults, pregnant and lactating women. The process of developing the IMAM guidelines involved discussions of several drafts that had been developed with guidance from international and national technical experts. These guidelines have been designed to provide the framework for ensuring appropriate preventive interventions, early identification and treatment of acutely malnourished individuals.

I would like to appeal to all Ugandans to be mindful of the requirement that only trained health workers should directly administer the instructions in these IMAM guidelines, as they are highly technical. Other stakeholders may refer to the guidelines for any other purpose other than to directly manage IMAM. I therefore call upon all stakeholders involved in the management of malnutrition to apply these guidelines and integrate the recommendations into their programmes. While some local adaptations may be made, these should be done in collaboration and with the consent of MoH. The MoH is committed to ensuring appropriate implementation of these guidelines.



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## ◆ Introduction

### 1.0 Overview of malnutrition in Uganda

Malnutrition is the result of deficiency of protein, energy, minerals as well as vitamins leading to loss of body fats and muscle tissues. It is a major public health concern in Uganda that affects both children and adults. The statistics show that 360,000 children (6% nationally) are estimated to be acutely malnourished and nearly 125,000 (2%) of them have severe acute malnutrition (Uganda Demographic Health Survey, 2006). The HIV pandemic in the country has exacerbated the situation as more than 40% of acutely malnourished children presenting to traditional inpatient facilities were considered to be HIV-positive. Malnutrition is a direct cause of 35% of all under 5 years mortality (reference) and hence the urgency to prevent and address the problem. Severe wasting in children under 5 years in particular is associated with a 9-fold increased odds of mortality compared to a healthy child.

### 1.1 Acute malnutrition as a form of under-nutrition

#### 1.1.1 Under-nutrition

Malnutrition is categorised as acute (recent) or chronic (long term). It can be either under-nutrition or over-nutrition (obesity). Under-nutrition is caused by inadequate intake or poor absorption of nutrients in the body. There are four forms of under-nutrition: acute malnutrition, stunting, underweight and micronutrient deficiencies. The four forms can be categorised as either moderate or severe malnutrition and can appear isolated or in combination, but most often overlap in one client or population.

Under-nutrition is identified through anthropometric (body) measurements, clinical signs and biochemical tests. These body measurements are then compared to a reference value and referred to as nutrition indices. Nutrition indicators are the classification of specific measures of nutrition indices based on cut-off points. They measure the clinical occurrence of under-nutrition and are used for making a judgment or assessment.

There are four common nutrition anthropometric indicators : Mid Upper Arm Circumference (MUAC) which is used to assess wasting, weight- for- height (WFH) which is also used to assess wasting, height-for-age (HFA) which is used to assess stunting and weight-for-age (WFA) which is used to assess underweight.

#### 1.1.2 Acute malnutrition

Acute malnutrition is a rapid onset condition characterised by bilateral pitting oedema or sudden weight loss caused by a decrease in food consumption and/or illness.

*Note: It is important to interpret adult oedema with caution as it may not be nutritional oedema but due to some underlying medical complaints.*

There are two forms of acute malnutrition:

- Severe acute malnutrition (SAM) which is characterised by the presence of bilateral pitting oedema or severe wasting. A client with SAM is highly vulnerable and has a high mortality risk.
- Moderate acute malnutrition (MAM) which is characterised by moderate wasting.

### 1.2 Components of integrated management of acute malnutrition (IMAM)

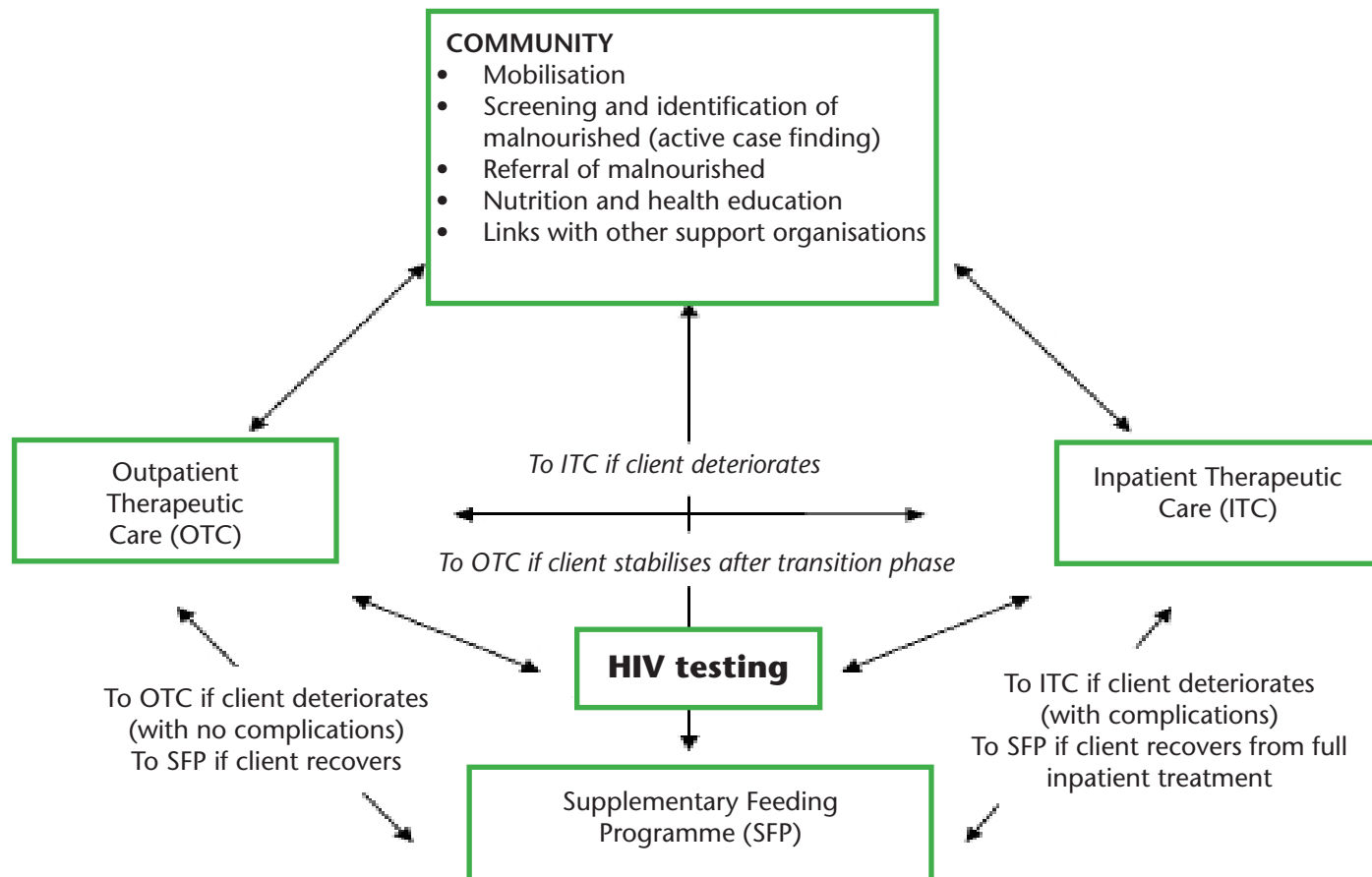
IMAM is a strategy to address acute malnutrition. IMAM focuses on the integration of the management of acute malnutrition into the on-going routine health services at all levels of the health infrastructure. Routine nutrition assessment and management should be incorporated in all treatment, care and support services. The IMAM guidelines are intended to be used by health and nutrition care providers working at all facility levels of health and nutrition service provision in Uganda.

In Uganda IMAM has four components: Community outreach, Inpatient Therapeutic Care (ITC), Outpatient Therapeutic Care (OTC) programmes and Supplementary Feeding Programmes (SFP). The Community Outreach component involves early identification of severely malnourished clients at community level to enable early detection and referral and to increase the number of Severe Acute Malnutrition (SAM) cases that can access quality treatment. The treatment of the acutely malnourished clients is either done in the Inpatient Therapeutic Centres or in the Outpatient Therapeutic Centres depending on the presence or absence of complications. The basis for managing SAM that has no complications in outpatient care is that the clients do not require hospitalisation and can be successfully treated using ready-to-use therapeutic foods (RUTF). Home-based management and treatment of SAM that has no complications make community outreach an essential component of IMAM.

Moderate acute malnutrition (MAM) is mostly managed in the Supplementary Feeding (SF) centres. SFP or services manage and treat MAM in children of 6-59 months and other vulnerable groups. A supplementary food ration, normally a fortified, blended food, is targeted for the management of MAM among clients within specific vulnerable groups. These include pregnant women, lactating women with infants under 6 months, those with special needs such as people living with HIV (PLHIV), people with tuberculosis (TB) and the elderly. Specific anthropometric criteria for entry and discharge are usually used.

The transfer between components which involves good coordination and communication between inpatient and outpatient care and with community providers is essential to ensure that clients do not keep away during the treatment process for SAM. Careful monitoring and tracking helps prevent this. Simple referral slips are used at community level to refer clients to OPT while more detailed slips are used in duplicate copies between OTC and ITC. Ideally community health providers should be informed when a client is transferred from ITC to OTC; is absent; or has defaulted in OTC. This is to ensure that they can follow up the client and mother/caregiver at home and investigate the reasons. The coordination and communication between IMAM components is shown in Figure 1 below.

Figure 1. Coordination and Communication between IMAM components



### 1.3 Principles of IMAM

The core operating principles are:

- **Maximum coverage and access:** This aims to achieve the greatest possible coverage by making services accessible to the highest possible proportion of a population in need. It aims to reach the entire severely malnourished population.
- **Timeliness:** This aims to begin case-finding and treatment before the prevalence of malnutrition escalates and additional medical complications occur.
- **Appropriate care:** Provision of simple, effective outpatient care for clients who can be treated at home and clinical care for those who need inpatient treatment.
- **Care for as long as it is needed:** Improving access to treatment ensures that clients can stay in the programme until they have recovered. By building local capacity and integrating the programme within existing structures and health services, IMAM also aims to ensure that effective treatment remains available for as long as acute malnutrition is present within the population.

### 1.4 Purpose of the IMAM guidelines

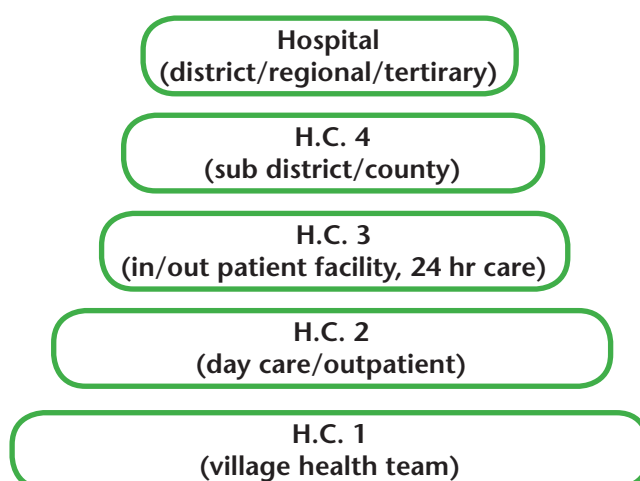
The IMAM guidelines specifically deal with the identification, treatment and management of acute malnutrition. They seek to improve the management of acute malnutrition in children, adolescents and adults through the treatment of SAM cases that have medical complications in ITC and those without medical complications in OTC. The guidelines also provide guidance on management of moderate malnutrition, especially among clients with HIV and chronic illnesses. The guidelines are practical, easy-to-follow and are based on current evidence as well as best practices in the management and treatment of acute malnutrition.

The IMAM guidelines are aimed at contributing to improved standardised treatment, monitoring and reporting. They can also be used as a mobilising tool for addressing acute malnutrition and strengthening capacities. They should facilitate the integration of the management of acute malnutrition into the primary health care system. Compliance with the guidelines should contribute to the overall reduction of child mortality in Uganda.

### 1.5 Integrating IMAM into the existing health structure of Uganda

In Uganda, the health structure is comprised of six levels with the regional referral hospital at the regional level, the general hospital level at health centre (HC) V and at sub-district/county level HC IV with inpatient, outpatient and theatre facilities. The HC III is an outpatient department (OPD) facility with delivery and inpatient facilities at subcounty level while HC II is a day care facility at parish level. At the village level are the village health teams (VHT) which are the link between the community and the health structure.

Figure 2. Existing health structure of Uganda



Historically, management of acute malnutrition has been hospital-based with treatment integrated within the paediatric ward or within a separate nutrition rehabilitation unit affiliated to the paediatric ward. This has been done with minimal community mobilisation and/or involvement. The IMAM approach aims at broadening the scope of current management and decentralising management of acute malnutrition to lower levels (HC III and HC II levels) depending on capacity within the individual facility. This will be combined with linking with the VHTs and other community-level figures as well as preventative programmes.

### 1.6 Actors and their roles at different levels

The key actors in this process should be at all levels, from the central level down to the village level. The most important level for this approach is the village level, where individuals in the community are involved in solving their own problems.

## ◆ Community outreach

### 2.0 Introduction

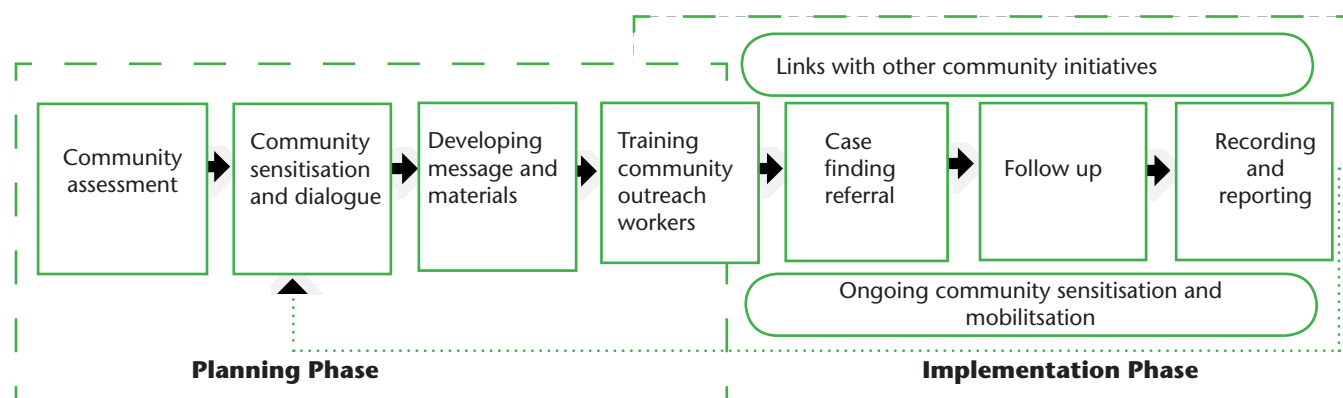
Community outreach is a critical component of the Integrated Management of Acute Malnutrition (IMAM). It can be undertaken individually or integrated into on going community health outreach services. Uganda is implementing a comprehensive Village Health Team (VHT) strategy which the IMAM approach builds upon. The VHT strategy requires that every village has VHT members who work together to mobilise communities for better health. The success of the IMAM depends on a strong community component to maximise access and coverage of health services.

The main aims of community outreach for IMAM include:

- Empowering the community by increasing knowledge on SAM and IMAM.
- Increasing access and service uptake (coverage) of IMAM services.
- Strengthening early case-finding, referral of new SAM cases, and follow-up of problem cases.
- Providing nutrition education and counselling.

Figure 3 below presents the summary of the steps in community mobilisation in IMAM.

Figure 3. Stages in community mobilisation



### 2.1 STEP 1: Community assessment

The assessment is key in determining the factors that are likely to impact on both service delivery and demand for services. In community assessment identify:

- The key community persons, leaders and other influential people and organisations to help sensitise the communities on the components of the IMAM programme.
- Existing structures and community based organisations/groups.
- Social and cultural characteristics related to nutrition.
- Formal and informal channels of communication that are known to be effective.
- Attitudes and health seeking behaviours.
- Other existing nutrition and health interventions in the community.

The assessment itself is conducted by district health workers (community health nurse, VHT and members of the district health team [DHT]).

### 2.2 STEP 2: Conducting sensitisation and community dialogue

- Engage the community and other partners with community-based programmes to discuss the problem of malnutrition, causes and possible solutions.
- Introduce and negotiate on the adoption of IMAM as an approach to the management of acute malnutrition in their communities.
- Agree on what needs to be done, the relevant groups, organisations and structures to be involved in IMAM, and discuss clear roles as well as responsibilities.

- Once services for the management of SAM have started, continue the dialogue to address concerns, maintain changes in behaviour and share success stories.

### 2.3 STEP 3: Developing messages and materials

- Develop sensitisation messages for handbills or pamphlets, local radio as well as television. Meetings with the community and religious leaders provide essential information about the IMAM service aims, methods and actors. (See Table 21 for additional guidance on the messages).
- Develop a sensitisation plan detailing who and how to sensitise, based on the information gathered during community capacity assessment. Review the plan with influential persons in the community to check if it is culturally appropriate before disseminating it.

### 2.4 STEP 4: Community training

- The DHTs have a responsibility to ensure that the identified community volunteers are trained on identification, referral and how to disseminate messages effectively. Refer to the available training packages such as VHT.

### 2.5 STEP 5: Case-finding and referral of new cases with SAM

- Active case-finding is important to ensure that clients with SAM are identified early before the development of severe medical complications. Identified clients are referred to the nearest health facility depending on the decision on whether they should be admitted in the outpatient therapeutic care (OTC) or referred to the inpatient therapeutic care (ITC) facility.

The identified community health providers will:

- Screen for acute malnutrition at various contact points (house to house visits, community meetings, health facilities/outreach programmes, and at other opportunities) using the Mid-Upper Arm Circumference (MUAC) and pitting oedema, for all client groups.
- Identify and refer malnourished clients appropriately.

### 2.6 STEP 6: Follow-up of clients with Acute Malnutrition

Clients with acute malnutrition in treatment require follow-up as they are at an increased risk of disease and death. They should be monitored to ensure sustained improvement in their condition. Follow-up should ensure effective linkage between the community and health facilities. It should entail the following:

- Conducting home visits of malnourished clients for follow-up as determined by the health provider.
- Following up on absent or defaulting clients.
- Giving feedback to health providers.
- Linking clients to livelihood/safety net programmes available in the community.

### 2.7 STEP 7: On going community sensitisation and mobilisation

This mainly involves constant dialogue, in which the communities periodically voice their views and suggest alternative courses of action. This entails regular meetings (monthly and/or quarterly) with key community representatives, health staff from the nearest health facility, beneficiaries and other partners to discuss different aspects of the programme, such as:

- Reviewing the selection and motivation of volunteers.
- The community's perspective of the programme which may include identifying new barriers to access.
- Joint solutions to problems limiting the impact of the programme. This promotes community ownership of programme development and implementation.

### 2.8 STEP 8: Reporting

One of the key responsibilities of the VHT members is to maintain records of the community members screened and referred, the health education sessions conducted, as well as the analysis and submission to health facilities.



# ◆ Nutrition screening, diagnosis and classification of acute malnutrition

## 3.0 Introduction

All clients suspected of acute malnutrition should be screened. In communities at high risk of acute malnutrition, all children less than 5 years, pregnant women and people living with HIV (PLHIV) with symptomatic diseases should be screened every month.

## 3.1 Where the assessment/screening should be done

Acute malnutrition can be identified through nutritional screening and/or assessment at different contact points.

At *community level*, assessment for acute malnutrition should be performed by the Village health Team (VHT) or community volunteers at the following meeting points:

- Day-to-day or house-to-house.
- During mass campaign days.
- Child health days.
- Outreach clinics.
- Schools and community programmes and others.

At *health facility level*, assessment for acute malnutrition should be integrated into all service delivery points within the normal patient flow, including:

- Immunisation centres.
- Young Child clinics (YCC).
- HIV/AIDS treatment, care and support clinics.
- Prevention of mother-to-child transmission (PMTCT)/RH/Antenatal Care (ANC) clinics.
- Outpatient departments.
- Inpatient clinics.

### 3.1.1 Measurements for anthropometry

The anthropometric measures focus on the following:

- MUAC in cm.
- Body weight in kg and to the nearest 100g.
- Height for length in ml rounding off to the nearest tenth.
- Age of the young children (below 5 years in months) and other clients, in years. A child's date of birth should be assessed based on the caregiver's proof or recall (no proxy of height to assess age should be used to estimate age).
- Sex of the client.
- Assessment for oedema.

*The MUAC measurement and Weight-for-Height (WFH) index are used to assess wasting, a clinical manifestation of acute malnutrition, reflecting the client's current nutritional status. MUAC involves measuring the circumference of the client's left mid-upper arm. MUAC is a better indicator of mortality risk associated with acute malnutrition than WFH z-score (World Health Organisation [WHO] standards). MUAC is used for children older than 6 months of age, pregnant and lactating women (6 months postpartum) and adults who cannot stand.*

*The WFH index shows how a child's weight compares to the weight of a child of the same height and sex in the WHO standards. A WFH standard deviation below -2 z-score of the median (WFH < -2 z-score) of the WHO standards indicates wasting.*

*The Body Mass Index is used as a measure of acute malnutrition for adults (18 years and above) who are not pregnant or lactating (6 months postpartum). For pregnant and lactating women, and other adults who cannot stand, MUAC is used.*

*Bilateral pitting oedema is a clinical manifestation of acute malnutrition caused by an abnormal infiltration and excess accumulation of serous fluid in connective tissue or in a serous cavity. Bilateral pitting oedema (also called kwashiorkor) is verified when thumb pressure applied on top of both feet for three seconds leaves a pit (indentation) in the foot after the thumb is lifted.*

## 3.2 STEP 1: Screening for acute malnutrition

### 3.2.1 Acute malnutrition can present as moderate or severe

- Moderate acute malnutrition presents with moderate wasting and can only be captured by use of anthropometric indices: weight for height (WFH), weight for length (W/L), body mass index (BMI) for age of below -2 and up to -3 standard deviations or MUAC/BMI of below the cut-off points for moderate malnutrition.
- Severe acute malnutrition (SAM) presents with one or a combination of the following:
  - a. WFH/length or BMI for age falling below the -3 standard deviations or anthropometric measurements and index (WFH, W/L, BMI for age or MUAC/BMI below the cut-off points for severe malnutrition.
  - b. Presence of signs of severe body wasting such as: muscle wasting especially at the limbs, bone prominence especially at the ribs and shoulder blades, looseness of skin of the upper arm, skin folds 'baggy pants' in children.
  - c. Presence of bilateral oedema or swelling of both feet.

*Note: It is important to interpret oedema with caution as it may be a sign of underlying medical conditions (e.g. nephritic syndrome, severe anaemia, high blood pressure, other renal or heart conditions) or physiological changes such as in pregnancy. A clinician should take detailed history, physical examination and where possible biochemical tests.*

### 3.2.2 Obtain client information on possible recent alteration in body weight

Check the client's health card as well as ask the client/caregiver some questions to assess whether:

- They have noticed weight loss recently;
- They have (or the child has) suffered any illness (cough, fever, diarrhoea, vomiting, nausea and loss of appetite) and the medication/treatment they are on; and
- They are eating well and the appropriateness of the feeding (quality, quantity, frequency and hygiene).

### 3.2.3 Look for signs of severe visible wasting

The client may need to remove some clothing in order for the health provider to get a clear picture. For severe marasmus in children of less than 6 months of age, look for loss/reduction of subcutaneous fat with loss of muscle bulk and sagging skin, loss of muscles around the shoulders, arms, buttocks, ribs and legs, and check to see if the outline of the client's ribs is seen easily. For young children, examine them from the side view to see if the fat of the buttocks is significantly reduced. In extreme cases you will see folds of skin that make it seem like the child is wearing baggy pants.

*Figure 4: Visible signs of severe wasting in young children*



### 3.2.4 Check for pitting oedema on both feet

Oedema caused by acute malnutrition often presents with special characteristics:

- It starts from both feet, extending upwards to the arms, face and entire body.
- It is pitting (leaves an impression on pressure).
- It does not change with time of the day or posture.

Apply thumb pressure gently for at least 3-5 seconds on the topside of each foot to determine the presence of oedema. The client has oedema if the depression caused by the thumb remains for some time after lifting the thumb.

Nutritional oedema should be classified in order to determine severity and mode of care (see Table 1 below). For example, a client who presents with oedema +++/Grade 3 should be managed in ITC until improvement and regression of the oedema to +/Grade1.

Figure 5: Check for pitting oedema on both feet

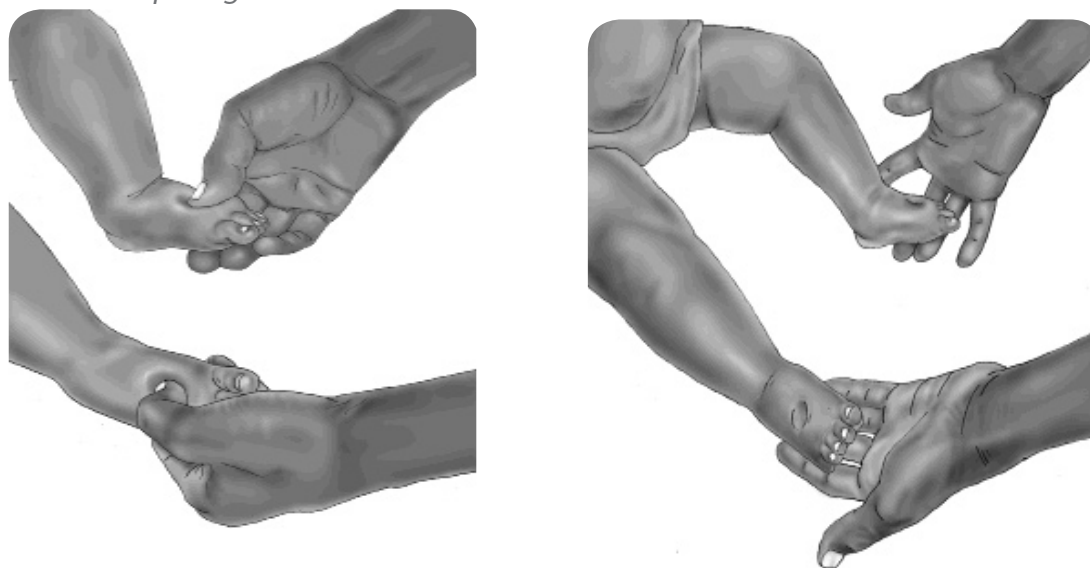


Table 1. Classification of nutritional oedema

Observation	Classification
No oedema	(0)
Bilateral oedema in both feet (below the ankles)	+/(Grade 1)
Bilateral oedema in both feet and legs (below the knees)	++/(Grade 2)
Bilateral oedema observed on both feet, legs, arms, face	+++/(Grade 3)

### 3.2.5 Measure MUAC for children, adults, pregnant and lactating women

#### Measuring MUAC

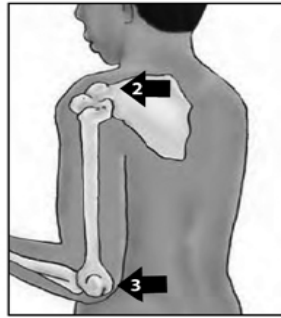
- Determine the mid-point between the elbow and the tip of the shoulder (acromion and olecranon) on the left flexed arm as shown in Figure 5.
- Place the tape measure around the left arm (the arm should be hanging down the side of the body and relaxed).
- Measure the MUAC. Read the measurement from the window of the tape or directly from it without tightening or loosening it.
- Record the MUAC to the nearest 0.1 cm.
- If using a coloured centimeter tape, record the colour zone within the green, yellow, orange or red windows.
- Repeat the measurement to ensure accuracy.

Figure 6. Measuring MUAC

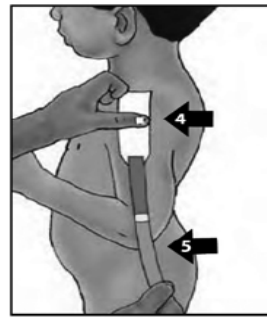
## Steps to accurately use a MUAC tape



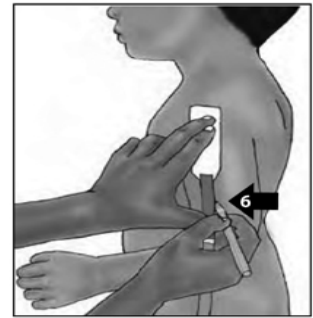
1. Bend left arm at angle of 90 degrees



2. Locate tip of shoulder  
3. Locate tip of elbow



4. Place tape at 0 cm at tip of shoulder  
5. Pull tape past tip of bent elbow and read length of upper arm



6. Determine mid-point by:  
- Folding the tape in half from "0" to the measured length OR  
- Calculating  
7. Mark mid-point using finger or pen



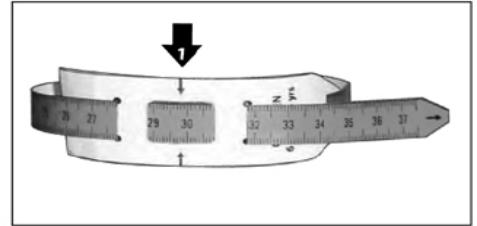
8. Straighten arm and place MUAC tape around the mid-point  
9. Place MUAC tape through window of tape, and correct the tape tension



Tape too Loose



Tape too tight



10. Read the cm measurement in the window at arrow  
11. Record measurement and the color zone observed

### Measuring weight

- Make sure the weighing scale is calibrated to zero before each measurement taken.
- Clients should be weighed with minimum of clothing and no jewellery.
- The weight reading should be done as soon as the indicator on the scale has stabilised.
- Weight is recorded to the nearest 100g.

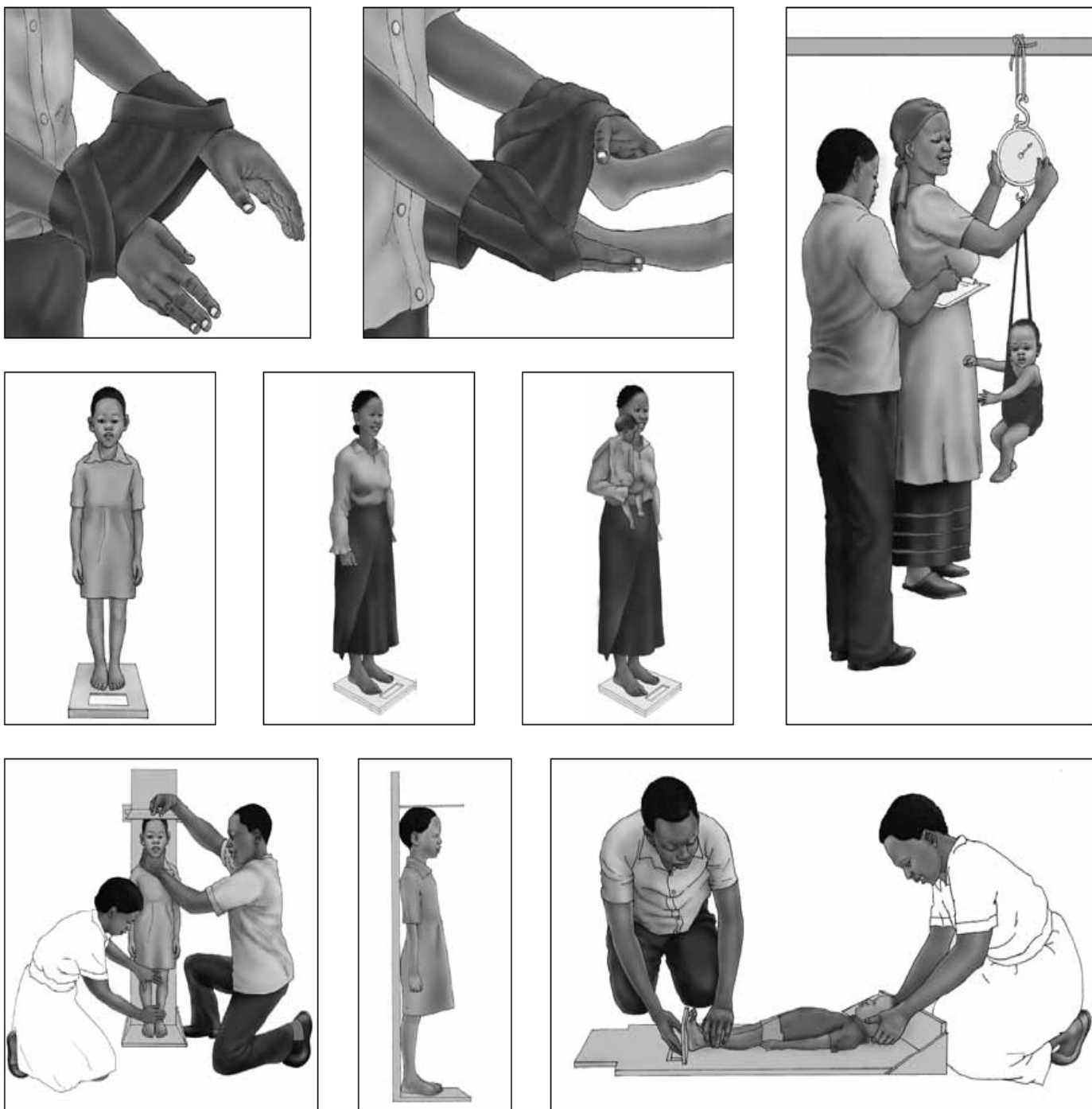
### Measuring height

- Children who are shorter or equal to 87 cm (or less than 2 years) are measured while lying down; taller children are measured while standing.
- Make sure the child is barefoot and has no head gear.
- Make sure shoulder blades, buttocks and heels touch the vertical surface of the height/length board; knees should be fully straight and arms stretched on the sides; and neck should be straight with eyes looking straight ahead with the headpiece placed firmly in position.
- The measurement is read to the nearest centimeter.

### 3.2.7 Compute the WFH for children younger than 17 years

- WFH compares the child's weight (in kg) with that of a standard/reference child of the same height (in centimeters).
- The WFH chart is used.
- The left hand axis shows the child's weight (refer to Annex 1).
- The bottom axis locates the child's height (refer to Annex 1).
- The point on the chart where the line for the child's weight meets the line for the child's height should be plotted. The median weight of the reference child with the same height is also identified and plotted (extend the line of the height of the child to touch the bold curve for median weight of the reference child).
- The WFH can be computed as a z-score.

Figure 6. Measuring the weight and the height and assessing age of the child



### 3.3 STEP 2: Conducting nutritional diagnosis

Diagnosis requires assessing the nutritional status and the presence of medical complications.

#### 3.3.1 Categorise the anthropometric status of the client

- Categorise MUAC depending on age of the client, as per Table 2.
- Compute the WFH z-score based on the WFH tables and categorise the levels of acute malnutrition.
- Compute BMI-for-age for children 5 to 18 years, and BMI for (non-pregnant/lactating) adults (refer to Annex 2).

Referrals to inpatient therapeutic care (ITC)

- Infants under 6 months with any grade of oedema or/and visible signs of wasting.
- Children over 6 months with a weight less than 4.0 kg.

- Other exceptional cases (for example, if it is the caregiver's choice).

### 3.3.2 Assess for medical complications and record on the client card (refer to Annex 3 and Annex 16)

The qualified health provider should:

- Take the medical history and record.
- Conduct a physical examination and record.
- Determine the medical condition (presence or absence of medical complications).

The common medical complications include:

- Anorexia, no appetite
- Intractable vomiting
- Convulsions
- Lethargy, not alert
- Unconsciousness
- Hypoglycaemia
- High fever
- Hypothermia
- Severe dehydration
- Lower respiratory tract infection
- Severe anaemia
- Skin lesion
- Eye signs of vitamin A deficiency

In Uganda, HIV testing is mandatory for all individuals who present with acute malnutrition. HIV tests should be done on clients with unknown HIV status.

### 3.3.3 Performing the appetite test with Ready-to-Use Therapeutic Food (RUTF)

The ability to eat RUTF, or what is referred to as appetite, is essential for a client to be admitted to and remain in OTC. Anorexia or absence of appetite is considered to reflect a severe disturbance of the metabolism. If a client has no appetite, he/she will not be able to eat RUTF at home and therefore needs referral to ITC for specialised care.

The appetite test (refer to Box B below) determines the acceptability of the taste and consistency and the ability of the client to swallow (e.g. client is mature or old enough to swallow solids has no lesions that prevent him/her from eating). The appetite test is repeated at every visit. The repetition of the test for children that are used to RUTF can be organised in adaptation to the context (e.g. in groups with supervision during waiting times).

#### Box B. Conducting the RUTF appetite test

The client's appetite should be assessed by giving a small amount of RUTF. The client may refuse to eat the RUTF because he/she is in an unfamiliar or strange environment. In this case, the caregiver and healthcare worker should move the client to a comfortable setting and slowly encourage the client to try the RUTF.

