

# NATIONAL GUIDELINES ON THE INTEGRATED MANAGEMENT OF ACUTE MALNUTRITION (IMAM)



Swaziland National Nutrition Council





## Acknowledgements

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## FOREWORD

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Globally and especially in the Sub Saharan region, malnutrition continues to affect many populations, with adverse effects on health, mortality, and productivity. Malnutrition is a potentiating factor in about half of the 10 million deaths among children under 5 each year worldwide, and improved nutrition is considered essential to the achievement of the Millennium Development Goals. There is a clear relationship between malnutrition and HIV that cannot be underestimated with malnutrition prevalence likely to be high in areas where HIV prevalence is also high.

HIV and AIDS still remains high among pregnant women (42%, ANC Sentinel Surveillance 2008) and 47% of child mortality related to HIV, (DHS, 2006-7). A majority of Swazi children (60%) admitted at health facilities due to severe malnutrition have HIV as an underlying cause and clinical management of these children has been difficult due to the lack of comprehensive guidelines for Paediatric Integrated Management of acute Malnutrition.

These guidelines have been developed through consultations with health personnel at different levels and health workers in the MOH facilities to provide a comprehensive user-friendly guideline. The objective of the guideline is to help improve the quality of inpatient and out patient care of malnutrition thus reducing unnecessary deaths.

I therefore urge all doctors, nurses, dieticians, nutritionists and other health workers responsible for the medical and dietary management of severe and moderate acute malnutrition to adhere to the guidelines as they define the national standards for the service.



**Hon. Benedict Xaba**

**Minister of Health**



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## Acronyms and Abbreviations

AIDS	Acquired Immunodeficiency Syndrome
CSB	Corn Soya Blend
DHS	Demographic Health Survey
HFA	Height for Age
HIV	Human Immunodeficiency Virus
IMAM	Integrated Management of Acute Malnutrition
IMCI	Integrated Management of Childhood Illnesses
ITP	Inpatient Therapeutic Program
MDGs	Millennium Development Goals
MOH	Ministry of Health
MUAC	Middle Upper Arm Circumference
NCHS	National Centre of Health Statistics
NCP	Neighbourhood Care Point
OPD	Outpatient Department
OTP	Outpatient Therapeutic Program
PHU	Public Health Unit
RHM	Rural Health Motivator
RTHC	Road to Health Card
RUTF	Ready to Use Therapeutic Food
SD	Standard Deviation
SFP	Supplementary Feeding Program
SNNC	Swaziland National Nutrition Council
WFA	Weight for Age
WFH	Weight for Height
WHO	World Health Organization

# 1 Background

Child mortality in Swaziland is on the increase, according to the Swaziland Demographic Health Survey (DHS) 2006-2007. Swaziland is one of the countries with the highest HIV/AIDS prevalence in the region. Acute malnutrition coupled with HIV/AIDS is a major contributor to child mortality in Swaziland. According to the DHS 2006-7, one in every three children under the age of 5 years is stunted; 5% of children are underweight while 3% are wasted. This level of malnutrition compounded by the high prevalence of HIV/AIDS has negative impacts on survival, growth and development and ultimately will compromise the attainment of the Millennium Development Goals (MDGs) for Swaziland.

While children with malnutrition in the country are managed in hospital-based Inpatient Therapeutic feeding Programs (ITPs) and in Outpatient Therapeutic feeding Programs (OTP) using the WHO guidelines, their management has not been well defined and standardized to Swaziland's context. In response, the Ministry of Health (MOH) through the Swaziland National Nutrition Council (SNNC) has developed national guidelines for management of severe and moderate acute malnutrition. These guidelines have been developed in collaboration with partners based on the WHO guidelines and experience within and outside the country.

The MOH recognizes that timely and effective management of acute malnutrition in Swaziland's context of high HIV/AIDS prevalence saves lives and reduces the burden on our healthcare resources. The MOH therefore urges all therapeutic feeding sites staff and other implementing partners to follow and adhere to these guidelines and all accompanying materials.

The MOH wishes sincerely to acknowledge the dedication and contributions of all those who have tirelessly worked towards the successful completion of these guidelines through their technical input, material and financial assistance for the production of these guidelines.

**1.1 Purpose:** The purpose of these guidelines is to provide a standardized national model for integrated management of severe and moderate acute malnutrition in children. The individual components of this approach can be implemented at all levels of healthcare in order to target the largest number of malnourished children possible. Individual providers may need to apply these guidelines while adapting them to their individual client's situations and local resource concerns.

**1.2 Rationale:** Children that have fallen behind in their nutritional status need acute assistance to regain a healthy and balanced nutritional status. In order to decrease child mortality from malnutrition and to fulfill the mandate of the Swaziland Government and its efforts to achieve the MDGs, these guidelines provide a rational and standardized approach to management for all malnourished children in Swaziland across all levels of health care, from community level to outpatient care and hospitals.

**1.3 Target and Usage of the Guidelines:** The guidelines give useful and practical information for those that care for children at all levels of healthcare in Swaziland. This includes physicians and nurses at hospitals and health centres, Public Health Unit (PHU) staff, clinic staff as well as community workers and Rural Health Motivators (RHMs).

Every effort has been made to make the recommendations outlined are consistent with other national guidelines at the time of publication. These guidelines should always be implemented in consideration of recommendations from other national guidelines including Paediatric HIV and AIDS Management and Infant and Young Child Feeding Guidelines among others.

## 2 Fundamentals of the Management of Acute Malnutrition

### 2.1 Defining malnutrition<sup>1</sup>

While malnutrition encompasses syndromes of over and under-nutrition, for the purposes of these guidelines we will focus on under-nutrition. Under-nutrition is a consequence of a deficiency in nutrient intake and/or absorption in the body. The different forms of undernutrition that can appear isolated or in combination are acute malnutrition, stunting, underweight and micronutrient deficiencies.

The following are important definitions of the terms relating to nutritional status:

- ✓ **Underweight:** Underweight is a composite form of undernutrition including elements of stunting and wasting and is defined by a weight-for-age (WFA) below 3rd percentile (NCHS references) or z-score below 2 SDs of the median (WHO standards). This indicator is commonly used in growth monitoring and promotion. Underweight may be moderate or severe.
- ✓ **Acute Malnutrition:** Acute malnutrition is a form of undernutrition. It is caused by a decrease in food consumption and/or illness resulting in bilateral pitting oedema or sudden weight loss. It is defined by the presence of bilateral pitting oedema or wasting (Low Mid-Upper Arm Circumference [MUAC] or low weight-for-height [WFH]). Acute malnutrition may be classified as moderate or severe.
- ✓ **Severe Acute Malnutrition (SAM):** SAM is defined by the presence of bilateral pitting oedema or severe wasting (MUAC < 110mm or WFH < 70% of the median or a WFH < -3 z-score). A child with SAM is highly vulnerable and has a high mortality risk.
- ✓ **Bilateral Pitting Oedema** Bilateral pitting oedema, also known as nutritional oedema, kwashiorkor or oedematous malnutrition, is a sign of severe acute malnutrition (SAM). It is defined by bilateral pitting oedema of the feet and verified when thumb pressure applied on top of both feet for three seconds leaves a pit (indentation) in the foot after the thumb is lifted. It is an abnormal infiltration and excess accumulation of serous fluid in connective tissue. This type of oedema, beginning in the lower extremities, bilaterally is most commonly nutritional in origin.
- ✓ **Moderate Acute Malnutrition (MAM):** MAM, or moderate wasting, is defined by a MUAC  $\geq$  110 mm and < 120 mm or WFH  $\geq$  70% and < 80% or a WFH  $\geq$  -3 z-score and < -2 z-score of the median
- ✓ **Stunting:** Stunting, or chronic under-nutrition, is defined by a height-for-age (HFA) below third percentile. Stunting is a result of prolonged or repeated episodes of under-nutrition starting before birth. This type of under-nutrition is best addressed through preventive health programmes aimed at pregnant women, infants and children under age 2. Programme responses to stunting require longer-term planning and policy development.

<sup>1</sup> Adapted from "Overview of Community-based Management of Acute Malnutrition Training Manual, FANTA 2008

## 2.2 Diagnosing malnutrition

To diagnose malnutrition, we need to assess age, **weight**<sup>2</sup>, **height** or **length**<sup>3</sup>, **MUAC**<sup>4</sup> and the presence of **bilateral pitting oedema**<sup>5</sup>. Using the indices WFA, HFA, WFH<sup>6</sup>, MUAC and the presence of bilateral pitting oedema, malnutrition can be classified as follows:

	<b>Moderate</b>	<b>Severe</b>
<b>Underweight</b>	WFA is below the 3 <sup>rd</sup> percentile	WFA is below 60% of 50 <sup>th</sup> percentile (bottom line of the 2007 Road to Health Card (RTHC))
<b>Acute Malnutrition</b>	WFH 70-79% of the median <i>and/or</i> MUAC <sup>7</sup> 11-11.9cm (6-59 months)	<u>Marasmus:</u> WFH < 70% of the median <i>and/or</i> MUAC < 11 cm (6 -59 months)
		<u>Kwashiorkor:</u> Presence of bilateral pitting (nutritional) oedema

### How to classify oedema

Grade +: mild oedema on both feet/ankles only

Grade ++: moderate oedema on both feet, plus lower legs, and/or hands and lower arms

Grade +++: severe generalized oedema including both feet, legs, hands, arms and face

The remainder of these guidelines will focus on the management of these groups of children as classified above .

<sup>2</sup> See Annex 1: How to measure weight

<sup>3</sup> See Annex 2: How to measure height or length

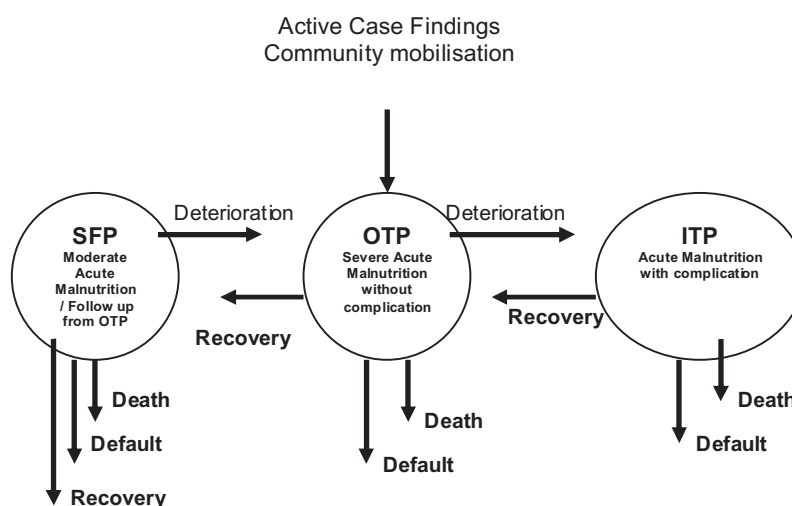
<sup>4</sup> See Annex 3: How to measure MUAC

<sup>5</sup> See Annex 4: How to assess oedema

<sup>6</sup> See Annex 5: Weight for Length/Height tables for children (49-130 cm height); Annex 6: Weight for Height tables for adolescent boys (130.5 to 163.0 cm height) and Annex 7: Weight for Height tables for adolescent girls (130.5 to 163.0 cm height)

<sup>7</sup> There is no international consensus for the cut-off points of MUAC for children more than 5 years old. Therefore MUAC for diagnosis and admission will be only use for children from 6 to 59 months

## 2.3 Structure of the program for management of acute malnutrition



In Swaziland the management of acute malnutrition has four main components. The role of each component is described as follows:

- ✓ **Community mobilisation**  
For a therapeutic feeding program to be maximally effective, early case-finding in the community, prior to development of complications requiring visits to the clinic or health centre, is essential to minimize mortality. Community health workers and volunteers will do active case-finding, screening of all children and refer to the nearest health facility. Additionally, they will perform home visits as required by the local OTP site.
- ✓ **Inpatient Therapeutic Feeding Programme (ITP)**  
These sites, primarily hospitals, will assess and treat complicated severe malnutrition cases on an inpatient basis and will refer to the OTP or SFP sites as appropriate upon hospital discharge.
- ✓ **Outpatient Therapeutic Feeding Programme (OTP)**  
These will usually be clinic, health-centre, Public Health Units (PHU) or hospital outpatient department (OPD)-based programs that assess and treat children with uncomplicated severe acute malnutrition on an outpatient basis. These programs will also receive malnourished children referred from outside clinics for treatment. The mainstay of treatment for these children will be Ready to Use Therapeutic Food (RUTF).
- ✓ **Supplementary Feeding Programme (SFP)**  
Children with moderate acute malnutrition and those who have been successfully treated in an ITP/OTP should receive supplemental feeding rations in an SFP. The SFP may be housed in the same site as the OTP. A supplemental dose of corn soya blend (CSB) or RUTF may be given to the child.