#### Minimum amount that a malnourished client should take to pass appetite test

Weight (kg)	Sachets
< 4	< ¼
4.0 - 6.9	> ¼
7.0 - 9.9	½
10.0 - 14.9	½ - ¾
15 - 29.0	¾ - 1
> 30.0 kg	> 1

### 3.4 STEP 3: Classification of acute malnutrition

There are three action points or care plans for clients with acute malnutrition in Uganda:

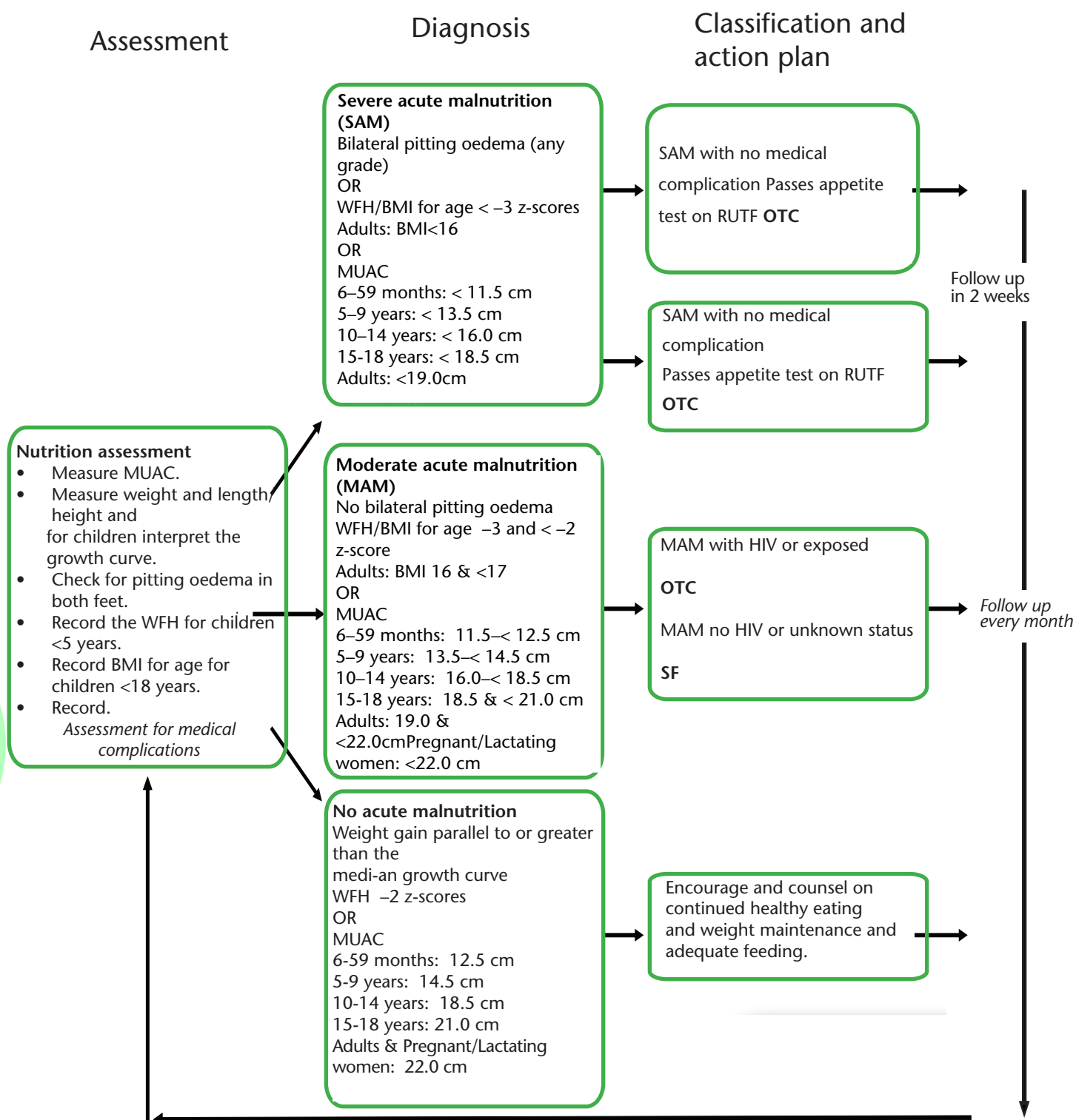
- Supplementary Feeding (SF) for management of moderate acute malnutrition (MAM) for all clients (refer to Chapter 4).
- OTC for SAM clients without medical complications who pass the appetite test for RUTF.
  - The caregiver in the case of children or the client is willing and able to undertake home-based management of SAM (refer to Chapter 5).
  - The home environment is conducive for home-based management of SAM (i.e. client or caregiver can return for supplies after two weeks and client has support from other family members).
- ITC for SAM clients with medical complications and children below 6 months of age or whose weight is less than 3kg (refer to Chapter 6).

The classification of acute malnutrition and action plans are shown in Table 2 and Figure 7.

Table 2. Summary for the Classification of Acute Malnutrition

Indicator	Severe(SAM)	Moderate (MAM)
<b>Infants less than 6 months old</b>		
Weight for length (W/L)	Less than -3 z-score (< -3 z-score)	From -3 z-score to -2 z -score
Bilateral Oedema	Presence of bilateral oedema	No bilateral oedema
Presence of one of these signs	1. Body weight less than 3 kg 2. Too weak to suckle/feed 3. Visible signs of wasting	
<b>Children from six months to less than 18 years old (≥ 6 months to &lt; 18 years)</b>		
Weight for height (WFH)	6 months to less than 5 years Less than -3 z score (< -3 z-score)	6 months to less than 5 years From less than 1-2 z-score to -3 z-score (< -2 to -3 z-score)
BMI for Age	5yearsto less than 18 years Less than -3 z score (< -3 z-score)	5 years to less than 18 years ≥ -3 & < -2 z-score
MUAC	<ul style="list-style-type: none"> <li>• 6 months to less than 6 years: Less than 11.5 cm (&lt; 11.5 cm)</li> <li>• 6 years to less than 10 years: Less than 13.5 cm (&lt; 13.5 cm)</li> <li>• 10 years to &lt; 18 years: Less than 16.0 cm (&lt; 16 cm)</li> </ul>	<ul style="list-style-type: none"> <li>• 6 months to less than 6 years: ≥ 11.5 &amp; &lt; 12.5 cm</li> <li>• 6 years to less than 10 years: ≥ 13.5 &amp; &lt; 14.5 cm</li> <li>• 10 years to &lt; 18 years ≥ 16.0 &amp; &lt; 19.0 cm</li> </ul>
Bilateral Oedema	Presence of bilateral oedema	No bilateral oedema
<b>18 years and above</b>		
BMI	Less than 16 (< 16)	BMI ≥ 16 - < 17
MUAC	MUAC of less than 19.0 cm (< 19 cm)	MUAC between 19.0 to 22.0 cm (with no clinical complications)
Bilateral Oedema	Presence of bilateral oedema, (rule out medical conditions)	No bilateral oedema
Other signs	Too weak to stand (rule out medical conditions)	
<b>Pregnant and Lactating women</b>		
MUAC Less than 22.0 cm (< 22 cm)	Less than 22.0 cm (< 22 cm)	
Bilateral Oedema	Presence of bilateral oedema (rule out physiological/medical causes)	

Figure 7. Summary of the nutrition assessment and classification algorithm





# ◆ Management of acute malnutrition with supplementary feeding

## 4.0 Introduction

Supplementary feeding (SF) is aimed at managing moderate acute malnutrition in specified groups and for a specified period of time as well as preventing deterioration to SAM. SF also provides a continuum of care to clients discharged from inpatient therapeutic care (ITC) and outpatient therapeutic care (OTC).

In Uganda, SF also targets clients with TB and/or HIV, and children and pregnant women in areas of periodic food insecurity and in times of emergencies. SF should have strong health/nutrition counselling and education activities as well as linkages to livelihood programmes.

### 4.1 Admission criteria into SF (refer to Figure 7)

- Clients discharged from ITC/OTC.
- Clients with MAM (by MUAC or other anthropometric measures) referred or self-referred to SF.

### 4.2 Admission process and registration in SF

4.2.1 STEP 1: Confirm the client's nutritional status is MAM (refer to Chapter 3) or whether client has been discharged (and referred) from ITC or OTC.

4.2.2 STEP 2: Make sure the client does not have medical complications that need admission to ITC.

4.2.3 STEP 3: Register patient information in the registration book.

4.2.4 STEP 4: Fill out the SF client card and SF ration card (refer to Annex 4 and 5).

4.2.5 STEP 5: Explain to the client that he/she is moderately acutely malnourished. Explain how the SF intervention functions and when the client should return to the health centre. Explain why the client is being recruited in the SF and when he/she will exit the programme.

4.2.6 STEP 6: Dispense routine medications as shown in Table 3.

#### Box C: Supplementary feeding

All clients or their caregivers must be told:

- Why they are eligible for SF;
- When they can exit the programme (when they attain what weight) or after how long;
- Which foods they will be receiving and quantities per distribution;
- When the foods will be distributed and what other services will be provided;
- How to use the foods at home; and
- What side-effects are likely and how to manage them at home.

4.2.7 STEP 7: Conduct health nutrition education/promotion and dispense food ration, including demonstration of food supplement preparation if required, and give return date.

4.2.8 STEP 8: Collect, summarise and submit reports (refer to Chapter 10 on Monitoring and Reporting)

### 4.3 Treatment protocols and procedures

All clients identified with MAM but who were not referred from the OTC or the ITC should receive the routine medications as indicated below. These should be received either within SF or through referral to a health facility.

*Note: Check if clients have received vitamin A, anti-helminthic and measles vaccination to prevent giving additional doses of these medications.*

Table 3. Routine medications for clients in SF programme

Medication	When	Age	Prescription	Dose
Vitamin A*	On admission if not received in the preceding month	6 months to 1 year	100 000IU	Single dose on admission
		< 6 months not breastfed	50 000IU	
		> 1 year of age	200000IU	
		Pregnant Lactating women within 2 months of delivery	Do not give 200,000IU	
Albendazole OR	On admission if not received in the preceding 4 months	< 1 year	Do not give	Single dose on admission
		1-2 years > 2 years	200 mg 400 mg	
Mebendazole** (given only if albendazole is not available)	On admission	< 1 year	Do not give	Single dose on admission
		1-2 years > 2 years	250 mg 500 mg	
Iron: give only with signs of anaemia or diagnosed with anaemia	On each SF visit	Children < 10kg	30 mg	½ tab daily
		Children ≥ 10kg	60 mg	1 tab daily
Folic Acid	On admission	Children < 1 year Children > 1 year	2.5 mg 5 mg	Single dose daily
Measles**** vaccination	On admission if no record of receiving previously	≥ 9 months and < 60 months	Vaccine	Once if not received the vaccination yet
Cotrimoxazole HIV-positive and exposed clients (Antibiotic cover for PCP prophylaxis)	Daily dose to continue	Dose dependant on body weight	Different strengths of Cotrimoxazole (refer to Table 11)	Once daily but continue indefinitely as prophylaxis.

\* Do not give if client received within the previous month.1

\*\* Dose can be given again after 3 months if signs of re-infection appear.

\*\*\* Pregnant and lactating women should attend the antenatal care/post-natal care for iron/folic acid supplementation

\*\*\*\* Follow national immunisation guidelines for measles vaccination

#### 4.4 Types of supplementary foods and nutrition value

- Supplementary foods are used for treatment of MAM.
- These foods should be energy dense and rich in micronutrients, culturally appropriate, easily digestible and palatable (tasty).
- The supplementary ration should provide from 1,000 – 1,200 Kcal per person per day and 35 – 45g of protein in order to account for sharing at home. It should be designed to provide 13% of the total energy from protein and 30-40% total energy from fat. These rations may be given on a weekly to monthly basis depending on the supplementary food type, the programme design and/or the context (refer to Annex 7 for some options of SF rations).

#### 4.5 Exit criteria and process in SF programme

The client can exit as cured, non-respondent, dead, transferred and/or defaulted. The types and criteria of exits are shown in Table 4 below.

Table 4: Types and criteria of exit

Type of exit	Criteria
Discharge 'Cure'	<b>Weight for height</b> 6-59 months: WFH > -2 z-score 5-18 years BMI for age > -2 z-score <b>For all:</b> 2 consecutive weights > -2 z-score for 2 consecutive SF visits, as long as MUAC is > 12.5 cm (for children < 5 years) OR 10% weight gain <b>Specifically:</b> Adults: BMI > 18 Pregnant Women: on delivery Lactating Women: when infant reaches 6 months old
Transfer to OTC/ITC	Static weight or weight loss for two consecutive visits) and/or medical complications (i.e. not responding to treatment)
Non Cured	For 3 months and have not reached the target weight
Defaulter	Clients missing two consecutive visits
Dead	Clients died while on the programme
Moved	Moved to other SF site

#### 4.6 Nutritional/Health counselling

- This should be a core element in the SF.
- The counselling/information sharing can be either on an individual basis or within a group of clients.
- It should be done at the beginning before the SF rations are distributed.
- Address during the educational sessions, situations of inadequate feeding, insufficient care and illness.
- Vary the educational topics on each different distribution day.
- Address breastfeeding practices and issues related to complementary feeding (when to start complementary feeding and what to give) and the importance of continuing to breastfeed for mothers with young children (< 2 years).
- Conduct cooking demonstrations with mothers, using local recipes and foods, if possible.

#### 4.7 Follow-up in the SF programme

The following should be done at each visit of the SF programme:

- Review the regularity of attendance and discuss with caregiver the reasons for any absence.
- Anthropometry: Take weight and MUAC measurements to assess progress. Static weight or weight loss may require referral to OTC if admission criteria are met.
- Assess the supply of the supplementary food.

- Do a medical assessment and refer for treatment if required.
- Conduct group health and nutrition education.
- Assess the readiness for discharge according to discharge criteria.

#### 4.8 HIV/TB and moderate acute malnutrition

- For clients with chronic illnesses, in particular PLHIV, the calorie/energy requirements are normally higher. When infections exist, the energy requirements are even higher and often the appetite is poor.
- These clients can be admitted to OTC unless they have serious medical complications where they require admission. They can be admitted to the SF programme after discharge from OTC or ITC.
- There are many reasons for weight loss for clients with HIV or TB; it is important to understand why the client is losing weight and try to counteract this early.
- Appropriate feeding and healthy living should be promoted among these clients as they are susceptible to weight loss and infections.

#### 4.9 Requirements for setting up a supplementary feeding site

The SF site can be placed within the health facility or at community levels, provided the following requirements are in place:

- Trained service providers.
- Functional anthropometric equipment (weighing scales, height boards, MUAC tapes, monitoring and reporting tools (refer to Table 5 on the complete basic equipment and supplies).
- Stock control systems.
- Monitoring and Reporting (M&R) tools.
- Information, Education and Communication materials and job aids for health/nutrition.
- Continuous supply of supplementary food.
- Safe and secure place for storing enough supplementary food to last at least two months.
- Routine medications.

Table 5. Basic equipment and supplies

Basic equipment	Basic supplies
Salter/hanging scale	SF Programme client cards
Height board	Ration card
Electric standing scale	Transfer slips
MUAC tapes (child and adult)	Referral slips
Weight for Height z-score tables	List of inpatient treatment sites
BMI tables	Essential medicines as required in the routine medical protocol for SF programme
BMI for age z-score tables	Thermometer
Calculator	Time watch
Mixing equipment	Scissors
Bowls, spoons, ladles	Food rations

# ◆ Outpatient therapeutic care for the management of SAM clients with no medical complications

## 5.0 Introduction

Outpatient therapeutic care (OTC) is aimed at providing home-based treatment and rehabilitation for Severe Acute Malnutrition (SAM) clients who have an appetite and have no medical complications. Cases of Moderate Acute Malnutrition (MAM) with HIV/TB are also treated in OTC according to the protocols. Under the Integrated Management of Acute Malnutrition (IMAM), this objective requires timely detection, referral and early treatment before the health condition becomes severe or before the onset of a complication.

OTC should be delivered from as many health facilities as possible (with sufficient capacity in place) and should be incorporated into existing health services as a component of routine service delivery. This ensures good access and coverage so that as many acutely malnourished clients as possible can access treatment within a day's walk from their homes.

## 5.1 Admission criteria for OTC

- New admissions: MAM clients who are HIV+/TB (status known); clinically suspected and HIV exposed infants > 6 months old; and all SAM clients with appetite (ability to eat the RUTF), with no medical complications and are clinically well and alert.
- Transfers from ITC or SF programme or from another OTC.
- Relapse/Readmission: Clients who have been previously discharged from OTC as 'cured' or 'defaulted' but meet the criteria for admission. They should be admitted as NEW cases.
- Special consideration is given for some exceptional cases such as:
- Where clients or caregivers refuse transfer to ITC, despite advice and counselling. In this case the client should be carefully monitored in the OTC and followed up by community service providers/village health teams.
- When home conditions or environment are conducive for home management of SAM, and caregiver willing to treat SAM at home.
- Where a caregiver/client is willing and able to come back after one or two weeks to collect more supplies (or for adults after a month).
- When there are enough supplies for distribution. If not, refer to ITC.

### Box D. Definition of SAM without medical complications

Have appetite for RUTF and clinically alert and any medical complication is under control or on treatment.

AND

#### For Children

Bilateral pitting oedema (+/Grade 1 or ++/Grade 2)

OR

WFH/BMI for age < -3 z-scores

OR

MUAC

6 months to less than 6 years: < 11.5 cm

6 years to less than 10 years: < 13.5 cm

10 years to less than 15 years: < 16.0 cm

15 years to less than 18 years: < 18.5 cm

#### For adults

Bilateral pitting oedema (+/Grade 1 or ++/Grade 2)

OR

BMI < 16

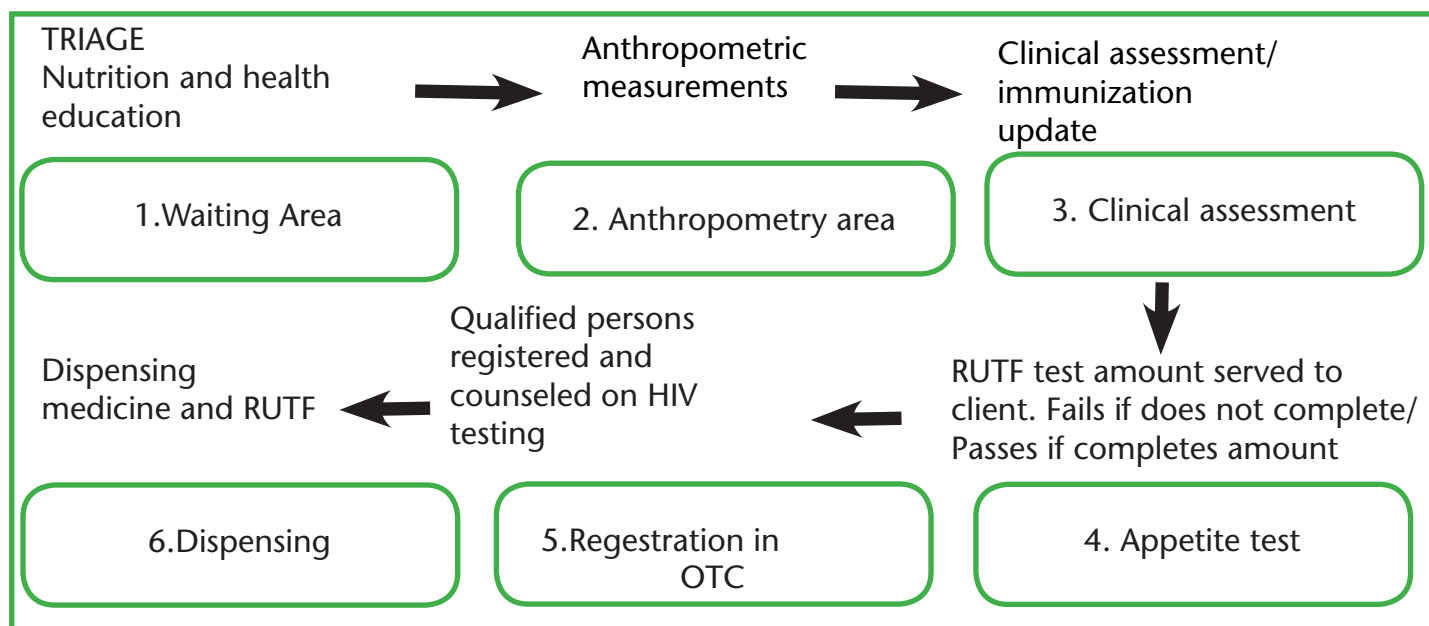
OR

MUAC < 19.0 cm

## 5.2 Admission process in OTC

The layout of the OTC area should be well planned to ensure a steady flow of clients as well as organised provision of comprehensive health and nutrition services (refer to Figure 8).

Figure 8. Layout of the OTC area



Note: This layout is for a stand alone OTC. However, these activities can be integrated into existing outpatient clinics (e.g., HIV/ART clinics, TB clinics, YCC, MCH etc.).

### 5.2.1 STEP 1: Triage

The word triage means “sorting”. Triage is the sorting out of clients into priority groups according to their needs and the resources available (refer to Annex 8).

- Conduct triage and fast-track seriously ill clients.
- Identify referred clients from the community, ITC, or SF programme.
- Give glucose 10% (10 g of sugar per 100 ml of water) to any clients with SAM, suspected to be at risk of hypoglycaemia.
- Conduct nutrition education to clients not seriously ill or those attending for follow-up.

### 5.2.2 STEP 2: Assess for nutritional status

- Determine age of an infant based on recall of the caregiver in the absence of a health card or birth certificate.
- Measure MUAC for children 6-59 months, pregnant women or clients who cannot stand.
- Check for the presence of bilateral pitting oedema.
- Take weight measurement.
- Take height measurement (length for children whose height measurement is less than 85 cm).
- If using BMI indicator, determine BMI z-scores.
- Determine the nutrition status and classify using the reference (refer to Annex 1 and Annex 2).
- Refer to a health facility for further investigations, all infants under 6 months of age who meet the criteria for SAM (see Table 2).
- Admit clients who meet the criteria (refer to section 5.1).

### 5.2.3 STEP 3: Clinical assessment

A qualified healthcare provider should assess the client’s medical condition, which includes a medical history established through the caregiver in case of a child, and a physical examination to rule out medical complications that may require inpatient care.

- Take the medical history and record.
- Conduct a physical examination and record.
- Determine the medical condition (presence or absence of medical complications).
- Screen for HIV/TB.

A medical assessment should take place before the appetite test as one of the steps to determine whether a client should be enrolled in OTC or needs to be referred for ITC. If severe medical complications are identified, the client should be referred to ITC.

#### 5.2.4 STEP 4: Perform the appetite test with RUTF

Clients who pass the appetite test (refer to Box B) should be considered for admission to OTC

#### 5.2.5 STEP 5: Counselling in OTC and use of RUTF

- Explain to the client/caregiver reasons and purpose for admission to the OTC and expected treatment, care and support.
- Link clients/caregivers to other primary health care services or initiatives (e.g. YCC, HIV/TB, VHT, etc.).
- Counsel clients/caregivers on key messages (refer to Box E).

##### *Box E. Key messages at first visit*

- RUTF is a food and medicine for very thin clients only. It should not be shared.
- Sick clients often do not like to eat. Give small regular meals of RUTF and encourage the client to eat often (if possible, eight meals per day).
- RUTF is the only food sick/thin clients need to recover during their time in OTC (however, in case of children, breastfeeding should continue).
- For young children, continue to breastfeed regularly.
- Always offer the client plenty of clean water to drink or breast milk while he/she is eating RUTF.
- Wash the clients' hands and face with soap before feeding, if possible.
- Keep food clean and covered.
- Sick clients get cold quickly. Always keep them covered and warm.
- When a client has diarrhoea, never stop feeding. Continue to feed them with RUTF, and where applicable, breast milk.

#### 5.2.6 STEP 6: Dispense medication and RUTF

All new clients admitted to the OTC should receive routine and appropriate medication (refer to Table 3 and Table 6). Check previous treatment of clients referred/transferred from other clinics to avoid overdose of routine medicines. Ensure that they continue with the treatment started earlier. Clients on treatment for HIV/AIDS, TB should be counselled to continue with the medication. Those diagnosed after admission to OTC should be referred to appropriate programme/health facility for treatment care and support.

##### 5.2.6.1 Dietary therapy for clients in OTC

RUTF is energy and nutrient dense pre-packed paste specially designed for the treatment of acute malnutrition. Therefore, RUTF should be available at all OTC. Refer to Annex 12 for types of RUTF.

RUTF provides approximately 500 kcal per 92g and the ration given to a client is based on the need for an intake of between 175 to 200 kcal/kg/day and is calculated based on the weight of the client.

RUTF is dose-related and should be given on prescription.

Counsel and support mothers whose children are still breastfeeding to continue to breastfeed on demand while on treatment. Clients/caregivers should give safe drinking water after feeding with RUTF in order to keep the client hydrated.

### 5.2.6.2 Benefits of using RUTF

- It is easy to calculate quantity required for each beneficiary.
  - It does not require preparation or cooking.
  - Client can just open sachet and eat directly.
  - It reduces the need for ITC admission.
- RUTF has a long shelf life.
  - It does not require refrigeration.

Table 6. Medical and dietary treatment on the initial/first visit in the OTC

Condition to be managed	What to use	When/frequency
Manage/prevent hypoglycaemia	Provide 10% sugar solution	Once at the triage
Treat for wide spectrum of <b>bacterial infections</b>	Amoxicillin	Twice daily for 7 days. First dose to be started on admission under supervision of the health worker. Explain how to complete treatment at home.
Measles (check card: If not already vaccinated)	Vaccinate if more than 9 months and up to 5 years	On admission single vaccine
All children should be assessed for malaria parasites irrespective of their body temperature.	Provide malaria treatment only if assessed and found to be having malaria parasites.	Dose dependant on drug given
<b>Vitamin A deficiency</b> Give if not received within previous 1 month. <b>Vitamin A should not be given to clients with oedema</b> .In this case the oedema has to subside completely and can be given on discharge. Refer any child with signs of vitamin A deficiency to ITC, as the condition of their eyes can deteriorate very rapidly. <b>Vitamin A should not be given to pregnant women</b>	Vitamin A capsule 6-12 months =100,000IU (1 blue capsule or ½ red capsule (4 drops) > 12 months =200,000 IU	Should be given only once under supervision of the health provider. Postpartum women within 8 weeks after delivery.
Anaemia (give only when signs of anaemia)	Iron and Folic Acid 5 mg <b>(do not give with Fansidar)</b>	Start dose on 14th day for a minimum of one month
Helminthic infection (worm infestation)	Mebendazole 1-2 years: 250 mg > 2 years: 500 mg OR Albendazole 1-2 years : 200 mg > 2 years:400 mg	At second visit

### 5.2.7 STEP 7: Follow-up in OTC

Clients/caregivers should be encouraged/counselled to return for scheduled follow-up visits to enable monitoring of progress. Depending on the OTC site's schedule and the ability of the client to return or caregiver to bring in the child, weekly or bi-weekly follow-on sessions should be scheduled. The client or caregiver is asked to return for each OTC follow-on session, and the importance of compliance with this is explained. Returning for outpatient care followon sessions is critical for the client's treatment as receiving the needed RUTF is vital for nutrition rehabilitation.

At each outpatient care follow-on session, the client receives a comprehensive evaluation that includes:



- Review of regularity of attendance and discussion with caregiver on reasons for any absences.
- Anthropometry: weight and MUAC are taken to assess progress. Static weight or weight loss requires action (refer to action protocol Annex 9 and Annex 10).
- Medical history and physical examination to investigate the presence of medical complications and the need for referral to ITC (refer to action protocol Annex 9 and Annex 10).
- The appetite test to identify any problems with feeding to assess the need for home visit or referral to ITC (refer to action protocol Annex 9 and Annex 10).
- Continuation of drug treatment protocol.
- Supply of RUTF.
- Individual counselling as well as group health and nutrition education.
- Assessment of readiness for discharge according to discharge criteria.

### 5.2.8 STEP 8: Exit process and discharge criteria

The client can exit as cured, non-respondent, dead, transferred and defaulted. Table 7 shows the forms and criteria for exit from OTC.

Table 7. Forms of exit and criteria in OTC

Category of Discharge	Discharge Criteria	Action
Discharged/'Cured' (improved)	<ul style="list-style-type: none"> <li>• WFH or BMI-for-age &gt; -2 z-scores for 2 consecutive visits</li> <li>OR</li> <li>• Weight gain of &gt; 20% for children &lt; 18 years admitted by MUAC (as long as they no longer have admission criteria)</li> <li>• Weight gain ≥ 10% for adults admitted with MUAC</li> <li>AND</li> <li>• No oedema for 2 consecutive visits, clinically well and alert</li> </ul>	<ul style="list-style-type: none"> <li>• Label file as 'cured'.</li> <li>• Follow up through facility/ community growth monitoring &amp; promotion (GMP)</li> <li>• Where available refer to SF programme</li> <li>• Ensure HIV+ clients are referred and/or continue accessing HIV/AIDS treatment services</li> </ul>
Non-cured	<ul style="list-style-type: none"> <li>• Has not reached discharge criteria after three months (four months for the HIV/TB clients)</li> </ul>	<p><i>If HIV/TB status is unknown:</i></p> <ul style="list-style-type: none"> <li>• Refer to ITC and offer routine testing and counselling</li> <li>• Provide counselling and refer for SF</li> </ul> <p><i>If HIV/TB status is known:</i></p> <p>Assess on a case-by-case basis and take action after discussion with the client's HIV/ TB treatment provider</p>
Defaulted	<ul style="list-style-type: none"> <li>• Absent (not reported or followed-up in the community) for 2 consecutive visits</li> </ul>	<ul style="list-style-type: none"> <li>• May re-enter the OTC if he/she meets the entrance criteria</li> <li>• A new admission registration number and home visits should be provided, if available</li> </ul>
Transferred to ITC	<p>Condition has deteriorated and requires ITC (see criteria for transfer to inpatient nutrition treatment)</p> <p>Not responding to treatment</p>	<ul style="list-style-type: none"> <li>• Label file as 'Transferred to ITC' (see above)</li> </ul>
Moved to other OTC	Moved to other OTC	
Died	Died while on programme	Complete file register and card

Note for all HIV/TB positive clients ensure that they are referred to or continue accessing HIV/TB treatment. If a client is sent to a medical ward they continue to receive the nutritional treatment therefore are not recorded as exits.

Do not discharge clients with the following medical complications and deterioration of nutritional status as they require referral:

- No appetite (failed appetite test)

- IMCI danger signs
- Increase in or newly-developed bilateral pitting oedema
- Weight loss because of diarrhoea (re-feeding or other origin)
- Weight loss for three consecutive weeks
- Static weight (no weight gain) for three months
- Other signs of failure to respond to treatment

### 5.2.8.1 Discharge procedures

- Give feedback to the client or caregiver on the final outcome when the client has reached the discharge criteria
- Give a final RUTF ration (2 weeks supply).
- Record the discharge outcome on the treatment card and ration card/page.
- Advise the client or caregiver on good nutrition and caring practices.
- Advise the client or caregiver to immediately go to the nearest health facility if client fails to eat or child refuses to eat or has any of the following signs:
  - No appetite
  - Vomiting
  - Lethargic or unconscious
  - Convulsions
  - Bilateral pitting oedema
  - Losing weight
  - High fever
  - Diarrhoea or frequent watery stools or stools with blood
  - Difficult or fast breathing
- Refer client or caregiver to complementary nutrition services such as: Community growth promotion, if available in the area, to reinforce IMAM behaviour change messages.

## 5.3 Requirements for OTC

The OTC can be placed within the health facility or in the community. The following should be in place:

- Service providers trained in IMAM.
- Functional anthropometric equipment (weighing scales, height boards, MUAC tapes, monitoring and reporting tools).
- Appropriate Information, Education and Communication materials, counselling tools, and IMAM job aids for health/nutrition.
- Enough supply of RUTF. and
- Routine SAM medications.
- 

Box F. Basic equipment and supplies for OTC

Basic equipment	Basic supplies
Salter/hanging scale	OTC client cards
Height board	Ration card
Electronic standing scale	Transfer slip- from OTC to ITC
MUAC tapes (child and adult)	Referral slip from OTC to SF (where it exists)
Weight for Height z-score tables	List of inpatient and outpatient treatment sites
BMI tables	Folders for filing patient cards
BMI for age z-score tables	Essential medicines as required in the routine medical protocol for OTC
Calculator	Thermometer
Clean water for drinking (jug and cups)	Time watch
Sugar water (10% solution)	Scissors
Water and soap for handwashing	RUTF

# ◆ Inpatient therapeutic care for the management of severe acute malnutrition clients with medical complications

## 6.0 Introduction

The ITC is for the management of Severe Acute Malnutrition (SAM) with medical complications. It can be provided in a specialised unit in a health facility or in a children's ward at a health facility with 24-hour care. The purpose of ITC is to concurrently treat medical complications and provide nutritional therapy. The length of stay in ITC may vary from 4-7 days depending on the severity of the complication and the time taken to regain appetite. ITC is made up of three stages: stabilisation (Phase 1), transition and rehabilitation (Phase 2).

Where OTC is available, clients could be discharged early when medical complications have stabilised, appetite has resumed, oedema has reduced and the client is able to eat at least 75% of the recommended daily intake of RUTF. In the event that an OTC is not available the clients should remain in ITC until they attain discharge criteria. In other special cases, children complete the full treatment in ITC, for example:

- Children who are unable to eat RUTF or who continue to refuse it.
- Severely malnourished infants of 0-6 months.
- When the caregiver refuses OTC despite being adequately counselled.

## 6.1 Admission criteria

All clients under the circumstances below should be admitted and treated in ITC:

- Infants  $\geq 6$  months who weigh  $< 3.0$  kg will follow the management protocol for infants  $< 6$  months with SAM (See Chapter 7).
- Clients with SAM with any of the following medical complications:
  - Anorexia, no appetite
  - Intractable vomiting
  - Convulsions
  - Lethargy, not alert
  - Unconsciousness
  - Hypoglycaemia
  - High fever ( $> 39^{\circ}$  C axillary and  $38.5$  for rectal)
  - Hypothermia ( $< 35^{\circ}$  C axillary and  $35.5$  for rectal)
  - Severe dehydration
  - Lower respiratory tract infection
  - Severe anaemia
  - Skin lesion
  - Eye signs of vitamin A deficiency
- Clients referred from OTC according to action protocol.
- Children referred from general paediatrics ward.

Box G. Definition of SAM with medical complications

Bilateral pitting oedema (+++/Grade 3) OR <b>For Children</b> Medical complications and any of the following: Bilateral pitting oedema ++/Grade 2 or +/Grade 1 OR WFH/BMI for age < -3 z-scores OR MUAC 6–59 months: < 11.5 cm 5–9 years: < 13.5 cm 10–14 years: < 16.0 cm 15–18 years: < 18.5 cm	<b>For adults</b> Medical complications and any of the following: Bilateral pitting oedema ++/Grade 2 or +/Grade 1 OR BMI < 16 OR MUAC < 19.0 cm
---	--

## 6.2 Admission process

In the triage, identify priority cases for assessment and take them to the front of the queue.

### 6.2.1 STEP 1: Triage

The word triage means “sorting.” Triage is the sorting out of clients into priority groups according to their needs and the resources available (refer to Annex 8).

- Conduct triage and fast-track seriously ill clients.
- Identify referred clients from the community, ITC, or SF programme.
- Give glucose 10% (10 g of sugar per 100 ml of water) to any clients with SAM, suspected to be at risk of hypoglycaemia.
- Conduct nutrition education to clients not seriously ill or those attending for follow-up.

### 6.2.2 STEP 2: Screening for SAM (or confirm referred cases)

- Measure MUAC for children 6-59 months, pregnant women or clients who cannot stand.
- Check for the presence of bilateral pitting oedema.
- Take weight measurement.
- Take height measurement (length for children < 87 cms in height) if using BMI indicator and determine BMI z-scores.
- Refer to a health facility for further investigations any infants under 6 months with visible wasting and/or bilateral pitting oedema.
- Determine age of an infant basing on recall of the caregiver in the absence of a health card or birth certificate.

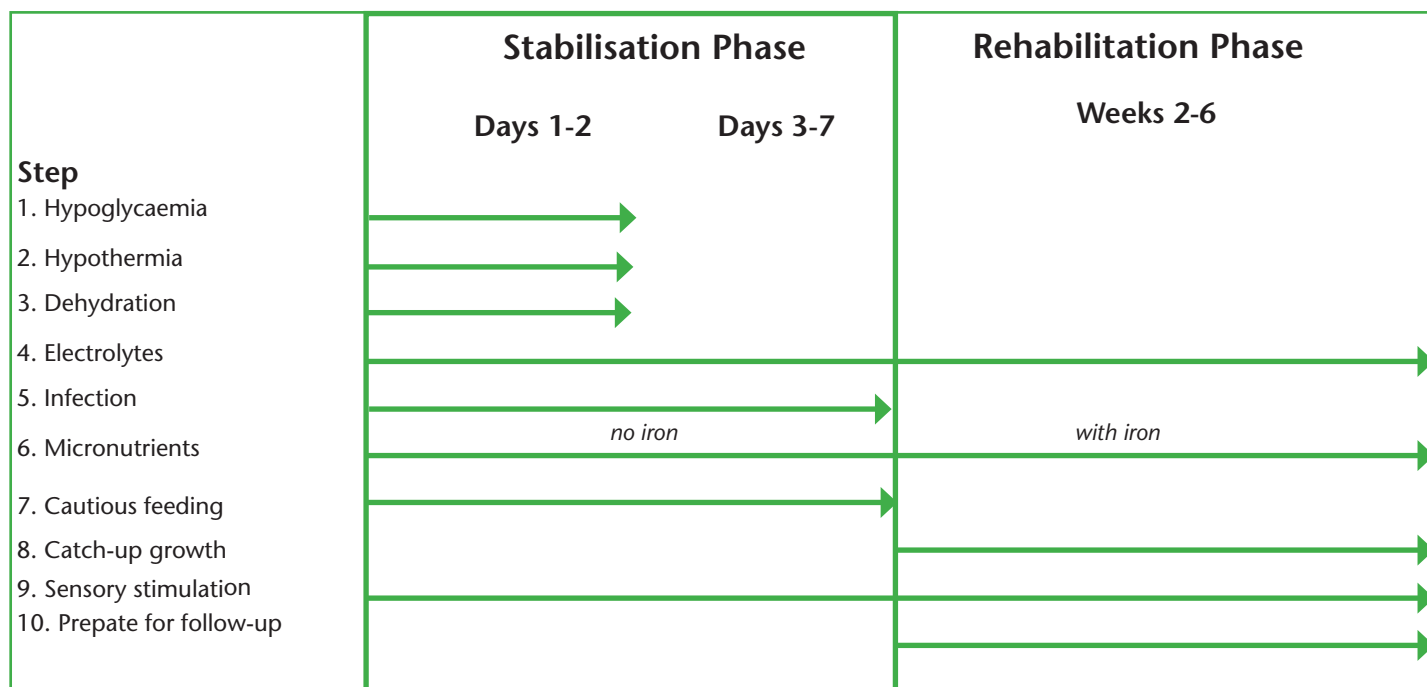
### 6.2.3 STEP 3: Clinical assessment

- Assess the client’s medical condition, which includes a medical history established through the caregiver and a physical examination to rule out medical complications that may require inpatient care. This entails:
  - Taking the medical history and recording.
  - Conducting a physical examination and recording.
  - Determining the medical condition (presence or absence of medical complications).

### 6.3 Care process

Management of cases in the ITC has two main phases: stabilisation and rehabilitation. The medication and dietary management in each phase may differ. Care MUST be taken to classify the client into the correct phase of management. Figure 9 shows the phases and timeframe for management of SAM clients in ITC.

Figure 9. Timeframe for the management of SAM (WHO 2003)



#### 6.3.1 Stabilisation/Phase 1

Medical complications often manifest in the first 48 hours of admission in ITC. If not managed appropriately and promptly they could lead to a high death rate. The common complications include hypoglycaemia, hypothermia, infections, heart failure, dehydration and severe anaemia.

Clients in the stabilisation phase should be physically separated from the children in transition and rehabilitation and from children with other diseases. Adults do not have to be separated, they can be attended to in the same wards.

##### 6.3.1.1 STEP 1: Prevention and treatment of hypoglycaemia and hypothermia

- This care should start in triage
  - Treat hypoglycaemia and hypothermia (these two usually occur together and are signs of infection). Check for hypoglycaemia whenever hypothermia (axillary temperature < 35.0° C; rectal temperature < 35.5° C) is found. Frequent feeding is important in preventing both conditions. All clients with SAM waiting for admission and suspected to be at risk of hypoglycaemia should receive 50ml glucose 10% (1 rounded teaspoon of glucose/ sugar in 50 ml water=3 tablespoons of water), or 5ml/kg of Formula 75 (F75).
- Signs of hypoglycaemia:
  - Lethargy, limpness, loss of consciousness or convulsions
  - Semiconscious with the eyes partly opened
  - Drowsiness (the only sign before death)
  - Hypothermia (axillary temp < 35 °C, rectal < 35.5)
- If the client is conscious:
  - Give the 10% glucose/sucrose water orally or by nasogastric tube (NGT) (50ml);
  - Then feed F75 every 30 minutes for two hours giving one-quarter of the two-hour feed each time (refer to Annex 11 for the amount to give). Provide the two-hourly feeds day and night;
  - Always give feeds throughout the night; and

- Start the client on antibiotics immediately.

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- If the client is unconscious, lethargic or convulsing, give intravenous (IV) sterile 10 % glucose (5 ml/kg), followed by 50 ml of 10 % glucose or sucrose by NGT, then give F75 as above (two-hour feeds, day and night) and start them on antibiotics.
- Explain to the caregiver the reasons for admission and the procedures that will be followed.
- Counsel the caregiver on treatment of the client, breastfeeding where applicable, good hygiene practices, and on keeping the patient warm.
- Complete the ITC treatment card. Record the client's or child's details in the registration book. Use the standard registration numbering system.
- If the client was admitted through OTC but referred directly to ITC, a referral note or the client health record should be filled out indicating the anthropometry, medical assessment outcome, criteria for referral and start of treatment.

#### a. Monitoring blood glucose

- If it is low, repeat dextrostix, taking blood from finger or heel, after two hours. Once treated most clients stabilise within 30 minutes.
- If blood glucose falls to < 3 mmol/L give a further 50 ml of 10% glucose or sucrose solution and continue feeding every 30 minutes until stable.
- If rectal temperature falls to < 35.5° C, repeat dextrostix.
- If level of consciousness deteriorates, repeat dextrostix.

*Note: If you are unable to test the blood glucose level, assume all clients with SAM are hypoglycaemic and treat them accordingly.*

#### b. Treatment/Prevention of hypothermia

Hypothermia is low body temperature of below 35.5°C (rectal) or below 35°C (axillary) and is one of the common causes of death in SAM. Hypothermia occurs mostly in the early morning hours when there is the most dramatic drop in external temperature (even in tropical climates). Severely malnourished clients cannot regulate their body temperatures, thus they “cool” very quickly and do not have enough calories to warm the body. Besides, hypothermia in SAM is almost always associated with systemic infection and may present with change in level of consciousness.

- If the axillary temperature is < 35.0° C, take the rectal temperature using a low reading thermometer. If the rectal temperature is < 35.5° C:
  - Feed right away (or start rehydration if needed) and ensure small, frequent, regular and consistent warm energy dense feed (two-hourly).
  - Re-warm by clothing (for a child, cover the head as well), covering with a warmed blanket and placing a heater or lamp nearby (do not use a hot water bottle), or putting the child on the mother's/caregiver's bare chest (kangaroo technique/skin to skin) and covering of them.both
  - Place the client under survival blanket, do not bathe him/her, wait until condition improves.
  - Administer third line antibiotics as prescribed by medical doctor.
  - Monitor the temperature regularly and record in the client monitoring form (every 30 minutes during the first hour, then every hour until improvement is registered).

*Note: Direct contact with hot water bottles is not allowed due to the danger of burning fragile skin.*

#### c. Monitoring

- Regular taking of body temperature (i.e. during re-warming take rectal temperature two-hourly until it rises to > 36.5° C [take half-hourly if heater is used]).
- Ensuring the client is covered at all times, especially at night.

- Feeling to assess the warmth.
- Checking blood glucose level (i.e. check for hypoglycaemia whenever hypothermia is found).

*Note: If a low-reading thermometer is unavailable and the child's temperature is too low to register on an ordinary thermometer, the healthcare provider should assume the child has hypothermia.*

#### **d. Continually prevent hypothermia**

- Feed as instructed (Give two-hourly feeds throughout the day and night).
- The care provider or care giver should warm their hands before touching the client.
- Keep the client dry (e.g. promptly change client's clothes, and bedding, and child's wet nappies, and dry the client thoroughly after bathing).
- Keep the client's whole body covered, stop draughts as well as keep clients away from windows and doors.
- Avoid exposure through for example bathing, prolonged medical examinations, weighing, etc.
- Let the child sleep with mother/caregiver at night for warmth, well-covered with a blanket.
- Maintain room temperature at 25° C to 36.5° C.

*Figure 10. Keep children warmly covered, especially at night*



#### **6.3.1.2 STEP 2: Treatment/Prevention of dehydration**

It is often difficult to determine dehydration status in a client with SAM as the usual signs of dehydration may be present and yet the client may not be dehydrated. Dehydration tends to be over diagnosed and its severity overestimated in children with SAM. This is because it is difficult to accurately estimate the dehydration status of children with SAM using clinical signs alone. Dehydration can co-exist with oedema. Therefore, healthcare providers should assume that all children with SAM and recent frequent watery diarrhoea may have some dehydration. It is useful to look for the usual signs (refer to Table 6) as they can be used to detect improvement during rehydration. Dehydration should be based on a history of recent watery diarrhoea and/or vomiting rather than small mucoid stools commonly found in severe malnutrition, but which do not cause dehydration.

The caregiver/mother should be asked whether the client's stools have changed in frequency and consistency from what has been considered 'normal'. The quantity of loose stools should be assessed,

by examining whether just the cloth, and/or blanket have been soiled.

*Note: The healthcare provider should check if there are worms, blood or mucous in the stool.*

Table 8. Clinical assessment of dehydration

Task	Dehydration	Shock from severe dehydration
General condition/appearance	Thirsty, anxious, alert or quiet but irritable when disturbed Fully conscious, not lethargic Capillary refill (< 3 seconds)	Lethargic/comatose/drowsy Floppy, cold hands Slow capillary refill (> 3 seconds)
General condition/appearance of eyes	Normal or retracted	Retracted eye lids
Urine output	Normal or reduced, urine dark	Anuria, empty bladder
Radial pulse	Normal or rapid	Uncountable/rapid, thready, undetectable
Systolic blood pressure	Normal or low	Low OR immeasurable
Body weight loss	5 - 10%	> 10%
Estimated fluids deficit	50 - 90 ml/kg	> 100 ml/kg

*Note:*

- A non-oedematous marasmic client can present with some signs of dehydration that would normally be found in nonmalnourished child without actually being dehydrated, e.g. sunken eyes, skin elasticity, etc. It is important to take a history and determine if there has been recent fluid loss (recent diarrhoea or vomiting)
- A non-oedematous marasmic child with very visible veins is not dehydrated
- In very rare circumstances an oedematous (kwashiorkor) child with recent frequent watery diarrhoea or vomiting may become dehydrated- be extremely careful when diagnosing this.
- A client with persistent or chronic diarrhoea without an acute watery diarrhea is NOT likely to be dehydrated and does NOT need rehydration therapy. However HIV positive clients may develop acute or chronic diarrhoea and suddenly collapse. It is therefore important to observe them closely and if possible have a cannula inserted in-situ.

### a. Treatment of dehydration

In both the oedematous and non-oedematous SAM, the margin of safety between dehydration and over-hydration is very NARROW. Hence, care and caution must be taken in making a decision on how to avoid over-hydration and cardiac failure.

A decision must be taken on:

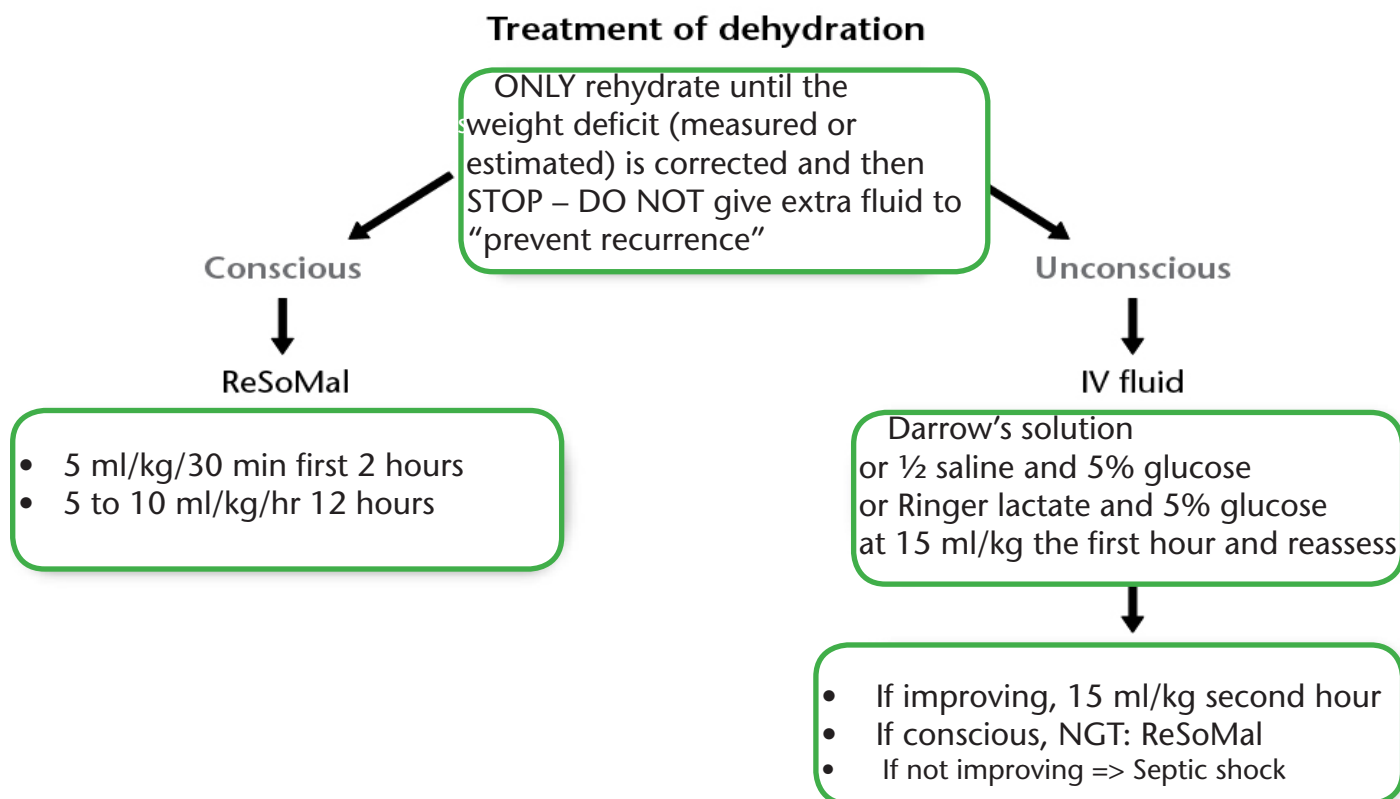
- Whether to rehydrate or not.
- How to rehydrate (route, choice of solution, amount, rate of rehydration).
- What to monitor during rehydration.

Five safety measures in rehydration of clients with SAM:

- The oral route should be used (refer to Figure 11) unless the client is in a state of shock.
- The special rehydration solution for malnutrition (ReSoMal) should be used. The standard WHO-ORS solution (90 mmol sodium/L) SHOULD NOT be used as it contains too much sodium and too little potassium for children with SAM. If ReSoMal is not available the healthcare provider should prepare it as described in Annex 14.
- The exact amount of oral fluids based on body weight should be given without exceeding.
- Feeding should be initiated soon after rehydration which should be alternated with F75 once the client is recovering. Feeding should be after 6 hours of rehydration to avoid hypoglycaemia.



Figure 11. Process for treatment of dehydration



### b. Prevention of dehydration

A child with continuing watery diarrhoea should be fed with F75. The approximate volume of stool losses should be replaced with ReSoMal. As a guide, 50-100 ml should be given after each watery stool.

*Note: It is common for children with SAM to pass many small unformed stools. These should not be confused with profuse watery stools and do not require fluid replacement.*

### c. Treatment of dehydration

- If the child is breastfeeding, encourage the caregiver to continue.
- Give ReSoMal orally or by NGT to all clients with watery diarrhoea as they may have dehydration. For children, start with ReSoMal 5 ml/kg every 30 minutes for two hours, orally or by NGT, then ReSoMal 5-10 ml/kg/hour for the next four to ten hours. The exact amount to be given should be determined by how much the client wants the extent of stool loss and vomiting.
- Since low blood volume can coexist with oedema, do NOT use the Intravenous (IV) route for rehydration, except in cases of shock. Even then, do so with care, infusing slowly to avoid flooding the circulation and overloading the heart.
- If the client has bilateral pitting oedema, replace the ReSoMal doses at four, six, eight and ten hours with F75 if rehydration is continuing at these times, and then continue feeding with F75.
- The best way to give ReSoMal is by cup, even with a very sick client. A child may need to be coaxed, or you may need to use a spoon. If the caregiver is able to give the ReSoMal, he/she should be taught how to give it slowly.
- The NGT can be used for giving ReSoMal at the same rate if the client is too weak to take enough fluid voluntarily. An NGT should be used for weak or exhausted clients and those who vomit have fast breathing, or painful mouth sores.

*Note: It is essential to give ReSoMal slowly, much more slowly than you would give ORS to a well-nourished client. Too much fluid, too quickly, can cause heart failure.*

#### **d. Monitoring clients on ReSoMal**

- Monitor all clients taking ReSoMal for signs of hydration (improvement), over-hydration (complication) and shock (worsening), every 30 minutes for the first two hours; then hourly until he/she improves.
- Closely monitor for signs of over-hydration. The signs of excess fluid (over-hydration) include increasing respiratory and pulse rates, increasing oedema and puffy eyelids. If these signs occur, stop fluids immediately and reassess after one hour. Clinical signs of over-hydration include:
  - Development or worsening of oedema
  - Visible neck veins and prominent full veins
  - Increase in liver size or tenderness over the liver
  - A grunting respiration
  - A puffy face and swollen eyelids
- Monitor the progress of rehydration: Observe the client every 30 minutes for two hours, then hourly for the next six-to-12 hours, recording:
  - Pulse rate (slowing rate)
  - Respiratory rate (slowing rate)
  - Feeling of thirst (less thirst if rehydration working)
  - Passing urine and urine frequency
  - Stool/vomit frequency
  - Less lethargic and more alert
- If the rehydration is working then any rapid respiration and pulse rates should slow down and the client should begin to pass urine.
- Return of tears, moist mouth, eyes and fontanel appearing less sunken, and improved skin turgor are also signs that rehydration is proceeding. It should be noted that many children with SAM will not show these changes even when fully rehydrated.
- Continued rapid breathing and pulse during rehydration suggest coexisting infection or over-hydration.
- Where possible, the weight of the child should be taken prior to commencing re-hydration therapy, and then hourly.

#### **e. Management of shock from severe dehydration**

Shock is a dangerous condition presenting with severe weakness, lethargy or unconsciousness, cold extremities and a fast, weak pulse. It can be caused by severe dehydration, severe haemorrhage, burns, cardiac failure or septicaemia. There is a decrease in tissue perfusion and oxygen delivery due to severe infection and sepsis. Septic shock and cardiac shock can have very similar symptoms so it can be difficult to distinguish this in a client with SAM. It may therefore be necessary to treat the client for both conditions initially, and depending on the response to treatment the final diagnosis can be made.

A client with SAM is considered to have shock if he/she is lethargic or unconscious and has cold hands as well as either:

- Slow capillary refill (> 3 seconds);
- Weak or fast pulse; or
- Absence of signs of heart failure (refer to section h) on cardiac failure).

#### **f. Developed septic shock**

In fully developed septic shock, superficial veins, such as the external jugular and scalp veins are dilated rather than constricted. The veins in the lungs may also become engorged, making the lungs stiffer than normal as seen in x-ray. For this reason the individual may groan, grunt, have a shallow cough and appear to have difficulty in breathing. As shock worsens the client develops kidney, liver, intestinal or cardiac failure. There may be sputum, vomit with coffee-like substance, blood in the stool, and abdominal distension with ascites. When a client reaches this stage, survival is unlikely.

Shock from dehydration and sepsis are likely to co-exist in clients with SAM. If the client meets the criteria of shock described above, apply the following:

- Give sterile 10% glucose 5 ml/kg by IV or (sugar water & F75 NGT).
- Give one of the IV fluids below, 15ml/kg for over 1 hour:
  - Half-strength Darrow’s solution with 5% glucose (dextrose)
  - Ringer’s lactate solution with 5% glucose
  - 0.45% (half-normal) saline with 5% glucose
  - Half-strength Darrow’s solution
  - Ringer’s lactate solution
- Give oxygen.
- Keep warm.
- Give broad spectrum antibiotics, a third line antibiotic, anti-fungal and anti-staphylococcal.
- Reduce physical disturbance (NEVER transfer client as stress leads to dramatic deterioration).

Table 9. Monitoring a client in shock and taking action

Condition	Status	Action to be taken
<ul style="list-style-type: none"> <li>• Stronger radial pulse</li> <li>• Regain consciousness</li> </ul>	IMPROVING	STOP IV FLUID <ul style="list-style-type: none"> <li>• Continue with F75 diet.</li> </ul>
<ul style="list-style-type: none"> <li>• Both respiratory and pulse rates are increasing</li> <li>• Grunting respiration</li> <li>• Increasing liver size</li> <li>• Vein engorgement</li> </ul>	NOT IMPROVING STOP IV FLUID	<ul style="list-style-type: none"> <li>• Continue to check respiratory and pulse rate every 10 minutes.</li> <li>• Do not give oral feeds, client may have fluid overload or heart failure</li> </ul>
If both respiratory and pulse rates are slower after one hour	SLOW IMPROVEMENT	<ul style="list-style-type: none"> <li>• Repeat the same amount of IV fluids for another hour.</li> <li>• Continue to check respiratory and pulse rate every 10 minutes.</li> </ul>
If no improvement after the first hour of IV fluids	IN SEPTIC SHOCK	<ul style="list-style-type: none"> <li>• Maintain IV fluids 4ml/kg/hour, while waiting for blood.</li> <li>• Transfuse client with whole fresh blood at 10ml/kg slowly over 3 hours, no oral feeds should be given during this time.</li> </ul>

### g. Acute abdomen (Ileus) associated with shock

Septic shock can complicate other systems including the gut, causing gastric dilatation that present with sudden abdominal distension, absent bowel sounds and intestinal splash.

Management of acute abdomen associated with shock:

- Give broad spectrum antibiotics (intra muscular [IM] or IV).
- Stop all drugs that may be causing toxicity (e.g. metronidazole).
- Give single dose of Magnesium sulphate (2ml of 50% solution).
- Pass NGT and aspirate contents of stomach and rinse till clear with isotonic clear fluid (5% dextrose or 10% sucrose- 50 ml into stomach and gently aspirate all back again. Repeat until the fluid is clear.
- Put 5 ml/kg of sugar water (10% sucrose) into the stomach and leave it in for one hour.
- Aspirate and measure the volume. If it is less than the amount previously introduced, return to the stomach.
- Give fluconazole or oral Nystatin to clear gastric and oesophageal candidiasis.
- Keep client warm.

*NOTE: If client is unconscious, give IV glucose and monitor carefully for 3 hours without any other treatment.*

Signs of improvement include a change in intestinal function, decrease in abdominal distension, visible peristalsis, return of bowel sounds and decreasing volume of gastric aspirate. If client improves, start giving small volume (half the amount) of F75 by NGT.

If no improvement is recorded after 3 hours, put up IV infusion with fluid containing adequate potassium. You can add sterile potassium (20 mmol/L) to IV solutions that have no potassium.

## **h. Cardiac failure**

Cardiac failure is the inability of the heart to adapt to increased fluid load, electrolyte imbalance or severe anaemia and is a common cause of unexpected sudden death, especially after starting to feed well. The common cause of cardiac failure leading to sudden death is hypervolemia due to over-hydration, over-feeding, blood transfusion and high sodium diet.

It is therefore important to watch out for signs of cardiac failure during stabilisation and transition. These include:

- Clinical signs of deterioration with increasing weight gain
- Increasing or reappearance of oedema
- Sudden difficulty in breathing
- Acute increase in respiratory rate by  $> 5$  breath/min, especially during rehydration
- Increasing pulse rates
- Prominent superficial and neck veins
- Engorged neck veins
- Cold hands and feet
- Cyanosis (blue) finger and toes and under the tongue
- Sudden increase in liver size
- Tenderness developing over the liver
- Crackles (On auscultation) in the lung bases
- Acute fall in haemoglobin concentration

*Note: Heart failure and pneumonia are clinically similar and can be difficult to differentiate. If the client gains weight before the onset of respiratory distress, diagnose heart failure.*

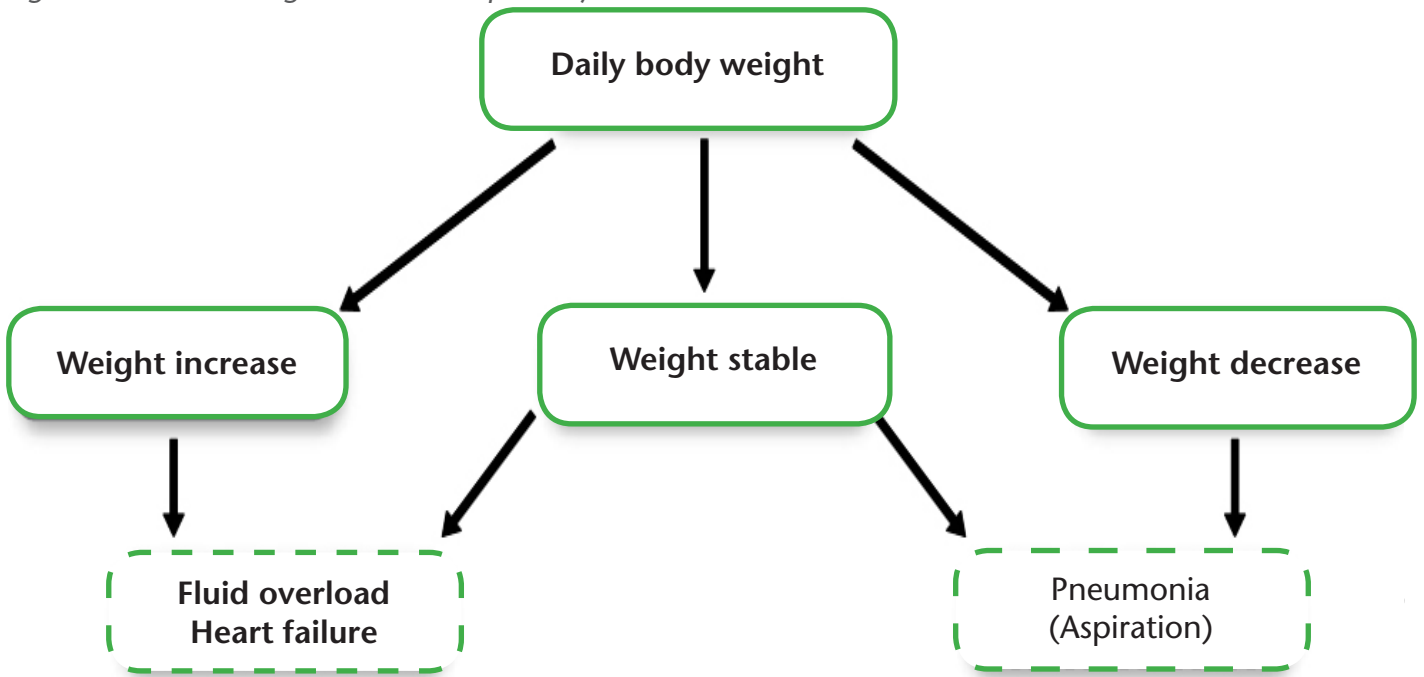
## **i. Preventing congestive cardiac failure in severe malnutrition**

- Cautious feeding, only give the prescribed amount of feeds.
- Avoid blood transfusion and only transfuse if client is very severely anaemic (Hb  $< 4$  g/dL):
  - Cautiously use packed cells 10 ml/kg or whole blood 15ml/kg)
  - Give anti-diuretics (Frusemide 1 mg/kg) at start of transfusion
  - Transfuse slowly for over 3 hours
  - Do not repeat transfusion, at least till after 7 days
- Rehydrate cautiously:
  - Give IV fluids only in severe dehydration and only when you are not able to give orally or by NGT
  - Use oral route or NGT
  - Give appropriate solution (ReSoMal) that contains low sodium content and high potassium
  - Use IV route only for clients who are unconscious or in shock with the appropriate fluid in the right amount (10 ml/kg); change to oral rehydration as soon as client regains consciousness
- Ensure adequate electrolytes, avoid sodium.

## **j. Treating congestive cardiac failure**

- Stop all fluids and feeds until cardiac function improves.
- Administer diuretic (Frusemide 1 mg/kg). This is to reduce fluid and leave way for blood.
- Position the individual to an upright sitting position and provide oxygen.
- Digoxin and cardio tonics not often advised due to the state of hypokalaemia.

Figure 12. Monitoring a client in respiratory distress



#### k. Monitoring a client in cardiac failure

Close monitoring of a client in cardiac failure is essential during treatment. Important parameters should be taken frequently and recorded in the clinical monitoring form (CMF) (refer to Annex 15). These include:

- Pulse rates every 30 minutes
- Respiratory rates every 30 minutes
- An assessment of the engorgement of the neck vein
- An assessment of the liver size and tenderness
- Oxygen flowing

#### 6.3.1.3 STEP 3: Correction of electrolyte imbalance

All clients with SAM have excess body sodium even though plasma sodium may be low (giving high sodium loads will kill). Deficiencies of potassium and magnesium are also present and may take at least two weeks to correct. Oedema is partly due to these imbalances. Do NOT treat oedema with a diuretic.

Give extra potassium 3-4 mmol/kg/day and extra magnesium 0.4-0.6 mmol/kg/day. When rehydrating, give low sodium rehydration fluid (e.g., ReSoMal) and if you provide homemade food, prepare it without salt. The extra potassium and magnesium can be prepared in a liquid form and added directly to feeds during preparation. When the combined mineral vitamin mix (CMV) for SAM is available commercially, the CMV replaces the electrolyte/ mineral solution and multivitamin and folic acid supplements.

However, a large single dose of vitamin A and folic acid on Day 1 (for those without oedema) and iron daily after weight gain has occurred (and if not taking RUTF) should still be given.

#### 6.3.1.4 STEP 4: Treatment/Prevention of infection and micronutrient deficiencies

In SAM, the usual signs of infection, such as fever, are often absent and infections are often hidden. Therefore:

- Ensure that all patients admitted to the ITC in Phase 1 commence medical treatment immediately on admission.
- Ensure that routine medications are given as shown in Table 10.
- Nutrition treatment should also start immediately.
- Promptly manage medical conditions and nutrition-related complications.
- A client should remain in Phase 1 until appetite improves and he/she completes the prescribed

quantity of therapeutic diet for Phase 1 (F75 or equivalent) (refer to Annex 11 and Annex 12).

- For clients transferred from OTC or SF programme their medications should be reviewed before considering the above. For HIV+ clients and children exposed to HIV, provide Cotrimoxazole for pneumocystis carinii pneumonia (PCP) prophylaxis.

*Note: There are a number of different types and strengths of Cotrimoxazole and it is important that depending on the drug availability that the right dose is given to the different groups by body weight. Refer to Table 11 for guidance on the correct dosage.*

Table 10. Routine medical treatment in ITC

Drug	Type	Frequency
Antibiotic	<p><b>Routine first line treatment:</b> Amoxicillin Oral: Children 50-100 mg/kg over 24 hours 12 hourly &amp; Adults: 500 mg 12 hourly OR Ampicillin IV or 1M: Children (50 mg/kg 6 hourly for 2 days) Adults: 500 mg every 4-6 hours if improving follow on with amoxicillin orally for at least 7 days in total</p> <p><b>Second line treatment:</b> If patient fails to improve within 48 hours add Gentamycin 7.5 mg/kg IM/IV once daily or Chloromphenicol 25 mg/kg-IM/IV</p> <p><b>Third line treatment:</b> At the discretion of the medical doctor and for each individual patient. <i>Note: Wherever possible, antibiotics should be given orally or by NGT. Indwelling cannulae should rarely be used.</i></p>	<p>Twice daily for 7 days Six hourly for 2 days and if improving change to oral medicine Gentamycin daily Chloromphenicol 8 hourly</p>
Vitamin A Vitamin A should not be given to clients with oedema, should be given on discharge with the exception of the presence of clinical signs of Vitamin A deficiency	<p>6 to 12 months: 100, 000 IU (1 blue capsule or half red or yellow capsule = 4 drops) &gt; 12 months: 200, 000 IU (1 red/yellow capsule OR 2 blue capsules) <i>Note: If there are any signs of Vitamin A deficiency give three doses on day 1, day 2 and day 14.</i></p>	<p>On admission, unless there is definite evidence that a dose has been given in the last month. If bilateral pitting oedema is present, provision of vitamin A is delayed until the oedema is resolved.</p>
Folic acid	<p>If there are signs of anaemia 5 mg (F75/RUTF have sufficient content of folic acid) Single dose of 5 mg where CMV is included in feeds</p>	<p>On admission</p>
Anti-malarial I	<p>Treat malaria if symptoms are suggestive of it or blood test is positive for malaria parasite, according to the national protocol</p>	<p>Give as per national protocol</p>
Measles immunization <sup>2</sup>	<p>9 months (up to 5 years) if no record that it has been given before</p>	<p>On admission (first dose) Second dose at end of Phase 2 or 1 month after first dose</p>

<sup>2</sup> Management of severe Malnutrition: A manual for physicians and other health workers, WHO 1998.

Table 11. Medication for HIV exposed or infected clients

Body weight	Cotrimoxazole strength			
	Suspension	Paediatric	Regular	Double
1-4 kg	2.5 ml	1 tab	¼ tab	–
5-8 kg	5.0 ml	2 tabs	½ tab	¼ tab
9-16 kg	10.0 ml	–	1 tab	½ tab
17-50 kg	–	–	2 tabs	1 tab
> 50 kg	–	–	2 tabs	2 tabs

Suspension [40 mg TMP/100 mg SMX, (120 mg)]  
 Paediatric strength [20 mg TMP/100 mg SMX (240 mg)]  
 Regular strength [80 mg TMP/400 mg SMX, (480 mg)]  
 Double strength [160 mg TMP/800 mg SMX, (960 mg)]

### 6.3.1.5 STEP 5: Starting on cautious feeding

A cautious approach to feeding is required in the ITC phase because of the client's fragile physiological state and reduced homeostatic capacity. Feeding should be started as soon as possible after admission and should be designed to provide just sufficient energy and protein to maintain basic physiological processes.

For all malnourished clients admitted to the ITC in Phase 1 the diet given is ONLY the specialised F75 milk or an F75 diet of locally made-up milk. This is calculated on individual body weight of each client (refer to Annex 11).

- Feed 3 hourly.
- For very ill clients feed more frequently (two-hourly).
- For clients with gross oedema reduce quantity of milk per feed by 20%.
- For clients identified with lactose intolerance, refer to section on medical complications.
- Meal times should be sociable. The caregivers should sit together in a semi-circle around an assistant who should talk to them, encourage them, correct any faulty feeding technique and observe how the client takes the milk.
- For children with SAM, the caregivers' meals should never be taken beside the child. Sharing of the meal with the child can be dangerous given their delicate pathophysiology. If the caregiver's meal has added salt or condiments, it can be sufficient to provoke heart failure.

#### Box H. Preparation of F75

Add one packet (410g) of F75 to two (2) litres of water. Water must be boiled and cooled prior to mixing. Smaller volumes can be mixed using the red scoop (4.1g) included with the F75 package (add 20 ml water per red scoop (4.1g) of F75), or follow manufacturer's instructions. Only prepare enough F75 for 3-4 hours. If there is access to a refrigerator, already prepared F75 can be stored for a maximum of 12 hours.

If commercial F75 is not available, refer to Annex 12 for alternative recipes. Recipes can be made by using either dry skimmed milk (DSM), dried whole milk (DWM), fresh cow's milk, fresh goat's milk, whole eggs or egg yolks with other ingredients including oil, sugar and pre-cooked cereals. The use of pre-cooked cereals means that the milk will cook quickly (if available). Combined mineral vitamin mix (CMV) must be added to locally made-up milks to achieve the micronutrient requirements. If CMV is not available, a mineral vitamin mix can be made, though it is difficult to prepare the necessary ingredients in such minute quantities.

*Note: If overnight feeding is a problem due to staffing levels or other issues the amount required in a 24-hour period needs to be given during the day once the client stabilises. It can be given in 6 feeds (i.e. from 6 am to 9 pm, three-hourly). This ensures that the calorie requirements are taken.*

## a. Feeding methods

Two feeding methods are recommended: oral or by GNT.

### i. Oral feeding

Due to muscle weakness and slow swallowing, the risk of aspiration pneumonia is high especially for malnourished children. Therefore, great care must be taken while feeding. Preferably use a cup when feeding children with SAM. Very weak children may be fed using a spoon, dropper or syringe.

During stabilisation, feeds should be provided at least every three hours (eight feeds per day) to prevent hypoglycaemia. It is important that feeds are provided to the child during the day and at night. Breastfeeding children should be offered breast milk on demand before being fed F75.

- Make the child sit straight up (vertical) on the caretaker's lap. The child should lean against the caretaker's chest wrapping an arm behind the caretaker's back. The caretaker's arm also encircles the child. The caretaker then holds a saucer under the child's chin.
- Any dribble that fall into the saucer is returned to the cup.
- Supervision of the caregivers by a staff member is recommended.

*Caution: The child should never be force-fed, should never have his/her nose pinched, and should never be laid on the back to have the milk poured into its mouth.*

Older children, adolescents and adults should receive the same F75 milk formula as children. Encourage adolescents and adults to take this formula milk alone.

### ii. Feeding by naso-gastric tube (NGT) during stabilisation (Phase 1)

If the client is either unable to swallow or very weak, milk should be given by NGT. At each meal, encourage the client to feed by mouth. The remaining milk should be fed by NGT.

Indications for a NGT feeding:

- Anorexia (poor appetite) with less than 75% of prescribed F75 taken per day
- Repeated vomiting
- Severe dehydration
- Severe pneumonia
- Client too weak to drink and shows difficulty remaining conscious
- Painful mouth lesions/ulcers or deformity such as cleft palate
- Client experiencing disturbances of conscious/unconscious state.

Before each feed, check the NGT to ensure it is placed in the stomach. Check that the tube is correctly in place and not blocked. This you can check by placing the tube end in a cup of water. If the water bubbles, the tube is in the wrong place. Make sure you rinse the NGT after each feed.

When to remove the NGT:

- When at least 80% of the day's amount has been taken orally.
- When two consecutive feeds have been taken fully by mouth.
- The use of the NGT should not exceed three days.

It is important that the child continues to be breastfed where appropriate. Breastfeeding should be between scheduled feeding times and on demand.

In Phase 1, it is important that oedema, if present, reduces. It is only when oedema has reduced from +++/ Grade 3 to ++/Grade 2, that clients can graduate to the transition. Clients who require IV therapy or NGT feeding must have completed these therapies before transfer to the transition. They should normally be in Phase 1 for at least 2-3 days and sometimes longer, but they should not remain there for too long (more than 7 days) as they will not gain weight on the prescribed milk diet in Phase 1.



## b. Monitoring during stabilisation (Phase 1)

Individual monitoring of clients with SAM in the stabilisation should be done continuously. Based on improvement in the client's condition, a decision can be made on progression to the next phase of treatment. The following parameters should be monitored daily:

- Body temperature measured twice per day.
- Standard clinical signs (stool, vomiting, dehydration, cough, respiration, liver size), skin condition and peri-anal lesions. Note them on the multi-chart.
- Weight measured at the same time (before or after feeds) every day, entered and plotted on the multi-chart.
- The degree of oedema (0, +/-Grade 1, ++/Grade 2, +++/Grade 3).
- Record on the intake part on the multi-charts if the patient vomits or refuses a feed, and whether the patient is fed by NGT or is given an IV infusion or transfusion.