## 2.4 Admission criteria for ITP, OTP and SFP

ITP	OTP	SFP
Weight/Height < 60% <b>OR</b> Bilateral pitting oedema +++ <b>OR</b> Marasmic Kwashiorkor (WFH<70% or MUAC<11cm with oedema) <hr/> <b>OR</b> WFH<80% <b>OR</b> MUAC <12cm <b>OR</b> Oedema +or++ <b>AND any of the following complications:</b> <ul style="list-style-type: none"> <li>● Anorexia</li> <li>● High fever</li> <li>● Hypothermia</li> <li>● Vomiting</li> <li>● Severe dehydration</li> <li>● Weakness, lethargy, unconsciousness, convulsions</li> <li>● Moderate to severe skin lesions</li> <li>● Difficult or fast breathing</li> <li>● Inability of family to care for child</li> </ul> <b>OR</b> <b>Special cases:</b> <ul style="list-style-type: none"> <li>● Children less than 3kg</li> <li>● Infant less than 6 months (according to the criteria established in section 5)</li> </ul> <hr/> If OTP is unavailable, all SAM cases should be admitted to ITP	Weight/Height < 70% <b>OR</b> HIV positive child with Weight/Height <80% <b>OR</b> Bilateral oedema + and ++ <b>OR</b> MUAC <11cm (6 – 59 mo)  <b>AND</b> <ul style="list-style-type: none"> <li>● Appetite</li> <li>● Clinically well</li> <li>● Alert</li> </ul>	Weight/Height 70-79% <b>OR</b> MUAC 11-11.9cm (6-59 mo)  <b>AND</b> No bilateral oedema  <b>AND</b> <ul style="list-style-type: none"> <li>● Appetite</li> <li>● Clinically well</li> <li>● Alert</li> </ul> <hr/> <b>OR</b> <b>Follow up:</b> All children cured from ITP or OTP

- Patients enrolled in OTP or in SFP who become ill or do not respond should be referred for Inpatient Management at any time.
- Patients admitted for Inpatient Management can be discharged to OTP in Phase 2 of the treatment.
- Patients admitted in OTP or ITP should be discharged to SFP after finishing treatment for a 3 month follow up visit.

## 3 Community Mobilisation

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### 3.1 Community Sensitization

Community sensitization is one of the most crucial aspects of the process of community mobilization. The following are two basic steps to devise an effective sensitization strategy. Information gained during the community assessment should help to guide sensitization efforts.

- ✓ **Develop Sensitization Messages** Develop simple but explicit messages based on the key findings during the community capacity assessment. Discuss the sensitization messages with some of the key community figures previously identified to ensure they are culturally appropriate prior to communitywide dissemination.

Key messages should include:

- Causes of malnutrition and prevention methods
  - Identification of malnutrition cases
  - Treatment for malnutrition and sites available in the area
  - Referral of malnutrition cases
  - Follow up of children on malnutrition treatment
- ✓ **Disseminate the Messages** Sensitize the community leaders, representatives and members through the most effective communication channels.

### 3.2 Active case finding: screening and referral

The aim of screening for malnutrition is to access and treat as many acutely malnourished children as early as possible. Active case finding, as opposed to waiting for acutely malnourished children to seek care, facilitates earlier presentation to health providers. All people working with children should therefore be trained to screen for acute malnutrition using MUAC and bilateral pitting oedema assessment. Children should be screened routinely and suspected should be cases referred to the nearest OTP site immediately for early, appropriate management.

#### 3.2.1 Who should screen

- Community health care workers (nurses, community volunteers, etc)
- Agriculture Extension officers
- Nongovernmental Organizations (NGO)

#### 3.2.2 Where screening should be done

- Clinics
- Outreach clinics
- Public Health Units (PHU)
- Outpatient Departments (OPD)
- Antiretroviral Therapy (ART) centres
- Neighborhood Care Points (NCP)
- Homes (during home visits)
- Churches
- In Chiefdoms during community activities
- TB Clinics

### 3.2.3 How it should be done

#### 3.2.3.1.1 Screening at community level

Community health workers and volunteers should conduct nutrition screening. This process specifically evaluates MUAC (for children over 6 months old and less than 5 years) and the presence of bilateral pitting oedema.

All cases mentioned below should be referred directly to the nearest health facility where weight, height and medical status will be assessed and children will be admitted to the appropriate feeding programme as needed.

For children **less than 6 months old** refer those:

- that have pitting bilateral oedema
- that are too weak or feeble to suckle effectively
- with any weight loss

For children **6 months to 59 months (4 years) old**, refer those:

- with a MUAC less than 13.5 cm and/or bilateral oedema
- with static weight for 2 months
- with any weight loss

For children **above 5 years old**, refer those:<sup>8</sup>

- with a MUAC  $\leq 14.5$ cm and/or bilateral oedema in children *5yrs-9yrs*
- with a MUAC  $\leq 18.5$ cm and/or bilateral oedema in children  $\geq 10$ yrs

#### 3.2.3.1.2 Screening at health facility level (facilities without therapeutic feeding)

Every child accessing health care at any facility level should be assessed for weight and oedema. These children should be referred, according to the criteria described below, to the appropriate ITP, OTP or SFP. In order to refer them, a complete referral note should be written on a referral slip or prescription sheet.

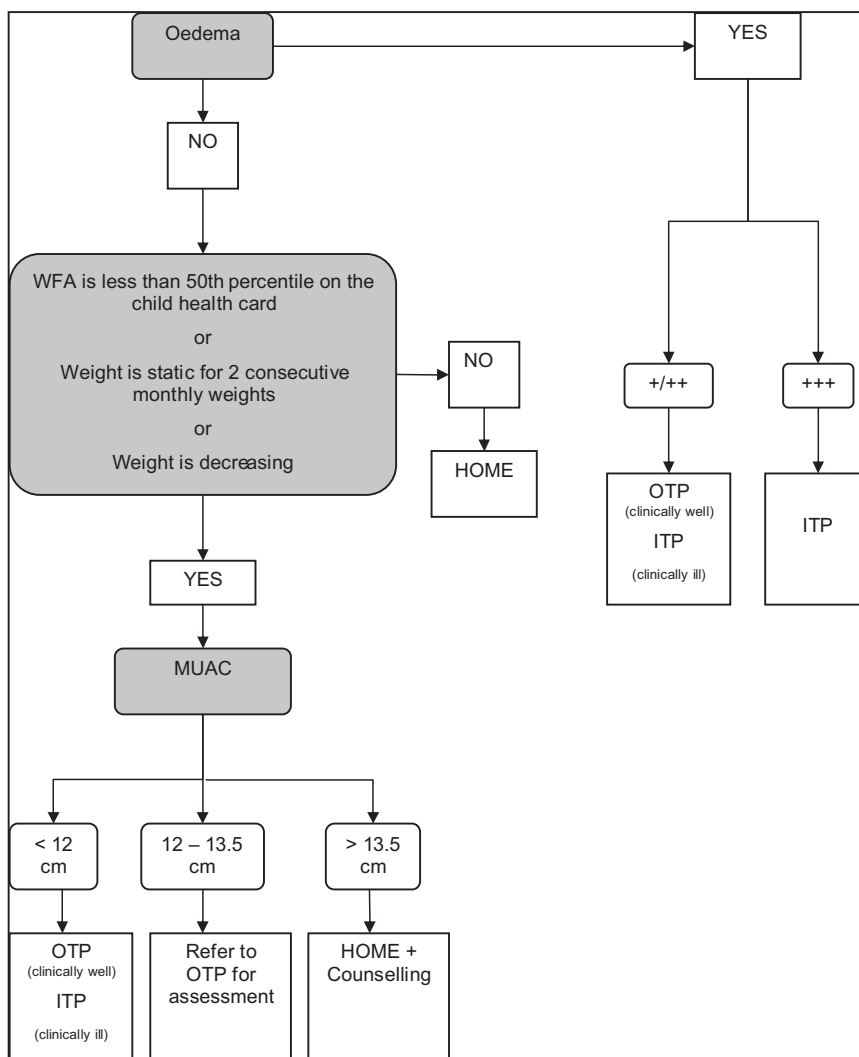
- ✓ **All children less than 6 months fulfilling the following criteria should be referred to the nearest inpatient unit:**
  - When weight is static for 2 consecutive monthly weights
  - When the child is losing weight
  - When the child has pitting bilateral oedema
  - When the child is too weak or feeble to suckle effectively

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<sup>8</sup> These MUAC cut off points for children older than 59 months are still being validated though are currently in use in several other national malnutrition programs. Children with such MUACs often appear severely wasted and should qualify for malnutrition treatment.



For children from 6 months to 5 years old, referral will be done according to the flow chart:



✓ For children above 5 years old, all those meeting the following criteria should be referred:

- Bilateral pitting oedema or MUAC less than 14.5cm in children 5yrs-9yrs
- Bilateral pitting oedema or MUAC less than 18.5cm in children  $\geq 10$ yrs

### IMPORTANT

CHILDREN WITH STATIC WEIGHT OR DECREASING WEIGHT BUT NOT ACUTELY MALNOURISHED:

- COUNSEL AND TEST FOR HIV
- SCREEN FOR TB
- DO NUTRITIONAL EDUCATION
- EMPHASIZE GROWTH MONITORING

### **3.3 Follow-up and treatment support**

Once patients have been identified as acutely malnourished, referred to a health provider, and started on treatment, the patient and caregivers will need continued support throughout the treatment duration. Key Messages should be reviewed at all clinic visits. Community volunteers should reinforce the Key Messages and support adherence to the prescribed treatment in the community. Specific in-home follow-up may be needed to investigate absence and/or default and to encourage the family to return to the program. Follow-up may also be needed to investigate reasons for poor treatment response and to provide support for any problems that caregivers are having with treatment.

#### **3.3.1 Who should do it?**

- Community health workers
- Agriculture Extension officers
- NGOs

#### **3.3.2 Home visits**

Health staff should request that Community Volunteers perform Home Visits:

- When a child has been admitted in a OTP site
- When a child does not come for an appointment in the facility
- When a child is not responding to the treatment

Community volunteers should give health workers feedback with information obtained during the home visit<sup>9</sup>.

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<sup>9</sup> See Annex 8: How to conduct a home visit

## 4 Inpatient Management of Malnutrition

### 4.1 Overview

Inpatient care is a crucial component of the management of acutely malnourished children. Children with complicated acute malnutrition, those who meet admission criteria as described below, are the most vulnerable patients with the highest risk of mortality if not managed aggressively and appropriately. Therefore these children need 24-hour medical and nutritional care until their condition is stabilized.

Treatment of severe acute malnutrition involves ten steps in two phases: an initial *Stabilisation* phase for management of acute medical conditions (Phase 1), and a longer *Rehabilitation* phase (Phase 2).

**Chart 2. Ten steps for treatment of severely malnourished children and approximate time**

Step	Action	Phase 1: Stabilization		Phase 2: Rehabilitation
		Days 1 - 2	Days 3 - 7	Week 2 - 6
1	Treat and prevent hypoglycaemia			
2	Treat and prevent hypothermia			
3	Treat and prevent dehydration			
4	Correct electrolyte imbalance			
5	Treat and prevent infection			
6	Correct micronutrient deficiencies	No iron	No iron	With iron
7	Start cautious feeding			
8	Give catch-up diet for rapid growth			
9	Provide loving care, play and stimulation			
10	Prepare for follow-up and discharge			

Chart 2 above shows the approximate timescale of these two phases. There is a short transition period between the phases.