During stabilisation, any diarrhoea should gradually diminish and clients with bilateral pitting oedema should start losing weight. If diarrhoea continues despite cautious re-feeding or worsens substantially, re-evaluate the client.

### 6.3.2 Transition: increased diet and prevention of complications

This stage prepares clients for Phase 2 (rehabilitation/catch up growth) either at the ITC or OTC facility. During this stage, the diet changes from F75 to either F100 or RUTF of 100kcal/kg body weight/day (Annex 13). RUTF is gradually introduced at this stage. The acceptability of RUTF is tested by offering it to the child at every feeding. When the child eats at least 75 percent of the required amount of RUTF, then the child is ready for discharge to OTC to continue with treatment. Clients normally remain in transition for about three days.

The number of feeds, timing and volume remain the same as those in Phase 1. The clients are transitioned to F100 and to RUTF as they can tolerate.

In transition, the management of older children and adults with acute malnutrition is the same as that of younger children 6-59 months. Older children and adults often become hungry and demand a diet based on traditional foods. Continue to give the F100 or RUTF and add locally available nutritious foods. This would however need to be regulated. Too much weight gain in transition is a danger sign.

#### 6.3.2.1 Feeding procedure

- Provide the RUTF to the caregiver to feed the client.
- The caregiver should be encouraged to provide small, frequent RUTF feeds every four hours (five to six times per day).
- Breastfeeding children should be offered breast milk on demand before being fed with RUTF.
- Clients should be offered as much water to drink as they can take during and after they have taken some of the RUTF.
- Never force clients to eat.

#### Box 1. Preparation of F100

Prepare F100 by adding a sachet of F100 milk powder to 2 litres of boiled cooled water. If only small quantities of milk are required (for children in need of nutritional rehabilitation), then add one (1) red scoop (4.1g) powder milk to 18ml boiled and cooled water. For small quantities of locally made-up milk, see recipes in Annex 12.

## a. Nutrition support: diet and frequency

Clients on F100/RUTF should receive an amount calculated on individual body weight as indicated in Annex 13.

Transition feeding options:

- Feed three-hourly if staffing levels at night are adequate and patients will receive the prescribed diet overnight.
- Feed 5-6 times daily and not over-night if staffing levels are low and it is unlikely that feeding will be done over-night.

### **b. Use of RUTF in transition**

As a guide for estimating the RUTF, 100ml F100 is equivalent to about 20g of RUTF. The advantage of using RUTF at the facility level is that where there are few staff and inadequate coverage at night, RUTF becomes useful if clients ask for food (ready to eat). Where RUTF is given, the client has a high chance of early discharge to OTC.

Mixed feeds are introduced during transition. Gradual introduction of RUTF is promoted as soon as the client's appetite returns. Some children might initially refuse the RUTF, however continue to offer RUTF at every feed until they eat the full diet.

The diet should provide an average increase in energy intake of about one-third daily over the amount given during stabilisation, i.e. 150 kcal/kg bodyweight/day.

### **c. Providing medical treatment in the transition**

Continue the routine medical treatment (refer to Table 10) and record on the CMF. Give any specific medical treatment prescribed on the CMF and record.

#### **6.3.2.2 Monitoring during the transition**

In transition, individual monitoring of clients with SAM is done daily. Based on improvements in the client's condition, a decision should be made on progression to the next phase (i.e. referral to OTC to continue rehabilitation or remaining in ITC until full recovery). Clients with bilateral pitting oedema (kwashiorkor) should remain in transition until there is a definite and steady reduction in oedema.

The following parameters should be monitored daily and entered on the client's treatment card (or multi-chart):

- Weight
- Degree of oedema (0/no oedema to +++/Grade 3)
- Body temperature
- Standard clinical signs: stool, vomiting, dehydration, cough, respiration and liver size
- Other records: e.g., absent, vomits, refuses a feed
- Mood or smile

#### **6.3.2.3 HIV testing**

All infants and children (six weeks and older) with SAM should be referred for HIV testing using the DNA/PCR test. If the infant's HIV status is known, the guidance offered can be tailored to take the family's socio-economic situation into consideration. Refer to the Uganda policy guidelines on infant and young child feeding (2009) for further information on appropriately supporting feeding for all infants including those who are HIV positive/exposed. Mothers should be offered routine counselling and testing, routine medical treatment and nutritional support with a well balanced diet.

#### **6.3.2.4 Criteria for transfer from transition back to Phase 1**

All clients who develop signs of medical complications shown below should be returned to Phase 1:

- Loss of appetite and not taking 80% of the measured feeds
- Increasing/development of oedema
- Medical conditions not improving or just deteriorating
- Increase in weight by > 10 gm/kg/day (in association with an increase in respiratory rate, this is indicative of excess fluid retention)
- Rapid increase in the size of the liver

- Any signs of fluid overload
- Tense abdominal distension
- Significant re-feeding diarrhoea so that there is weight loss

*Note: It is common for children to get some change in stool frequency when they change diet. This does not need to be treated unless the children lose weight. Several loose stools without weight loss is not a criterion to move back to stabilisation.*

- A complication that necessitates an intravenous infusion
- A need for feeding by NGT

### 6.3.2.5 Criteria for transfer from transition to OTC

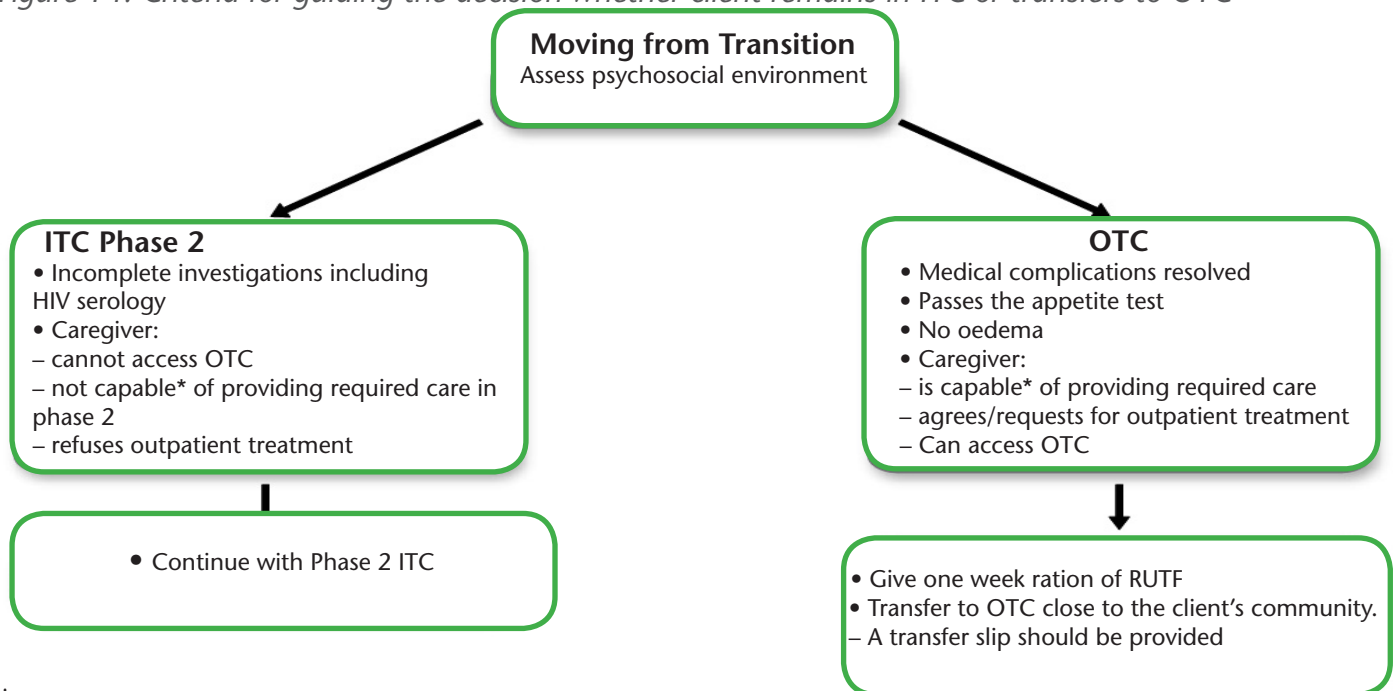
- Good appetite (if the client passes the appetite test and takes more than 75 percent of the daily ration of RUTF)
- Reduction of oedema to ++/Grade 2) or +/Grade 1)
- If medical complications have been resolved
- If client is clinically well and alert

### 6.3.2.5 Criteria for transfer from transition to Phase 2 in ITC (for the very few exceptions who cannot transition to RUTF)

- A good appetite: this means taking at least all of the F100 prescribed for the transition (150 kcal/kg/day)
- Oedema reducing to ++/Grade 2) or +/Grade 1)
- If medical complications have been resolved
- Clinically well and alert

The decision on whether to transfer a client to OTC or retain him/her in ITC needs to be based on the factors shown in Figure 14

Figure 14. Criteria for guiding the decision whether client remains in ITC or transfers to OTC



\* Capable refers to caregiver willing and able to treat SAM at home

### 6.3.3 Rehabilitation/Phase 2

Prepare for follow-up of clients in OTC. A client progressing to the rehabilitation on RUTF can be discharged from ITC to OTC and monitored weekly or biweekly in the outpatient department of the same health facility or another one that is close to his/her community (refer to Chapter 6 for details on monitoring).

#### 6.3.3.1 Medical treatment

The client should continue to receive any prescribed drugs and complete the course. While in Phase 2, the client can still develop medical complications such as infections, hence regular clinical examination should be continued to identify cases with medical complications and those not responding to nutritional treatment. Routine medicines, as shown in Table 12, and supplements should follow the schedule as described in OTC.

Table 12. Routine medicines

Medication	What to give/use	Frequency
Iron supplement	Ferrous sulphate 300 mgs/day If child is on F100, iron sulphate is added to F100 (one crushed tablet – 200 mg of iron sulphate – is added to 2-2.4 L of F100) <i>Note: Provide iron to those with signs of anaemia. Although anaemia is common in Uganda, iron should not be given until the patient has a good appetite and starts gaining weight (usually by the second week in OTC), as giving iron can make infections worse. Make sure the client is tested and treated for malaria before providing iron.</i>	Given only after 14 days of treatment Iron supplements should not be given if client is using RUTF (RUTF contains enough iron for a SAM child)
De-worm <sup>3</sup>	Mebendazole > 1 year: 500 mg Albendazole ≥ 1 year: 200 mgs Albendazole > 2 years: 400 mgs	Single dose on transfer to OTC or in Phase 2 ITC
Measles immunisation <sup>4</sup>	9 months (up to 5 years) if no record that it has been given before	Second dose at end of Phase 2 or 1 month after first dose

#### 6.3.3.2 Dietary treatment

- Clients that are not taking RUTF as inpatients are fed with F100.
- Provide F100 according to client's bodyweight.
  - Give 200 ml of F100 (200 kcal) per kg bodyweight per day.
  - Use the look-up tables (refer to Annex 13) for the volume of F100 to give per feed in the inpatient rehabilitation according to client's bodyweight.
  - Give four hourly feedings of F100 per day for clients weighing ≥ 8 kg (approximately 24 months of age).
  - Give four hourly feedings of F100 and one porridge meal per day for clients < 8 kg.
- Breastfeeding children over 6 months of age should be offered breast milk on demand before being fed F100.

*Note: Children weighing less than 4 kg must be given F100 diluted. They should never be given full-strength F100 (see regimen in Chapter 7).*

Report of the WHO Informal Consultation on the use of Praziquantel during Pregnancy/Lactation and Albendazole/Mobendazole in Children under 24 months

4 Management of severe malnutrition: A manual for physicians and other health workers, WHO 1998

### 6.3.3.3 Feeding procedure

- Feed by cup and saucer.
- Breastfeeding children should be offered breast milk on demand before being fed F100.
- After the feed, always offer an additional quantity to the client if he/she takes what was given quickly and easily. The client should be able to take as much F100 as they want.
- Gradually replace one feed per day with porridge.

#### 6.3.3.4 Provide psychosocial support

Children with SAM have delayed mental and behavioural development. During recovery, they need increasing emotional and physical stimulation through play. Play programmes should be introduced during rehabilitation and continued after discharge to reduce the risk of permanent mental retardation and emotional problems.

Provide:

- Tender loving care
- A cheerful stimulating environment
- Structured play therapy for 15-30 minutes per day
- Maternal involvement when possible (e.g. comforting, feeding, bathing, playing)

Provide an environment for psychosocial stimulation such as provision of indoor games, toys for children, and bright colours. Hang colourful/pretty cuttings and allocate play area, if possible. Mothers and caregivers should be counselled and encouraged to play with their children using homemade toys.

It is important that each child individually plays at least 15-30 minutes daily.

#### 6.3.3.5 Monitoring during Phase 2

Individual monitoring of the recovering child in OTC rehabilitation is done daily. The following parameters should be monitored daily and recorded on the treatment card (multi-chart):

- Body temperature, pulse and respiration rate twice a day.
- Weight, which should be plotted on the CMF (refer to Annex 15).
- Degree of oedema (0 to +++/Grade 3) daily.
- Standard clinical signs such as the frequency of stools, any vomiting, dehydration, cough, respiration, liver size;
- Length or height taken after 21 days (when a new multi-chart sheet is used).
- Other records e.g. absence, vomits and refusal to feed.
- A full medical examination done every two days.
- The client's fluid and RUTF intake. Record if patient is absent at mealtime, has refused diet or has vomited.

#### 6.3.3.6 Criteria to move back to stabilisation (Phase 1)

If a client develops any signs of a medical complication, he/she should be referred back to stabilisation. Routine drugs are individually prescribed depending on what has already been given and the cause of the referral.

##### a. Failure to respond to treatment in ITC

Some clients undergoing ITC for the management of SAM may fail to respond to treatment or exhibit deterioration in condition at different stages of the treatment. Clients who fail to respond to therapy should be investigated and treated appropriately. The most frequent causes of failure to respond to inpatient treatment are listed in Box I.

Always systematically examine the common causes of failure to respond as well as death. Chronic infections such as HIV/AIDS and TB can be one such cause. Clients with SAM admitted to the ITC should be tested for HIV/AIDS and TB. Identify areas where case management practices should be improved in order to rectify the problems.

If these actions are not immediately successful, an external evaluation by someone experienced in ITC for SAM should be conducted. An investigation into the organisation and application of the protocol for treatment should be carried out as part of the evaluation. Review the supervision of staff with refresher training, if necessary.

Related to the health facility:

- Poor environment for malnourished clients
- Lack of adherence to treatment protocols for SAM
- Failure to treat malnourished children in a separate area
- Failure to complete the client treatment card (multi-chart) correctly resulting in gaps in data for monitoring the client's progress
- Insufficient staff (particularly at night) or inadequately trained staff
- Inadequate supervision and constant rotation of staff in the treatment facility
- Inaccurate weighing machines
- Food prepared or given incorrectly

Related to the individual client:

- Insufficient feeds given
- Vitamin and mineral deficiencies
- Malabsorption
- Psychological trauma (particularly in refugee situations and families living with HIV)
- Rumination
- Infection, especially diarrhoea (amaebiasis, giardiasis, dysentery), pneumonia, TB, urinary infection/otitis media, malaria, HIV/AIDS, schistosomiasis, Kala Azar/Leishmaniasis, and/or hepatitis/cirrhosis
- Other serious underlying disease: congenital abnormalities (e.g., Down's syndrome), neurological damage (e.g. cerebral palsy), inborn errors of metabolism

### 6.3.3.7 Criteria for discharge from ITC after full recovery

Clients that meet the discharge criteria are discharged as cured. It is recommended that the following elements are considered on discharge:

- Health and nutrition education scheme has been completed.
- For children, immunisation schedule has been updated.
- Adequate arrangements for linking the caregiver and client with appropriate community initiatives and for follow-up have been made.

#### a. Discharge procedures

The following elements should be addressed before the client is discharged:

- Provide feedback to the client or caregiver on the final outcome of treatment.
- Counsel the client or caregiver on good feeding and care practices, including providing and preparing appropriate complementary food.
- Ensure the client or caregiver understands the importance of follow-up care to prevent relapse.
- Record discharge outcome in the register and on the treatment card.
- Advise the client or caregiver to immediately go to the nearest health facility if he/she fails to eat, or the child refuses to eat, or has any of the following signs:
  - High fever
  - Frequent watery stools or stools with blood, or diarrhoea lasting more than four days
  - Difficult or fast breathing
  - Vomiting
  - Not alert, very weak, unconscious, getting convulsions
  - Bilateral pitting oedema

Other clients that are referred as discharged but who did not meet the discharge criteria are those who:

- Died while in ITC
- Defaulted, or were absent for two days
- Spent four months in ITC but did not recover or meet the discharge criteria

Table 13. Types of discharges, conditions and actions from ITC

Category of discharge	Discharge criteria	Action
Discharged/Cured	<ul style="list-style-type: none"> <li>• Acute medical conditions have been resolved</li> <li>• The client is eating well (can eat family foods)</li> <li>• Weight gain of <math>\geq 20\%</math> for children (age category)</li> <li>• Weight gain of <math>\geq 10\%</math> for adults</li> <li>• No bilateral pitting oedema for two weeks</li> <li>• Clinically well and alert</li> </ul>	<ul style="list-style-type: none"> <li>• Transfer to SF if accessible/available for follow up once every month for three months</li> <li>• Refer for follow-up at closest health facility and community</li> <li>• Link to the available livelihood programmes</li> <li>• For HIV-positive clients, ensure ongoing treatment through an HIV treatment programme</li> </ul>
Discharge to OTC	<ul style="list-style-type: none"> <li>• No worrying medical condition</li> <li>• Passed appetite test</li> <li>• In Transition and taking RUTF</li> <li>• Oedema if present has reduced to +/Grade 1 or ++/Grade 2</li> </ul>	<ul style="list-style-type: none"> <li>• Transfer to nearest functional OTC if available</li> </ul>
Died	<ul style="list-style-type: none"> <li>• Died while on programme</li> </ul>	<ul style="list-style-type: none"> <li>• Complete file and card appropriately</li> </ul>
Defaulted	<ul style="list-style-type: none"> <li>• Absent for two consecutive days</li> </ul>	<ul style="list-style-type: none"> <li>• May re-enter the ITC if client meets the admission criteria</li> <li>• Give new admission registration number and involve the village health team for follow-up during home visits, if available</li> </ul>

Staff at these facilities should have been specifically trained in the management of SAM and in recognising and treating SAM with medical complications.



# ◆ Inpatient care for the management of SAM in infants 0-6 months of age

## 7.0 Introduction

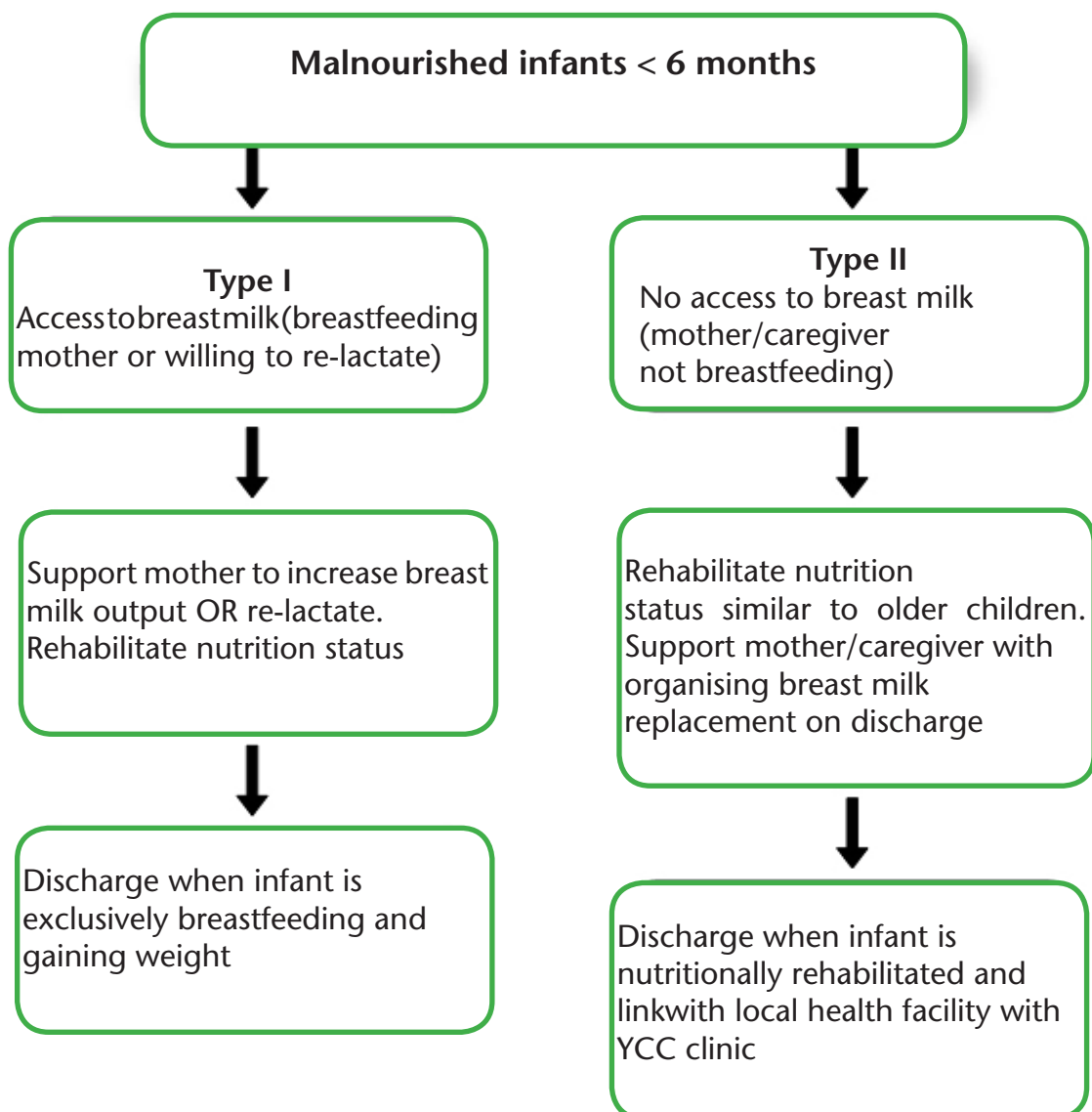
Infants of less than six (6) months old with SAM or children over 6 months old with a weight less than 3 kg should always be treated in an inpatient unit until discharge. RUTF is not suitable for infants of less than 6 months. The main objective of ITC is to improve or reestablish breastfeeding; provide temporary or longer-term appropriate therapeutic feeding for the infants; as well as provide nutrition, psychological and medical care for their caregivers.

## 7.1 Admission criteria

- Infants less than 6 months old with any form of oedema, visible wasting or WFH of less than -3.
- Infants not gaining weight satisfactorily at home.
- Infants less than 6 months old who are too weak/feeble to breastfeed (independent of weight).
- Children with a weight of less than 4 kg.
- 

As shown in Figure 15 below, infants with SAM are categorised into two groups: Type I and Type II.

Figure 15. Decision tree for management process of infants < 6 months with SAM



### 7.1.1 Type I infants with SAM

They are often weak and do not suckle strongly enough to stimulate adequate production of breast milk. The mother often thinks that she has insufficient breast milk and is apprehensive about her ability to adequately feed her child. The low output of milk is due to inadequate stimulation by the feeble infant. Breast milk supply is demand-led; the more the baby breastfeeds, the more breast milk the mother will produce. The objective of treatment of these infants is to return them to full exclusive breast feeding.

### 7.1.2 Type II infants with SAM

In the case of malnourished infants of less than 6 months old who are not breastfeeding, there may be a number of reasons for this. The mother might be ill or might have died. The mother might have decided not to continue to breastfeed for some reasons. Ideally if the mother/caregiver would consider re-lactating, this would be the best option. However, sometimes there is no opportunity for breastfeeding.

Note: Low birth weight infants not severely wasted or oedematous should be managed according to the WHO guidelines specifically for “low birth weight babies”. They should only be admitted to ITC if they meet the admission criteria similar to that of other clients admitted to ITC (refer to Chapter 4 and 6).

## 7.2 Monitoring infants with SAM

All acutely malnourished infants < 6 months with or without oedema are fragile and require close monitoring. These infants need to be reviewed by a nurse or doctor each day who should:

- Take vital signs (temperature, pulse and respirations) twice daily or more frequent if child is very unstable
- Weigh infant daily
- Assess and record oedema (+/Grade 1, ++/Grade 2, +++/Grade 3)
- Record amount of milk taken at each feed
- Record if infant was absent, refused diet, was vomiting and/or had diarrhoea
- Record all this information in the CMF (Annex 15)

## 7.3 Medical management, treatment and micronutrient supplementation

The medical care is the same for all malnourished clients with doses specific to body weight. Table 14 shows the treatment and corresponding dosage.

Table 14. Treatment and dosage

Category of discharge	Discharge criteria
Antibiotics	Amoxicillin is provided to infants weighing more than 2 kg at a rate of 30 mg/kg two times per day (60 mg/kg/day) in association with Gentamycin. <b>Do not use Chloramphenicol in young infants.</b>
Vitamin A	Give 50,000 IU in a single dose upon admission only
Folic acid	Give 2.5 mg (one tablet) in a single dose.
Ferrous sulphate	As soon as the child suckles well and starts to grow, use F100, which has been enriched with ferrous sulphate, diluted with one-third water (F100 diluted). It is easier and safer to use F100 diluted than to calculate and add ferrous sulphate to very small amounts of feed.

## 7.4 Dietary care for infants under 6 months

The objective is to supplement the child's breastfeeding with therapeutic milk while stimulating production of breast milk. Breastfeeding/breast milk should be encouraged for malnourished infants unless under difficult circumstances (orphaned, abandoned, medical reasons). Mothers who have stopped breastfeeding should be counselled and supported to re-lactate.

The infant should be breastfed as frequently as possible, every three hours for at least 20 minutes (or more if the child cries or demands more). Between half an hour and one hour after a normal breastfeeding session, give maintenance amounts of therapeutic milk.

### 7.4.1 Infants with oedema

- Give F75 130ml/kg/day (100kcal/kg/day) divided into 8 feeds/day initially. Do not increase the amount of F75 during Phase 1.
- Feeding is done using the supplemental suckling technique (refer to Figure 15).
- Once oedema has reduced change to F100 diluted.

### 7.4.2 Infants without oedema (or subsided oedema)

- Give F100 diluted (130ml/kg/day) divided into 8 feeds/day.
- The quantity of F100 diluted is not increased as the child starts to gain weight.
- Feeding is done using the supplemental suckling technique.

#### Box K. F100 diluted for infants

Infants below 6 months of age should not receive F100 full strength as the consistency is unsuitable; F75 and F100 diluted have similar concentration to breast milk with around 75 calories per 100ml

F100 diluted → Add 1/3 extra safe water to the F100 (or 100ml F100 plus 35ml water to give 135ml of F100 diluted)

OR

One packet of F100 to 2.7 L of clean safe water instead of 2 L. Discard any excess milk after use.

If F100 is not readily available, infants can be fed with the same quantities of commercial infant formula diluted according to the instructions on the tin. If there is a range of milk formulas to choose from, use a formula designed for premature infants.

*Note: Infant formula is not designed to promote rapid catch-up growth.*

Unmodified powdered whole milk **should not** be used.

### 7.4.3 Special dietary considerations for infants with prospect of being breastfed

- The main admission criterion is failure to effectively breastfeed while the main discharge criterion is gaining weight on breast milk alone. These infants should be treated early as they have a higher risk of mortality.
- The objective of the treatment is to increase the mother's breast milk supply whilst giving a supplement to the infant until it reaches the stage where the mother's milk alone is sufficient to ensure the child's growth. Experienced health workers should support a mother who had stopped breastfeeding but is willing to re-lactate. She should be encouraged to breastfeed her infant one hour before the infant receives the supplement milk and also breastfeed on demand.

Table 15. Amounts of F75 or F100 diluted to give infants who are being breastfed

Class of weight (kg)	F100 diluted (8 feeds/day) (ml)
≤ 1.5	30
1.6 – 1.8	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

#### 7.4.4 The supplemental suckling technique

The Supplemental Suckling Technique (SST) is used to re-establish or commence breastfeeding, and also for providing maintenance amounts of F100 diluted to infants with SAM (refer to Figure 16). The supplementation is given using a naso-gastric tube (NGT) gauge, number 5 or 8, with one end of the tube at the mother's breast close to the nipple and the other end in the cup with the supplemental milk. The infant is nourished by the supplementary F100 diluted while the suckling stimulates the breast to produce more milk.

*Note: Only feed with a NGT when the infant is not taking sufficient milk by mouth. The use of a NGT should not exceed three days and should be used in the stabilisation (Phase 1) only.*

Figure 16: Supplemental Suckling Technique



#### 7.4.4.1 Steps in supplemental suckling

- Calculate the quantity of F100 diluted depending on infant's individual body weight (refer to Table 15) and place this amount in a cup. Let the mother hold the cup.
- Place one end of the tube in the cup, dipped in the F100 diluted.
- Strap the NGT to the breast and place the tip at the nipple.
- Help the mother to position the infant to the breast.
- Allow the infant to suckle with the tube in his/her mouth. The F100 diluted milk will be sucked through the tube into the infant's mouth.
  - The mother may need to be assisted until she gains confidence to hold and place the tube without assistance.
  - The amount of milk flow through the tube can be controlled by lowering the cup (to decrease amount) and lifting the cup higher (to increase amount).
  - The infant may take a day or so to get used to the tube, so the mother needs to be encouraged and supported.
  - It is important to continue with the same type of formula during supplementation to avoid change in taste that may affect successful supplementation (infant may refuse different tasting milk).
- The tube should be flushed with clean water using a syringe. Spin to remove the water in the lumen and store tube in a clean container until the next feed.

#### 7.4.5 Regulating the quantity of F100 diluted

- The infant's progress is monitored by changes in body weight. So it is important to weigh him/her daily with a scale, graduated to within 10g or 20g daily.
- If the child loses weight over three consecutive days yet seems hungry and is taking all the F100 diluted, add 5ml to each feed.
- If the child gains weight regularly with the same amount of F100 diluted, it means the quantity of breast milk is increasing. Do not increase the amount of F100 diluted provided.
- If after some days the child does not finish all the supplemental formula, but continues to gain weight, it means the breast milk is increasing and that the infant needs less of the supplemental milk.

##### 7.4.5.1 When an infant is gaining weight at 20g per day regardless of his/her weight

- Decrease the quantity of F100 diluted to one half of the calculated intake.
- If the weight gain is maintained at 10g/day regardless of his/her weight, stop supplemental suckling completely.
- However, if after reducing or stopping the F100 diluted the weight gain is not maintained, then increase the amount of F100 diluted back to the calculated amount for another 2 or 3 days, then reduce amount again if weight gain is maintained.
- If the mother accepts, keep the child for a few days longer on breast milk alone to make sure that he/she continues to gain weight. Otherwise, they can be discharged as soon as the infant breastfeeds eagerly.
- When it is certain that the infant is gaining weight steadily on breast milk alone he/she should be discharged to prevent cross infection, no matter what his current weight or weight for length is.
- Observe the signs of breast milk being produced.

Table 16. Discharge criteria and follow-up for breastfeeding infants

Discharge	Follow-up
<ul style="list-style-type: none"> <li>• Infant is able to suckle effectively</li> </ul> AND <ul style="list-style-type: none"> <li>• Has an ascending weight curve on exclusive breast milk</li> </ul> AND <ul style="list-style-type: none"> <li>• Has no symptoms of a medical problem</li> </ul>	<ul style="list-style-type: none"> <li>• Has no symptoms of a medical problem</li> <li>• Mothers referred to supplementary feeding programme</li> <li>• Monitor infant progress and support breastfeeding through nearest health facility or programme</li> <li>• Provide guidance on appropriate introduction of complementary foods</li> <li>• HIV exposed/positive infants should be referred and followed up in Paediatric HIV clinic /anti-retroviral therapy clinic</li> </ul>

#### 7.4.6 Infant feeding counselling and support

- Mothers should be counselled and supported to continue breastfeeding or to re-lactate if they had stopped.
- Infants should be supplemented with therapeutic milk, administered through the SST. This is necessary as a temporary measure until breastfeeding or re-lactation is fully established.
- HIV-positive mothers of infants with SAM, who chose not to breastfeed and do not meet the AFASS criteria for supplementary milk (i.e. acceptable, feasible, affordable, sustainable and safe may be counselled). If possible, they should be supported to re-lactate.<sup>5</sup>
- A mother choosing to re-lactate will need more support than a mother who is already breastfeeding.
- All mothers should be encouraged to put the infant to the breast as often as possible and for a longer period. Infants should be breastfed at least every two hours for at least 20 minutes. Frequent and prolonged suckling stimulates the production of milk.
- Mother and baby should sleep together to encourage breastfeeding especially overnight.

##### 7.4.6.1 Nutrition support for the breastfeeding mother

- All mothers who are breastfeeding/re-lactating should be counselled and supported on their own feeding and nutrition. Where possible, they should receive extra meals.
- All breastfeeding mothers should receive iron and folic acid supplements (60 mg of iron per day and 400 mg of folic acid), to complete 6 month supplementation.
- The mother should also receive vitamin A 200,000 IU if the infant is under 2 months.

##### 7.4.6.2 Nutrition care of the infant without prospect of being breastfed

Infants less than 6 months old, admitted with SAM, should be treated according to the standard protocol in stabilisation (Phase 1), transition and rehabilitation (Phase 2) as explained in Chapter 6. However, this should be done some dietary protocol modifications, as indicated below.

5 WHO recommends exclusive breastfeeding for HIV-exposed infants (infants whose mothers are HIV positive) for the first 6 months of life unless replacement feeding is acceptable, affordable, sustainable and safe (AFASS). When replacement feeding is acceptable, affordable, sustainable and safe, avoidance of all breastfeeding by HIV-infected women is recommended. (WHO, 2006 and Policy Guidelines on Infant and Young Child Feeding, Uganda MoH, 2008)

Table 17. F75 or F100 diluted for infants who are not breastfed (Phase 1)

Class of weight of infant (kg)	F100 diluted (8 feeds/day) (ml)
≤ 1.5	30
1.6 – 1.8	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

Infants with no prospect of being breastfed are transferred from Phase 1 when their condition has stabilised, medical complications are being treated, oedema is reducing if present and are taking all the prescribed F100 diluted. In the Phase 1, the diet remains the same, giving F100 diluted and gradually increasing the amount given to around 30% more than in Phase 1. The amounts shown in Table 17 are increased by 30%.

In Phase 2 the amount of F100 diluted given should double the amount offered in Phase 1 (see Table 18). This should be increased gradually during Transition.

Table 18. Amounts of F100 diluted for infants who are not breastfed (Phase 2)

Class of weight (kg)	F100 diluted (8 feeds/day) (ml)
≤ 1.5	60
1.6 – 1.8	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

- Continue giving F100 diluted throughout Phase 2, three-hourly, as these infants are small and cannot take large quantities of milk.
- These infants are discharged on anthropometric measurements as shown in Table 19.
- Counselling the caregiver/mother prior to discharge is important to identify how best to manage infants without breast milk supply. Options may include formula milk and modified animal milk.
- Counsel on danger signs that may require immediate presentation of the infant to a health facility.

Table 19. Discharge criteria and follow-up for non-breastfed infants

Discharge	Follow-up
<ul style="list-style-type: none"> <li>• W/L -1 z-scores or weight gain of 20%</li> </ul> AND <ul style="list-style-type: none"> <li>• Sustainable supply of breast milk substitutes and items required for safe preparation</li> </ul> AND <ul style="list-style-type: none"> <li>• Caregiver knows about safe preparation of the breast milk substitutes</li> </ul>	<ul style="list-style-type: none"> <li>• Monitor infant's progress closely, support safe replacement feeding and growth monitoring through close health facility or maternal and child health programme</li> <li>• Provide guidance on appropriate introduction of complementary foods</li> <li>• HIV exposed/positive infants should be referred and followed up in paediatric HIV clinic/anti-retroviral therapy clinic</li> </ul>

### 7.5 Follow-up

Continuity of care after discharge is important. Follow-up these infants to supervise the quality of recovery, the progress as well as to educate the caregivers. It is also important to support the introduction of complementary food at the appropriate age of 6 months.



## ◆ Emergency nutrition response

### 8.0 Introduction

Emergencies may be either man-made disasters, such as an exacerbation of an on-going conflict with population displacement, or due to environmental issues such as a serious drought or severe flooding/landslides. The local infrastructure may not have the capacity to respond due to limited resources particularly financial, human, logistics and/or structural limitations. Geographical isolation may further affect ability to respond. When situations such as this occur, especially if there is a substantial proportion of the population affected, there is a need to rapidly respond to prevent increased and/or excessive morbidity and mortality.

### 8.1 Steps for emergency nutrition response

#### 8.1.1 Step 1: Coordination and information sharing

Coordination of all the emergency activities at all levels and among all implementing partners is key to effectiveness. This prevents duplication of programmes and also identifies gaps that have not been met in each sector.