**The aim of Phase 1/Stabilisation is to:**

- ✓ Treat infections, hypoglycaemia, and other urgent medical problems
- ✓ Provide sufficient energy and nutrients to stop further loss of muscle and fat
- ✓ Correct electrolyte imbalance

**The aim of Phase 2/Rehabilitation is to:**

- ✓ Provide sufficient energy to have catch up growth and to recover from severe malnutrition
- ✓ Treat other underlying infections or complications
- ✓ Prepare for discharge home

<sup>10</sup>

See Annex 9: Equipment needed in ITP sites

The first seven steps should be carried out in the inpatient setting. Inpatient management of acute malnutrition will be done in Paediatric Wards in Hospitals and Health Centres<sup>10</sup>. Children in Phase 1 should be kept together in the same room or section of the ward and not mixed with other patients. Once they progress to Phase 2, they may be moved to another section of the ward or mixed with other patients if necessary.

When the first seven steps have been completed, the child can be appetite tested with RUTF and then transferred to an OTP for continued outpatient nutrition rehabilitation if feasible for the family.

#### 4.2 ITP admission criteria

<p>Weight/Height &lt; 60%</p> <p><b>OR</b></p> <p>Bilateral pitting oedema +++</p> <p><b>OR</b></p> <p>Marasmic Kwashiorkor (WFH&lt;70% or MUAC&lt;11cm with any grade of oedema)</p>
<p>WFH &lt; 80% <b>OR</b> MUAC &lt; 12 cm <b>OR</b> Oedema + and ++</p> <p><b><u>AND any of the following complications:</u></b></p> <ul style="list-style-type: none"> <li>• Anorexia</li> <li>• High fever</li> <li>• Hypothermia</li> <li>• Vomiting</li> <li>• Severe dehydration</li> <li>• Severe weakness, lethargy, unconsciousness, convulsions</li> <li>• Moderate to severe skin lesions</li> <li>• Difficult or fast breathing</li> </ul>
<p><b><u>Special cases:</u></b></p> <p>Children less than 3kg and infants less than 6 months according to the protocol for children less than 6 months</p>
<p><b><u>Transfers from OTP</u></b></p> <ul style="list-style-type: none"> <li>• Deterioration in medical condition</li> <li>• Failure of the appetite test</li> <li>• Increase/development of oedema</li> <li>• Development of re-feeding diarrhoea sufficient to cause weight loss</li> <li>• Fulfilling any of the criteria of "failure to respond to treatment-in section 6.2.12</li> <li>• Weight loss or static weight for 2 consecutive weighing periods</li> <li>• Major illness or death of the main caretaker such that the substitute caretaker requests or requires in-patient care</li> </ul>

### 4.3 Step 1: Treat and prevent hypoglycaemia

Hypoglycaemia remains a leading cause of death in malnourished children.

**Blood glucose level <3mmol/l** If the blood sugar level cannot be measured, or if the test cannot be done immediately, assume the child is hypoglycaemic and treat presumptively

**START F-75 WITHIN THE HOUR OF ADMISSION**

#### 4.3.1 **Diagnosis**

- ✓ Eyelid retraction
- ✓ Low body temperature (axillary < 35.0 C)
- ✓ Lethargy, limpness and loss of consciousness
- ✓ Drowsiness (this is often the only sign before death)

#### 4.3.2 **Treatment**

- ✓ Give **5ml/kg of 10% sucrose or glucose** solution.
  - If child is conscious and able to drink → Give 50 ml 10% glucose or sucrose solution orally. [To make 10% sucrose solution, dissolve 10g (2 ½ teaspoons) sugar in 100ml water]. Or feed F75 if this is quicker.
  - If child is semi-conscious or unable to drink → As above but give via nasogastric (NG) tube.
  - If child is unconscious or convulsing → Give glucose IV immediately: 5ml/kg sterile 10% glucose solution, followed by 50mls of 10% sucrose solution by NG tube. If IV glucose cannot be given quickly, give by NG tube.
  - If no 10% glucose solution is available for IV use, use 1 part 50% glucose solution diluted in 4 parts sterile water or other safe, non-glucose-containing IV fluid.
- ✓ Whenever possible **give F75 within 30 min of arrival**. Counsel mothers to feed frequently.
- ✓ **Keep the child warm** (see section 4.4: Hypothermia).
- ✓ Start **second line antibiotics** if already taking first line treatment.

**HYPOGLYCAEMIA AND HYPOTHERMIA OFTEN OCCUR TOGETHER AND ARE SIGNS OF INFECTION IF A CHILD HAS HYPOGLYCAEMIA, ALSO TREAT HYPOTHERMIA AND INFECTION**

#### 4.3.3 **Prevention on admission**

- ✓ Feed F75 immediately.
- ✓ Feed every 3 hours day and night (instruct the caretaker to assure feeds every 3 hours)
- ✓ Keep the child warm
- ✓ Start antibiotics immediately

## 4.4 Step 2: Treat and prevent hypothermia

KEEP THE CHILD WARM

### 4.4.1 *Diagnose*

- ✓ Under-arm temperature below 35°C.
- ✓ Malnourished children are unable to regulate their body temperature. During the first days of treatment, their body temperature will be dependent on the ambient temperature. Those particularly susceptible are children < 12 months, those with large areas of damaged skin and those with serious infections.

### 4.4.2 *Treatment*

- ✓ Re-warm using the "kangaroo technique" for children with a caretaker put a hat on the child, remove the child's clothes, and wrap mother and child together to allow maximal skin to skin contact. If this is not possible place child near a heater and monitor frequently.
- ✓ Feed with F75 immediately; continue to feed frequently (every 3 hours).
- ✓ If after half an hour of rewarming and feeding the temperature doesn't go back to normal, start **second line antibiotics** if already taking first line treatment.
- ✓ Monitor and record child's temperature every 2 hours during rewarming (or every 30min if using a heater). The temperature is normal when it reaches 36.5°C.
- ✓ Give glucose as per the previously stated guidelines (section 4.3.2) for hypoglycemia

**HYPOGLYCAEMIA AND HYPOTHERMIA OFTEN OCCUR TOGETHER AND ARE SIGNS OF INFECTION. IF A CHILD HAS HYPOTHERMIA, ALSO TREAT HYPOGLYCAEMIA AND INFECTION**

### 4.4.3 *Prevention on admission*

- ✓ Keep the child warm:
  - Adequate blankets should be available
  - Dress the child warmly; include a hat, as most heat is lost through the head
  - Keep the room warm. Shut windows and doors at night
  - Keep the child dry. Change wetclothes and bedding immediately
- ✓ Feed F75 immediately.
- ✓ Feed every 3 hours, day and night
- ✓ Start antibiotics immediately

## 4.5 Step 3: Treat and prevent dehydration

Dehydration can be difficult to diagnose in malnourished children. Clinical signs of dehydration in the well-nourished child (poor skin turgor, sunken eyes, lethargy, dry mouth, absence of tears) may be present in malnourished children without dehydration. Moreover, inappropriate hydration of malnourished children who are not dehydrated may lead to volume overload, heart failure and ultimately death. Appropriately rehydrating the dehydrated malnourished child is critical to survival and recovery. Caution must be exercised in diagnosing and treating these children.

Whenever possible a dehydrated child with malnutrition should be rehydrated orally. IV infusions can be dangerous and are not recommended unless there is shock with loss of consciousness from confirmed dehydration or volume loss.

A child may present to ITP with dehydration or may develop dehydration while undergoing treatment. In each situation oral rehydration is usually indicated.

### 4.5.1 Diagnosis

HISTORY IS CRUCIAL IN DIAGNOSING DEHYDRATION IN THE SEVERELY MALNOURISHED CHILD.  
POOR SKIN TURGOR, SUNKEN EYES, LETHARGY, DRY MOUTH, AND ABSENCE OF TEARS MAY BE PRESENT IN MALNOURISHED CHILDREN WITHOUT DEHYDRATION; USE CAUTION IN DIAGNOSIS.

#### 4.5.1.1 Historical clues and clinical signs of dehydration in severely malnourished children:

- History of watery diarrhoea
- History of vomiting
- History of poor intake
- Weight loss
- Thirst
- Reduced urine output (<3 wet nappies in 24h; no urine for 8h)
- Sunken eyes of recent onset (family reports a change)
- Cold hands and feet
- Weak or absent radial pulse

### 4.5.2 Treatment:

MALNOURISHED CHILDREN SHOULD BE REHYDRATED WHENEVER POSSIBLE BY ORAL OR NG ROUTE.  
ReSoMal (REHYDRATION SOLUTION FOR MALNOURISHED CHILDREN) SHOULD BE USED. IT HAS A LOWER SODIUM AND HIGHER POTASSIUM CONCENTRATION THAN NORMAL ORS.<sup>11</sup>

- In the absence of resomal, regular low osmolarity oral dehydration solution (ORS) may be continuously used.

<sup>11</sup> See Annex 10: Characteristics of ReSoMal vs low-osmolarity ORS

#### 4.5.2.1 Treatment for marasmic patients:

- ✓ **Oral ReSoMal**; if unable to take fluids by mouth an NG tube must be placed and the solution given nasogastrically
- ✓ Give **5mls/kg ReSoMal every 30 minutes for the first 2hrs**
- ✓ If necessary, continue with the ReSoMal, **5-10ml/kg/hr every hour** until no longer clinically dehydrated or until signs of overhydration (volume overload) develop (outlined below). These children should be monitored hourly until stable.
- ✓ Encourage mother to give the fluid **slowly**, and to persist even if the child is slow to take the fluids or vomits.
- ✓ If the child is refusing or vomiting, place an NG tube and slowly give the fluids via NG.
- ✓ If re-hydration continues after three hours, start feeds using F75 and continue these every 2-3 hours, alternating with ReSoMal
- ✓ **Monitoring re-hydration:** It is important to monitor these children carefully **every hour** during re-hydration:
  - Respiratory rate and pulse rate
  - Urine frequency
  - Watch for signs of over-hydration (outlined below)
  - **Signs of improvement are:**
    - Decreasing pulse and respiration rate
    - Reduced thirst
    - Increasing urinary output
    - Improved skin turgor, moist mucus membranes, improved eye appearance
    - Increased alertness
  - **Signs of over-hydration:**
    - Increased heart rate by 25 beats per minute
    - Increased respiration by at least 5 breaths per minute
    - Development or worsening of respiratory distress
    - Signs of increasing oedema (i.e.puffy eyelids)
    - Increasing liver size

If signs of over-hydration are present stop Rehydration immediately and re-assess in one hour.



#### 4.5.2.2 Treatment for kwashiorkor patients:

All children with oedema have an increased total body water and sodium, thus they are over hydrated. Oedematous patients cannot be dehydrated although they are frequently hypovolaemic. **Rehydration is only indicated if the child loses weight and deteriorates his/her clinical condition.**

Given the different pathophysiology of kwashiorkor, the rehydration plan should not be the same as for marasmic patients.

- ✓ Give 30 ml ReSoMal for each watery stool. Give it slowly by cup
- ✓ Continue feeding, including breastfeeding

#### 4.5.3 Prevention of dehydration in children with watery diarrhoea

Small mucoid stools are commonly seen in severe malnutrition, but do not cause dehydration. For a malnourished child receiving therapeutic milk 5 to 8 times a day, there may be > 3 semi-liquid stools per day, called "re-feeding diarrhoea."

##### Definitions of diarrhoea

- Watery diarrhoea: very liquid stools at least three times per day with weight-loss: **serious risk of dehydration; give oral hydration**
- Non-watery diarrhoea: persistent liquid stools; no weight loss: **small risk of dehydration: hydrate if clinically indicated**
- Diarrhoea during re-feeding: semi-liquid stools without weight loss: **preventive hydration treatment is not indicated**

If the child has **watery diarrhoea with weight loss** but no other signs of dehydration:

- Give 30 ml ReSoMal for each watery stool. Give it slowly by cup
- Continue feeding, including breastfeeding
- Document the frequency of stools

If the child has watery diarrhoea but does not have weight loss do not rehydrate.

#### 4.5.4 Shock

Shock from dehydration and sepsis are likely to coexist in severely malnourished children. Children with hypovolemic shock will respond to IV fluids; those with septic shock without dehydration will not improve appreciably with IV fluids alone. These children are particularly fragile and diagnosis and appropriate management should not be delayed. Hypothermia and hypoglycemia may also be signs of impending shock.

##### 4.5.4.1 Diagnosis

- ✓ Lethargy or unconsciousness
- ✓ Rapid weak pulse or
- ✓ Bradycardia (pulse < 80)
- ✓ Cold hands and feet

- ✓ Slow capillary refill- greater than 2 seconds
- ✓ Weak central pulses (femoral or brachial); weak or absent peripheral pulses
- ✓ Poor urine output (<3 wet nappies in 24h) or anuria

#### 4.5.4.2 Treatment

**REMEMBER: GO AFTER IT!!!**

**G**LUCOSE  
**O**XYGEN  
**A**NTIBIOTICS  
**F**LUIDS  
**T**EMPERATURE  
**E**MERGENCY TEAM  
**R**E-ASSES  
**I**N  
**T**IME

- ✓ **Glucose: 5ml/kg 10% sterile glucose IV**
- ✓ **Oxygen**
- ✓ **Antibiotics IV:**
  - Amoxicillin, Ampicillin or Penicillin IV or IM and Gentamicin IV or IM (see [section 4.7.2: Empiric Antibiotic Dosage Chart](#))
  - If already on first line antibiotics:
    - Change Ampicillin or Penicillin to Ceftriaxone IV or IM
    - OR**
    - Add Chloramphenicol IV or IM
- ✓ **Fluids: Give 15 ml/kg IV over the first hour**
  - Ringers-Lactate with 5% dextrose (D5LR) or
  - Half strength Darrow's solution with 5% dextrose (1/2DD) or
  - Half strength Saline with 5% dextrose (D51/2NS)
  - IV fluid volumes for children in shock:

<b>Weight (kg)</b>	<b>Volume IV fluid</b>	<b>Weight (kg)</b>	<b>Volume IV fluid</b>
<b>4</b>	60 ml	<b>12</b>	180 ml
<b>6</b>	90 ml	<b>14</b>	210 ml
<b>8</b>	120 ml	<b>16</b>	240 ml
<b>10</b>	150 ml	<b>18</b>	270 ml

- ✓ **Temperature:** Keep the child warm (Kangaroo technique)
- ✓ **Emergency:** Assure all staff are aware that child is critical and will need close monitoring
- ✓ **Re- assess in time:**  
 Check pulse and respiration rate at initiation and every 5-10 minutes

- After 1 hour, if there are signs of improvement (improved pulse and decreased respiration rate):
  - Repeat the 15ml/kg IV over the next hour and then stop IV Infusion
  - Change to oral/NG re-hydration at 10ml/kg/hr of ReSoMal until stable (for up to 10hrs)
  - Commence F75 after 4 hours oral/NG re-hydration and continue with routine feeds every 2-3 hours, alternating with ReSoMal
  - Continue to monitor the following throughout rehydration:
    - Pulse and respiratory rate
    - Urine output
    - Mental status
- If there is no improvement after one hour assume that the child has septic shock and manage per WHO Guidelines
  - Give maintenance IVF 4 ml/kg/h while awaiting blood; if blood available transfuse 10 ml/kg slowly over minimum 3h.
  - If blood unavailable give 10 ml/kg/h x 2h D5LR, 1/2DD, D51/2NS
  - Assure on 2<sup>nd</sup> line antibiotics
  - Continue feeding
  - Monitor changes and monitor for signs of volume overload
- If at any time the child's condition worsens or if he or she develops signs of volume overload stop hydration immediately.

ALL REHYDRATION (ORAL OR INTRAVENOUS) THERAPIES SHOULD BE STOPPED IMMEDIATELY IF THE CHILD DEVELOPS SIGNS OF VOLUME OVERLOAD:

- THE VISIBLE VEINS BECOME FULL (GO TO F75)
- OEDEMA DEVELOPS (OVERHYDRATION – GO TO F75)
- PROMINENT NECK OR SUPERFICIAL VEINS DEVELOP
- THE RESPIRATORY RATE INCREASES BY 5 BREATHS PER MINUTE OR MORE
- "GRUNTING" RESPIRATION OCCURS
- CREPITATIONS IN THE LUNGS DEVELOP
- A TRIPLE OR GALLOP CARDIAC RHYTHM DEVELOPS

#### 4.6 Step 4: Correct electrolyte imbalance

START F75 WITHIN THE FIRST HOUR AFTER ADMISSION  
ALWAYS USE RESoMAL INSTEAD OF ORS WHEN AVAILABLE

All severely malnourished children have excess body sodium even though plasma sodium may be low. Giving high sodium loads will kill. Deficiencies of potassium and magnesium are also usually present, and may take at least two weeks to correct. Oedema is partly due to these imbalances. Never treat oedema with diuretics.

F75, F100, Plumpy'nut® (RUTF) and ReSoMal have been designed to correct electrolyte imbalances. Ensure that you give only the recommended quantities of these products.

## 4.7 Step 5: Treat and prevent infection

### 4.7.1 *Empiric antibiotic treatment:*

In severe malnutrition the usual signs of infection, such as fever and erythema are often absent, yet malnourished children are immunosuppressed and likely to have multiple infections. One must assume infection on arrival to hospital; routine broad-spectrum antibiotics are therefore recommended by WHO for all severely malnourished children. Moreover, as those admitted to ITP tend to be more ill and have more comorbidities than those children admitted to OTP in Swaziland, intravenous or intramuscular antibiotics are recommended for all children admitted to ITP.

WHO recommends a First Line regimen of antibiotics, suitable for most children, and a Second Line regimen reserved for those who do not improve with the First Line or for those with signs of severe sepsis. A First Line regimen is, ideally, efficacious, inexpensive and readily available.

- ✓ **First Line treatment** for severely malnourished children admitted to ITP in Swaziland is:

ALL CHILDREN ADMITTED TO ITP SHOULD START SYSTEMIC ANTIBIOTICS ON ADMISSION:

- ✓ **AMPICILLIN, AMOXICILLIN, OR PENICILLIN IV OR IM**

**AND**

- ✓ **GENTAMICIN IV OR IM**

TREAT 5-7 DAYS

- ✓ **Second line treatment:** to give if the child still clinically ill or has continued signs of infection after 48 hours of above antibiotics or if septic or unstable appearing at presentation per the admitting physician's discretion:
  - Change Ampicillin or Amoxicillin to **Ceftriaxone**
  - OR**
  - Add **Chloramphenicol**
- ✓ Frequently a systemic antifungal, **Fluconazole**, is added for any patient who has signs of severe sepsis or candidiasis.
- ✓ **Co-trimoxazole** is inadequate as treatment for the severely malnourished child; it is not active against small bowel bacterial overgrowth. Cotrimoxazole prophylaxis should however routinely be given to all HIV positive and HIV exposed children, in addition to the first or second line empiric regimen.

#### 4.7.2 Empiric antibiotic dosage chart:

<b>Amoxicillin</b>	IV or IM: 50-100 mg/kg/day divided q8h up to 1.5 grams per day PO: 75-100 mg/kg/d divided TDS up to 2 grams per day. Routine use of PO antibiotics is not, however, recommended for children in ITP in the first days of treatment.
<b>Ampicillin</b>	IV or IM: 50-100 mg/kg/dose every 6 hours up to 500 mg per dose.
<b>Penicillin</b>	IV or IM: 50-100 mg/kg per day IM or IV every 6h up to 4 grams per day
<b>Gentamicin</b>	IV or IM: 7.5mg/kg once daily
<b>Ceftriaxone</b>	IV or IM: 50-75 mg/kg once daily up to 1 gram. In meningitis cases 100mg/kg/d is recommended up to 2 grams
<b>Chloramphenicol</b>	IV or IM: 25 mg/kg every 6h up to 2 grams per day
<b>Fluconazole</b>	PO: 6 mg/kg on day 1 then 3 mg/kg/d for 13 days divided once daily

#### 4.7.3 Evaluate for underlying infection

Given the high prevalence of HIV in Swaziland, a significant number of children admitted for ITP will be exposed to or infected with HIV. The hospital stay for therapeutic feeding may be the family's first opportunity to access full HIV care and treatment. It is therefore imperative that these children be identified early and managed intensively during their inpatient stay to optimize outcomes both for the child and their family.

- ✓ **All children admitted to ITP should be routinely tested for HIV infection or exposure** (see section 7.1 : *HIV and Malnutrition*). For complete details regarding HIV counselling and testing and management in children please refer to the *Swaziland National Guidelines for Paediatric HIV*.

Tuberculosis (TB) also is on the rise in Swaziland. Underlying TB remains an important contributor to malnutrition in many children both HIV negative and positive. For optimal management and full recovery from malnutrition a high index of suspicion for TB must be maintained.

- ✓ **All children admitted to ITP should be routinely evaluated for TB** (see section 8.2: *TB and Malnutrition*). For complete details please refer to the *Swaziland National Guidelines for TB Management*.

#### 4.7.4 Prevention of infection

Hospitals remain places where many ill and susceptible children remain in close quarters for long periods of time. Hospital-acquired infections remain an important cause of death and morbidity in many children, particularly for those admitted with malnutrition. Simple measures can be taken to reduce hospital-acquired infections;

- ✓ Caregivers should be advised to wash their hands thoroughly before feeding their children and after toileting or changing nappies.
- ✓ Any person preparing or serving therapeutic milk should wash their hands prior to each preparation and distribution.

#### 4.8 Step 6: Correct micronutrient deficiencies

##### ALL CHILDREN ADMITTED TO ITP SHOULD RECEIVE:

- ✓ **VITAMIN A**<sup>12</sup>: ON ADMISSION FOR MARASMIC CHILDREN AND ON DISCHARGE FOR OEDEMATOUS CHILDREN ( IF NO DOCUMENTATION IN THE LAST MONTH)
- ✓ **FOLIC ACID**<sup>13</sup>: ON ADMISSION FOR ALL PATIENTS
- ✓ **IRON**<sup>14</sup>: FROM 1<sup>ST</sup> DAY IN PHASE 2 UNTIL THE END OF TREATMENT. DO NOT GIVE IF THE CHILD IS TREATED WITH PLUMPY'NUT® (RUTF)

All severely malnourished children have vitamin and mineral deficiencies. F75, F100 and Plumpy'nut® provide most vitamins and minerals that severely malnourished children need. Additional supplementation of Vitamin A, Folic Acid and Iron is necessary:

- ✓ **Vitamin A** for all children that did not receive it in the last month: Give on admission to marasmic children and on discharge for kwashiorkor patients:
  - Children 6– 12 months: 100 000 iu
  - Children > 12 months: 200 000 iu

If there are signs of vitamin A deficiency (dry conjunctiva or cornea, Bitot's spots, corneal ulceration, keratomalacia) give on day 1,2 and 14.
- ✓ **Folic acid**: 5 mg on admission to all children
- ✓ **Iron**: during Phase 2 to all children on therapeutic milk:
  - Preferably give with the milk<sup>5</sup>. Add 1 crushed 200 mg tablet of ferrous sulphate (FeSO<sub>4</sub>) to 2 litres of F100. If making 1 litre of F100, dissolve one 200 mg tablet of FeSO<sub>4</sub> in 4ml water and add 2ml of the solution to the F100.
  - If it is not possible to add to the milk, every child should received 3 mg elemental iron per kg per day divided into two doses per day with dosing as follows.