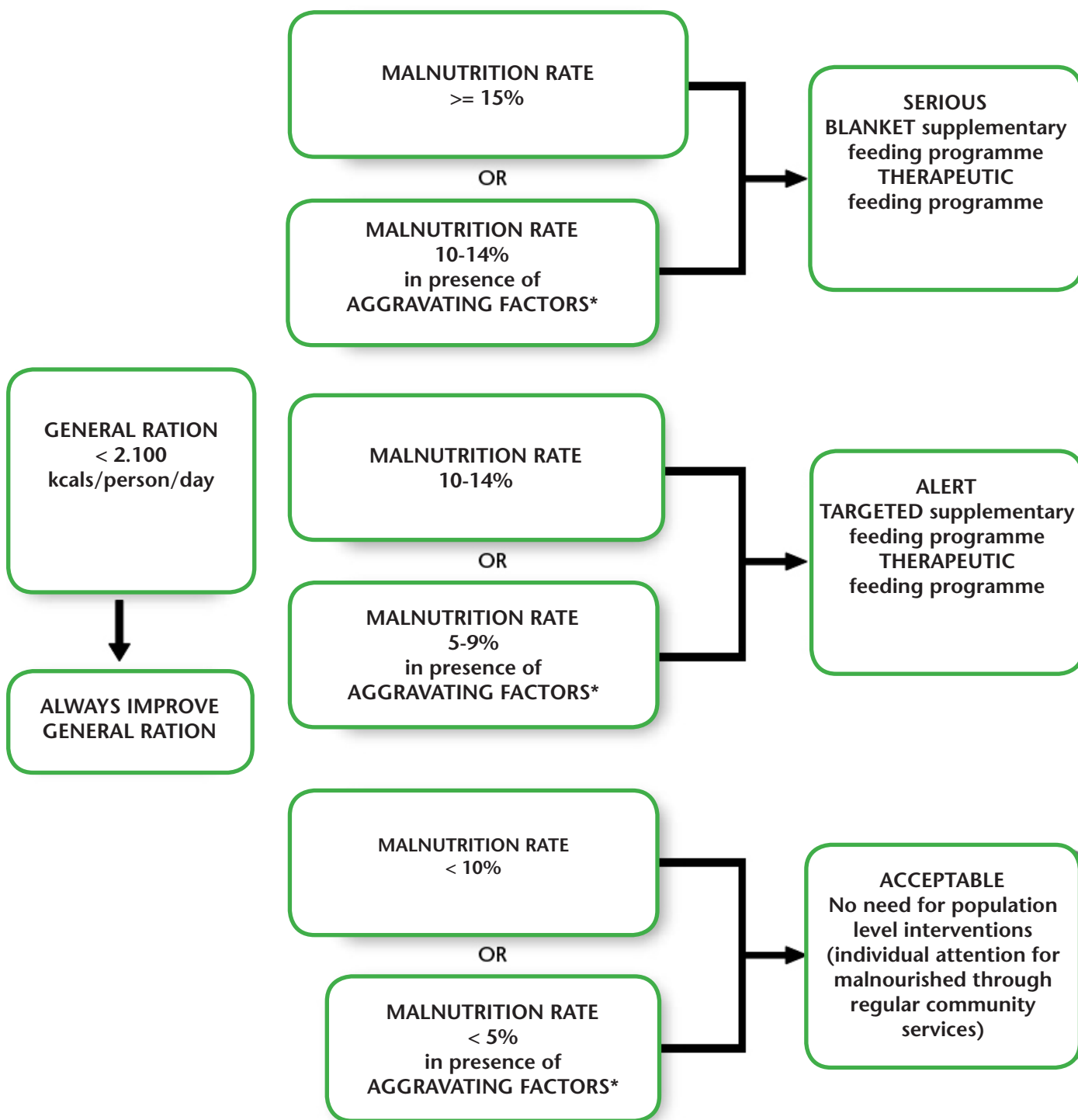
#### 8.1.2 Step 2: Rapid nutrition assessment

- Jointly plan and conduct an initial assessment to understand the situation and identify the extent of the threat to people's lives, their coping strategies and access to services such as health, safe drinking water/sanitation and basic diet. Use the National Nutrition Survey guidelines.
- Carry out ongoing nutrition surveys periodically during the programme, to monitor effectiveness of response.
- Conduct a multi-sectoral assessment, to understand the different factors affecting malnutrition (i.e. the immediate, underlying and basic causes). This will ensure a holistic approach to the management of acute malnutrition.
- Review existing interventions where an existing humanitarian response is in place but there is deterioration in the situation, and identify needs required to increase capacity to meet the demands of a deteriorating situation.

#### 8.1.3 Step 3: Selecting appropriate emergency nutrition responses

- When the emergency assessment reports indicate that the nutrition needs are unmet, and/or there are increasing/ high levels of acute malnutrition, appropriate responses are identified. A decision chart (refer to Figure 17) can be used for guidance on the type of response required.
- The under five age-group, pregnant and lactating women are usually the primary target in emergency nutrition interventions. Other identified vulnerable groups, such as the elderly and chronically ill, especially people living with HIV/AIDS (PLHA) and TB patients, should be targeted.

Figure 17 Decision tree for the implementation of selective feeding programmes (WHO 2000)



**Aggravating factors**

- General food ration below the mean energy requirements
- Crude mortality rate > 1 per 10,000 per day
- Epidemic of measles or whooping cough
- High prevalence of respiratory or diarrheal diseases

**Malnutrition rate**

- Proportion of child population (5 months to 5 years) who are:
- Below 80% weight for height or
  - Below -2 Z-score weight for height

(ref. Nutrition guidelines, MSF 1995. Management of nutrition in major emergencies. WHO (in press)

### 8.1.4 Step 4: Planning an emergency nutrition response

The response should include:

- A holistic approach to programming addressing identified needs in all/any sectors.
- A well-coordinated information sharing mechanism between different stakeholders (making gaps known).
- Protection of lives and livelihoods.
- Maximum positive impact and limit of harm (be aware of competition for scarce resources/ increased resources, misuse or misappropriation of supplies).
- Integration into Outpatient Department (OPD) for screening and/or Maternal and Child Health (MCH) department, which can ensure medical-nutritional follow-up of clients with MAM and SAM without complications or paediatric wards for those who have SAM with complications.
- Humanitarian services that are equitably and impartially provided.
- Joint planning and implementing with local authorities and the health sector at all levels.
- Selecting nutrition programme sites. Programme sites are identified depending on the population size affected the planned geographical coverage and accessibility. The size of the programme will depend on the population needs and the capacity of the implementing partner. The area can be defined by using administrative boundaries such as village, parish, sub-county, county and district lines or county/sub county lines, village and parish divisions.
- Implementing emergency nutrition responses. These responses are set-up to manage malnutrition as well as provide food to a population that does not have access to enough food. In essence, the emergency nutrition intervention works to stabilise the nutrition and food security situation, prevent deterioration in acute malnutrition and ultimately reduce high rates of malnutrition in vulnerable populations. There are three main nutrition relief responses:
  - General food distributions for all the affected households.
  - Supplementary feeding programme (SFP) for moderate malnourished individuals and at-risk groups (blanket or targeted).
  - Therapeutic feeding programme (TFP) for severely malnourished individuals.
 Emergency nutrition interventions require substantial resources to be set-up and monitored. Non-governmental organisations (NGOs) often support the Ministry of Health (MOH) with collaborative implementation.

#### 8.1.4.1 General food distribution (GFD) programme

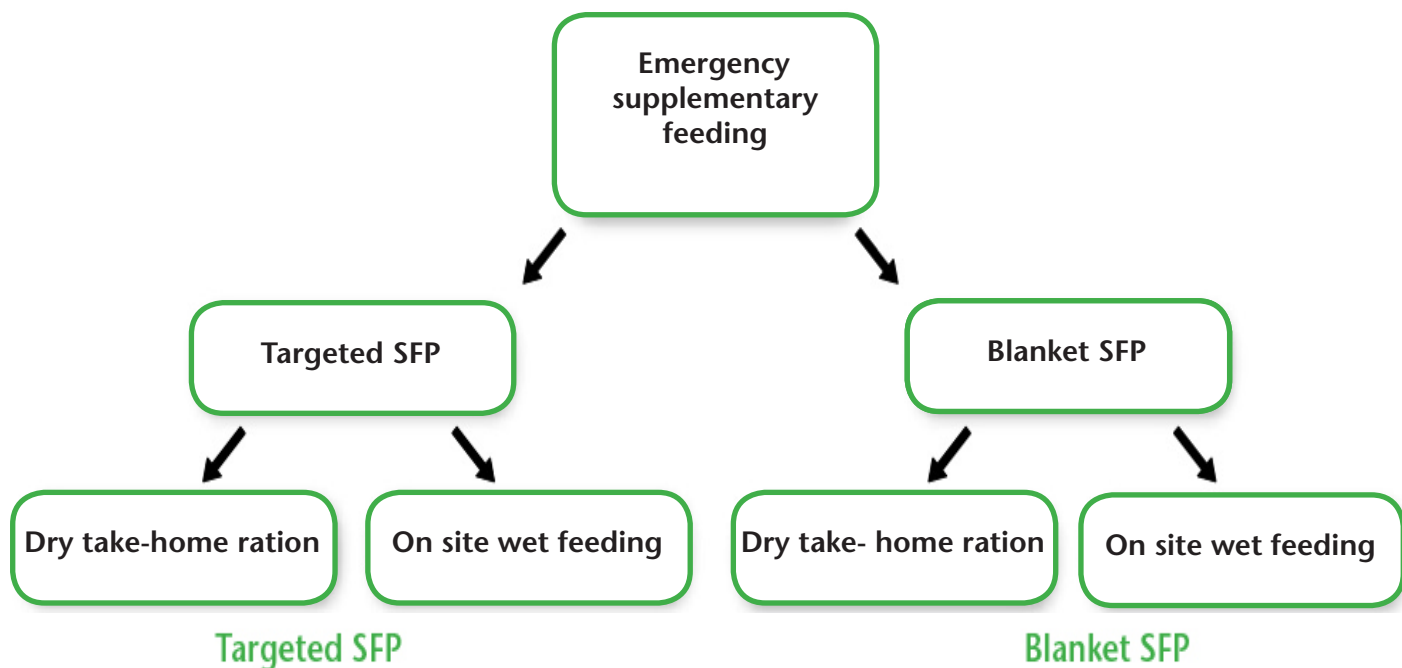
This programme provides food to the affected population. Organisation and coordination is the key to the success of a GFD operation. If the population is entirely depending on the GFD as a source of food, then the rations must provide at least 2100kcal per person per day. General rations are provided as dry rations for people to cook in their homes. Normally, the ration provided is a balanced diet with cereals, pulses and oil. Other commodities including salt and sugar are sometimes also provided. Normally, the population's food habits, tastes and preferences need to be considered when distributing general food rations.<sup>6</sup>

#### 8.1.4.2 Supplementary feeding programmes (SFPs)

The overall goal of the SFP is to treat and prevent MAM. SFPs may also be set up when there are high rates of acute malnutrition in order to stabilise the situation. Figure 18 illustrates different types of SFPs in emergency settings.

<sup>6</sup> World Food Programme (WFP) has established standards for distributing general food to the affected population. Food and Nutrition Handbook, World Food Programme Programme

Figure 18. Types of SFPs



The main aim of targeted SFP is to treat MAM and prevent deterioration to SAM. This programme is set up when:

- There are large numbers of moderately malnourished individuals.
- There are large numbers of children who are likely to become malnourished due to aggravating factors like serious food insecurity or high levels of disease.
- There are children discharged from an existing TFP such as OTC/ITC.
- High prevalence of people with HIV/TB.
- High prevalence of micronutrient deficiencies.

The main aim of a blanket SFP is to prevent widespread malnutrition and to reduce excess mortality among those at-risk by providing a food/micronutrient supplement for all vulnerable groups (e.g. children under five, people with HIV/TB, elderly and the chronically ill). Blanket SFPs may be set up under one or a combination of the following circumstances:

- At the onset of an emergency when GFD systems are not adequately in place
- There are problems in delivering or distributing the general ration.
- There are large numbers of malnourished individuals due to aggravating factors.
- There is anticipated increase in rates of malnutrition due to seasonally induced epidemics.

### 8.1.5 Distribution of the SFP ration

There are two types of SFP ration distribution, the application of which is determined by the context of the emergency and the response required. There can be either:

- A dry take-home ration where beneficiaries attend weekly/bi-weekly; or
- Beneficiaries attend a centre daily and receive their food on site.

In most emergency situations, the SFP ration is distributed as a dry take-home ration providing around 1000 to 1200Kcal. Table 20 describes the appropriate context for each of the two options.

Table 20. Most appropriate context for each SFP distribution method

Take-home dry ration	On-site feeding or wet ration
<ul style="list-style-type: none"> <li>• Preferred option as the responsibility of nutrition care remains within the household.</li> <li>• Less time consuming as dry take-home distribution is normally a weekly or bi-weekly distribution which is prepared at home.</li> <li>• Less labour intensive for implementing agency and therefore less costly.</li> <li>• large groups of children together for feeding increases the risk.</li> <li>• Less need for large infrastructure with water points, cooking utensils, spoons and plates, etc.</li> <li>• Easier and quicker to establish especially in the acute emergency phase.</li> </ul>	<p>An on-site feeding may be justified only in extreme situations.</p> <ul style="list-style-type: none"> <li>• An extremely serious security situation when beneficiaries are at-risk of being attacked/looted as they return home carrying supplies of food.</li> <li>• Firewood, water, and cooking utensils are in serious short supply making it almost impossible to prepare meals in the household.</li> <li>• Malnutrition levels are extremely high and the population is unable to manage cooking and caring for vulnerable persons at home.</li> </ul>

For the admission and discharge criteria, staffing levels and monitoring/surveillance of the SFP interventions refer to Chapter 3.

### 8.1.6 Therapeutic feeding programme (TFP) in emergencies

The TFP deals with the management of clients with SAM and has two components: inpatient therapeutic care (ITC) and the outpatient therapeutic care (OTC). These are covered in detail in Chapters 4, 5 and 6. Where possible, the ITC can be situated within the MOH structures and managed through joint collaboration.

For the management of SAM in the community, it is vital at the start to develop a community mobilisation strategy to link the community with available nutrition services (refer to Chapter 2 for details). For the management of SAM in the community, in the form of OTC, refer to Chapter 4.

## 8.2 General requirements for emergency nutrition relief programmes

### 8.2.1 Personnel

- When implementing emergency nutrition interventions the appropriate staff and staffing levels are vital. There is a need for managers, logistics support, administration and technical staff (doctors, nurses and health assistants). Where possible, it is better to recruit locally as they understand the context, speak the local language and understand the culture of the population.
- All the staff must be trained and orientated prior to commencing the relief programmes. They should have clear job descriptions with clear roles and responsibilities.

The following are some staff needed on site:

- Programme manager
- Supervisors, nutritionists, nutrition assistants, feeding assistants
- Technical staff e.g. doctors nurses, pharmacists etc.
- Administrators such as registry clerks
- Store-keepers and food distribution supervisors
- Security guards
- Community health workers (CHWs) and village health team (VHT) members

### 8.2.2 Supply provision

In any emergency response, it is important to have a good logistics system to ensure there is no break in the pipeline. These programmes need to run continuously and not be affected by lack of commodities. Buffer stocks should be in place especially where insecurity is an issue.

### 8.3 Monitoring and evaluation

Refer to Chapter 9 on monitoring and reporting.

### 8.4 Exit strategy for emergency preparedness and response (EPR)

When developing an emergency response, it is essential to also develop an exit strategy. An exit strategy should be developed right at the beginning of the programme through strong involvement of the district health teams and/ or staff of the relevant facilities. All EPR programmes should incorporate a community sensitisation and awareness component at the onset of the programme for strengthened community participation and ownership.

Community education and sensitisation on the following topics should be prioritised:

- The importance of seeking for health services from a trained health provider.
- Appropriate feeding practices for children, pregnant women and lactating mothers.
- The importance of growth monitoring promotion (GMP) of the under five children.
- Food security at household level.
- Demonstration gardens at health facilities.

Ongoing community participation will be very vital for the sustainability of EPR activities.

An exit strategy indicates when an emergency intervention should be phased out or closed down. In emergency nutrition interventions this occurs when the levels of acute malnutrition have reduced. It is also important that food security should have improved and that there are no other aggravating factors such as severe climatic conditions and inadequate shelter.

Summary of factors to consider when closing or handing over a programme:

- Malnutrition rates are < 10% with no aggravating factors<sup>7</sup>.
- Net reduction in the number of children attending the centres (through improvement in the nutritional status or the displacement of the population etc.).
- Depletion of food stock without being renewed.
- End of or lack of financial funding.
- Epidemiological control of infectious diseases is effective.
- Crude mortality rates < 1/10,000/day.
- Improved climatic conditions.

When programme closure is envisaged, it must be progressive, over a recommended period of 3-6 months. It is desirable to start with a reduction in the rations, stopping new admissions, establishing hand-over solutions, and training of identified focal person(s) for the specific programmes (this should ideally be done at the start of initiating any EPR programmes).

<sup>7</sup> Refer to Figure 16 for specific aggravating factors

# ◆ Nutrition information, education and communication

## 9.0 Introduction

Health promotion and health education activities rely on a variety of well-designed and effective information, education and communication (IEC) materials. These, including training materials, are provided at clinics to community-based workers and supervisors. IEC materials are most useful to health workers when there is proper training and follow-up on how to use them.

## 9.1 Channels of communication

Channels of communicating nutritional messages include: individual face-to-face, small group meetings/discussion and mass media campaigns. Success often needs a combination of approaches. Harnessing skills of different personnel and special training of health and community service providers may be necessary.

### 9.1.1 Face-to-face/Interpersonal communication

This includes counselling and discussion about nutrition and health-related issues. This is used to reach individuals and small groups with specific nutrition-related problems (e.g. parents with malnourished children). The tools used include wall charts, flip charts, brochures and posters and practical demonstrations. Use of local language/dialect is essential.

### 9.1.2 Mass media communication

This can be successful for public campaigns. It uses all types of media such as radio, print, and megaphone to address a single problem or behaviour. Messages can be combined with entertainment through storytelling, participatory theatre, puppet theatre, music and dance.

Table 21. Key nutrition messages

Topic	Key messages/Action points
Optimal breastfeeding	<ul style="list-style-type: none"> <li>• Timely initiation of breastfeeding (within 1 hour of delivery) and giving of colostrum.</li> <li>• Importance of continuing to breastfeed for at least 2 years.</li> <li>• Importance of ensuring proper hygiene in food preparation and feeding.</li> <li>• Appropriate information to mothers to support exclusive and continued breastfeeding.</li> <li>• Children 0-6 months should be exclusively breastfed. No feeds (including water) other than breast milk only.</li> <li>• Breastfeeding should be on demand (as long as the infant wants).</li> <li>• Encourage breastfeeding during illness. If child is not able to breastfeed, encourage expression of breast milk and feed by cup.</li> <li>• Accurate information on breastfeeding and HIV. Breastfeeding should continue unless breast milk substitute is acceptable, feasible, affordable, sustainable and safe (AFASS). Do not stop breastfeeding abruptly.</li> </ul>
Optimal complementary feeding	

	<ul style="list-style-type: none"> <li>• Explain energy giving foods which provide energy to our body to enable us to carry out daily activities like, working, thinking, running, playing etc. (e.g. sorghum, maize, oil).</li> <li>• Explain protective foods that enable the body to protect itself against infection and fight diseases (e.g. green vege tables, mangoes, carrots).</li> <li>• Encourage increased fluid intake, including breastfeeding, day and night for children with</li> <li>• diarrhoea or vomiting.</li> <li>• Discourage withholding of feeds during illness and instead encourage intake of small frequent</li> <li>• enriched feeds daily or give an extra meal above child 's usual daily feeds.</li> <li>• Encourage mothers to bring all their children below 5 years old to the nearest health facility for growth monitoring monthly as well as for vitamin A supplementation, every 6 months.</li> </ul>
<p>Feeding of the sick and/or malnourished clients</p>	<ul style="list-style-type: none"> <li>• If the child is still breastfeeding, encourage the mother to continue.</li> <li>• The client at this stage requires high energy, high protein intake and a well balanced diet with micronutrients, especially iron, zinc and vitamins.</li> <li>• The feeds must be easy to eat and digest.</li> <li>• To achieve high energy intakes, feed the client frequently, at least six times a day. Add oil, honey,</li> <li>• margarine, butter, sugar; and give fat rich foods like groundnuts, avocado, undiluted milk.</li> <li>• To achieve high protein intakes give milk, or locally available staples mixed with legumes, meat or fish.</li> </ul>
<p>Maternal nutrition</p>	<ul style="list-style-type: none"> <li>• Take the weight (in kg) of all pregnant women and record it in the maternal clinic card.</li> <li>• Counsel mothers on appropriate diet for pregnant women of locally available foods. Check if traditionally mothers avoid certain foods during pregnancy and give appropriate advice (sometimes women avoid important foods based on local taboos).</li> <li>• Encourage consumption of a balanced diet rich in vitamins and minerals.</li> <li>• Emphasise the use of iodised salt.</li> <li>• Encourage mothers to ensure that all children aged five years and below as well as pregnant women sleep under insecticide-treated mosquito nets, for preventing anaemia, because malaria is often a major underlying factor.</li> <li>• Counsel mothers on diet during lactation, emphasising importance of extra food while lactating, using list of locally affordable foods.</li> </ul>
<p>Vitamin A supplementation</p>	<p><b>Children</b></p> <ul style="list-style-type: none"> <li>• All children aged 6 to 59 months need a vitamin A capsule every 6 months.</li> <li>• Vitamin A supplementation is safe for children and protects them from diseases such as diarrhoea, acute respiratory infections, and also reduces deaths.</li> <li>• Children should be fed as often as possible with vitamin A rich foods (mangos, green leafy</li> <li>• vegetables, wild red and orange fruits, egg yoke, liver, milk, etc.).</li> <li>• Children sick with measles, certain eye problems, severe diarrhoea or severe malnutrition should visit health centres because they may need additional vitamin A according to the treatment schedule.</li> </ul> <p><b>Mothers</b></p> <ul style="list-style-type: none"> <li>• Give mothers a dose of 200,000 IU of vitamin A, if baby is 8 weeks old or less.</li> <li>• Ensure that the capsule is swallowed on site.</li> <li>• Encourage the mother to consume a balanced diet using locally available foods and a variety of foods rich in vitamin A such as liver, eggs, oranges, yellow sweet potatoes, pumpkins, dark green leafy vege tables.</li> <li>• Record in the register mothers who have received high dose vitamin A supplementation.</li> </ul> <p>Also indicate in Child Card that mother has been supplemented with vitamin A.</p>



Iron and folate	<p><b>Children</b></p> <ul style="list-style-type: none"> <li>• Give one dose at 6 mg/kg of iron daily for 14 days.</li> <li>• Avoid iron in a child known to suffer from sickle cell anaemia.</li> <li>• Avoid folate until 2 weeks after child has completed the dose of sulpha-based drugs (Fansidar).</li> </ul> <p><b>Mothers</b></p> <ul style="list-style-type: none"> <li>• Give all pregnant women a standard dose of 200 mg iron (Feso4) tablets, three times a day + 5 mg folate.</li> <li>• Promote use of anti-malarial interventions such as bed-nets for preventing anaemia because malaria is often a major underlying factor.</li> <li>• Provide advice on food items and medicines that should not be taken together with iron supplements, since they may inhibit absorption such as milk, antacids, tea, coffee.</li> <li>• Treat anaemia with treatment doses of iron, for 3 months.</li> <li>• Refer severe cases of anaemia to the nearest higher level of care if they are in the last month of pregnancy, have signs of respiratory distress or cardiac abnormalities, such as oedema.</li> <li>• Provide advice on a balanced diet and emphasise consumption of iron-rich foods such as liver, red meats, eggs, fish, whole-grain bread, legumes and iron-fortified foods.</li> <li>• Promote consumption of vitamin C-rich foods such as oranges, green vegetables, as they enhance the absorption of iron.</li> </ul>
Hygiene and sanitation	<ul style="list-style-type: none"> <li>• Store uncooked food covered in a safe dry place.</li> <li>• Protect food from insects, rodents and other animals.</li> <li>• Avoid contact between raw food stuffs and cooked food.</li> <li>• Keep areas where clients are fed, or where they play, free from human and animal faeces.</li> <li>• Keep all food preparation premises clean.</li> <li>• Wash hands before preparing food for feeding clients.</li> <li>• Wash cooking utensils.</li> <li>• Wash fruits and vege tables.</li> <li>• Use clean water.</li> <li>• Cook food thoroughly.</li> <li>• Avoid storing cooked food. Instead, prepare food often. If cooked food is saved, keep it as cool as possible. If previously cooked food is to be eaten, reheat it thoroughly before eating it.</li> <li>• Wash the client's hands before feeding.</li> <li>• Use open feeding cups.</li> <li>• Feed actively (i.e. supervise the client and continue offering food until client has enough).</li> </ul>
De-worming	<ul style="list-style-type: none"> <li>• Give 500 mg mebendazole or 400 mg Albendazole as a single dose for clients in clinic. Do not administer if the child is less than 1 year old.</li> </ul>
Growth monitoring and promotion	<ul style="list-style-type: none"> <li>• Children aged 0-2 years need to be weighed every month.</li> <li>• Children 0-59 months need to be weighed often, to determine if they are growing adequately.</li> <li>• When children come for weighing check for their immunisation and vitamin A supplementation status.</li> <li>• Children whose growth is faltering are at high risk and should be monitored closely by health facility staff.</li> </ul>
Immunisation	<ul style="list-style-type: none"> <li>• Importance of immunisation.</li> <li>• Barriers to immunisation.</li> <li>• Overcoming barriers to immunisation.</li> <li>• Access to immunisation services (lobbying for improved access).</li> <li>• Making immunisation safe (i.e. check expiry date, use disposable needles, sterilise syringes, use of trained personnel).</li> </ul>

# ◆ Monitoring, reporting and supervision

## 10.0 Introduction

In order to ensure that the Integrated Management of Acute Malnutrition (IMAM) interventions are achieving their objectives of identifying, treating, and curing acute malnutrition, activities and outcomes must be monitored. A well designed monitoring and reporting system can identify gaps in implementation of respective components, provide information for on-going needs assessment, advocacy, planning, redesigning and accountability. Monitoring and reporting should be an integral component of the IMAM programme (i.e. inpatient therapeutic care (ITC), outpatient therapeutic care (OTC), sSupplementary feeding programme (SFP) and community mobilisation).

Monitoring an IMAM programme is comprised of three major components:

- Monitoring of individual treatment to assess client progress.
- Programme monitoring to assess effectiveness of treatment interventions (i.e. proportion of clients treated effectively) and community-level activities for mobilisation and case-finding.
- Assessment of programme coverage (i.e. proportion of the target group being reached with treatment) and appropriateness of the programme for communities.

The combination of treatment effectiveness and coverage will determine the impact/or programme outcome hence: treatment effectiveness + coverage = programme outcome. Adequate supervision is vital to ensure programme qualitycontrol and to generate acceptable outcomes. The evaluation of IMAM programmes collects together information on the above, supplemented with additional data (e.g. on costs).

## 10.1 Monitoring within the IMAM programme

### 10.1.1 Individual level monitoring

#### 10.1.1.1 Monitoring of the clients' progress in ITC/OTC/SFP

##### a. Individual client cards

Individual client cards are filled out for each on admission. A distinct client card is issued for each of the three separate components of IMAM (ITC, OTC, and SFP). All cards detail medications and rations/doses of therapeutic milk or food prescribed, and they track patients' progress over time using anthropometric measurements.

##### b. OTC/SFP

The individual client cards for OTC and SFP are included in Annex 3 and 4. The card for each patient should be completed upon admission by the clinician (nurse or medical officer) and updated with each subsequent visit. Cards record progress of the client at each visit, including anthropometric monitoring. For OTC, weekly monitoring includes recording the weekly medical history taken from the caregiver, temperature, respiration rate, results of the appetite test and any actions taken.

Cards remain in the health facility or feeding site. They should be used to complete the register/tally sheet at the end of the treatment day, and then placed in the appropriate file. Review of these individual cards by clinic staff or during supervision visits ensures that proper treatment and action protocols are being followed, including for proper referral and follow-up.

##### c. Ration cards

Another important way in which individuals are monitored is through the use of a ration card for receiving therapeutic or supplemental foods. On admission to SFP or OTC, each client/caregiver is given a ration card to take home (refer to Annex 5 and 6). This card contains key information on the client and his or her progress (weight, frequency and amounts of rations given, and any other treatments received). The caregiver should bring this card at each visit to the clinic/feeding site.

#### d. ITC

The individual client card for ITC is called the clinical monitoring form (CMF) (refer to Annex 15). All daily monitoring including temperature, pulse, and respiration rate, amount of milk or RUTF taken per feed and per day is recorded on this form.

During ITC, individual client cards are kept at the bedside of each patient. After a patient is discharged from ITC, the date and reason for discharge are recorded on the CMF, which is filled as discharged according to the categories in IMAM.

### 10.1.1.2 Tracking the individual ITC/OTC/SFP clients through programme components

#### a. Unique registration number

Most clients will be admitted through OTC, as it is the most decentralised service and therefore the most accessible entry point for treatment. Each patient entering IMAM through the OTC, ITC, or SFP should be given an IMAM registration number to be recorded on client cards, ration cards, register, and any relevant IMAM records. Patients transferring between sites or programme components retain the same IMAM number. Returning defaulters continuing treatment retain the same number. Re-admissions or relapses (patients who meet admission criteria again after being discharged as cured) receive a new number and a new card, as they are suffering from a different episode of malnutrition and need full treatment again.

Clients entering the health care system through a healthcare facility other than OTC (e.g. at antenatal clinic, child clinic, HIV/AIDS clinic, etc.) are also given a patient clinic number. Upon admission for treatment for acute malnutrition, the client is also given an IMAM registration number. Therefore, IMAM monitoring materials will include spaces both for the IMAM registration number and for the client clinic number assigned, if necessary, by the healthcare facility.

The standard IMAM numbering system has three parts: the health facility code, the patient's individual number, and the service code, indicating where the patient started treatment (ITC, OTC or SFP). Health facilities may also adapt the Health Management Information System (HMIS) numbering system by including the site where each patient entered IMAM.

Table 22. Numbering systems

Standard IMAM numbering system	HMIS numbering system
HFA/001/OTC HFA : Health facility name or number 001 : Individual number allocated to each patient OTC (or ITC or SFP): Service where the patient started treatment	77/88/999/MMYY/OTC 77: District code 88: Health facility code 999: Patient's number MMYY: Month and year of admission OTC (or ITC or SFP): Service where the patient started treatment

#### b. Filing system for individual client cards

The objective of a filing system for IMAM is to create an efficient method to track clients and complete regular reports. The filing system should allow providers to identify numbers of clients in the programme and easily identify absentees, defaulters, and discharges for follow-up in the community. The filing system detailed below provides an efficient mechanism for staff and supervisors to track clients and to complete monthly reports.

Cards should be filed using two files: one for currently admitted clients in OTC/SFP/ITC, and a second file for discharged ones. Cards should be filed by category in each of the two files, as per the following:

File 1: Currently in OTC/SFP/ITC

- Clients currently in OTC/SFP/ITC

- Absentees from OTP/SFP (patients who missed one or two visits)

#### File 2: Discharged

- Cured
- Defaulters
- Non-cured
- Transfers
- Deaths

File 1 should be used to identify absentees and defaulters. Absentees and defaulters should be visited at home by an outreach worker to identify obstacles to care and to encourage return to the programme. The date of the home visit should be recorded on the individual client card, along with any information gathered on obstacles to care and patient outcomes. This will inform decision-making regarding continuation of treatment.

### c. Making referrals

At community level, referral slips (refer to Annex 16) may be used by community health workers to refer clients for nutrition treatment. The purpose of this referral slip is to motivate and guide the client in actually seeking medical care. It also informs the health centre that the client was referred by a community health worker to strengthen the interface between the community and health facility. Health facilities may decide to give priority to clients reporting with referral slips. The trained community health service providers are expected to complete and submit monthly report forms and maintain a register for clients and referrals to the nearest health facility in their catchment area.

When clients receiving treatment for SAM through IMAM move between the three components of the programme (from OTC to ITC or OTC to SFP or from one OTC site to another closer to their home), it is important to track their movements. This allows for continued monitoring of their progress and avoids losing clients from the system. Therefore, the monitoring tools of all programme components of IMAM are designed to take those linkages into consideration.

Existing referral slips (refer to Annex 17) should be used for clients moving between inpatient and outpatient care, and between different OTC sites (if the client is moving to an OTC site closer to home). The referral slip should describe the treatment(s) and medication(s) given to the client, to avoid having the same medication given twice. When a client is referred from OTC to ITC and returns to OTC after stabilisation, the same referral slip is completed by the ITC staff and returned to OTC. If the client has defaulted or died while in ITC, the OTC staff should be informed of this.

## 10.1.2 Programme monitoring to assess effectiveness of treatment interventions and communitylevel activities

At the core of programme monitoring is the collection, management, compilation, and utilisation of key information describing the treatment outcomes of IMAM. Proper programme monitoring and reporting are essential to allow health service providers at local level, supervisors, and health managers at national level to assess the effectiveness of IMAM implementation.

### 10.1.2.1 Community level

In the community, the main activities to be monitored at the programme level are: frequency and quality of community mobilisation activities (i.e. number of and variety of community groups/key figures involved), number of trained and type of community health service providers, number of clients being referred into the programme through active casefinding, information available on main reasons for default and low uptake (from follow-ups, coverage monitoring or community focus group discussions, linkages made to livelihood and other prevention programmes).

### 10.1.2.2 ITC/OTC/SFP level

Accurate reporting using the registers and monthly reports is essential. The analysis of these reports enables health workers and supervisors to ensure that proper treatment is given to the client, in addition to monitoring the performance of health facilities in implementing IMAM programmes, in adherence to protocols. Routine monitoring data is collected daily and compiled into monthly reports at each implementing site for ITC, OTC and SFP (refer to Annex 18, 19 and 20 for ITC, OTC and SFP monthly reporting formats).

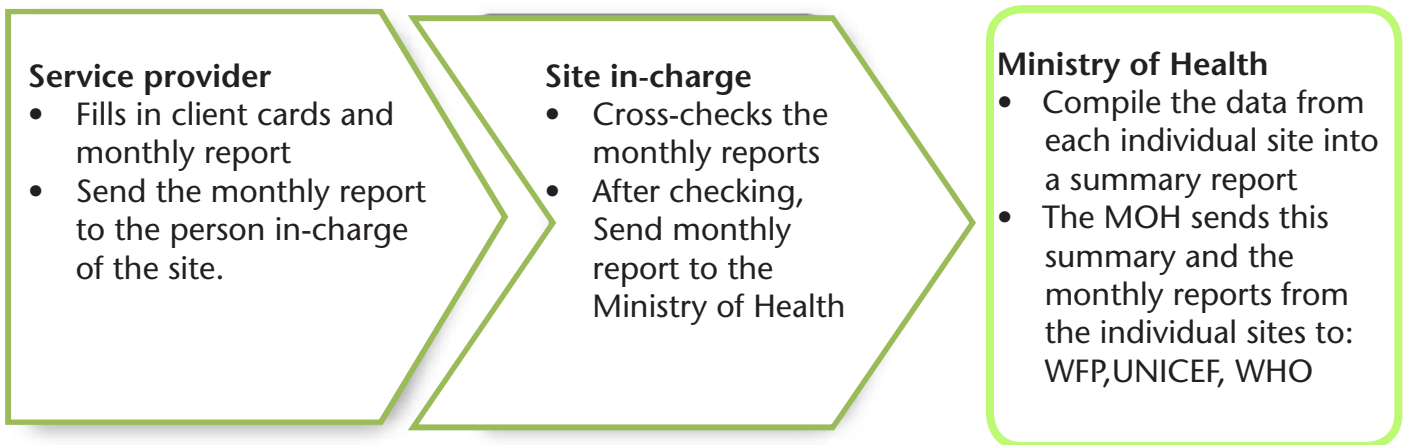
#### a. Register

Routine data is summarised from the individual client cards into the SFP, OTC and ITC admission and can be included in registers. The admission register lists all admissions by month. A separate discharge register lists all discharges by month, thus making it easy at the end of the month to count the number of discharges by discharge outcome. Alternatively, tally-sheets can be used to keep a record of admissions and discharges in order to fill in reports. Registers should be completed at the end of each IMAM programme day. Supervisors are responsible for the accuracy of data in the programme registers.

#### b. Reports

At health facility level, the nutrition focal person will be responsible for compiling monthly reports from ITC, OTC and/or SFP. These reports are sent directly to the Ministry of Health (MOH) Nutrition Unit with a copy to the district nutritionist, or through the district HMIS focal person to the MOH with copies to the district nutritionist and MOH Nutrition Unit or respective programme focal points.

Figure 19. The reporting system of the data for this programme



Routine programme data that is compiled for each month includes:

- Total number of clients under treatment by the beginning of the month.
- Total number of new admissions by entry category (SAM, MAM with HIV/AIDS or other complications).
- Total number of discharges by discharge category (cured, death, default, non-cured or transfer).
- Stock consumption.
- Additional information (e.g. HIV status of admissions).
- Some of this data is disaggregated by sex and age.
- Optional additional information including average length of stay for cured discharges.

### c. Coverage

The main objective of IMAM is to make treatment of acute malnutrition available to the greatest possible number of clients in the community who are acutely malnourished. Assessing IMAM coverage identifies the proportion of clients in the programme out of the total number of people who need assistance in a given area. Coverage is normally expressed as a percentage (i.e. if 100 people are malnourished in the community and 50 are admitted in the IMAM programme, then the coverage is 50%).

Coverage is one of the most important indicators of how well a programme is meeting a need. A 'met need' is the product of coverage rate and cure rate. A programme with a high coverage but lower cure rate (75% coverage x 70% cure rate = 53% of need met) may be better at meeting the need than one with high cure rate with a low coverage (80% cure x 25% coverage = 20% of need met).

The IMAM coverage is estimated using a population-based coverage survey which requires specialised assistance. (See Valid Community-based Therapeutic Care: A Field Manual-chapter 9 for information on conducting coverage surveys).

### d. Appropriateness

Qualitative inquiry can be made into the effectiveness of the IMAM programme through focus group discussions and interviews with key community members. The purpose of these discussions and interviews is to uncover potential barriers to components of IMAM in order to improve its delivery. Both focus group discussions and key informant interviews should serve as a two-way process, to allow for explanation of programme protocols or specific issues and for the community to provide input into the programme. Community leaders can help in improving programme coverage and attendance by proposing practical ways of making changes so as to improve the nutrition interventions.