Weight (kg)	Dose of Iron
< 2.5	3 mg/kg/d
2.5 - 5	2-4 mg/kg/d
5 - 10	2-4 mg/kg/d

For non-anaemic patients over 10 kg 5 ml BD is an appropriate dose. If Hgb <9 they should receive 3-6 mg/kg/d of elemental Fe divided BD.

<sup>12</sup> Severely Malnourished people have a higher risk of Vitamin A deficiency: there is reduction of the intestinal absorption and a reduction in binding-protein synthesis. Recent research shows a benefit of daily small doses (included in F75, F100 and plumpy nut). Research also shows a higher mortality in oedematous children receiving a charge dose on admission. One charge dose is still given to all children to refill the liver storage of vitamin A to marasmic children on admission, and to oedematous children upon discharge

<sup>13</sup> The folate dose given on admission (5mg) is a charge dose that allows a rapid correction of deficiency. During the rest of the treatment the amount of folic acid included in the F75, F100 and plumpy nut is enough to cover the daily requirements.

<sup>14</sup> Ferrous Sulphate should never be given to a malnourished patient in phase 1. Iron transport protein synthesis is usually reduced in a malnourished patient and his or her body is unable to use iron effectively. Moreover, plasma free iron levels and hepatic iron stores are often elevated which may cause bacterial overgrowth and free radical formation which leads to oxidative damage. Giving additional iron can therefore be dangerous. Iron should be re-introduced when the child is gaining >5mg/kg/d which should occur during phase 2.

From WHO: Pocket Book of Hospital Care for Children, 2005

<sup>15</sup> Why iron is included in milk: The child should receive a dose according to the Kcal needed for his weight, because at large doses, iron can have an anorexic effect which will be reduced by dividing the dose. It also makes staff work easier and assures that each child has received the dose.

Children taking Plumpy'nut® in Phase 2 do not need iron supplementation. Plumpy'nut® contains enough iron to cover the needs of severe malnourished children.

#### 4.8.1 Transfusion for severe anaemia:<sup>16</sup>

Many severely malnourished children will present with severe, life-threatening anaemia. Not all cases of anaemia require transfusion, however, as volume overload can have fatal consequences.

A blood transfusion will be required if:

- ✓ Hb is <4 g/dl
- ✓ Hb is 4-6 g/dl *and* the child has respiratory distress

In severe malnutrition, the transfusion must be slower and of smaller volume than for a well-nourished child. Give:

- Whole Blood, 10 ml/kg *slowly* over 3 hours
- Furosemide, 1 mg/kg IV at the start of the transfusion

If the child has signs of heart failure/volume overload, give 10 ml/kg of packed cells (if available) because whole blood is likely to worsen this condition. Children with kwashiorkor may have redistribution of fluid leading to apparent low Hb which does not require transfusion.

Monitor the pulse and breathing rates every 15 minutes during the transfusion. If either increases (breathing by 5 breaths/minute or pulse by 25 beats/minute) transfuse more slowly.

*Note:* After the transfusion if the Hb is still low do not repeat the transfusion within 4 days.

#### 4.8.2 Management of eye complications with vitamin A deficiency<sup>17</sup>

Appropriate management of eye problems with vitamin A deficiency may preserve sight in affected children.

Eye signs of vitamin A deficiency include:

- Dry conjunctiva or cornea; Bitots spots
- Corneal ulceration
- Keratomalacia

If eye signs of vitamin A deficiency are seen:

- Give vitamin A orally on days 1, 2, and 14 (6–12 mo: 100,000 iu; >12 mo: 200,000 iu)

If the eyes show signs of corneal clouding or ulceration, give the following additional care to the affected eye(s) to prevent corneal rupture and extrusion of the lens:

- Instill chloramphenicol or tetracycline eye drops, 1 drop 3 times daily for 35 days
- Instill atropine eye drops, 1 drop 3 times daily for 35 days
- Cover eyes with saline-soaked eye pads
- Bandage the eyes

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

<sup>16</sup> From WHO: Pocket Book of Hospital Care for Children, 2005

## 4.9 Step 7: Start cautious feeding

### 4.9.1 Phase 1

GIVE F 75<sup>18 19 20</sup>, 130ML/KG/DAY EVERY 3 HOURS

During stabilisation, the child has a reduced homeostatic capacity and hence a fragile physiologic state. A cautious approach is therefore necessary. Feedings should be started as soon as possible after admission and are designed to provide sufficient energy and protein just to maintain basic physiological processes. The child should not gain weight in this phase. **NO food should be given.**

Children with **severe oedema (+++)** will receive **100ml/kg/day** of F75 instead of 130 ml.

Give the milk from a cup. Very weak children may be fed by spoon, dropper or syringe. Nasogastric (NG) feeds can also be used when necessary (never parenteral preparations).

#### Nasogastric Feeding

Nasogastric tube (NG) feeding is used when a patient is not taking sufficient diet by mouth. This is defined as an intake of less than 75% of the prescribed diet (for children about 75 Kcal/kg/ day).

The reasons for use of an NG tube are:

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

Every day, try patiently to give the F75 by mouth before using the NG tube. The use of the NG tube should not normally exceed 3 days and should only be used in Phase 1. Caregivers may be trained to feed their child by this method.

Children in Phase 1 have to be feed every 3 hours day and night. Use the Day 1 weight to calculate exactly how much to give, even if the child's weight changes in this phase. **Use the tables in annexes 9 and 10 to calculate the amount to give.** Record the amount of F75 received and consumed in the multichart<sup>21</sup>.

<sup>18</sup> See Annex 11: Characteristics of F75

<sup>19</sup> See Annex 12: Preparation of F75

<sup>20</sup> See Annex 13: Amount of F75 to give in

<sup>21</sup> See Annex 30:



**CHILDREN WITH MODERATE ACUTE MALNUTRITION SHOULD NOT FOLLOW THIS STEP AND START FEEDINGS IN PHASE 2.**

#### 4.9.1.1 Criteria to progress from phase 1 to transition phase

The criteria to progress from Phase 1/stabilisation to the transition phase are **both**:

- ✓ return of appetite
- and**
- ✓ beginning of loss of oedema. Children with gross oedema (+++) should wait in Phase 1 at least until their oedema has reduced to moderate (++) oedema.

#### 4.9.2 Transition phase

GIVE F100<sup>22 23 24</sup>, 130ML/KG/DAY EVERY 3 HOURS

The **ONLY** change that is made to the treatment when moving from phase 1/Stabilisation to the transition phase is a change in the diet that is given from F75 to F100. **The number of feeds, their timing and the volume of the diet given remains exactly the same in transition as it was in phase 1.**

Use F100 (130ml = 130kcal) in the transition phase. See annex 15: Preparation of breast milk for mixing instructions

Children >3 kg and >6 months may receive this strength of F100. **Children less than 3 Kg or less than 6 months of age should receive specially diluted F100 (see section on children <6 months). These children do not qualify for Plumpy'nut®.**

**Breast-fed children should always get breast-milk before F100 and on demand.**

Always record the amount of F100 received and consumed in the multichart.

#### 4.9.2.1 Criteria to move from transition back to Phase 1

Move the child back to phase 1:

- ✓ If the patient gains weight more rapidly than 10g/kg/d (fluid retention)
- ✓ If there is increasing oedema
- ✓ If a child who does not have oedema develops oedema
- ✓ If there is a rapid increase in the size of the liver
- ✓ If any signs of fluid overload develop
- ✓ If tense abdominal distension develops
- ✓ If the patient gets significant refeeding diarrhoea such that weight loss occurs<sup>25</sup>
- ✓ If a complication arises that necessitates an intravenous infusion
- ✓ If NG tube is needed

#### 4.9.2.2 Criteria to progress from transition to Phase 2

- ✓ A good appetite: taking at least 90% of the F100 prescribed for transition phase
- ✓ Oedematous patients (kwashiorkor) lose their oedema entirely

#### 4.10 Step 8: Achieve catch-up growth (Phase 2)

GIVE F100 200ML/KG/DAY EVERY 3 HOURS<sup>26</sup>  
OR  
GIVE PLUMPY'NUT®, ACCORDING TO WEIGHT<sup>27 28</sup> THROUGHOUT THE DAY

In Phase 2/Rehabilitation a vigorous approach to feeding is required to achieve very high intakes (at least 200 Kcal/kg/d) and rapid weight gain of >10g/kg/d<sup>29</sup>. Phase 2 can be managed in an inpatient facility, using F100 and/or Plumpy'nut®, or in an outpatient facility, using Plumpy'nut®. It is preferable to treat children in the community. For outpatient management Plumpy'nut® alone should be used; never give F75 or F100 to be used at home.

The recommended dose of F100 provides 200 Kcal/kg/day. Note that this is the minimum amount required per day, if the patient requests and tolerates more, F100 can be given on demand. Record the amount of F100 received and consumed in the multichart.

Experience has shown that weight gain is more rapid in children receiving ready to use therapeutic food (RUTF) or Plumpy'nut®. Record the amount of Plumpy'nut® received and consumed in the multichart.

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<sup>22</sup> See Annex 14: Characteristics of F100

<sup>23</sup> See Annex 15: Preparation of F100 milk

<sup>24</sup> See Annex 16: F100 to give in Transition Phase

<sup>25</sup> It is common for children to have some change in stool frequency when they change diet. This does not need to be treated nor does it require a diet change unless they lose weight. Several loose stools without weight loss is **not** a criterion to move back to phase 1.

<sup>26</sup> See Annex 17: F100 to give in Phase 2

<sup>27</sup> See Annex 18: Characteristics of Plumpy'nut®

<sup>28</sup> See Annex 19: Amount of Plumpy'nut® to give in Phase 2 and OTP/SFP

**Deworming medication** is also given in phase 2<sup>30</sup>, unless documentation of receipt during the last month. Dosage:

- Children <1 year old : None
- Children 1 – 2 years old: 200 mg
- Children > 2 years old: 400 mg

GIVE ALBENDAZOLE THE FIRST DAY IN PHASE 2

#### **4.10.1 Criteria to move from Phase 2 back to Phase 1**

In-patients who develop any signs of a complication or develop oedema should be returned to Phase 1. When transferred back to phase 1, routine drugs should be individually prescribed depending on the cause of the transfer and the previous receipt of medications.

#### **4.10.2 Criteria to transfer to out-patient treatment (OTP)**

After 2 days in Phase 2 transfer patient to OTP with Plumpy'nut® if:

- ✓ Child has a good appetite
- ✓ Child has not developed any medical complications or oedema
- ✓ Child is clinically stable
- ✓ Child and caregiver can access a nearby OTP site

**Children referred to OTP should always be treated as severely acute malnourished children and follow the appropriate protocol.**

<sup>29</sup> See Annex 29: How to calculate mean weight gain

<sup>30</sup> Helminthic infections can cause weight loss. It is therefore important to de-worm malnourished children > 12 months of age. Albendazole can cause appetite loss and nausea hence deworming in phase 1 is unnecessary. However if worms are present in the child's stool or vomitus, consider Albendazole treatment in phase 1

#### **4.11 Step 9: Provide sensory stimulation and emotional support**

As children become malnourished they gradually reduce their activity. Because they do not play, they do not learn. With time this leads to delayed mental and behavioural development. Left untreated this is the most serious long-term result of malnutrition. Emotional and physical stimulation through play programmes that start during rehabilitation and continue after discharge can substantially reduce the risk of permanent mental and emotional damage.

Care must be taken to avoid sensory deprivation. The child's face must not be covered; the child must be able to see and hear what is happening around him or her. The child should never be wrapped or tied. The malnourished child needs interaction with other children during rehabilitation. After the first few days of treatment, the child should spend prolonged periods with other children on large play mats, and with the mother or a play guide. There is no evidence that this increases nosocomial infections<sup>31</sup>.

It is essential that the caretaker stay with her child in the ITP, and that she be encouraged to feed, hold, comfort and play with her child as much as possible. Toys should be available in the child's cot and room, as well as the play area. Inexpensive and safe toys can be made from cardboard boxes, plastic bottles, tin cans, old clothes, and blocks of wood or similar materials. Families may be taught to make toys while at ITP and for their children after discharge.

**Some ideas to show caregivers are:**

- ✓ Use tins as a drum and bang with spoons
- ✓ Put things '*in*' and '*out*' of a cup and teach these words whilst doing the action
- ✓ Build towers with small blocks of wood
- ✓ Make a ball (e.g. stuff a sock) and throw or kick
- ✓ Sing songs with actions (e.g. clapping hands)
- ✓ Play games like counting toes
- ✓ Look and talk around pictures
- ✓ Teach parts of the body, or names of clothes, when dressing
- ✓ Teach words like '*water*' and '*splash*' when bathing

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<sup>31</sup> Most nosocomial infections come from one of the following: staff moving from patient to patient without their washing hands, direct contamination from caretakers, contamination of diets and storage of feeds, inadequate facilities for washing, and unclean disposal of excreta. Putting children together to play does not represent an important additional danger.

#### **4.12 Step 10: Prepare for followup after recovery**

At discharge, patients should be referred to a site where appropriate follow up may be done.

At sites with corn soya blend (CSB) available patients will receive a monthly ration of 7.5 kg of CSB for 3 months as supplemental feeding. At sites where CSB is not available patients may receive a supplementary dose of RUTF from an OTP/SFP for 3 months. This currently would consist of 1 sachet Plumpy'nut® per day for children <10 Kg or 2 sachets per day if >10kg.

In either setting families must attend the SFP site every month. They will receive a ration (CSB or Plumpy'nut®) and nutritional status will be checked. If there is deterioration in the nutritional status, they will be referred for treatment.

Before leaving the ITP:

- ✓ Immunisation card should be checked and caretaker referred to the PHU/ nearest Under 5 clinic if additional immunisations are needed.
- ✓ Document Albendazole and Vitamin A administration on Road to Health Card (RTHC); plot discharge weight
- ✓ Advise caretaker to feed the child frequently with energy-and nutrient-dense foods. Instruct the family on hygiene, nutrition, and food preparation.
- ✓ Evaluate the family for re-lactation.
- ✓ Give the caretaker information about where to enroll in the Supplementary Feeding Program and advise them to go every month
- ✓ Write request on RTHC or OTP card for follow-up clinic to link family with a community health worker or volunteer.
- ✓ Advise caretaker to ensure that child receives Vitamin A and Albendazole every 6 months.
- ✓ Advise caregiver to follow up TB and HIV treatment (if indicated)

#### **4.13 Monitoring and recording in the Inpatient sites**

The progress and hospital - course of a child admitted for ITP should be documented on a multichart (see annex 30).

Information to be recorded on multichart on admission:

- Weight
- The degree of oedema (0 to +++)
- Height
- WFH
- Target weight
- MUAC
- Body temperature
- The standard clinical signs: stool, vomiting, dehydration, cough, respiration and liver size

*Information to be recorded the following days:*

Clinical measurement	Frequency
Weight	Plot Each day
Degree of oedema	Record Each day
Body temperature	Twice per day
Standard clinical signs	Each day
Absence during feeding hours, vomits, refuse of feeds. NG tube, IV fluids, transfusion	Each day
WFH	Each day (with the last height available)
MUAC	Each week
Height	Every 21 days

#### **4.14 Discharge from hospital**

Whenever possible, children should be released from hospital-based inpatient care (ITP) and transferred to outpatient care (OTP) to complete their malnutrition treatment. In some cases, however, this will not be possible and some children will need to remain hospitalized in the ITP until cured.

##### **4.14.1 Hospital discharge with transfer to complete treatment at OTP**

Children can be **discharged from hospital and transferred to OTP** to complete malnutrition treatment when:

- ✓ Child has been in phase 2 for 2 days, with RUTF
- ✓ Child has a good appetite
- ✓ Child does not have oedema
- ✓ Child has not developed any medical complications
- ✓ Child is clinically stable
- ✓ All necessary medical tests have been done
- ✓ All medical treatments have been completed
- ✓ Child and caregiver can access a nearby OTP site

**Children transferred to OTP should be always treated as severely acute malnourished children and follow the appropriate protocol.**

#### **4.14.2 Hospital discharge with discharge from malnutrition treatment programme**

Children completing the treatment in the inpatient units should be discharged as **cured** when:

- WFH  $\geq$  85% for two consecutive days  
**and**
- MUAC  $>$  11 cm  
**and**
- They have no oedema for at least 10 days

#### **4.14.3 Hospital discharge procedures**

Prior to releasing the child:

- ✓ Identify an OTP or SFP site for followup; instruct the family to visit the OTP or SFP site in one week
- ✓ Fill out an OTP card<sup>32</sup>
- ✓ Dispense one week supply of RUTF:
  - Full dose for children completing treatment at an OTP<sup>33</sup>
  - Supplementary dose for children discharged as cured<sup>34</sup>
- ✓ Assure that counselling on hygiene and nutrition has been given to the family

**Remember, the following information should always be recorded on discharge in the multichart, the wards log book or register and the OTP card:**

- Anthropometric measurements– weight, height, MUAC**
- WFH in percentage of median**
- Mean weight gain**
- Discharge criteria**
- HIV status**

**Record discharge weight and cotrimoxazole indication in Road to Health Card**

#### **4.15 Failure to respond**

Failure to respond to standard treatment is a “diagnosis” in its own right. It should be recorded on the chart as such; the child should receive further assessment. A child with primary failure to

<sup>32</sup> See Annex 31: OTP card

<sup>33</sup> See Annex 19: Amount of Plumpy'nut® to give in Phase 2 and OTP

<sup>34</sup> See Annex 19: Amount of Plumpy'nut® to give in Phase 2 and OTP

respond does not gain weight initially. A child with secondary failure to respond will show deterioration/regression after having progressed satisfactorily to phase 2 with a good appetite and weight gain in the transition phase.

Criteria for failure to respond	Time after admission
<b>Primary failure to respond (Phase 1)</b>	
Failure to regain appetite	Day 4
Failure to start to lose oedema	Day 4
Oedema still present	Day 10
Failure to enter Phase 2 and gain more than 5g/kg/d <sup>35</sup>	Day 10
<b>Secondary failure to respond (Phase 2)</b>	
Failure to gain more than 5g/kg/d for 3 successive days <sup>36</sup>	During Phase 2

The main causes of treatment failure are:

- Problems with the treatment facility:
  - Poor environment for malnourished children
  - Failure to treat the children in a separate area
  - Failure to complete the multi-chart correctly
  - Insufficient staff (particularly at night)
  - Poorly trained staff
  - Inaccurate weighing machines
  - Therapeutic milk or RUTF prepared or given incorrectly
  - Addition of other foods
  
- Problems with the individual children:
  - Insufficient therapeutic milk or RUTF given due to lack of understanding the treatment.
  - Food taken by siblings or caretaker
  - Vitamin or mineral deficiency
  - Mal absorption
  - Psychological trauma (particularly with families living with HIV/AIDS)
  - Ruminantion
  - Infection, especially: diarrhoea, dysentery, pneumonia, HIV/AIDS, tuberculosis, urinary infection/ Otitis media, malaria, Hepatitis/ cirrhosis, Schistosomiasis/ Leishmaniasis
  - Other serious underlying disease: congenital abnormalities (e.g. Down's syndrome), neurological damage (eg. cerebral palsy), inborn errors of metabolism.

When a child fails to respond the common causes must be investigated and treated appropriately according to national guidelines.

<sup>35</sup> See Annex 29: How to calculate mean weight gain

<sup>36</sup> See Annex 29: How to calculate mean weight gain



Every child with unexplained **primary failure** to respond should have a detailed history and examination performed. In particular, they should be checked carefully for infection as follows:

- Examine the child carefully. Measure the temperature, pulse rate and respiration rate
- Where appropriate, examine urine for pus cells and culture blood.
- Rule out TB, HIV and other underlying infections.

**Secondary failure** to respond is usually due to:

- ✓ Incorrect feeding techniques. It is quite common for children to inhale food into their lungs and develop aspiration pneumonia during recovery if they are: 1) laid down on their back to eat or 2) force fed, particularly with a spoon or pinching of the nose. Caregivers should be closely observed while feeding to ensure that the correct technique is being used. One advantage of RUTF is that it is much less likely to be force fed and inhaled.
- ✓ An acute infection contracted in the centre from another patient (nosocomial infection).
- ✓ Reactivation of infection, which may appear as the immune system recovers; acute onset of malaria and TB (for example sudden enlargement of a cervical abscess or development of a sinus) may arise several days or weeks after starting a therapeutic diet.

When failure to respond is commonly seen in a programme/ facility/ region:

- ✓ The common causes listed should be systematically examined to determine and rectify the problems.
- ✓ Review staff supervision with refresher training if necessary
- ✓ Re-calibrate scales (and length-boards).
- ✓ If these steps are not immediately successful then the centre should contact the Swaziland National Nutrition Council (SNNC). An external evaluation by an organization with experience of running a programme for the treatment of severe malnutrition should be performed to help apply the protocol.

## 5 Special Protocol for Children less than 6 Months

### 5.1 Admission criteria

- ✓ The infant is too weak or feeble to suckle effectively (independently of his/her weight-for-length)  
**OR**
- ✓ Static weight or weight loss (look at RTHC) for 2 consecutive weights over a 2 month period  
**OR**
- ✓ WFL (Weight-for-Length) less than 70% (if weight >49 cm)  
**OR**
- ✓ Presence of bilateral pitting oedema

### 5.2 Diet

These children should be given **diluted F100** and not regular strength F100.

F75 is only indicated for children with oedema and should be given at regular strength.

#### Preparation of DILUTED F100<sup>37</sup>

- ✓ Mix one packet F100 into 2.7 litres of water to make diluted F100.
- ✓ Use 100ml of already prepared F100 and add 35ml of water to give 135ml of diluted F100. Discard any excess waste. Don't make smaller quantities.
- ✓ Use 200ml of F100 and add 70ml of water, to make 270ml of diluted F100 and discard any excess waste.

### 5.3 Routine medicine

- ✓ **Folic acid:** 2.5mg (1tab) in one single dose
- ✓ **Ferrous sulphate:** only when the child feeds well and starts to gain weight.
  - Infants receiving diluted F100 with added iron do not need further supplementation.
  - If iron is not being added to the milk, infants 0-6 months should receive elemental iron 3 mg/kg/d = 1.25 ml bd Ferrous Sulphate
  - If Hgb<9, the children will need 36 mg/kg/d elemental iron; give per dosing recommendations on section 4.8
  - For severely anaemic or unstable patients (Hgb<6) refer to management of severe anaemia *Section 4.8.1: Transfusion for Severe Anaemia*

<sup>37</sup> See Annex 20: How to prepare Diluted F100

- ✓ **Antibiotics:** Refer to section 4.7 Empiric Antibiotic Treatment
  - **Ampicillin, Amoxicillin, or Penicillin** IV or IM for 5-7 days
  - **Gentamycin** IV or IM once a day for 5-7 days
  - Do not use **Chloramphenicol** in infants <2 weeks of age or in low birthweight or preterm infants. These infants may receive 2nd line treatment with **Ceftriaxone** if indicated as outlined in section 4.7
- ✓ **Cotrimoxazole** prophylaxis should be continued in all HIV positive and exposed infants >6 weeks of age.

## 5.4 Treatment for breastfed children

### 5.4.1 *Diet*

The aim is to stimulate breastfeeding and to supplement the child until breast milk alone is sufficient to allow the child to grow properly and ultimately return home once growing well on breast milk. This approach may be used also for families that need to initiate lactation (re-lactate).

Breast milk output is stimulated by the **Supplemental Suckling (SS) technique**. This technique allows the child to receive therapeutic milk via tube while actively breastfeeding. It is therefore important that the child be put to breast as often as possible. For full details on the SS technique see Annex 22: Supplementary Suckling Technique

- ✓ Breast-feed every 3 hours for at least 20 minutes, more often if the child cries or seems to want more.
- ✓ Between one half and one hour after a normal breast-feed give maintenance amounts of diluted F100 using the supplementary suckling technique.
- ✓ **All children less than 6 months and less than 3 Kg should receive diluted F100:** 130ml/kg/day (100kcal/kg/day)<sup>88</sup>, divided into 8 meals
- ✓ **Children less than 6 months, with oedema, should be started on F75** and not on diluted F100. Once the oedema has resolved and the child is nursing well they should be changed to diluted F100.