## 10.2 Programme performance indicators

The following programme performance indicators help in monitoring whether the IMAM programme is achieving its objectives or not:

- Cured rate: the number of clients successfully discharged<sup>8</sup> cured, as a percentage of all discharges, excluding transfers during the reporting month.
- Death rate: the number of clients who died, as a percentage of all discharges, during the reporting month.
- Default rate: the number of clients who defaulted, as a percentage of all discharges, during the reporting month.
- Non-cured rate: the number of clients discharged as non-cured, as a percentage of all discharges, during the reporting month.
- Average length of stay: the total number of days a client remains in a programme, until cured and discharged divided by the total number of cured patients.
- Coverage: the ability of the programme to reach those clients in need of treatment, in a timely fashion. A critical determinant of the programme impact, when combined with the effectiveness of treatment.

<sup>8</sup> Total number discharged includes cured, death, default and non-response. Transfers are not included in discharges.

Programme performance indicators are compared with standard cut-offs in order to monitor site performance and take corrective action as needed. They are also used to assess the performance of the programme as a whole (i.e. at district level) using compiled figures from all sites. Figures for ITC and OTC should be combined in order to appropriately assess therapeutic programme performance as a whole. Assessing the components in isolation will not provide an adequate review of performance. The targets indicated in Table 23 were developed for use in emergency settings, but are currently accepted for use in non-emergency settings as well. Each site and the programme as a whole should achieve them.

Table 23. Performance targets for the IMAM programme

	SFP	OTC	ITC	TFP
Cured rate	> 75%	> 75%	> 75%	> 75%
Death rate	< 3%	< 5%	< 10%	< 10%
Default rate	< 15%	< 15%	< 15%	< 15%
Non-cured rate	< 10%	< 10%	< 10%	< 10%
Average LOS		< 60 days	< 7-8 days g/day*	
Coverage	> 70%	-	-	> 70%
Distribution of centres	> 90% target population lives within 1 day return walk from centre			

Note: For programmes operating the full IMAM model, transfers between ITC and OTC are not recorded as discharges. For programmes not operating the full IMAM model (ITC and OTC concurrently), transfer rates will need to be calculated.

### 10.3 Programme supervision

Supervisors should use supervisor checklists to assist in monitoring the quality of the programme. Supervisors must ensure that admissions and discharges are made according to protocols and that routine and additional medicines and RUTF are given correctly. Supervisors should review the individual client cards, admission and discharge registers and monthly reports to ensure that:

- IMAM protocols for admission, discharge and treatment are followed correctly.
- Data is entered correctly and is complete.
- Absentees and defaulters are correctly followed up in the community.
- Stock records of essential medicines and IMAM therapeutic and supplementary foods are made.

#### Box L. An example of supervisory criteria

At every visit, does the health worker:

- Measure and record Weight, MUAC and check for oedema?
- Take height measurement every month?
- Check with client/caregiver whether all RUTF has been taken? If not, check why it has not been eaten. Give less if client is gaining weight and not able to eat all the RUTF.
- Conduct appetite test?
- Assess the clinical and nutritional status of the client? Has there been any illness in the previous 1-2 weeks? Follow the Action Protocol in Annex 9 and Annex 10 to determine if there are complications or loss of weight/static weight that require transfer to ITC or if follow up by a CHW/volunteer is needed at home.
- Record results in the OTC client card?
- Update the OTC client card & OTC ration card?
- Instruct caregiver to bring the OTC ration card and empty RUTF sachets at each weekly/bi-weekly visit?
- It is important that the caregiver and client return on appointed days, as the RUTF will run out and this will affect recovery.

## 10.4 Programme evaluation

The monitoring and evaluation plan should set evaluation schedules, the methodology, resources and the type of indicators. Often an evaluation will address two main questions:

- Are the results those that were intended?
- And are they of value?

The programme performance monitoring indicators will provide the core guide for evaluation, but there are also other evaluation indicators that cannot routinely be monitored but which provide useful information regarding the effectiveness and appropriateness of IMAM. Examples include:

- The impact of the programme in terms of change in client feeding behaviour where this is integrated into the approach. For instance, changes in the proportion of mothers exclusively breastfeeding.
- The efficient use of resources and management of the programme.
- The cost effectiveness of the programme.

All information obtained should be shared with all stakeholders to improve practices, scale-up interventions, revise guidelines, and inform policy.




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◆ Annexes

## ◆ Annex 1: Reference tables for calculating z-score for children < 5 years

Weight-for-length BOYS Birth to 2 years (z-scores)				 <b>World Health Organization</b>			
cm	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
45.0	1.9	2.0	2.2	2.4	2.7	3.0	3.3
45.5	1.9	2.1	2.3	2.5	2.8	3.1	3.4
46.0	2.0	2.2	2.4	2.6	2.9	3.1	3.5
46.5	2.1	2.3	2.5	2.7	3.0	3.2	3.6
47.0	2.1	2.3	2.5	2.8	3.0	3.3	3.7
47.5	2.2	2.4	2.6	2.9	3.1	3.4	3.8
48.0	2.3	2.5	2.7	2.9	3.2	3.6	3.9
48.5	2.3	2.6	2.8	3.0	3.3	3.7	4.0
49.0	2.4	2.6	2.9	3.1	3.4	3.8	4.2
49.5	2.5	2.7	3.0	3.2	3.5	3.9	4.3
50.0	2.6	2.8	3.0	3.3	3.6	4.0	4.4
50.5	2.7	2.9	3.1	3.4	3.8	4.1	4.5
51.0	2.7	3.0	3.2	3.5	3.9	4.2	4.7
51.5	2.8	3.1	3.3	3.6	4.0	4.4	4.8
52.0	2.9	3.2	3.5	3.8	4.1	4.5	5.0
52.5	3.0	3.3	3.6	3.9	4.2	4.6	5.1
53.0	3.1	3.4	3.7	4.0	4.4	4.8	5.3
53.5	3.2	3.5	3.8	4.1	4.5	4.9	5.4
54.0	3.3	3.6	3.9	4.3	4.7	5.1	5.6
54.5	3.4	3.7	4.0	4.4	4.8	5.3	5.8
55.0	3.6	3.8	4.2	4.5	5.0	5.4	6.0
55.5	3.7	4.0	4.3	4.7	5.1	5.6	6.1
56.0	3.8	4.1	4.4	4.8	5.3	5.8	6.3
56.5	3.9	4.2	4.6	5.0	5.4	5.9	6.5
57.0	4.0	4.3	4.7	5.1	5.6	6.1	6.7
57.5	4.1	4.5	4.9	5.3	5.7	6.3	6.9
58.0	4.3	4.6	5.0	5.4	5.9	6.4	7.1
58.5	4.4	4.7	5.1	5.6	6.1	6.6	7.2
59.0	4.5	4.8	5.3	5.7	6.2	6.8	7.4
59.5	4.6	5.0	5.4	5.9	6.4	7.0	7.6

cm	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
60.0	4.7	5.1	5.5	6.0	6.5	7.1	7.8
60.5	4.8	5.2	5.6	6.1	6.7	7.3	8.0
61.0	4.9	5.3	5.8	6.3	6.8	7.4	8.1
61.5	5.0	5.4	5.9	6.4	7.0	7.6	8.3
62.0	5.1	5.6	6.0	6.5	7.1	7.7	8.5
62.5	5.2	5.7	6.1	6.7	7.2	7.9	8.6
63.0	5.3	5.8	6.2	6.8	7.4	8.0	8.8
63.5	5.4	5.9	6.4	6.9	7.5	8.2	8.9
64.0	5.5	6.0	6.5	7.0	7.6	8.3	9.1
64.5	5.6	6.1	6.6	7.1	7.8	8.5	9.3
65.0	5.7	6.2	6.7	7.3	7.9	8.6	9.4
65.5	5.8	6.3	6.8	7.4	8.0	8.7	9.6
66.0	5.9	6.4	6.9	7.5	8.2	8.9	9.7
66.5	6.0	6.5	7.0	7.6	8.3	9.0	9.9
67.0	6.1	6.6	7.1	7.7	8.4	9.2	10.0
67.5	6.2	6.7	7.2	7.9	8.5	9.3	10.2
68.0	6.3	6.8	7.3	8.0	8.7	9.4	10.3
68.5	6.4	6.9	7.5	8.1	8.8	9.6	10.5
69.0	6.5	7.0	7.6	8.2	8.9	9.7	10.6
69.5	6.6	7.1	7.7	8.3	9.0	9.8	10.8
70.0	6.6	7.2	7.8	8.4	9.2	10.0	10.9
70.5	6.7	7.3	7.9	8.5	9.3	10.1	11.1
71.0	6.8	7.4	8.0	8.6	9.4	10.2	11.2
71.5	6.9	7.5	8.1	8.8	9.5	10.4	11.3
72.0	7.0	7.6	8.2	8.9	9.6	10.5	11.5
72.5	7.1	7.6	8.3	9.0	9.8	10.6	11.6
73.0	7.2	7.7	8.4	9.1	9.9	10.8	11.8
73.5	7.2	7.8	8.5	9.2	10.0	10.9	11.9
74.0	7.3	7.9	8.6	9.3	10.1	11.0	12.1
74.5	7.4	8.0	8.7	9.4	10.2	11.2	12.2
75.0	7.5	8.1	8.8	9.5	10.3	11.3	12.3

cm	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
75.5	7.6	8.2	8.8	9.6	10.4	11.4	12.5
76.0	7.6	8.3	8.9	9.7	10.6	11.5	12.6
76.5	7.7	8.3	9.0	9.8	10.7	11.6	12.7
77.0	7.8	8.4	9.1	9.9	10.8	11.7	12.8
77.5	7.9	8.5	9.2	10.0	10.9	11.9	13.0
78.0	7.9	8.6	9.3	10.1	11.0	12.0	13.1
78.5	8.0	8.7	9.4	10.2	11.1	12.1	13.2
79.0	8.1	8.7	9.5	10.3	11.2	12.2	13.3
79.5	8.2	8.8	9.5	10.4	11.3	12.3	13.4
80.0	8.2	8.9	9.6	10.4	11.4	12.4	13.6
80.5	8.3	9.0	9.7	10.5	11.5	12.5	13.7
81.0	8.4	9.1	9.8	10.6	11.6	12.6	13.8
81.5	8.5	9.1	9.9	10.7	11.7	12.7	13.9
82.0	8.5	9.2	10.0	10.8	11.8	12.8	14.0
82.5	8.6	9.3	10.1	10.9	11.9	13.0	14.2
83.0	8.7	9.4	10.2	11.0	12.0	13.1	14.3
83.5	8.8	9.5	10.3	11.2	12.1	13.2	14.4
84.0	8.9	9.6	10.4	11.3	12.2	13.3	14.6
84.5	9.0	9.7	10.5	11.4	12.4	13.5	14.7
85.0	9.1	9.8	10.6	11.5	12.5	13.6	14.9
85.5	9.2	9.9	10.7	11.6	12.6	13.7	15.0
86.0	9.3	10.0	10.8	11.7	12.8	13.9	15.2
86.5	9.4	10.1	11.0	11.9	12.9	14.0	15.3
87.0	9.5	10.2	11.1	12.0	13.0	14.2	15.5
87.5	9.6	10.4	11.2	12.1	13.2	14.3	15.6
88.0	9.7	10.5	11.3	12.2	13.3	14.5	15.8
88.5	9.8	10.6	11.4	12.4	13.4	14.6	15.9
89.0	9.9	10.7	11.5	12.5	13.5	14.7	16.1
89.5	10.0	10.8	11.6	12.6	13.7	14.9	16.2
90.0	10.1	10.9	11.8	12.7	13.8	15.0	16.4
90.5	10.2	11.0	11.9	12.8	13.9	15.1	16.5

cm	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
91.0	10.3	11.1	12.0	13.0	14.1	15.3	16.7
91.5	10.4	11.2	12.1	13.1	14.2	15.4	16.8
92.0	10.5	11.3	12.2	13.2	14.3	15.6	17.0
92.5	10.6	11.4	12.3	13.3	14.4	15.7	17.1
93.0	10.7	11.5	12.4	13.4	14.6	15.8	17.3
93.5	10.7	11.6	12.5	13.5	14.7	16.0	17.4
94.0	10.8	11.7	12.6	13.7	14.8	16.1	17.6
94.5	10.9	11.8	12.7	13.8	14.9	16.3	17.7
95.0	11.0	11.9	12.8	13.9	15.1	16.4	17.9
95.5	11.1	12.0	12.9	14.0	15.2	16.5	18.0
96.0	11.2	12.1	13.1	14.1	15.3	16.7	18.2
96.5	11.3	12.2	13.2	14.3	15.5	16.8	18.4
97.0	11.4	12.3	13.3	14.4	15.6	17.0	18.5
97.5	11.5	12.4	13.4	14.5	15.7	17.1	18.7
98.0	11.6	12.5	13.5	14.6	15.9	17.3	18.9
98.5	11.7	12.6	13.6	14.8	16.0	17.5	19.1
99.0	11.8	12.7	13.7	14.9	16.2	17.6	19.2
99.5	11.9	12.8	13.9	15.0	16.3	17.8	19.4
100.0	12.0	12.9	14.0	15.2	16.5	18.0	19.6
100.5	12.1	13.0	14.1	15.3	16.6	18.1	19.8
101.0	12.2	13.2	14.2	15.4	16.8	18.3	20.0
101.5	12.3	13.3	14.4	15.6	16.9	18.5	20.2
102.0	12.4	13.4	14.5	15.7	17.1	18.7	20.4
102.5	12.5	13.5	14.6	15.9	17.3	18.8	20.6
103.0	12.6	13.6	14.8	16.0	17.4	19.0	20.8
103.5	12.7	13.7	14.9	16.2	17.6	19.2	21.0
104.0	12.8	13.9	15.0	16.3	17.8	19.4	21.2
104.5	12.9	14.0	15.2	16.5	17.9	19.6	21.5
105.0	13.0	14.1	15.3	16.6	18.1	19.8	21.7
105.5	13.2	14.2	15.4	16.8	18.3	20.0	21.9
106.0	13.3	14.4	15.6	16.9	18.5	20.2	22.1

cm	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
106.5	13.4	14.5	15.7	17.1	18.6	20.4	22.4
107.0	13.5	14.6	15.9	17.3	18.8	20.6	22.6
107.5	13.6	14.7	16.0	17.4	19.0	20.8	22.8
108.0	13.7	14.9	16.2	17.6	19.2	21.0	23.1
108.5	13.8	15.0	16.3	17.8	19.4	21.2	23.3
109.0	14.0	15.1	16.5	17.9	19.6	21.4	23.6
109.5	14.1	15.3	16.6	18.1	19.8	21.7	23.8
110.0	14.2	15.4	16.8	18.3	20.0	21.9	24.1
<b>WHO Child Growth Standards</b>							

## Weight-for-height BOYS 2 to 5 years (z-scores)



World Health  
Organization

cm	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
65.0	5.9	6.3	6.9	7.4	8.1	8.8	9.6
65.5	6.0	6.4	7.0	7.6	8.2	8.9	9.8
66.0	6.1	6.5	7.1	7.7	8.3	9.1	9.9
66.5	6.1	6.6	7.2	7.8	8.5	9.2	10.1
67.0	6.2	6.7	7.3	7.9	8.6	9.4	10.2
67.5	6.3	6.8	7.4	8.0	8.7	9.5	10.4
68.0	6.4	6.9	7.5	8.1	8.8	9.6	10.5
68.5	6.5	7.0	7.6	8.2	9.0	9.8	10.7
69.0	6.6	7.1	7.7	8.4	9.1	9.9	10.8
69.5	6.7	7.2	7.8	8.5	9.2	10.0	11.0
70.0	6.8	7.3	7.9	8.6	9.3	10.2	11.1
70.5	6.9	7.4	8.0	8.7	9.5	10.3	11.3
71.0	6.9	7.5	8.1	8.8	9.6	10.4	11.4
71.5	7.0	7.6	8.2	8.9	9.7	10.6	11.6
72.0	7.1	7.7	8.3	9.0	9.8	10.7	11.7
72.5	7.2	7.8	8.4	9.1	9.9	10.8	11.8
73.0	7.3	7.9	8.5	9.2	10.0	11.0	12.0
73.5	7.4	7.9	8.6	9.3	10.2	11.1	12.1
74.0	7.4	8.0	8.7	9.4	10.3	11.2	12.2
74.5	7.5	8.1	8.8	9.5	10.4	11.3	12.4
75.0	7.6	8.2	8.9	9.6	10.5	11.4	12.5
75.5	7.7	8.3	9.0	9.7	10.6	11.6	12.6
76.0	7.7	8.4	9.1	9.8	10.7	11.7	12.8
76.5	7.8	8.5	9.2	9.9	10.8	11.8	12.9
77.0	7.9	8.5	9.2	10.0	10.9	11.9	13.0
77.5	8.0	8.6	9.3	10.1	11.0	12.0	13.1
78.0	8.0	8.7	9.4	10.2	11.1	12.1	13.3
78.5	8.1	8.8	9.5	10.3	11.2	12.2	13.4
79.0	8.2	8.8	9.6	10.4	11.3	12.3	13.5
79.5	8.3	8.9	9.7	10.5	11.4	12.4	13.6



cm	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
80.0	8.3	9.0	9.7	10.6	11.5	12.6	13.7
80.5	8.4	9.1	9.8	10.7	11.6	12.7	13.8
81.0	8.5	9.2	9.9	10.8	11.7	12.8	14.0
81.5	8.6	9.3	10.0	10.9	11.8	12.9	14.1
82.0	8.7	9.3	10.1	11.0	11.9	13.0	14.2
82.5	8.7	9.4	10.2	11.1	12.1	13.1	14.4
83.0	8.8	9.5	10.3	11.2	12.2	13.3	14.5
83.5	8.9	9.6	10.4	11.3	12.3	13.4	14.6
84.0	9.0	9.7	10.5	11.4	12.4	13.5	14.8
84.5	9.1	9.9	10.7	11.5	12.5	13.7	14.9
85.0	9.2	10.0	10.8	11.7	12.7	13.8	15.1
85.5	9.3	10.1	10.9	11.8	12.8	13.9	15.2
86.0	9.4	10.2	11.0	11.9	12.9	14.1	15.4
86.5	9.5	10.3	11.1	12.0	13.1	14.2	15.5
87.0	9.6	10.4	11.2	12.2	13.2	14.4	15.7
87.5	9.7	10.5	11.3	12.3	13.3	14.5	15.8
88.0	9.8	10.6	11.5	12.4	13.5	14.7	16.0
88.5	9.9	10.7	11.6	12.5	13.6	14.8	16.1
89.0	10.0	10.8	11.7	12.6	13.7	14.9	16.3
89.5	10.1	10.9	11.8	12.8	13.9	15.1	16.4
90.0	10.2	11.0	11.9	12.9	14.0	15.2	16.6
90.5	10.3	11.1	12.0	13.0	14.1	15.3	16.7
91.0	10.4	11.2	12.1	13.1	14.2	15.5	16.9
91.5	10.5	11.3	12.2	13.2	14.4	15.6	17.0
92.0	10.6	11.4	12.3	13.4	14.5	15.8	17.2
92.5	10.7	11.5	12.4	13.5	14.6	15.9	17.3
93.0	10.8	11.6	12.6	13.6	14.7	16.0	17.5
93.5	10.9	11.7	12.7	13.7	14.9	16.2	17.6
94.0	11.0	11.8	12.8	13.8	15.0	16.3	17.8
94.5	11.1	11.9	12.9	13.9	15.1	16.5	17.9
95.0	11.1	12.0	13.0	14.1	15.3	16.6	18.1

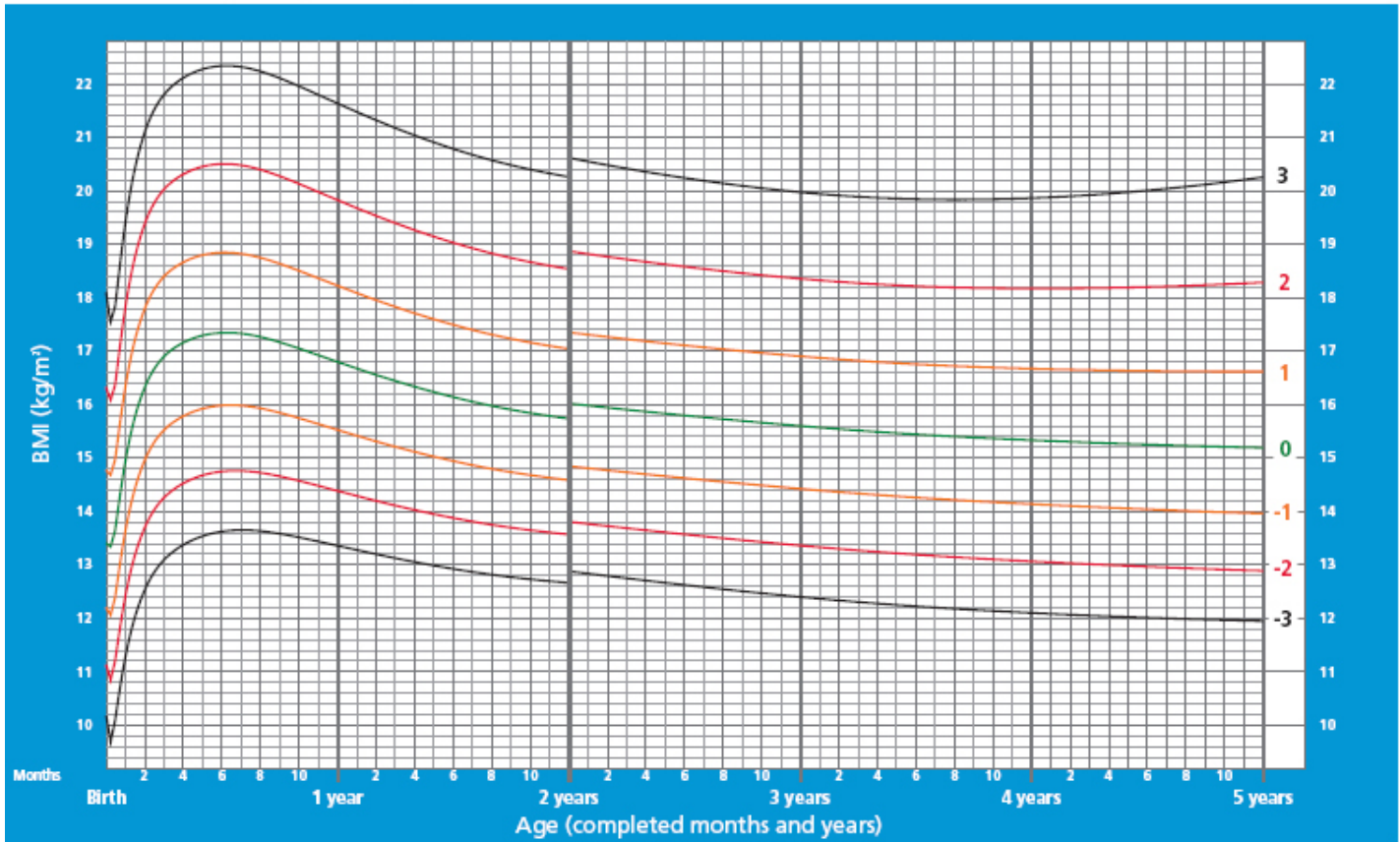
cm	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
95.5	11.2	12.1	13.1	14.2	15.4	16.7	18.3
96.0	11.3	12.2	13.2	14.3	15.5	16.9	18.4
96.5	11.4	12.3	13.3	14.4	15.7	17.0	18.6
97.0	11.5	12.4	13.4	14.6	15.8	17.2	18.8
97.5	11.6	12.5	13.6	14.7	15.9	17.4	18.9
98.0	11.7	12.6	13.7	14.8	16.1	17.5	19.1
98.5	11.8	12.8	13.8	14.9	16.2	17.7	19.3
99.0	11.9	12.9	13.9	15.1	16.4	17.9	19.5
99.5	12.0	13.0	14.0	15.2	16.5	18.0	19.7
100.0	12.1	13.1	14.2	15.4	16.7	18.2	19.9
100.5	12.2	13.2	14.3	15.5	16.9	18.4	20.1
101.0	12.3	13.3	14.4	15.6	17.0	18.5	20.3
101.5	12.4	13.4	14.5	15.8	17.2	18.7	20.5
102.0	12.5	13.6	14.7	15.9	17.3	18.9	20.7
102.5	12.6	13.7	14.8	16.1	17.5	19.1	20.9
103.0	12.8	13.8	14.9	16.2	17.7	19.3	21.1
103.5	12.9	13.9	15.1	16.4	17.8	19.5	21.3
104.0	13.0	14.0	15.2	16.5	18.0	19.7	21.6
104.5	13.1	14.2	15.4	16.7	18.2	19.9	21.8
105.0	13.2	14.3	15.5	16.8	18.4	20.1	22.0
105.5	13.3	14.4	15.6	17.0	18.5	20.3	22.2
106.0	13.4	14.5	15.8	17.2	18.7	20.5	22.5
106.5	13.5	14.7	15.9	17.3	18.9	20.7	22.7
107.0	13.7	14.8	16.1	17.5	19.1	20.9	22.9
107.5	13.8	14.9	16.2	17.7	19.3	21.1	23.2
108.0	13.9	15.1	16.4	17.8	19.5	21.3	23.4
108.5	14.0	15.2	16.5	18.0	19.7	21.5	23.7
109.0	14.1	15.3	16.7	18.2	19.8	21.8	23.9
109.5	14.3	15.5	16.8	18.3	20.0	22.0	24.2
110.0	14.4	15.6	17.0	18.5	20.2	22.2	24.4
110.5	14.5	15.8	17.1	18.7	20.4	22.4	24.7

cm	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
111.0	14.6	15.9	17.3	18.9	20.7	22.7	25.0
111.5	14.8	16.0	17.5	19.1	20.9	22.9	25.2
112.0	14.9	16.2	17.6	19.2	21.1	23.1	25.5
112.5	15.0	16.3	17.8	19.4	21.3	23.4	25.8
113.0	15.2	16.5	18.0	19.6	21.5	23.6	26.0
113.5	15.3	16.6	18.1	19.8	21.7	23.9	26.3
114.0	15.4	16.8	18.3	20.0	21.9	24.1	26.6
114.5	15.6	16.9	18.5	20.2	22.1	24.4	26.9
115.0	15.7	17.1	18.6	20.4	22.4	24.6	27.2
115.5	15.8	17.2	18.8	20.6	22.6	24.9	27.5
116.0	16.0	17.4	19.0	20.8	22.8	25.1	27.8
116.5	16.1	17.5	19.2	21.0	23.0	25.4	28.0
117.0	16.2	17.7	19.3	21.2	23.3	25.6	28.3
117.5	16.4	17.9	19.5	21.4	23.5	25.9	28.6
118.0	16.5	18.0	19.7	21.6	23.7	26.1	28.9
118.5	16.7	18.2	19.9	21.8	23.9	26.4	29.2
119.0	16.8	18.3	20.0	22.0	24.1	26.6	29.5
119.5	16.9	18.5	20.2	22.2	24.4	26.9	29.8
120.0	17.1	18.6	20.4	22.4	24.6	27.2	30.1

**WHO Child Growth Standards**

# BMI-for-age BOYS

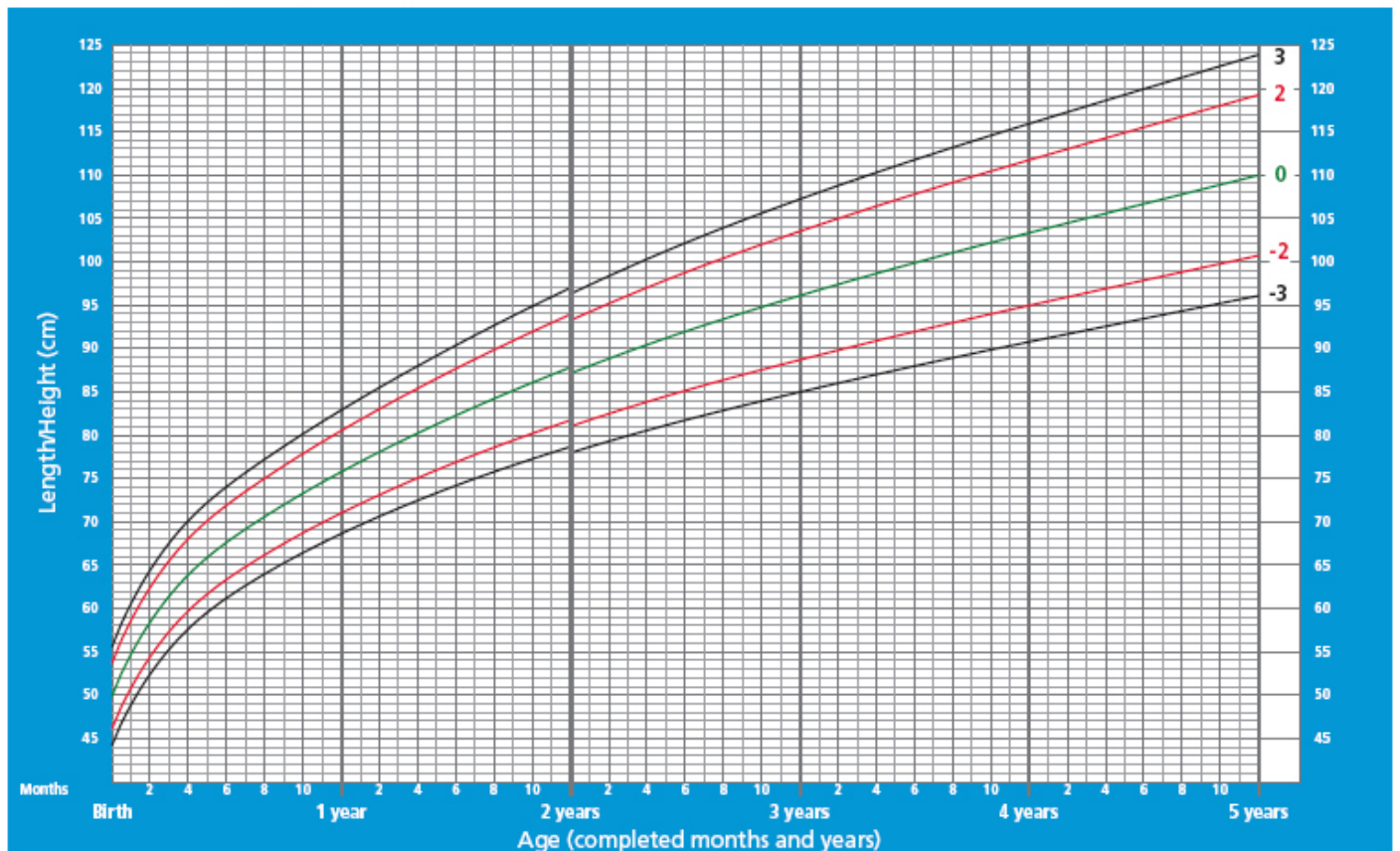
Birth to 5 years (z-scores)



WHO Child Growth Standards

# Length/height-for-age BOYS

Birth to 5 years (z-scores)



WHO Child Growth Standards

Annexes

## Weight-for-length GIRLS Birth to 2 years (z-scores)



World Health  
Organization

cm	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
45.0	1.9	2.1	2.3	2.5	2.7	3.0	3.3
45.5	2.0	2.1	2.3	2.5	2.8	3.1	3.4
46.0	2.0	2.2	2.4	2.6	2.9	3.2	3.5
46.5	2.1	2.3	2.5	2.7	3.0	3.3	3.6
47.0	2.2	2.4	2.6	2.8	3.1	3.4	3.7
47.5	2.2	2.4	2.6	2.9	3.2	3.5	3.8
48.0	2.3	2.5	2.7	3.0	3.3	3.6	4.0
48.5	2.4	2.6	2.8	3.1	3.4	3.7	4.1
49.0	2.4	2.6	2.9	3.2	3.5	3.8	4.2
49.5	2.5	2.7	3.0	3.3	3.6	3.9	4.3
50.0	2.6	2.8	3.1	3.4	3.7	4.0	4.5
50.5	2.7	2.9	3.2	3.5	3.8	4.2	4.6
51.0	2.8	3.0	3.3	3.6	3.9	4.3	4.8
51.5	2.8	3.1	3.4	3.7	4.0	4.4	4.9
52.0	2.9	3.2	3.5	3.8	4.2	4.6	5.1
52.5	3.0	3.3	3.6	3.9	4.3	4.7	5.2
53.0	3.1	3.4	3.7	4.0	4.4	4.9	5.4
53.5	3.2	3.5	3.8	4.2	4.6	5.0	5.5
54.0	3.3	3.6	3.9	4.3	4.7	5.2	5.7
54.5	3.4	3.7	4.0	4.4	4.8	5.3	5.9
55.0	3.5	3.8	4.2	4.5	5.0	5.5	6.1
55.5	3.6	3.9	4.3	4.7	5.1	5.7	6.3
56.0	3.7	4.0	4.4	4.8	5.3	5.8	6.4
56.5	3.8	4.1	4.5	5.0	5.4	6.0	6.6
57.0	3.9	4.3	4.6	5.1	5.6	6.1	6.8
57.5	4.0	4.4	4.8	5.2	5.7	6.3	7.0
58.0	4.1	4.5	4.9	5.4	5.9	6.5	7.1
58.5	4.2	4.6	5.0	5.5	6.0	6.6	7.3
59.0	4.3	4.7	5.1	5.6	6.2	6.8	7.5
59.5	4.4	4.8	5.3	5.7	6.3	6.9	7.7

cm	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
60.0	4.5	4.9	5.4	5.9	6.4	7.1	7.8
60.5	4.6	5.0	5.5	6.0	6.6	7.3	8.0
61.0	4.7	5.1	5.6	6.1	6.7	7.4	8.2
61.5	4.8	5.2	5.7	6.3	6.9	7.6	8.4
62.0	4.9	5.3	5.8	6.4	7.0	7.7	8.5
62.5	5.0	5.4	5.9	6.5	7.1	7.8	8.7
63.0	5.1	5.5	6.0	6.6	7.3	8.0	8.8
63.5	5.2	5.6	6.2	6.7	7.4	8.1	9.0
64.0	5.3	5.7	6.3	6.9	7.5	8.3	9.1
64.5	5.4	5.8	6.4	7.0	7.6	8.4	9.3
65.0	5.5	5.9	6.5	7.1	7.8	8.6	9.5
65.5	5.5	6.0	6.6	7.2	7.9	8.7	9.6
66.0	5.6	6.1	6.7	7.3	8.0	8.8	9.8
66.5	5.7	6.2	6.8	7.4	8.1	9.0	9.9
67.0	5.8	6.3	6.9	7.5	8.3	9.1	10.0
67.5	5.9	6.4	7.0	7.6	8.4	9.2	10.2
68.0	6.0	6.5	7.1	7.7	8.5	9.4	10.3
68.5	6.1	6.6	7.2	7.9	8.6	9.5	10.5
69.0	6.1	6.7	7.3	8.0	8.7	9.6	10.6
69.5	6.2	6.8	7.4	8.1	8.8	9.7	10.7
70.0	6.3	6.9	7.5	8.2	9.0	9.9	10.9
70.5	6.4	6.9	7.6	8.3	9.1	10.0	11.0
71.0	6.5	7.0	7.7	8.4	9.2	10.1	11.1
71.5	6.5	7.1	7.7	8.5	9.3	10.2	11.3
72.0	6.6	7.2	7.8	8.6	9.4	10.3	11.4
72.5	6.7	7.3	7.9	8.7	9.5	10.5	11.5
73.0	6.8	7.4	8.0	8.8	9.6	10.6	11.7
73.5	6.9	7.4	8.1	8.9	9.7	10.7	11.8
74.0	6.9	7.5	8.2	9.0	9.8	10.8	11.9
74.5	7.0	7.6	8.3	9.1	9.9	10.9	12.0
75.0	7.1	7.7	8.4	9.1	10.0	11.0	12.2

cm	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
75.5	7.1	7.8	8.5	9.2	10.1	11.1	12.3
76.0	7.2	7.8	8.5	9.3	10.2	11.2	12.4
76.5	7.3	7.9	8.6	9.4	10.3	11.4	12.5
77.0	7.4	8.0	8.7	9.5	10.4	11.5	12.6
77.5	7.4	8.1	8.8	9.6	10.5	11.6	12.8
78.0	7.5	8.2	8.9	9.7	10.6	11.7	12.9
78.5	7.6	8.2	9.0	9.8	10.7	11.8	13.0
79.0	7.7	8.3	9.1	9.9	10.8	11.9	13.1
79.5	7.7	8.4	9.1	10.0	10.9	12.0	13.3
80.0	7.8	8.5	9.2	10.1	11.0	12.1	13.4
80.5	7.9	8.6	9.3	10.2	11.2	12.3	13.5
81.0	8.0	8.7	9.4	10.3	11.3	12.4	13.7
81.5	8.1	8.8	9.5	10.4	11.4	12.5	13.8
82.0	8.1	8.8	9.6	10.5	11.5	12.6	13.9
82.5	8.2	8.9	9.7	10.6	11.6	12.8	14.1
83.0	8.3	9.0	9.8	10.7	11.8	12.9	14.2
83.5	8.4	9.1	9.9	10.9	11.9	13.1	14.4
84.0	8.5	9.2	10.1	11.0	12.0	13.2	14.5
84.5	8.6	9.3	10.2	11.1	12.1	13.3	14.7
85.0	8.7	9.4	10.3	11.2	12.3	13.5	14.9
85.5	8.8	9.5	10.4	11.3	12.4	13.6	15.0
86.0	8.9	9.7	10.5	11.5	12.6	13.8	15.2
86.5	9.0	9.8	10.6	11.6	12.7	13.9	15.4
87.0	9.1	9.9	10.7	11.7	12.8	14.1	15.5
87.5	9.2	10.0	10.9	11.8	13.0	14.2	15.7
88.0	9.3	10.1	11.0	12.0	13.1	14.4	15.9
88.5	9.4	10.2	11.1	12.1	13.2	14.5	16.0
89.0	9.5	10.3	11.2	12.2	13.4	14.7	16.2
89.5	9.6	10.4	11.3	12.3	13.5	14.8	16.4
90.0	9.7	10.5	11.4	12.5	13.7	15.0	16.5
90.5	9.8	10.6	11.5	12.6	13.8	15.1	16.7

cm	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
91.0	9.9	10.7	11.7	12.7	13.9	15.3	16.9
91.5	10.0	10.8	11.8	12.8	14.1	15.5	17.0
92.0	10.1	10.9	11.9	13.0	14.2	15.6	17.2
92.5	10.1	11.0	12.0	13.1	14.3	15.8	17.4
93.0	10.2	11.1	12.1	13.2	14.5	15.9	17.5
93.5	10.3	11.2	12.2	13.3	14.6	16.1	17.7
94.0	10.4	11.3	12.3	13.5	14.7	16.2	17.9
94.5	10.5	11.4	12.4	13.6	14.9	16.4	18.0
95.0	10.6	11.5	12.6	13.7	15.0	16.5	18.2
95.5	10.7	11.6	12.7	13.8	15.2	16.7	18.4
96.0	10.8	11.7	12.8	14.0	15.3	16.8	18.6
96.5	10.9	11.8	12.9	14.1	15.4	17.0	18.7
97.0	11.0	12.0	13.0	14.2	15.6	17.1	18.9
97.5	11.1	12.1	13.1	14.4	15.7	17.3	19.1
98.0	11.2	12.2	13.3	14.5	15.9	17.5	19.3
98.5	11.3	12.3	13.4	14.6	16.0	17.6	19.5
99.0	11.4	12.4	13.5	14.8	16.2	17.8	19.6
99.5	11.5	12.5	13.6	14.9	16.3	18.0	19.8
100.0	11.6	12.6	13.7	15.0	16.5	18.1	20.0
100.5	11.7	12.7	13.9	15.2	16.6	18.3	20.2
101.0	11.8	12.8	14.0	15.3	16.8	18.5	20.4
101.5	11.9	13.0	14.1	15.5	17.0	18.7	20.6
102.0	12.0	13.1	14.3	15.6	17.1	18.9	20.8
102.5	12.1	13.2	14.4	15.8	17.3	19.0	21.0
103.0	12.3	13.3	14.5	15.9	17.5	19.2	21.3
103.5	12.4	13.5	14.7	16.1	17.6	19.4	21.5
104.0	12.5	13.6	14.8	16.2	17.8	19.6	21.7
104.5	12.6	13.7	15.0	16.4	18.0	19.8	21.9
105.0	12.7	13.8	15.1	16.5	18.2	20.0	22.2
105.5	12.8	14.0	15.3	16.7	18.4	20.2	22.4
106.0	13.0	14.1	15.4	16.9	18.5	20.5	22.6



cm	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
106.5	13.1	14.3	15.6	17.1	18.7	20.7	22.9
107.0	13.2	14.4	15.7	17.2	18.9	20.9	23.1
107.5	13.3	14.5	15.9	17.4	19.1	21.1	23.4
108.0	13.5	14.7	16.0	17.6	19.3	21.3	23.6
108.5	13.6	14.8	16.2	17.8	19.5	21.6	23.9
109.0	13.7	15.0	16.4	18.0	19.7	21.8	24.2
109.5	13.9	15.1	16.5	18.1	20.0	22.0	24.4
110.0	14.0	15.3	16.7	18.3	20.2	22.3	24.7
<b>WHO Child Growth Standards</b>							