**Note: for decision making for HIV exposed infants that are breastfeeding refer to the Swaziland National Infant and Young Child Feeding Guidelines.**

### 5.4.2 Procedures and monitoring

These children are vulnerable and must be seen by a healthcare worker everyday.

The volume of supplementary feed is not routinely increased during the stay in the hospital. If the procedure is working successfully, the volume of breast milk will be increasing and the child's need for supplemental formula will decrease. The progress and feeding schedule of the child is therefore determined by the daily weight.

- ✓ If the **child loses weight** over 3 consecutive days yet seems hungry and is taking all the diluted F100, add 5mls to each feed<sup>38</sup>
- ✓ If the **child grows well** with the same quantity of diluted F100 the quantity of breast milk is increasing. If after some days, the child **does not finish all the supplemental food, but continues to gain weight** it means that the breast milk is increasing and that the child's needs for supplementary feeds are decreasing.

When a baby is gaining weight at 20g per day (regardless of his or her weight) decrease the quantity of diluted F100 to **one half** the maintenance intake.

- If the **weight gain is maintained** (10g per day regardless of the weight) for 5 days then the child may stop supplementary suckling completely and continue with exclusive breastfeeding.
- If the **weight gain is not maintained** then increase the amount given to 75% of the maintenance amount for 2 to 3 days and then reduce it again once weight gain improves.
- ✓ Once all supplemental milk has been stopped it is advisable to keep the child in the centre for a further few days on breast milk alone to assure continued weight gain. If the mother firmly wishes to go home as soon as the child is taking the breastmilk well then they should be discharged.
  - When it is clear that the child is gaining weight on breast milk alone her she should be discharged, regardless of the current weight or weight-for-length.

### 5.4.3 Routine care

**Routine Medications:** Give Routine Medications as outlined in *Section 5.3: Routine Medicine*

**Evaluate for underlying infection:** all malnourished children <6 months who are admitted for malnutrition and their mothers should be closely evaluated for underlying HIV and TB.

### 5.4.4 Care for the mothers

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

The quality of the mother's milk depends upon her nutritional status. It is critical that the mother is properly fed during this procedure and any deficiency in the infant is corrected by giving good nutrition to the mother.

<sup>38</sup> See Annex 21: Amount of Diluted F100 to give for infants during Supplementary Suckling

<sup>39</sup> The Supplemental Suckling feed is giving maintenance amounts. If it is being taken and there is weight loss, either the maintenance requirement is higher than calculated or there is significant mal-absorption or underlying disease.

- Check mother's weight, height, MUAC and the presence of oedema. BMI may not be useful in lactating women. If the mother is malnourished, treat for malnutrition.
- Explain to the mother what the aim of treatment is and what is expected of her
- Do not make the mother feel guilty for the state of her child or blame her for giving other foods.
- Strongly reassure the mother that the technique works and that she will get enough milk herself to make her baby better.
- Be attentive to her and introduce her to the other mothers in the centre.
- She should drink at least 2 litres of clean water per day
- She must eat enough - about 2500kcal/day (5 or 6 family meals)
- The mother admitted in the centre with her child should receive Vitamin A:
  - In the first 8 weeks after delivery
- Multivitamin and micronutrient supplementation must also be given to the mother.

**The length of stay in the ITP should be as short as possible.**

#### **5.4.5 Discharge**

##### **Discharge criteria:**

- ✓ It is clear that the infant is gaining weight on breast milk alone after the Supplemented Suckling technique has been used.
- ✓ All underlying medical problems have been addressed
- ✓ The mother has been adequately supplemented with vitamins and minerals.

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

##### **Prior to Discharge:**

- ✓ Assess how this child will be fed at home. Review hygiene issues and maternal nutrition. Can the family exclusively breastfeed? Refer to the national Infant and Young Child Feeding Guidelines for further infant feeding recommendations.
- ✓ The mother should be encouraged to eat high quality food to improve the quantity and quality of breast milk as well as receive multivitamins and micronutrient supplementation as outpatients.
- ✓ Follow-up for these children is very important. They should be weighed every 2 weeks initially until 3 successive weight gains have been documented.

## **5.5 Treatment for children without any prospect to breastfeed**

### **5.5.1 Diet**

When there is no prospect of being given breast milk, severely malnourished infants less than 6 months of age should be treated according to the standard protocol with the following modifications:

### 5.5.1.1 Phase 1

Wasted infants of less than 6 months should be given diluted F100 in Phase 1. Oedematous infants of less than 6 months should always be given F75 during phase one. They should be fed 8 times/day<sup>40</sup>.

### 5.5.1.2 Transition Phase

During transition, only diluted F100 should be used. Increase the volume of each feed as tolerated by the infant by one third. These small infants should not be treated with full strength F100<sup>41</sup>.

### 5.5.1.3 Phase 2

During Phase 2, the infants' feeding volumes should be slowly advanced as tolerated to twice the volume of diluted F100 that has been given during Phase 1<sup>42</sup>.

## 5.5.2 Routine Care

**Routine Medications:** Give Routine Medications as outlined in Section 5.3: *Routine medicine*

**Evaluate for underlying infection:** all malnourished children <6 months who are admitted for malnutrition and their mothers should be closely evaluated for underlying HIV and TB.

## 5.5.3 Discharge

**Discharge criteria:**

- ✓ When the infant reaches 85% weight for length or regaining the growth curve with consistent weight gain of 20 g/day
- ✓ Once the child's oedema has been resolved for >10 days they may be switched to the home feeding method. If weight gain continues they may be discharged.

The child can be switched to the home feeding method, ideally infant formula (if AFASS criteria is met; refer to the *Swaziland National Infant and Young Child Feeding Guidelines*).

They should be observed for 3 days on the home feeding method to assure weight gain is maintained.

**Prior to Discharge:**

- ✓ Assess how this child will be fed at home. Determine if child can be exclusively breastfed; if not review AFASS criteria; refer to the national *Infant and Young Child Feeding Guidelines* for further infant feeding recommendations.
- ✓ Educate the family on appropriate feeding practices. Teach cup feeding, food and utensil hygiene, appropriate formula preparation.

<sup>40</sup> See Annex 23: Amounts of F100 diluted (or F75 in oedematous infants) to give for infants not breastfed in phase 1

<sup>41</sup> See Annex 24: Amounts of Diluted F100 to give for infants not breastfed in phase 2

<sup>42</sup> The feeding volumes for these young infants should be gradually increased as tolerated. The phase 2 feeding volumes approach 250 ml/kg/d which is a substantial fluid burden for these infants. They may easily become overfed and develop vomiting, feeding intolerance, aspiration and oedema. These children should be observed closely and their diets adjusted accordingly.

## 5.6 Treatment for children that are not breastfed on admission

Start the protocol for children that are not breastfed and as soon as possible assess:

- ✓ Reasons for not breastfeeding
- ✓ If HIV exposed reassess AFASS criteria. Please refer to the national Infant and Young Child Feeding Guidelines for details on assessing AFASS.

If there is no medical reason to not breastfeed, **breastfeeding should be reinitiated** following the protocol for children less than 6 months that are breastfed (5.4)

For those children fulfilling AFASS criteria, infant formula feeding (hygiene, preparation, feeding schedule) should be assessed before discharge. Full nutritional counselling for both mother and infant should also be given.

For HIV exposed children when assessing AFASS the risks of death from malnutrition must be weighed against the risk of contracting HIV from mixed breast and formula feeding. For full details see the National Infant and Young Child Feeding Guidelines.

- These children should be started on the protocol for children who are not breastfed initially.
- A full HIV evaluation should be performed on these children as well as on the mother (see Section 7.1: HIV and malnutrition).
- Re-lactation (see Section 5.4: Treatment for breastfed children) should be done for these families if the child is HIV positive.
- Re-lactation with some mixed feeding may be the only option for some HIV positive mothers. Every effort should be made to initiate the mother on HAART if she qualifies or otherwise optimize her health prior to relactation as this will decrease the risks of HIV transmission.

## 6 Outpatient Management of Malnutrition

### 6.1 Overview

The Outpatient Treatment Program, utilizing Ready to Use Therapeutic Food (RUTF), currently Plumpy'nut<sup>43</sup> in Swaziland, is a critical component of the management of acute malnutrition in children. Patients may enter the Outpatient Treatment Program (OTP) by way of referral from the community (by RHMs and community volunteers), identification at routine clinic visits, or be transferred in from the Inpatient Treatment Program (ITP) after stabilization. Patients may be discharged from the OTP either to a Supplemental Feeding Program (SFP) when they have been successfully treated for malnutrition or to the ITP if they develop complications at any point during their treatment course or are failing outpatient nutritional rehabilitation.

OTPs may be developed at hospitals, health centres or clinics. A patient may be transferred to one of these sites after recovery from severe acute malnutrition or for management of moderate acute malnutrition if that site is more convenient for the patient.

The prerequisites to integrate an OTP into a health facility are:

- Presence of a clean water source
- Warehouse with stock capacity for RUTF
- Presence of the following equipment:
  - Height boards
  - Scale
  - Weighing pants
  - MUAC tapes
  - Cups
  - Patient Card
  - OTP cards
  - Monthly report form

Distributions of RUTF to the patient in the OTP will be done once a week. Children will need to be seen at the facility once a week for two weeks then every two weeks thereafter until recovery and discharge. Individual facilities should decide to distribute rations on a specific day of the week or on an as-needed basis for the patient.

### 6.2 Outpatient management of severe acute malnutrition

#### 6.2.1 Admission criteria for OTP

Weight/Height < 70% **OR** Weight/Height <80% in a known HIV+ child

**OR**

Bilateral oedema + and ++

**OR**

MUAC <11 cm

**And the child must :**

- have a good appetite
- be clinically well (no clinical complications)
- be alert

Children transferred from ITP to complete treatment

<sup>43</sup> See Annex 18 : Characteristics of Plumpy hut®



## 6.2.2 Admission procedures

### ☞ STEP 1: Screen

- ✓ Measure weight, height, MUAC, and oedema
- ✓ Diagnose malnutrition
- ✓ Screen for clinical complications requiring inpatient admission
- ✓ Do the appetite test<sup>44</sup>
- ✓ Decide whether child needs inpatient treatment (see diagram in *Section 4.2 :ITP admission criteria*)
  - If 'YES':
    - If necessary, take immediate steps to stabilize the child
    - Refer child to the closest ITP
  - If 'NO':
    - Admit child to OTP (step 2)

### ☞ STEP 2: Admit

- ✓ Completely fill in the OTP monitoring card<sup>45</sup>

#### Don't forget:

- Introduce counselling and testing for HIV (see *Section 7.1: HIV and malnutrition*)
- Screen for TB and refer when necessary (see *Section 7.2: TB and malnutrition*)

### ☞ STEP 3: Provide Nutrition And Medical Treatment

- ✓ Give admission medication (see *Section 6.2.6: Routine medicines and tests*).
- ✓ Give correct ration of RUTF to feed until the review date (see *Section 6.2.4: Ready to Use Therapeutic Food (RUTF) dosing*)

### ☞ STEP 4: Health Education And Follow-Up

- ✓ Important information about RUTF and hygiene should be given to the caregiver<sup>46</sup>. Be sure that caregiver understands the messages on the Patient Card<sup>47</sup>.
- ✓ All children returning home with an RUTF ration should be put in contact with a community health worker. Advise the caregiver to inform their local clinic about the admission to OTP and to show the clinic's health staff the Patient Card.
- ✓ The local clinic will inform the community health workers/volunteers about the admission, and will need to maintain communication with them regarding the patient's status

<sup>44</sup> See Annex 26: Performing the Appetite Test

<sup>45</sup> See Annex 31: OTP card

<sup>46</sup> See Annex 25: Information to give to caregivers on admission to OTP

<sup>47</sup> See Annex 32: OTP Patient Card

☞ **STEP 5: Make Next Appointment**

- ✓ Before returning home, each caregiver should be given an appointment at the health facility for the next consultation day. Emphasise the importance of follow-up.
- ✓ Children will be given appointments weekly during the first two weeks and every 2 weeks after that until the end of the treatment.