## Weight-for-height GIRLS 2 to 5 years (z-scores)



**World Health  
Organization**

cm	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
65.0	5.6	6.1	6.6	7.2	7.9	8.7	9.7
65.5	5.7	6.2	6.7	7.4	8.1	8.9	9.8
66.0	5.8	6.3	6.8	7.5	8.2	9.0	10.0
66.5	5.8	6.4	6.9	7.6	8.3	9.1	10.1
67.0	5.9	6.4	7.0	7.7	8.4	9.3	10.2
67.5	6.0	6.5	7.1	7.8	8.5	9.4	10.4
68.0	6.1	6.6	7.2	7.9	8.7	9.5	10.5
68.5	6.2	6.7	7.3	8.0	8.8	9.7	10.7
69.0	6.3	6.8	7.4	8.1	8.9	9.8	10.8
69.5	6.3	6.9	7.5	8.2	9.0	9.9	10.9
70.0	6.4	7.0	7.6	8.3	9.1	10.0	11.1
70.5	6.5	7.1	7.7	8.4	9.2	10.1	11.2
71.0	6.6	7.1	7.8	8.5	9.3	10.3	11.3
71.5	6.7	7.2	7.9	8.6	9.4	10.4	11.5
72.0	6.7	7.3	8.0	8.7	9.5	10.5	11.6
72.5	6.8	7.4	8.1	8.8	9.7	10.6	11.7
73.0	6.9	7.5	8.1	8.9	9.8	10.7	11.8
73.5	7.0	7.6	8.2	9.0	9.9	10.8	12.0
74.0	7.0	7.6	8.3	9.1	10.0	11.0	12.1
74.5	7.1	7.7	8.4	9.2	10.1	11.1	12.2
75.0	7.2	7.8	8.5	9.3	10.2	11.2	12.3
75.5	7.2	7.9	8.6	9.4	10.3	11.3	12.5
76.0	7.3	8.0	8.7	9.5	10.4	11.4	12.6
76.5	7.4	8.0	8.7	9.6	10.5	11.5	12.7
77.0	7.5	8.1	8.8	9.6	10.6	11.6	12.8
77.5	7.5	8.2	8.9	9.7	10.7	11.7	12.9
78.0	7.6	8.3	9.0	9.8	10.8	11.8	13.1
78.5	7.7	8.4	9.1	9.9	10.9	12.0	13.2
79.0	7.8	8.4	9.2	10.0	11.0	12.1	13.3
79.5	7.8	8.5	9.3	10.1	11.1	12.2	13.4

cm	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
80.0	7.9	8.6	9.4	10.2	11.2	12.3	13.6
80.5	8.0	8.7	9.5	10.3	11.3	12.4	13.7
81.0	8.1	8.8	9.6	10.4	11.4	12.6	13.9
81.5	8.2	8.9	9.7	10.6	11.6	12.7	14.0
82.0	8.3	9.0	9.8	10.7	11.7	12.8	14.1
82.5	8.4	9.1	9.9	10.8	11.8	13.0	14.3
83.0	8.5	9.2	10.0	10.9	11.9	13.1	14.5
83.5	8.5	9.3	10.1	11.0	12.1	13.3	14.6
84.0	8.6	9.4	10.2	11.1	12.2	13.4	14.8
84.5	8.7	9.5	10.3	11.3	12.3	13.5	14.9
85.0	8.8	9.6	10.4	11.4	12.5	13.7	15.1
85.5	8.9	9.7	10.6	11.5	12.6	13.8	15.3
86.0	9.0	9.8	10.7	11.6	12.7	14.0	15.4
86.5	9.1	9.9	10.8	11.8	12.9	14.2	15.6
87.0	9.2	10.0	10.9	11.9	13.0	14.3	15.8
87.5	9.3	10.1	11.0	12.0	13.2	14.5	15.9
88.0	9.4	10.2	11.1	12.1	13.3	14.6	16.1
88.5	9.5	10.3	11.2	12.3	13.4	14.8	16.3
89.0	9.6	10.4	11.4	12.4	13.6	14.9	16.4
89.5	9.7	10.5	11.5	12.5	13.7	15.1	16.6
90.0	9.8	10.6	11.6	12.6	13.8	15.2	16.8
90.5	9.9	10.7	11.7	12.8	14.0	15.4	16.9
91.0	10.0	10.9	11.8	12.9	14.1	15.5	17.1
91.5	10.1	11.0	11.9	13.0	14.3	15.7	17.3
92.0	10.2	11.1	12.0	13.1	14.4	15.8	17.4
92.5	10.3	11.2	12.1	13.3	14.5	16.0	17.6
93.0	10.4	11.3	12.3	13.4	14.7	16.1	17.8
93.5	10.5	11.4	12.4	13.5	14.8	16.3	17.9
94.0	10.6	11.5	12.5	13.6	14.9	16.4	18.1
94.5	10.7	11.6	12.6	13.8	15.1	16.6	18.3
95.0	10.8	11.7	12.7	13.9	15.2	16.7	18.5

cm	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
95.5	10.8	11.8	12.8	14.0	15.4	16.9	18.6
96.0	10.9	11.9	12.9	14.1	15.5	17.0	18.8
96.5	11.0	12.0	13.1	14.3	15.6	17.2	19.0
97.0	11.1	12.1	13.2	14.4	15.8	17.4	19.2
97.5	11.2	12.2	13.3	14.5	15.9	17.5	19.3
98.0	11.3	12.3	13.4	14.7	16.1	17.7	19.5
98.5	11.4	12.4	13.5	14.8	16.2	17.9	19.7
99.0	11.5	12.5	13.7	14.9	16.4	18.0	19.9
99.5	11.6	12.7	13.8	15.1	16.5	18.2	20.1
100.0	11.7	12.8	13.9	15.2	16.7	18.4	20.3
100.5	11.9	12.9	14.1	15.4	16.9	18.6	20.5
101.0	12.0	13.0	14.2	15.5	17.0	18.7	20.7
101.5	12.1	13.1	14.3	15.7	17.2	18.9	20.9
102.0	12.2	13.3	14.5	15.8	17.4	19.1	21.1
102.5	12.3	13.4	14.6	16.0	17.5	19.3	21.4
103.0	12.4	13.5	14.7	16.1	17.7	19.5	21.6
103.5	12.5	13.6	14.9	16.3	17.9	19.7	21.8
104.0	12.6	13.8	15.0	16.4	18.1	19.9	22.0
104.5	12.8	13.9	15.2	16.6	18.2	20.1	22.3
105.0	12.9	14.0	15.3	16.8	18.4	20.3	22.5
105.5	13.0	14.2	15.5	16.9	18.6	20.5	22.7
106.0	13.1	14.3	15.6	17.1	18.8	20.8	23.0
106.5	13.3	14.5	15.8	17.3	19.0	21.0	23.2
107.0	13.4	14.6	15.9	17.5	19.2	21.2	23.5
107.5	13.5	14.7	16.1	17.7	19.4	21.4	23.7
108.0	13.7	14.9	16.3	17.8	19.6	21.7	24.0
108.5	13.8	15.0	16.4	18.0	19.8	21.9	24.3
109.0	13.9	15.2	16.6	18.2	20.0	22.1	24.5
109.5	14.1	15.4	16.8	18.4	20.3	22.4	24.8
110.0	14.2	15.5	17.0	18.6	20.5	22.6	25.1
110.5	14.4	15.7	17.1	18.8	20.7	22.9	25.4

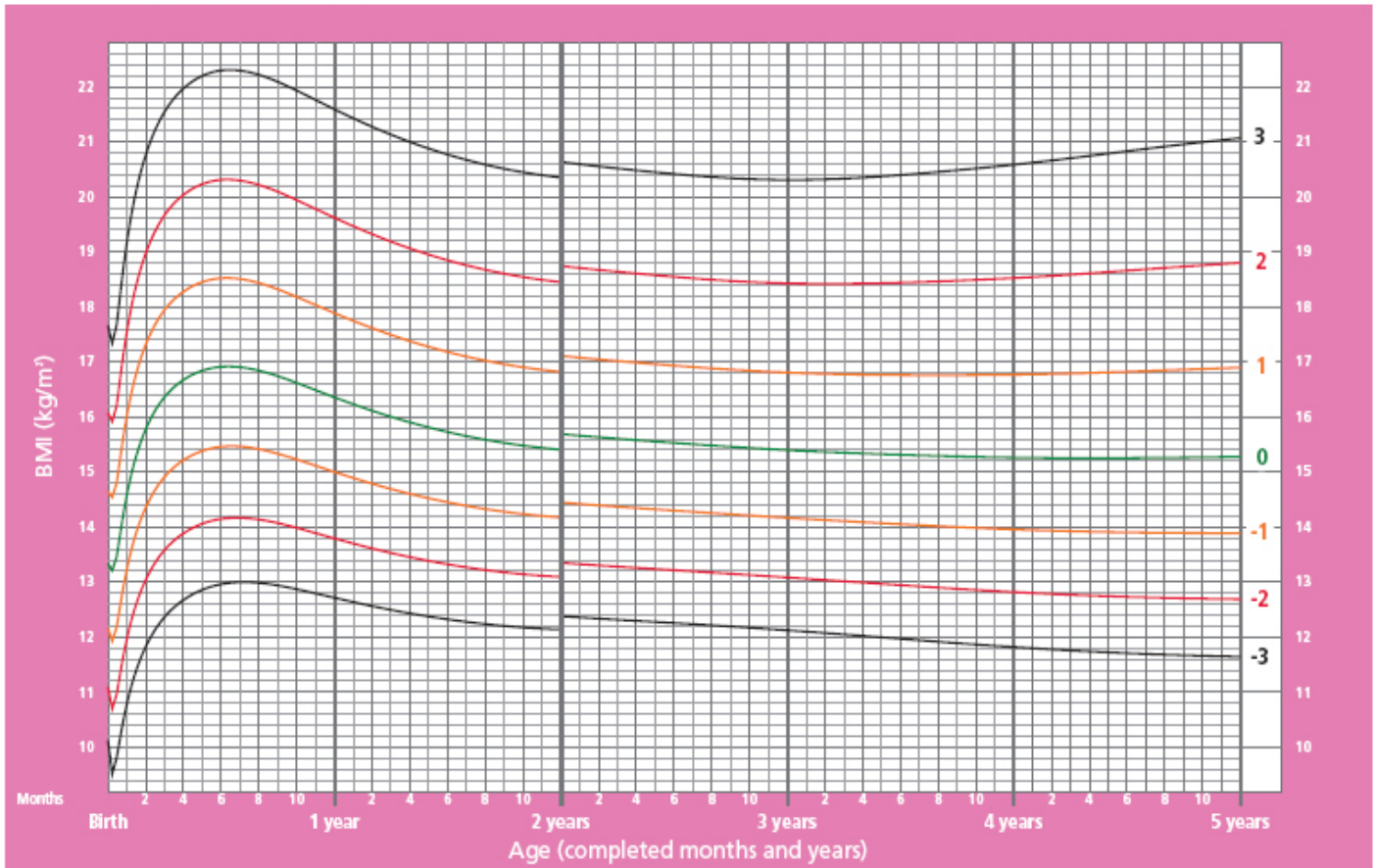
cm	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
111.0	14.5	15.8	17.3	19.0	20.9	23.1	25.7
111.5	14.7	16.0	17.5	19.2	21.2	23.4	26.0
112.0	14.8	16.2	17.7	19.4	21.4	23.6	26.2
112.5	15.0	16.3	17.9	19.6	21.6	23.9	26.5
113.0	15.1	16.5	18.0	19.8	21.8	24.2	26.8
113.5	15.3	16.7	18.2	20.0	22.1	24.4	27.1
114.0	15.4	16.8	18.4	20.2	22.3	24.7	27.4
114.5	15.6	17.0	18.6	20.5	22.6	25.0	27.8
115.0	15.7	17.2	18.8	20.7	22.8	25.2	28.1
115.5	15.9	17.3	19.0	20.9	23.0	25.5	28.4
116.0	16.0	17.5	19.2	21.1	23.3	25.8	28.7
116.5	16.2	17.7	19.4	21.3	23.5	26.1	29.0
117.0	16.3	17.8	19.6	21.5	23.8	26.3	29.3
117.5	16.5	18.0	19.8	21.7	24.0	26.6	29.6
118.0	16.6	18.2	19.9	22.0	24.2	26.9	29.9
118.5	16.8	18.4	20.1	22.2	24.5	27.2	30.3
119.0	16.9	18.5	20.3	22.4	24.7	27.4	30.6
119.5	17.1	18.7	20.5	22.6	25.0	27.7	30.9
120.0	17.3	18.9	20.7	22.8	25.2	28.0	31.2

## WHO Child Growth Standards

# BMI-for-age GIRLS



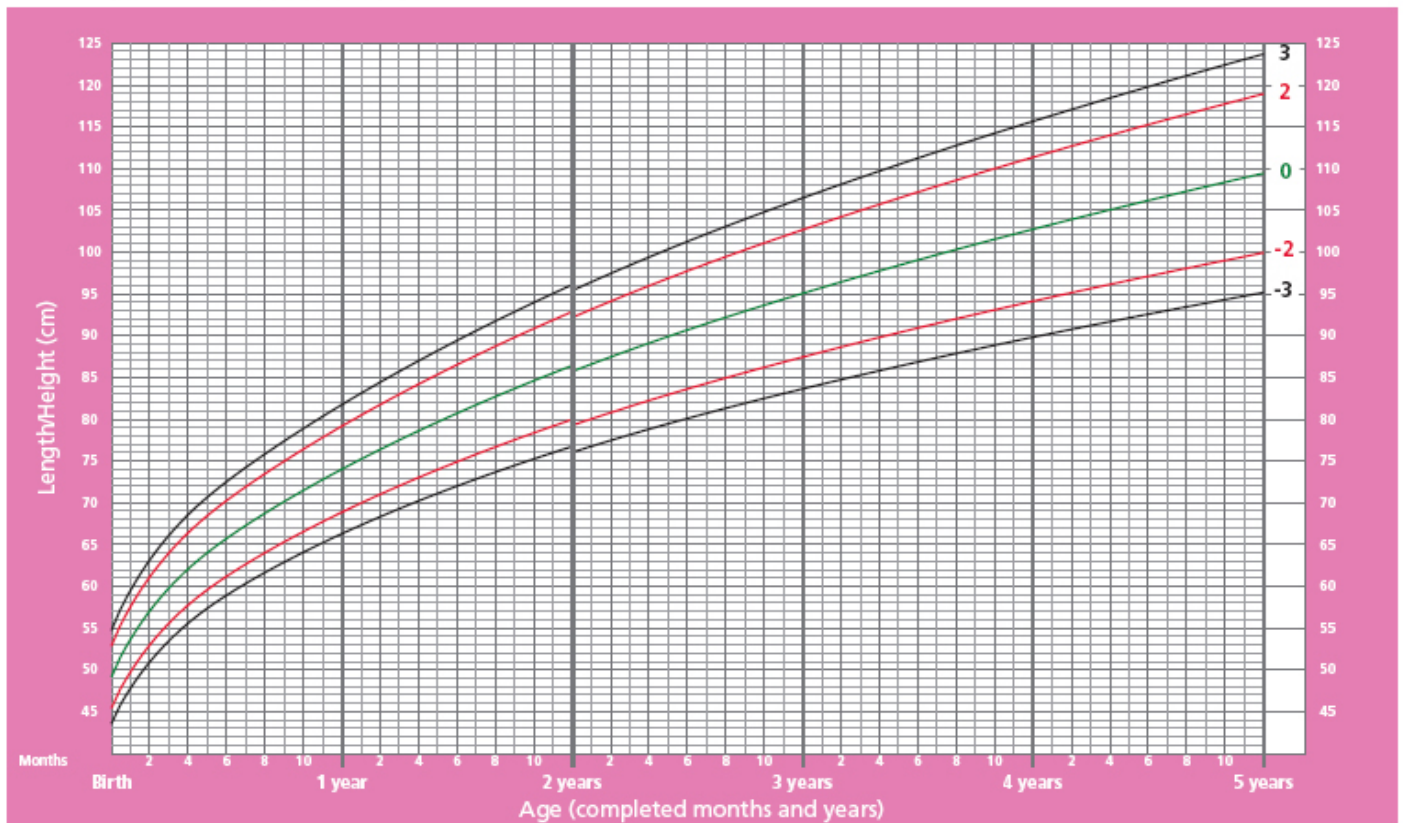
Birth to 5 years (z-scores)



# Length/height-for-age GIRLS



Birth to 5 years (z-scores)



Annexes

WHO Child Growth Standards

## BMI-for-age BOYS 5 to 19 years (z-scores)



World Health  
Organization

Year: Month	Months	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
5: 1	61	12.1	13.0	14.1	15.3	16.6	18.3	20.2
5: 2	62	12.1	13.0	14.1	15.3	16.6	18.3	20.2
5: 3	63	12.1	13.0	14.1	15.3	16.7	18.3	20.2
5: 4	64	12.1	13.0	14.1	15.3	16.7	18.3	20.3
5: 5	65	12.1	13.0	14.1	15.3	16.7	18.3	20.3
5: 6	66	12.1	13.0	14.1	15.3	16.7	18.4	20.4
5: 7	67	12.1	13.0	14.1	15.3	16.7	18.4	20.4
5: 8	68	12.1	13.0	14.1	15.3	16.7	18.4	20.5
5: 9	69	12.1	13.0	14.1	15.3	16.7	18.4	20.5
5: 10	70	12.1	13.0	14.1	15.3	16.7	18.5	20.6
5: 11	71	12.1	13.0	14.1	15.3	16.7	18.5	20.6
6: 0	72	12.1	13.0	14.1	15.3	16.8	18.5	20.7
6: 1	73	12.1	13.0	14.1	15.3	16.8	18.6	20.8
6: 2	74	12.2	13.1	14.1	15.3	16.8	18.6	20.8
6: 3	75	12.2	13.1	14.1	15.3	16.8	18.6	20.9
6: 4	76	12.2	13.1	14.1	15.4	16.8	18.7	21.0
6: 5	77	12.2	13.1	14.1	15.4	16.9	18.7	21.0
6: 6	78	12.2	13.1	14.1	15.4	16.9	18.7	21.1
6: 7	79	12.2	13.1	14.1	15.4	16.9	18.8	21.2
6: 8	80	12.2	13.1	14.2	15.4	16.9	18.8	21.3
6: 9	81	12.2	13.1	14.2	15.4	17.0	18.9	21.3
6: 10	82	12.2	13.1	14.2	15.4	17.0	18.9	21.4
6: 11	83	12.2	13.1	14.2	15.5	17.0	19.0	21.5
7: 0	84	12.3	13.1	14.2	15.5	17.0	19.0	21.6
7: 1	85	12.3	13.2	14.2	15.5	17.1	19.1	21.7
7: 2	86	12.3	13.2	14.2	15.5	17.1	19.1	21.8
7: 3	87	12.3	13.2	14.3	15.5	17.1	19.2	21.9
7: 4	88	12.3	13.2	14.3	15.6	17.2	19.2	22.0
7: 5	89	12.3	13.2	14.3	15.6	17.2	19.3	22.0
7: 6	90	12.3	13.2	14.3	15.6	17.2	19.3	22.1

Year: Month	Months	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
7: 7	91	12.3	13.2	14.3	15.6	17.3	19.4	22.2
7: 8	92	12.3	13.2	14.3	15.6	17.3	19.4	22.4
7: 9	93	12.4	13.3	14.3	15.7	17.3	19.5	22.5
7: 10	94	12.4	13.3	14.4	15.7	17.4	19.6	22.6
7: 11	95	12.4	13.3	14.4	15.7	17.4	19.6	22.7
8: 0	96	12.4	13.3	14.4	15.7	17.4	19.7	22.8
8: 1	97	12.4	13.3	14.4	15.8	17.5	19.7	22.9
8: 2	98	12.4	13.3	14.4	15.8	17.5	19.8	23.0
8: 3	99	12.4	13.3	14.4	15.8	17.5	19.9	23.1
8: 4	100	12.4	13.4	14.5	15.8	17.6	19.9	23.3
8: 5	101	12.5	13.4	14.5	15.9	17.6	20.0	23.4
8: 6	102	12.5	13.4	14.5	15.9	17.7	20.1	23.5
8: 7	103	12.5	13.4	14.5	15.9	17.7	20.1	23.6
8: 8	104	12.5	13.4	14.5	15.9	17.7	20.2	23.8
8: 9	105	12.5	13.4	14.6	16.0	17.8	20.3	23.9
8: 10	106	12.5	13.5	14.6	16.0	17.8	20.3	24.0
8: 11	107	12.5	13.5	14.6	16.0	17.9	20.4	24.2
9: 0	108	12.6	13.5	14.6	16.0	17.9	20.5	24.3
9: 1	109	12.6	13.5	14.6	16.1	18.0	20.5	24.4
9: 2	110	12.6	13.5	14.7	16.1	18.0	20.6	24.6
9: 3	111	12.6	13.5	14.7	16.1	18.0	20.7	24.7
9: 4	112	12.6	13.6	14.7	16.2	18.1	20.8	24.9
9: 5	113	12.6	13.6	14.7	16.2	18.1	20.8	25.0
9: 6	114	12.7	13.6	14.8	16.2	18.2	20.9	25.1
9: 7	115	12.7	13.6	14.8	16.3	18.2	21.0	25.3
9: 8	116	12.7	13.6	14.8	16.3	18.3	21.1	25.5
9: 9	117	12.7	13.7	14.8	16.3	18.3	21.2	25.6
9: 10	118	12.7	13.7	14.9	16.4	18.4	21.2	25.8
9: 11	119	12.8	13.7	14.9	16.4	18.4	21.3	25.9
10: 0	120	12.8	13.7	14.9	16.4	18.5	21.4	26.1



Year: Month	Months	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
10: 1	121	12.8	13.8	15.0	16.5	18.5	21.5	26.2
10: 2	122	12.8	13.8	15.0	16.5	18.6	21.6	26.4
10: 3	123	12.8	13.8	15.0	16.6	18.6	21.7	26.6
10: 4	124	12.9	13.8	15.0	16.6	18.7	21.7	26.7
10: 5	125	12.9	13.9	15.1	16.6	18.8	21.8	26.9
10: 6	126	12.9	13.9	15.1	16.7	18.8	21.9	27.0
10: 7	127	12.9	13.9	15.1	16.7	18.9	22.0	27.2
10: 8	128	13.0	13.9	15.2	16.8	18.9	22.1	27.4
10: 9	129	13.0	14.0	15.2	16.8	19.0	22.2	27.5
10: 10	130	13.0	14.0	15.2	16.9	19.0	22.3	27.7
10: 11	131	13.0	14.0	15.3	16.9	19.1	22.4	27.9
11: 0	132	13.1	14.1	15.3	16.9	19.2	22.5	28.0
11: 1	133	13.1	14.1	15.3	17.0	19.2	22.5	28.2
11: 2	134	13.1	14.1	15.4	17.0	19.3	22.6	28.4
11: 3	135	13.1	14.1	15.4	17.1	19.3	22.7	28.5
11: 4	136	13.2	14.2	15.5	17.1	19.4	22.8	28.7
11: 5	137	13.2	14.2	15.5	17.2	19.5	22.9	28.8
11: 6	138	13.2	14.2	15.5	17.2	19.5	23.0	29.0
11: 7	139	13.2	14.3	15.6	17.3	19.6	23.1	29.2
11: 8	140	13.3	14.3	15.6	17.3	19.7	23.2	29.3
11: 9	141	13.3	14.3	15.7	17.4	19.7	23.3	29.5
11: 10	142	13.3	14.4	15.7	17.4	19.8	23.4	29.6
11: 11	143	13.4	14.4	15.7	17.5	19.9	23.5	29.8
12: 0	144	13.4	14.5	15.8	17.5	19.9	23.6	30.0
12: 1	145	13.4	14.5	15.8	17.6	20.0	23.7	30.1
12: 2	146	13.5	14.5	15.9	17.6	20.1	23.8	30.3
12: 3	147	13.5	14.6	15.9	17.7	20.2	23.9	30.4
12: 4	148	13.5	14.6	16.0	17.8	20.2	24.0	30.6
12: 5	149	13.6	14.6	16.0	17.8	20.3	24.1	30.7
12: 6	150	13.6	14.7	16.1	17.9	20.4	24.2	30.9

Year: Month	Months	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
12: 7	151	13.6	14.7	16.1	17.9	20.4	24.3	31.0
12: 8	152	13.7	14.8	16.2	18.0	20.5	24.4	31.1
12: 9	153	13.7	14.8	16.2	18.0	20.6	24.5	31.3
12: 10	154	13.7	14.8	16.3	18.1	20.7	24.6	31.4
12: 11	155	13.8	14.9	16.3	18.2	20.8	24.7	31.6
13: 0	156	13.8	14.9	16.4	18.2	20.8	24.8	31.7
13: 1	157	13.8	15.0	16.4	18.3	20.9	24.9	31.8
13: 2	158	13.9	15.0	16.5	18.4	21.0	25.0	31.9
13: 3	159	13.9	15.1	16.5	18.4	21.1	25.1	32.1
13: 4	160	14.0	15.1	16.6	18.5	21.1	25.2	32.2
13: 5	161	14.0	15.2	16.6	18.6	21.2	25.2	32.3
13: 6	162	14.0	15.2	16.7	18.6	21.3	25.3	32.4
13: 7	163	14.1	15.2	16.7	18.7	21.4	25.4	32.6
13: 8	164	14.1	15.3	16.8	18.7	21.5	25.5	32.7
13: 9	165	14.1	15.3	16.8	18.8	21.5	25.6	32.8
13: 10	166	14.2	15.4	16.9	18.9	21.6	25.7	32.9
13: 11	167	14.2	15.4	17.0	18.9	21.7	25.8	33.0
14: 0	168	14.3	15.5	17.0	19.0	21.8	25.9	33.1
14: 1	169	14.3	15.5	17.1	19.1	21.8	26.0	33.2
14: 2	170	14.3	15.6	17.1	19.1	21.9	26.1	33.3
14: 3	171	14.4	15.6	17.2	19.2	22.0	26.2	33.4
14: 4	172	14.4	15.7	17.2	19.3	22.1	26.3	33.5
14: 5	173	14.5	15.7	17.3	19.3	22.2	26.4	33.5
14: 6	174	14.5	15.7	17.3	19.4	22.2	26.5	33.6
14: 7	175	14.5	15.8	17.4	19.5	22.3	26.5	33.7
14: 8	176	14.6	15.8	17.4	19.5	22.4	26.6	33.8
14: 9	177	14.6	15.9	17.5	19.6	22.5	26.7	33.9
14: 10	178	14.6	15.9	17.5	19.6	22.5	26.8	33.9
14: 11	179	14.7	16.0	17.6	19.7	22.6	26.9	34.0
15: 0	180	14.7	16.0	17.6	19.8	22.7	27.0	34.1

Year: Month	Months	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
15: 1	181	14.7	16.1	17.7	19.8	22.8	27.1	34.1
15: 2	182	14.8	16.1	17.8	19.9	22.8	27.1	34.2
15: 3	183	14.8	16.1	17.8	20.0	22.9	27.2	34.3
15: 4	184	14.8	16.2	17.9	20.0	23.0	27.3	34.3
15: 5	185	14.9	16.2	17.9	20.1	23.0	27.4	34.4
15: 6	186	14.9	16.3	18.0	20.1	23.1	27.4	34.5
15: 7	187	15.0	16.3	18.0	20.2	23.2	27.5	34.5
15: 8	188	15.0	16.3	18.1	20.3	23.3	27.6	34.6
15: 9	189	15.0	16.4	18.1	20.3	23.3	27.7	34.6
15: 10	190	15.0	16.4	18.2	20.4	23.4	27.7	34.7
15: 11	191	15.1	16.5	18.2	20.4	23.5	27.8	34.7
16: 0	192	15.1	16.5	18.2	20.5	23.5	27.9	34.8
16: 1	193	15.1	16.5	18.3	20.6	23.6	27.9	34.8
16: 2	194	15.2	16.6	18.3	20.6	23.7	28.0	34.8
16: 3	195	15.2	16.6	18.4	20.7	23.7	28.1	34.9
16: 4	196	15.2	16.7	18.4	20.7	23.8	28.1	34.9
16: 5	197	15.3	16.7	18.5	20.8	23.8	28.2	35.0
16: 6	198	15.3	16.7	18.5	20.8	23.9	28.3	35.0
16: 7	199	15.3	16.8	18.6	20.9	24.0	28.3	35.0
16: 8	200	15.3	16.8	18.6	20.9	24.0	28.4	35.1
16: 9	201	15.4	16.8	18.7	21.0	24.1	28.5	35.1
16: 10	202	15.4	16.9	18.7	21.0	24.2	28.5	35.1
16: 11	203	15.4	16.9	18.7	21.1	24.2	28.6	35.2
17: 0	204	15.4	16.9	18.8	21.1	24.3	28.6	35.2
17: 1	205	15.5	17.0	18.8	21.2	24.3	28.7	35.2
17: 2	206	15.5	17.0	18.9	21.2	24.4	28.7	35.2
17: 3	207	15.5	17.0	18.9	21.3	24.4	28.8	35.3
17: 4	208	15.5	17.1	18.9	21.3	24.5	28.9	35.3
17: 5	209	15.6	17.1	19.0	21.4	24.5	28.9	35.3
17: 6	210	15.6	17.1	19.0	21.4	24.6	29.0	35.3

Year: Month	Months	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
17: 7	211	15.6	17.1	19.1	21.5	24.7	29.0	35.4
17: 8	212	15.6	17.2	19.1	21.5	24.7	29.1	35.4
17: 9	213	15.6	17.2	19.1	21.6	24.8	29.1	35.4
17: 10	214	15.7	17.2	19.2	21.6	24.8	29.2	35.4
17: 11	215	15.7	17.3	19.2	21.7	24.9	29.2	35.4
18: 0	216	15.7	17.3	19.2	21.7	24.9	29.2	35.4
18: 1	217	15.7	17.3	19.3	21.8	25.0	29.3	35.4
18: 2	218	15.7	17.3	19.3	21.8	25.0	29.3	35.5
18: 3	219	15.7	17.4	19.3	21.8	25.1	29.4	35.5
18: 4	220	15.8	17.4	19.4	21.9	25.1	29.4	35.5
18: 5	221	15.8	17.4	19.4	21.9	25.1	29.5	35.5
18: 6	222	15.8	17.4	19.4	22.0	25.2	29.5	35.5
18: 7	223	15.8	17.5	19.5	22.0	25.2	29.5	35.5
18: 8	224	15.8	17.5	19.5	22.0	25.3	29.6	35.5
18: 9	225	15.8	17.5	19.5	22.1	25.3	29.6	35.5
18: 10	226	15.8	17.5	19.6	22.1	25.4	29.6	35.5
18: 11	227	15.8	17.5	19.6	22.2	25.4	29.7	35.5
19: 0	228	15.9	17.6	19.6	22.2	25.4	29.7	35.5
<b>2007 WHO Reference</b>								



**BMI-for-age GIRLS  
5 to 19 years (z-scores)**

Year: Month	Months	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
5: 1	61	11.8	12.7	13.9	15.2	16.9	18.9	21.3
5: 2	62	11.8	12.7	13.9	15.2	16.9	18.9	21.4
5: 3	63	11.8	12.7	13.9	15.2	16.9	18.9	21.5
5: 4	64	11.8	12.7	13.9	15.2	16.9	18.9	21.5
5: 5	65	11.7	12.7	13.9	15.2	16.9	19.0	21.6
5: 6	66	11.7	12.7	13.9	15.2	16.9	19.0	21.7
5: 7	67	11.7	12.7	13.9	15.2	16.9	19.0	21.7
5: 8	68	11.7	12.7	13.9	15.3	17.0	19.1	21.8
5: 9	69	11.7	12.7	13.9	15.3	17.0	19.1	21.9
5: 10	70	11.7	12.7	13.9	15.3	17.0	19.1	22.0
5: 11	71	11.7	12.7	13.9	15.3	17.0	19.2	22.1
6: 0	72	11.7	12.7	13.9	15.3	17.0	19.2	22.1
6: 1	73	11.7	12.7	13.9	15.3	17.0	19.3	22.2
6: 2	74	11.7	12.7	13.9	15.3	17.0	19.3	22.3
6: 3	75	11.7	12.7	13.9	15.3	17.1	19.3	22.4
6: 4	76	11.7	12.7	13.9	15.3	17.1	19.4	22.5
6: 5	77	11.7	12.7	13.9	15.3	17.1	19.4	22.6
6: 6	78	11.7	12.7	13.9	15.3	17.1	19.5	22.7
6: 7	79	11.7	12.7	13.9	15.3	17.2	19.5	22.8
6: 8	80	11.7	12.7	13.9	15.3	17.2	19.6	22.9
6: 9	81	11.7	12.7	13.9	15.4	17.2	19.6	23.0
6: 10	82	11.7	12.7	13.9	15.4	17.2	19.7	23.1
6: 11	83	11.7	12.7	13.9	15.4	17.3	19.7	23.2
7: 0	84	11.8	12.7	13.9	15.4	17.3	19.8	23.3
7: 1	85	11.8	12.7	13.9	15.4	17.3	19.8	23.4
7: 2	86	11.8	12.8	14.0	15.4	17.4	19.9	23.5
7: 3	87	11.8	12.8	14.0	15.5	17.4	20.0	23.6
7: 4	88	11.8	12.8	14.0	15.5	17.4	20.0	23.7
7: 5	89	11.8	12.8	14.0	15.5	17.5	20.1	23.9
7: 6	90	11.8	12.8	14.0	15.5	17.5	20.1	24.0

Year: Month	Months	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
7: 7	91	11.8	12.8	14.0	15.5	17.5	20.2	24.1
7: 8	92	11.8	12.8	14.0	15.6	17.6	20.3	24.2
7: 9	93	11.8	12.8	14.1	15.6	17.6	20.3	24.4
7: 10	94	11.9	12.9	14.1	15.6	17.6	20.4	24.5
7: 11	95	11.9	12.9	14.1	15.7	17.7	20.5	24.6
8: 0	96	11.9	12.9	14.1	15.7	17.7	20.6	24.8
8: 1	97	11.9	12.9	14.1	15.7	17.8	20.6	24.9
8: 2	98	11.9	12.9	14.2	15.7	17.8	20.7	25.1
8: 3	99	11.9	12.9	14.2	15.8	17.9	20.8	25.2
8: 4	100	11.9	13.0	14.2	15.8	17.9	20.9	25.3
8: 5	101	12.0	13.0	14.2	15.8	18.0	20.9	25.5
8: 6	102	12.0	13.0	14.3	15.9	18.0	21.0	25.6
8: 7	103	12.0	13.0	14.3	15.9	18.1	21.1	25.8
8: 8	104	12.0	13.0	14.3	15.9	18.1	21.2	25.9
8: 9	105	12.0	13.1	14.3	16.0	18.2	21.3	26.1
8: 10	106	12.1	13.1	14.4	16.0	18.2	21.3	26.2
8: 11	107	12.1	13.1	14.4	16.1	18.3	21.4	26.4
9: 0	108	12.1	13.1	14.4	16.1	18.3	21.5	26.5
9: 1	109	12.1	13.2	14.5	16.1	18.4	21.6	26.7
9: 2	110	12.1	13.2	14.5	16.2	18.4	21.7	26.8
9: 3	111	12.2	13.2	14.5	16.2	18.5	21.8	27.0
9: 4	112	12.2	13.2	14.6	16.3	18.6	21.9	27.2
9: 5	113	12.2	13.3	14.6	16.3	18.6	21.9	27.3
9: 6	114	12.2	13.3	14.6	16.3	18.7	22.0	27.5
9: 7	115	12.3	13.3	14.7	16.4	18.7	22.1	27.6
9: 8	116	12.3	13.4	14.7	16.4	18.8	22.2	27.8
9: 9	117	12.3	13.4	14.7	16.5	18.8	22.3	27.9
9: 10	118	12.3	13.4	14.8	16.5	18.9	22.4	28.1
9: 11	119	12.4	13.4	14.8	16.6	19.0	22.5	28.2
10: 0	120	12.4	13.5	14.8	16.6	19.0	22.6	28.4

Year: Month	Months	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
10: 1	121	12.4	13.5	14.9	16.7	19.1	22.7	28.5
10: 2	122	12.4	13.5	14.9	16.7	19.2	22.8	28.7
10: 3	123	12.5	13.6	15.0	16.8	19.2	22.8	28.8
10: 4	124	12.5	13.6	15.0	16.8	19.3	22.9	29.0
10: 5	125	12.5	13.6	15.0	16.9	19.4	23.0	29.1
10: 6	126	12.5	13.7	15.1	16.9	19.4	23.1	29.3
10: 7	127	12.6	13.7	15.1	17.0	19.5	23.2	29.4
10: 8	128	12.6	13.7	15.2	17.0	19.6	23.3	29.6
10: 9	129	12.6	13.8	15.2	17.1	19.6	23.4	29.7
10: 10	130	12.7	13.8	15.3	17.1	19.7	23.5	29.9
10: 11	131	12.7	13.8	15.3	17.2	19.8	23.6	30.0
11: 0	132	12.7	13.9	15.3	17.2	19.9	23.7	30.2
11: 1	133	12.8	13.9	15.4	17.3	19.9	23.8	30.3
11: 2	134	12.8	14.0	15.4	17.4	20.0	23.9	30.5
11: 3	135	12.8	14.0	15.5	17.4	20.1	24.0	30.6
11: 4	136	12.9	14.0	15.5	17.5	20.2	24.1	30.8
11: 5	137	12.9	14.1	15.6	17.5	20.2	24.2	30.9
11: 6	138	12.9	14.1	15.6	17.6	20.3	24.3	31.1
11: 7	139	13.0	14.2	15.7	17.7	20.4	24.4	31.2
11: 8	140	13.0	14.2	15.7	17.7	20.5	24.5	31.4
11: 9	141	13.0	14.3	15.8	17.8	20.6	24.7	31.5
11: 10	142	13.1	14.3	15.8	17.9	20.6	24.8	31.6
11: 11	143	13.1	14.3	15.9	17.9	20.7	24.9	31.8
12: 0	144	13.2	14.4	16.0	18.0	20.8	25.0	31.9
12: 1	145	13.2	14.4	16.0	18.1	20.9	25.1	32.0
12: 2	146	13.2	14.5	16.1	18.1	21.0	25.2	32.2
12: 3	147	13.3	14.5	16.1	18.2	21.1	25.3	32.3
12: 4	148	13.3	14.6	16.2	18.3	21.1	25.4	32.4
12: 5	149	13.3	14.6	16.2	18.3	21.2	25.5	32.6
12: 6	150	13.4	14.7	16.3	18.4	21.3	25.6	32.7

Year: Month	Months	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
12: 7	151	13.4	14.7	16.3	18.5	21.4	25.7	32.8
12: 8	152	13.5	14.8	16.4	18.5	21.5	25.8	33.0
12: 9	153	13.5	14.8	16.4	18.6	21.6	25.9	33.1
12: 10	154	13.5	14.8	16.5	18.7	21.6	26.0	33.2
12: 11	155	13.6	14.9	16.6	18.7	21.7	26.1	33.3
13: 0	156	13.6	14.9	16.6	18.8	21.8	26.2	33.4
13: 1	157	13.6	15.0	16.7	18.9	21.9	26.3	33.6
13: 2	158	13.7	15.0	16.7	18.9	22.0	26.4	33.7
13: 3	159	13.7	15.1	16.8	19.0	22.0	26.5	33.8
13: 4	160	13.8	15.1	16.8	19.1	22.1	26.6	33.9
13: 5	161	13.8	15.2	16.9	19.1	22.2	26.7	34.0
13: 6	162	13.8	15.2	16.9	19.2	22.3	26.8	34.1
13: 7	163	13.9	15.2	17.0	19.3	22.4	26.9	34.2
13: 8	164	13.9	15.3	17.0	19.3	22.4	27.0	34.3
13: 9	165	13.9	15.3	17.1	19.4	22.5	27.1	34.4
13: 10	166	14.0	15.4	17.1	19.4	22.6	27.1	34.5
13: 11	167	14.0	15.4	17.2	19.5	22.7	27.2	34.6
14: 0	168	14.0	15.4	17.2	19.6	22.7	27.3	34.7
14: 1	169	14.1	15.5	17.3	19.6	22.8	27.4	34.7
14: 2	170	14.1	15.5	17.3	19.7	22.9	27.5	34.8
14: 3	171	14.1	15.6	17.4	19.7	22.9	27.6	34.9
14: 4	172	14.1	15.6	17.4	19.8	23.0	27.7	35.0
14: 5	173	14.2	15.6	17.5	19.9	23.1	27.7	35.1
14: 6	174	14.2	15.7	17.5	19.9	23.1	27.8	35.1
14: 7	175	14.2	15.7	17.6	20.0	23.2	27.9	35.2
14: 8	176	14.3	15.7	17.6	20.0	23.3	28.0	35.3
14: 9	177	14.3	15.8	17.6	20.1	23.3	28.0	35.4
14: 10	178	14.3	15.8	17.7	20.1	23.4	28.1	35.4
14: 11	179	14.3	15.8	17.7	20.2	23.5	28.2	35.5
15: 0	180	14.4	15.9	17.8	20.2	23.5	28.2	35.5



Year: Month	Months	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
15: 1	181	14.4	15.9	17.8	20.3	23.6	28.3	35.6
15: 2	182	14.4	15.9	17.8	20.3	23.6	28.4	35.7
15: 3	183	14.4	16.0	17.9	20.4	23.7	28.4	35.7
15: 4	184	14.5	16.0	17.9	20.4	23.7	28.5	35.8
15: 5	185	14.5	16.0	17.9	20.4	23.8	28.5	35.8
15: 6	186	14.5	16.0	18.0	20.5	23.8	28.6	35.8
15: 7	187	14.5	16.1	18.0	20.5	23.9	28.6	35.9
15: 8	188	14.5	16.1	18.0	20.6	23.9	28.7	35.9
15: 9	189	14.5	16.1	18.1	20.6	24.0	28.7	36.0
15: 10	190	14.6	16.1	18.1	20.6	24.0	28.8	36.0
15: 11	191	14.6	16.2	18.1	20.7	24.1	28.8	36.0
16: 0	192	14.6	16.2	18.2	20.7	24.1	28.9	36.1
16: 1	193	14.6	16.2	18.2	20.7	24.1	28.9	36.1
16: 2	194	14.6	16.2	18.2	20.8	24.2	29.0	36.1
16: 3	195	14.6	16.2	18.2	20.8	24.2	29.0	36.1
16: 4	196	14.6	16.2	18.3	20.8	24.3	29.0	36.2
16: 5	197	14.6	16.3	18.3	20.9	24.3	29.1	36.2
16: 6	198	14.7	16.3	18.3	20.9	24.3	29.1	36.2
16: 7	199	14.7	16.3	18.3	20.9	24.4	29.1	36.2
16: 8	200	14.7	16.3	18.3	20.9	24.4	29.2	36.2
16: 9	201	14.7	16.3	18.4	21.0	24.4	29.2	36.3
16: 10	202	14.7	16.3	18.4	21.0	24.4	29.2	36.3
16: 11	203	14.7	16.3	18.4	21.0	24.5	29.3	36.3
17: 0	204	14.7	16.4	18.4	21.0	24.5	29.3	36.3
17: 1	205	14.7	16.4	18.4	21.1	24.5	29.3	36.3
17: 2	206	14.7	16.4	18.4	21.1	24.6	29.3	36.3
17: 3	207	14.7	16.4	18.5	21.1	24.6	29.4	36.3
17: 4	208	14.7	16.4	18.5	21.1	24.6	29.4	36.3
17: 5	209	14.7	16.4	18.5	21.1	24.6	29.4	36.3
17: 6	210	14.7	16.4	18.5	21.2	24.6	29.4	36.3

Year: Month	Months	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
17: 7	211	14.7	16.4	18.5	21.2	24.7	29.4	36.3
17: 8	212	14.7	16.4	18.5	21.2	24.7	29.5	36.3
17: 9	213	14.7	16.4	18.5	21.2	24.7	29.5	36.3
17: 10	214	14.7	16.4	18.5	21.2	24.7	29.5	36.3
17: 11	215	14.7	16.4	18.6	21.2	24.8	29.5	36.3
18: 0	216	14.7	16.4	18.6	21.3	24.8	29.5	36.3
18: 1	217	14.7	16.5	18.6	21.3	24.8	29.5	36.3
18: 2	218	14.7	16.5	18.6	21.3	24.8	29.6	36.3
18: 3	219	14.7	16.5	18.6	21.3	24.8	29.6	36.3
18: 4	220	14.7	16.5	18.6	21.3	24.8	29.6	36.3
18: 5	221	14.7	16.5	18.6	21.3	24.9	29.6	36.2
18: 6	222	14.7	16.5	18.6	21.3	24.9	29.6	36.2
18: 7	223	14.7	16.5	18.6	21.4	24.9	29.6	36.2
18: 8	224	14.7	16.5	18.6	21.4	24.9	29.6	36.2
18: 9	225	14.7	16.5	18.7	21.4	24.9	29.6	36.2
18: 10	226	14.7	16.5	18.7	21.4	24.9	29.6	36.2
18: 11	227	14.7	16.5	18.7	21.4	25.0	29.7	36.2
19: 0	228	14.7	16.5	18.7	21.4	25.0	29.7	36.2
<b>2007 WHO Reference</b>								

## OTC Client Card

Reg. No.: \_\_\_\_\_

Name: \_\_\_\_\_ Sex:  Male  Female  
 Age: \_\_\_\_\_ District: \_\_\_\_\_  
 Village: \_\_\_\_\_  
 Caregiver: \_\_\_\_\_ LC1 Chair: \_\_\_\_\_

Check if client is:  returned defaulter  relapse  
 Referral from:  TFC  VHT  OPD  self  
 other OTC  other \_\_\_\_\_

Breastfeeding status:  Exclusive BF  BF + complementary feeding  No/Stopped BF

HIV Status on Admission:  HIV Positive  HIV Negative  Unknown

Of those unknown:  tested positive  tested negative  refused testing

	Adm	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
DATE												
MUAC												
Oedema												
Weight												
Height												
W/H (z-score)												
Target weight												
HISTORY FROM CAREGIVER												
Diarrhoea* (Y/N)												
Vomiting (Y/N)												
Cough (Y/N)												
Fever (Y/N)												
PHYSICAL EXAMINATION												
Malaria test (pos/neg)												
Temperature (oC)												
Respirations (#/min)												
Dehydration (Y/N)												
Anaemia (Y/N)												
Skin Infection (Y/N)												
Appetite** (pass or fail)												
DAILY RUTFE RATION												
AMOUNT RUTFE GIVEN												
MEDICAL TREATMENT												
Amoxicillin												
Vitamin A												
Mebendazole												
Folic Acid												
Antimalarial												
Other												

Date of Exit: \_\_\_\_\_ Reason of exit:  Cured  Death  Default  Non Response  Transfer to: \_\_\_\_\_

\* If yes, record number of stools per day: 1-3; 4-5; >5 \*\* Client passes appetite test if able to eat at least 75% RUTFE

**PATIENT INFORMATION**

IMAM Reg. No: \_\_\_\_\_ Other Reg. No: \_\_\_\_\_  
 Date of Admission: \_\_\_\_\_ District: \_\_\_\_\_  
 Name: \_\_\_\_\_ Village: \_\_\_\_\_  
 Age: \_\_\_\_\_ LCI Chair: \_\_\_\_\_  
 Sex:  Male  Female Caregiver Name: \_\_\_\_\_  
 Caregiver Tel #: \_\_\_\_\_

**RETURN/REFERRAL**

Check if client is:  returned defaulter  relapse  
 Referral from:  TFC  VHT  OPD  self  
 other OTC  other \_\_\_\_\_

**HIV INFORMATION**

HIV Status: (after testing)  Negative  Positive  Refused testing  
 Tested after OTC admission?:  Yes  No  
 ART Status:  On ART  Not on ART

**PREGNANCY/BREASTFEEDING STATUS**

Is woman:  Pregnant  Lactating  Have child less than 6 months old  None  
 Breastfeeding (BF) status:  Exclusive BF  No/Stopped BF  BF + complementary feeding

**ANTHROPOMETRY**

MUAC (mm): \_\_\_\_\_ Weight (kg): \_\_\_\_\_ Height (cm): \_\_\_\_\_  
 W/H Z-score (6-59 months): Less than  -3  -2 BMI/Age Z-score (5-17 years): Less than  -3  -2 BMI (18 years and above): \_\_\_\_\_  
 Target Weight (kg): \_\_\_\_\_

**FINAL REPORTING CATEGORIES**

Patient Category: (check one only)  Pregnant/Lactating/With child < 6 months  Admission Criteria: (check one only)  MAM and HIV+  
 6-59 months  MAM with other disease  
 5-17 years  
 18 years and above

**COUNSELLING INFORMATION**

Counselling Format:  None  Individual  Group  
 Counselling Provided:  HIV Testing and Counselling  Breastfeeding/Complementary Foods  Food preparation and storage  Hygiene

NAME OF EXAMINER: \_\_\_\_\_

# SF CLIENT CARD: Follow-up Sheet

Initials of Examiner: \_\_\_\_\_

NUMBER OF VISITS	Adm (0)	1	2	3	4	5	6	7	8	9	10	11	12
DATE													
<b>ANTHROPOMETRY</b>													
MUAC(mm)													
Weight (kg)													
Height (cm)													
W/H Z-score (6-59 months)													
BMI/Age Z-score (5-17 years)													
BMI (18 years and above)													
Target weight (kg)													
<b>FEEDING</b>													
CSB (kg)													
OIL (kg)													
SUGAR (kg)													
BPS Biscuits													
RUSF													
Others (specify)													
<b>HISTORY</b>													
Diarrhoea* (Y/N)													
Vomiting (Y/N)													
Cough (Y/N)													
Fever (Y/N)													
MALARIA TEST (POS/NEG)													
<b>MEDICAL TREATMENT</b>													
Amoxicillin													
Cotrimoxazole													
Vitamin A**													
Mebendazole (Deworming)													
Folic Acid													
FeSO4-Folate													
Antimalarials													

\* If yes, record number of stools per day: 1-3 ; 4-5 ; >5      \*\* Use extreme caution. Vitamin A should only be given once and not to patients with oedema, women of childbearing age who may be pregnant, or patients who have received it within the last month.

**ADDITIONAL NOTES**

**DISCHARGE STATUS**

Date of Discharge: \_\_\_\_\_ Outcome:  Cured     Death  
 Weight at Discharge: \_\_\_\_\_ . \_\_\_\_\_     Default     Transfer to (circle one):  
 Non-Response     OTC     Other SFP     Medical



## ◆ Annex 6: OTC ration card

Week:	Comment / treatment received:
Adm	
2	
3	
4	
5	
6	
7	
8	



### Ministry of Health SFP Ration Card

OTC Site: \_\_\_\_\_

District: \_\_\_\_\_

Client's Name: \_\_\_\_\_

Age of Client: \_\_\_\_\_

Registration No: \_\_\_\_\_

Caregiver / Next of Kin \_\_\_\_\_

Village: \_\_\_\_\_

# of visits	Date	Weight (kg)	MUAC (mm)	Target Weight (kg)
Adm				
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				

# of RUTF units per day	# of RUTF units given	Date next visit

## ◆ Annex 7: Supplementary food ration options

Food type	Nutritional value per 100g		
	Energy (Kcals)	Protein (g)	Fat (g)
Fortified blended foods (e.g. corn soya blend) <sup>7</sup>	380	17	2.5
Milk or soy-based RUTF	34.5-35.	534-545	12.7-13.6
Compressed food bars (per 56g bar)	250	8.1	9.4
Locally available formulation (Kitobero*, Nutricam, cumber) focus on Nutricam per 200g serving	240	4.0	15

\* A multi-mix of locally available foods that is balanced in nutrient content of body building foods that are protenous, one energy giving food and can be topped up with protective foods.



## ◆ Annex 8: Triage

Clients, especially those with SAM and/or complications, can die from preventable conditions while waiting for their turn in the queue. The word triage means “sorting”. Triage is the sorting out of patients into priority groups according to their needs and the resources available. Those with emergencies would need immediate treatment. Those with priority signs would need to be moved to the top of the queue for rapid assessment and treatment without delay. Non urgent cases would wait in the queue for their turn.

All clients who come to the clinic should be checked on arrival by a person who is trained to assess how ill they are.

### **The ABCD concept**

Triage of clients involves looking for signs of serious illness or injury, relating to the airway, breathing, circulation/ consciousness and dehydration (ABCD). Other priority/danger signs include:

- Small baby, sick client under 2 months
- High or very low temperature
- Trauma
- Severe pallor
- Poisoning
- Severe pain
- Respiratory distress
- Restlessness, irritability, lethargy
- Referrals
- Malnutrition with visible severe wasting
- Gross oedema
- Burns

### **The triaging process**

Triage should not take too much time. For a client who does not have emergency signs, it should take an average of 20 seconds. The health worker should be able to assess several signs at the same time. Several methods exist to facilitate the triaging process (e.g. the ABCD method and the colour method [red, yellow and green]).

### **When and where triage should take place**

Triage should be carried out as soon as the client arrives in the waiting area at the health facility before registration. This may require re-organising the flow of clients in some locations. Emergency treatment can be given where there is room for a couch, bed or trolley and enough space for staff to examine the clients such as the availability of an emergency room or ward. Drugs and supplies should also be available.

### **Who should triage**

All clinical staff in the facility should be prepared to carry out triage. In addition, other support staff, such as receptionists, drivers, storekeepers, cleaners etc., should be trained in triage for emergency signs and should know where to direct clients for appropriate management.

### **How to triage**

Using the ABCD concept, health workers can triage based on their assessment in answering the questions below.

### **To assess if the client has airway breathing problems:**

- Is the client breathing?

- Is the air way obstructed?
- Is the client blue (centrally cyanosed)?

Look, listen, and feel for air movement. Obstructed breathing can be due to blockage by the tongue or foreign body, a swelling around the upper airway (retropharyngeal abscess), or severe croup which may present with abnormal sounds such as stridor.

**To assess respiratory distress:**

- Is the client having severe distress so that it is difficult to talk, eat or breastfeed?
- Is he breathing very fast and getting tired, does he have severe chest in-drawing?
- Is he using auxiliary muscle?

**To assess circulatory problems:**

- Does the client have warm hands?
- If not, is the capillary refill time longer than 3 seconds?
- Is the pulse weak and fast? In the older client, the radial pulse may be used. However, in the infant, the brachial or femoral pulse may need to be felt.

**To assess coma:**

A rapid assessment of the consciousness level can be made by assigning the patient to one of the AVPU categories:

**A** – Alert

**V** – Respond to voice

**P** – Respond to pain

**U** – Unresponsive

A client who is not alert but responds to voice is lethargic. If the assessment shows that the client does not respond to voice but responds to pain (with targeted or untargeted movements) or does not respond at all, the level is at “P” or “U”. That client is referred to as having a coma and the client needs to be treated accordingly.

**To assess dehydration:**

- Is the client lethargic or unconscious?
- Does the client have sunken eyes?
- Does the skin pinch go very slowly?

## ◆ Annex 9: Action protocol (OTP) for children 6 months–18 years

To determine the need for transfer to inpatient care or outreach visit (on admission and on each follow-up visit):

Sign	Transfer to Inpatient Care	Outreach Visit
Appetite	Refuses to eat or has difficulty taking/ swallowing the RUTF	Eats less than $\frac{3}{4}$ each day's ration of the RUTF by third visit
Oedema of oedema	<ul style="list-style-type: none"> <li>• +++/Grade 3</li> <li>• Marasmic- Kwashiorkor</li> <li>• Increase in oedema or development</li> </ul>	Oedema persisting
Vomiting	Intractable (vomiting > 3 times in last 3 hours)	General medical deterioration
Temperature	<ul style="list-style-type: none"> <li>• Fever &gt; 39°C axillary and &gt; 38.5 rectal</li> <li>• Hypothermia &lt; 35°C axillary and &lt;35.5 rectal</li> </ul>	General medical deterioration
Respiratory rate (Rr) and fast breathing	<ul style="list-style-type: none"> <li>• &gt; 50 respirations/minute from 2-12 months</li> <li>• &gt; 40 respirations/minute from 1-5 years</li> <li>• &gt; 30 respirations/minute for over 5 years</li> <li>• Any chest drawing in</li> </ul>	General medical deterioration
Hydration Status	<ul style="list-style-type: none"> <li>• Poor urine output</li> <li>• Caregiver states that child has history of acute diarrhoea and vomiting and/or sunken eyes</li> </ul>	General medical deterioration
Anaemia	Very pale, severe palmer pallor, difficulty breathing	General medical deterioration
Extensive systemic infection	Infection requiring systemic/IM treatment	General medical deterioration
Skin	Extensive/open skin lesions/infection	General medical deterioration
Alertness	<ul style="list-style-type: none"> <li>• Very weak, lethargic, unconscious</li> <li>• Fits or convulsions</li> </ul>	General medical deterioration
Need for infusion or Ng tube	Any condition that requires infusion or NG tube feeding	General medical deterioration
Weight changes	<ul style="list-style-type: none"> <li>• Weight loss for 3 consecutive weeks</li> <li>• Static weight for 5 consecutive weeks</li> </ul>	<ul style="list-style-type: none"> <li>• Weight loss for 2 consecutive weeks</li> <li>• Static weight for 3 consecutive weeks</li> </ul>
Return from inpatient care/ refuses inpatient care		Return from inpatient care or refuses inpatient care (for two weeks)
Malnourished infants < 6 months or < 3kg	Require supervised and special treatment	Return from inpatient care or refuses inpatient care (until discharge)
Not responding (failure to respond)	If not gaining adequate weight after 3 months, transfer to inpatient for further investigation	
Absence		Absent for 2 weeks

## ◆ Annex 10: Action protocol (OTP) for adults and pregnant women

To determine the need for transfer to inpatient care or outreach visit (on admission and on each follow up visit):

Sign	Transfer to Inpatient Care	Outreach Visit
Appetite	Refuses to eat or has difficulty taking/ swallowing the RUTF	Eats less than $\frac{3}{4}$ each day's ration of the RUTF by third visit
Oedema of oedema	<ul style="list-style-type: none"> <li>• +++/Grade 3</li> <li>• Marasmic- Kwashiorkor</li> <li>• Increase in oedema or development</li> </ul>	Oedema persisting
Vomiting	Intractable (vomiting > 3 times in last 3 hours)	General medical deterioration
Temperature	<ul style="list-style-type: none"> <li>• Fever &gt; 39°C</li> <li>• Hypothermia &lt; 35°C</li> </ul>	General medical deterioration
Respiratory rate (Rr) and fast breathing	<ul style="list-style-type: none"> <li>• Shortness of breath</li> <li>• &gt; 30 respirations/minute</li> <li>• Any chest drawing in</li> </ul>	General medical deterioration
Hydration Status	<ul style="list-style-type: none"> <li>• Poor urine output</li> <li>• Caregiver states that child has history of acute diarrhoea and vomiting and/or sunken eyes</li> </ul>	General medical deterioration
Stature	Inability to stand	
Anaemia	Very pale, severe palmer pallor, difficulty breathing	General medical deterioration
Extensive systemic infection	Infection requiring systemic/IM treatment	General medical deterioration
Skin	Extensive/open skin lesions/infection	General medical deterioration
Alertness	<ul style="list-style-type: none"> <li>• Very weak, lethargic, unconscious</li> </ul>	General medical deterioration
Need for infusion or Ng tube	Any condition that requires infusion or NG tube feeding	General medical deterioration
Weight changes	<ul style="list-style-type: none"> <li>• Weight loss for 3 consecutive weeks</li> <li>• Static weight for 5 consecutive weeks</li> </ul>	<ul style="list-style-type: none"> <li>• Weight loss for 2 consecutive weeks</li> <li>• Static weight for 3 consecutive weeks</li> </ul>
Return from inpatient care/ refuses inpatient care		Return from inpatient care or refuses inpatient care (for two weeks)
Malnourished infants < 6 months or < 3kg	Require supervised and special treatment	Return from inpatient care or refuses inpatient care (until discharge)
Not responding (failure to respond)	If not gaining adequate weight after 3 months, transfer to inpatient for further investigation	
Absence		Absent for 2 weeks

## ◆ Annex 11: Quantities of F75 in Phase 1

Class of weight (kg)	8 feeds per day (ml per feed) 3 hourly feeds	6 feeds per day (ml per feed) 4 hourly feeds
2.0 – 2.1	40	50
2.2-2.4	45	60
2.5-2.7	50	65
2.8 – 2.9	55	70
3.0 – 3.4	60	75
3.5 – 3.9	65	80
4.0 – 4.4	70	85
4.5 – 4.9	80	90
5.0 – 5.4	90	110
5.5 – 5.9	100	120
6.0 – 6.9	110	140
7.0 – 7.9 1	25	160
8.0 – 8.9	140	180
9.0 – 9.9	155	190
10.0 – 10.9	170	200
11.0 – 11.9	190	230
12.0 – 12.9	205	250
13.0 – 13.9	230	275
14.0 – 14.9	250	290
15.0 – 19.9	260	300
20.0 – 24.9	290	320
25.0 – 25.9	300	350
30.0 – 39.9	320	370
40.0 – 60.0	350	400

## ◆ Annex 12: Milk preparation and other recipes

### Preparation of F75 and F100

When preparing F75 and F100 add a sachet of milk powder to 2 litres of boiled cooled water.

If F75 is not available, then F100 can be diluted down to the strength of F75, although this is not ideal as these are different products with different osmolarity levels.

### Preparation of small quantity of milk

If you have to prepare small milk quantities, you must use the red spoon (you can find this red spoon in the milk carton, 1 red spoon = 4.1g milk powder). The quantity of water to add/spoon is measured with a syringe.

Product	Number of red spoon	Weight of product per spoon	Quantity of water to add (ml)
F75	1	4.1g	20
F100	1	4.1g	18
ReSoMal 1	1	5.9g	140

### Dilution and conservation of therapeutic milk (F100 and F75)

Dilute milk in boiled cooled water (even if water is chlorinated, it needs to be boiled to ensure it is safe). Water temperature should not above 40° C. **BOILING WATER DAMAGES THE VITAMINS.** The milk should be used in the 2-3 hours following its preparation. Keep milk container covered. When 2 litres of water are added to a packet of milk powder, the volume increases to 2.4 litres of milk. Remember this when calculating milk needs.

*Note: This product already contains all the elements needed for the treatment of acute severe malnutrition. It is recommended to not add any other element.*

### Making up milk from locally available products

First, mix the different products according to the table. This premix can be kept and will be diluted at meal time with boiled cooled water. Wait until the reconstitution to add CMV.

## ◆ Annex 13: Quantities of F100 in Phase 2

Class of weight (kg)	6 Feeds per day F100 (ml per feed) During day hours	5 Feeds per day F100 (ml per feed) During day hours
< 3.0	F100 full strength not given	F100 full strength not given
3.0 – 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
40.0 – 60.0	1000	1200

## ◆ Annex 14: How to make ReSoMal

### Combined mineral mix

Combined Mineral vitamin mix (CMV) is added to the locally made up milk formulas so that it has the adequate minerals and vitamins required for severely malnourished individuals. Normally, 1 red scoop (spoon) is added to 2 litres of milk. A red scoop contains 6.35 g of CMV and therefore if making up smaller quantities then it would not be very accurate. It may be easier to make up a quantity of CMV as a liquid daily and then add to a quantity of this CMV liquid to the milk (i.e. add 5 scoops of CMV to 50 ml of cooled boiled water and store in a container). This solution is enough for 10 litres of milk. Add 5 ml of CMV solution to 1 litre of milk, using a syringe for accuracy.

This makes up to a litre of solution and can be stored at room temperature.

#### *Composition of mineral mix solution*

Substances	Amount
Potassium Chloride	89.5 g
Tripotassium Citrate	32.4 g
Magnesium Chloride	30.5 g
Zinc Acetate	3.3 g
Copper Sulfate	0.56 g
Sodium Selenate*	10 mg
Potassium Iodide*	5 mg
Water to make	1000 ml

\* If it is not possible to weigh very small quantities accurately, these substances may be omitted  
Add 20 ml of the solution to 1 litre of locally made up ReSoMal and milk formulas.

These tables from Management of Severe Malnutrition, WHO 1999.

Vitamin	Amount per 1 litre of liquid diet (milk)
<b>Water soluble</b>	
Thiamine (Vitamin B1)	0.7 mg
Riboflavin (Vitamin B2)	2.0 mg
Nicotinic Acid	10 mg
Pyridoxine (Vitamin B6)	0.7 mg
Cyanocobalamin (Vitamin B12)	1 g
Folic Acid	0.35 mg
Ascorbic Acid (Vitamin C)	100 mg



Pantothenic Acid (Vitamin B3)	3 mg
Biotin	0.1 mg
<b>Fat soluble</b>	
Retinol (Vitamin A)	1.5 mg
Calciferol (Vitamin D)	30 g
α-Tocopherol (Vitamin E)	22 mg
Vitamin K	40 g

Add the quantities of the vitamins to 1 litre of milk.

If ReSoMal is not available, then it can be made up by modifying the WHO Standard ORS. However, when using the 1 litre sachet of ORS, it is necessary to add 2 litres of water and extra sugar and CMV. If CMV is not available, add 20 ml of the mineral mix solution from the Composition of Vitamin Mix table.

### **To make up ReSoMal**

To the Normal Standard WHO ORS 1 litre sachet, add 1 red scoop of CMV + 50 gm sugar and 2 litres water (instead of 1 litre).

## CLINICAL MONITORING FORM

Name: \_\_\_\_\_

Reg. Number: \_\_\_\_\_

Card Number: \_\_\_\_\_

Date of Admission: \_\_\_\_\_

Age: \_\_\_\_\_ Sex:  Male  Female

Date of Discharge: \_\_\_\_\_

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
DATE																					
WEIGHT																					
HEIGHT																					
Z-SCORE																					
MUAC																					
OEDEMA																					

TYPE OF MALNUTRITION: \_\_\_\_\_

IMMUNIZATION:  Measles

CONCURRENT ILLNESS: \_\_\_\_\_

BCG

Polio

DPT

WEIGHT TO REACH FOR HEIGHT  $\geq$  -2 Z SCORE \_\_\_\_\_

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
DATE																					
NO. OF ML/KG/DAY																					
TOTAL ML/DAY																					
NO. OF FEEDS/DAY																					
NO. OF ML/FEED																					
PORRIDGE																					
KITTOBERO																					
NG TUBE REQUIRED																					
DRUGS TO BE GIVEN																					
VITAMIN A																					
FOLIC ACID																					
MEBENDAZOLE																					
MULTI VITAMIN																					
TEMP. MORNING																					
TEMP. AFTERNOON																					
NO. OF EPISODES OF VOMIT/DAY																					
NO. OF MOTIONS OF DIARRHOEA/DAY																					
COUGH																					

## Ministry of Health Community Referral Form

**To be filled by Community Volunteer**

*(Fill and give to the client)*

Client Ref. No: \_\_\_\_\_ Date: \_\_\_\_\_

Client Name: \_\_\_\_\_ Sex:  Male  Female

Sub County: \_\_\_\_\_ Parish: \_\_\_\_\_

Village: \_\_\_\_\_

Health Facility Client is referred to: \_\_\_\_\_

MUAC: *(Tick the correct colour of MUAC)*     Green     Yellow     Red

Oedema (Swelling on Both legs):  Yes     No  
*(Tick "Yes" if the client has swelling of both legs and "No" if there is no swelling of both legs)*

Volunteer's Name: \_\_\_\_\_

**Feedback from Health Worker to Community Volunteer**

*(Fill and give to the client)*

Date: \_\_\_\_\_

Client admitted to: *(Tick as appropriate)*

- Outpatient Therapeutic Care (OTC) (follow-up on RUTF adherence)
- Inpatient Therapeutic Care (ITC)
- Supplementary Feeding Programme
- Does not qualify for admission (Counsel on eating well and hygiene)

## ◆ Annex 17:

### HMIS 032: REFERRAL NOTE

Date of Referral: \_\_\_\_\_

TO \_\_\_\_\_

FROM

Health Unit: \_\_\_\_\_ Referral number: \_\_\_\_\_

#### REFERENCE

Patient name: \_\_\_\_\_ Patient number: \_\_\_\_\_

Age: \_\_\_\_\_ Sex:  Male  Female Date of first visit: \_\_\_\_\_

*Please attend the above person who we are referring to your health unit for further action.*

History and Symptoms:

Investigations done:

Diagnosis:

Treatment given:

Reason for referral:

*Please complete this note on discharge and send it back to our unit.*

Name of clinician: \_\_\_\_\_ Signature: \_\_\_\_\_

*To be completed at the referral site*

Date of arrival: \_\_\_\_\_ Date of discharge: \_\_\_\_\_

Further investigations done: \_\_\_\_\_

Diagnosis: \_\_\_\_\_

Treatment given: \_\_\_\_\_

Treatment or surveillance to be continued: \_\_\_\_\_

Remarks: \_\_\_\_\_

Name of clinician: \_\_\_\_\_ Signature: \_\_\_\_\_



## MONTHLY REPORT FORMAT MANAGEMENT OF AM - SITE

SITE \_\_\_\_\_ MONTH / YEAR \_\_\_\_\_

REGION \_\_\_\_\_ TYPE OF MANAGEMENT (circle) \_\_\_\_\_ Inpatient \_\_\_\_\_ Outpatient \_\_\_\_\_

DISTRICT \_\_\_\_\_ CONSUMPTION \_\_\_\_\_ RUTF packets/pots \_\_\_\_\_ F100 (sachets) \_\_\_\_\_ F75 (sachets) \_\_\_\_\_ ReSoMaL (sachets) \_\_\_\_\_

Total at beginning of reporting period (A)	NEW CASES (B)			Old Cases (C) From Outpatient or Inpatient Care, or Returned Defaulters	TOTAL ADMISSION (B+C+D)	Discharges (E)				Transfer (F) To Inpatient or Outpatient Care	TOTAL EXITS (G) (E+F+G)	Total end of the month (H) (A+D-G=H)
	6-59 m (According to admission criteria) (B1)	Infants	MAM complicated (including HIV/TB) (B3)			MAM	CURED (E1)	DEATH (E2)	DEFAULTER (E3)			
						%	%	%	%			

ADDITIONAL PATIENT DATA (for admissions only)

TARGET (Sphere Standards) > 75% < 10% < 1.5%

	HIV status			
	HIV +	HIV -	Refused testing	Tested after OTC admission
Pregnant/Lactating/With child < 6 mos				
6-59 months				
5 - 17 years				
18 years and above				
TOTAL				

Gender split of Admissions  
Male \_\_\_\_\_  
Female \_\_\_\_\_

NOTES:

Old Cases and Transfers are excluded from national/programme reporting as they are movements within the programme rather than entries/exits  
E1: Cured = reaches discharge criteria E3: Defaulter = absent for 3 consecutive visits E4: Non recovered = does not reach the discharge criteria after 4 months in OTP

# ◆ Annex 20: Site Tally

## OTC/ITC TALLY SHEET

MONTH \_\_\_\_\_

SITE \_\_\_\_\_

	WEEK 1	WEEK 2	WEEK 3	WEEK 4	TOTAL
DATE					
TOTAL AT START OF WEEK (A)					
New 6-59 m SAM					
Infants					
Other (adults, adolescents)					
MAM complicated (including HIV/TB)					
Transfer from OTC/ITC (or returned defaulters)					
TOTAL ADMISSIONS (D)					
Cured					
Death					
Defaulter					
Non-Cured					
Transfer to Outpatient/Inpatient care					
TOTAL DISCHARGES (G)					
TOTAL END OF WEEK (A+D-G)					

### ADMISSIONS

Male \_\_\_\_\_

Female \_\_\_\_\_

### ADDITIONAL PATIENT DATA (for admissions only)

	HIV status						
	HIV +	HIV -	Refused testing	Tested after OTC admission	On ART		
					SAM	MAM	Total
Pregnant/Lactating/ With child < 6 mos							
6-59 months							
5 - 17 years							
18 years and above							
TOTAL							