**6.2.3 Follow – up visits**

- ✓ Complete each section of the follow-up section on the monitoring card
- ✓ Give medical treatment when necessary
- ✓ Record any action taken and/or medication given in response to any health problems
- ✓ Follow-up HIV test and TB screening
- ✓ Ask for other tests if necessary
- ✓ Refer to ART (Antiretroviral Treatment) site when necessary
- ✓ Discuss with the caregiver any action taken and advice for home care
- ✓ Refer back to an inpatient treatment centre if condition deteriorates significantly to fit criteria for inpatient admission (see diagram in *Section 4.2: ITP admission criteria*)
- ✓ Identify non-responders and take necessary action

**6.2.4 Ready to Use Therapeutic Food (RUTF) dosing<sup>48</sup>**

Ready to use Therapeutic Food (RUTF) is the mainstay of outpatient malnutrition treatment. In Swaziland, Plumpy'nut® is the only RUTF currently available. It is an energy-dense mineral and vitamin-enriched food designed to treat severe acute malnutrition in children. Plumpy'nut® is oil-based: it does not have to be mixed with water and therefore avoids problems of contamination. It is made from a mix of peanut paste, milk powder, oil, and fortified with vitamins and minerals. Nutritionally, Plumpy'nut® has a similar nutrient profile but greater energy and nutrient density than F100.

A child undergoing treatment for severe acute malnutrition should take in approximately 200 Kcal/Kg/d. Each packet of Plumpy'nut® has 500 Kcal. The child should therefore eat the following number of packets per day, based on his or her weight:

<b>Weight (kg)</b>	<b>Sachets/day</b>	<b>Sachets/week</b>	<b>Sachets/2 weeks</b>
3.0 - 3.9	1.5	11	21
4.0 - 5.4	2.0	14	28
5.5 - 6.9	2.5	18	35
7.0 - 8.4	3.0	21	42
8.5 - 9.4	3.5	25	49
9.5 - 10.4	4.0	28	56
10.5 - 11.9	4.5	33	63
12.0 – 29.9	6	42	84

**6.2.5 Information to give to the caregiver**

When a child is first admitted to the programme, it is essential to ensure that information on how to give RUTF, how to take the medications at home and basic hygiene is clearly understood. It is also important to encourage caregivers to return to the clinic at any time if their child's condition deteriorates. At the end of the first OTP visit, it is vital to check whether caregivers

<sup>48</sup> See Annex 19: Amount of Plumpy'nut® to give in Phase 2 and OTP/SFP

have understood the advice given by the health worker by asking some simple questions before they leave.

For ease of discussion RUTF will be referred to as Plumpy'nut® in this section as this is the only available RUTF product currently available in Swaziland.

Explain to the care giver

- Reasons for admission to OTP
- Principles for treatment
- Any medical action taken and advice for home care
- The caregiver is instructed to return to the health centre for regular check-ups and treatment
- Plumpy'nut® is a food and a medicine for malnourished children only. It should not be shared with the other family members even if the child does not consume all the diet offered. Opened packets of Plumpy'nut® can be kept safely and eaten at a later time
- Wash with soap child's hand and face before feeding. Keep food clean and covered.
- The caregiver should be taught how to open the packet and to give Plumpy'nut® to the child in small frequent amounts.
- These children often only have moderate appetites and eat slowly. Give small regular meals of Plumpy'nut® and encourage the child to eat as often as possible (every 3 to 4 hours). The child can keep the Plumpy'nut® with him/her and eat it steadily throughout the day – it is not necessary to have set meal times if the food is with the child all the time. Tell the mother how much her child should eat each day.
- Plumpy'nut® is the only food the child needs to recover during his time in the programme. If other foods are given, always give the full ration of Plumpy'nut® per day before other foods.
- For breastfeeding children, encourage the caregiver to continue breastfeeding. Plumpy'nut® will be the only complementary food that she has to give. The child should get the total amount of Plumpy'nut® recommended by the health workers.
- Always offer plenty of clean water to drink while eating Plumpy'nut®.
- Always keep the child covered and warm
- With diarrhoea NEVER stop feeding. Continue giving Plumpy'nut® and EXTRA clean and safe water.
- IMPORTANT: The stools of the child are likely to change when using Plumpy'nut® and therefore could be reported as "bad diarrhoea". Indeed, the stools of children under Plumpy'nut® treatment are soft or pasty and with a similar colour to Plumpy'nut®. The caretaker should be aware of these changes in order to prevent too much exaggerated reporting of diarrhoea or refusal of the treatment
- The caregiver should return to the OTP site and not wait for the following visit, if any of the following occur:

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<sup>49</sup> See Annex 27: Routine Medicines in OTP/SFP

- Temperature: The body of the child is very hot or very cold on touch.
- Intense diarrhoea:  $\geq 3$  liquid stools per day.
- Difficulty breathing or intense cough
- Intense apathy: child more “sleepy” than usual, not playing, does not show interest for what is going on around him/her, not reactive when stimulated.
- Development of Bilateral Oedema: swelling of both feet, which can extend to other parts of the body.
- Refusal of the child to eat full Plumpy’nut® rations after day 3 of treatment.

### 6.2.6 Routine medicines and tests<sup>49</sup>

As previously mentioned, the usual signs of infection, such as fever, are often absent, and infections are often hidden in severely malnourished children. All children admitted to OTP should start empiric Amoxicillin. They should also receive Vitamin A and Albendazole if there is no documentation of receiving them in the last month.

Medication	Age / Weight	Prescription	Length of treatment
Vitamin A	< 6 months	None	One dose on admission for Marasmus One dose on discharge for Kwashiorkor
	6 - 12 months	100,000 iu	
	> 12 months	200,000 iu	
Amoxicillin <sup>50</sup>	<10 kg	125 mg	One dose at admission + give treatment for 7 days at home
	10-30 kg	250 mg	
	>30 kg	500 mg	
Albendazole <sup>51</sup>	< 1 year old	None	One dose on week 2
	1-2 years	200 mg	
	> 2 years	400 mg	

Check the **immunisation card** of every child. If she/he does not have the immunisation card or if immunisations are not updated, she/he should be given the required vaccines.

### **6.2.7 All children must be screened for HIV and TB.**

In the areas where there is a high prevalence of **malaria**, every child should be tested for malaria on admission and treated if necessary.

### **6.2.8 Criteria to move from outpatient to inpatient treatment**

Outpatients who develop the signs of a serious medical complication (pneumonia, dehydration, etc.) should be transferred to the inpatient facility for management of their condition until they are fit to return to Phase 2 as outpatients.

If the patient is being treated as an outpatient and develops any of the following he or she should be transferred to the inpatient facility:

- Failure of the appetite test
- Increase/development of oedema
- Development of re-feeding diarrhoea severe enough to lead to weight loss
- Fulfilling any of the criteria of “failure to respond to treatment”(refer to section?)
- Major illness or death of the main care giver so that the substitute care giver requests or requires in-patient care
- Inability of the child to come to the health facility for outpatient treatment

When transferred back to the inpatient unit, the Phase 1 protocol should initially be used, however, routine medications are individually prescribed depending upon what has already been given and the cause of the transfer.

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<sup>50</sup>If Amoxicillin is unavailable consider erythromycin (50 mg/kg/d divided BD or cotrimoxazole (20 mg sulfamethoxazole/kg/d divided BD).

<sup>51</sup> Give half a 400 mg tablet of albendazole for improved palatability in children when feasible

### 6.2.9 Monitoring

Each of the following measurements should be done and recorded at the indicated frequency. They should be recorded in the OTP card as well as on the parent education handout in order to give the family evidence of the child's progress.

Clinical Measurements	Frequency
Weight and oedema	Every visit
WFH	Every visit
Body temperature	Every visit
Standard clinical signs (stool, vomiting, etc)	Every visit
MUAC	Every visit
Appetite test	Every visit
Height/Length	Every month

### 6.2.10 Discharge

#### STEP 1: Identify children meeting the criteria for discharge (Cured)

<p style="text-align: center;"><b>WFH <math>\geq</math> 85% for 2 consecutive visits</b> and <b>MUAC &gt;11 cm for 2 consecutive visits</b> and <b>No oedema for 2 consecutive visits</b></p>
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#### STEP 2: Prepare children for discharge

- ✓ Give Vitamin A to children with Kwashiorkor
- ✓ Record discharge data in the front of the OTP card
- ✓ Check immunisation card and give vaccinations if necessary
- ✓ Advise caregiver to feed the child frequently with energy- and nutrient-dense foods
- ✓ Child should be admitted to supplementary feeding for follow-up as he or she will qualify for 3 months of SFP. Give the family a 4-week supply of supplementary feeds.
- ✓ Schedule a 4-week follow-up appointment at SFP.
- ✓ Advise caregiver to ensure that child receives vitamin A and Albendazole every 6 months.

**Remember, all this information should always be recorded on OTP card on discharge:**

- Anthropometric measurements- weight, height, MUAC**
- WFH in percentage of median**
- Mean weight gain**
- Discharge criteria**
- HIV Status**

**Record on RTHC discharge weight and HIV status (qualification for Cotrimoxazole)**

### 6.2.11 Follow-up after discharge

After discharge, patients should be enrolled in a Supplementary Feeding Programme and given nutritional support for another 3 months. The family must attend the site every month.

Every month:

- Check height, weight, oedema, MUAC and do a medical examination. **If there is deterioration in the nutritional status, they will need to restart the nutritional treatment. They should be referred to the OTP or ITP site for treatment**
- Give nutritional counselling to the care giver
- If CSB <sup>52</sup>is available, give CSB (7.5 kg per month)
- If CSB is not available, give Plumpy'nut® according to Supplementary Feeding Protocol:
  - Children <10 kg: 31 sachets/month
  - Children >10 kg: 62 sachets/month

### 6.2.12 Failure to respond

Failure to respond to standard treatment is a “diagnosis” in its own right. It should be recorded on the chart and the child then seen by more senior and experienced staff. For outpatients this diagnosis usually warrants referral to a centre for full assessment; if inadequate social circumstances are suspected as the main cause in outpatient management a home visit can be performed before transfer to the ITP if the patient is stable. Warning signs for failure to respond should be noted at each visit and acted upon.

<b>Criteria for failure to respond</b>	<b>Time after admission</b>
<b>Primary failure to respond</b>	
Failure to gain any weight (non-oedematous children)	21 days
Failure to start to lose oedema	14 days
Oedema still present	21 days
Weight loss since admission to program (non-oedematous children)	14 days
<b>Secondary failure to respond</b>	
Failure of appetite test	At any visit
Weight loss of 5% of body weight	At any visit
Weight loss for two successive visits	At any visit
Failure to gain more than 2.5g/kg/day <sup>53</sup>	21 days (Kwashiorkor) 14 days (Marasmus)

<sup>52</sup> See Annex 28: Characteristics of Corn Soya Blend (CSB)

<sup>53</sup> See Annex 29: How to calculate mean weight gain

The main causes of the failure to the treatment are:

- Problems with the treatment facility:
  - Inappropriate selection of patients
  - Inappropriate diagnosis of malnutrition category
  - Poorly conducted appetite test
  - Inadequate instructions given to caregivers
  - Wrong amounts of RUTF dispensed to children
  - Excessive time between OTP distributions (e.g. every other week visits gives significantly worse results than weekly visits)
- Problems with individual children:
  - Social problems:
    - Sharing RUTF with other members of the family
    - Eating large amounts of family foods
    - Unwilling care giver
    - Caregiver overwhelmed with other work and responsibility
    - Psychological trauma (particularly in families living with HIV/AIDS)
  - Medical problems:
    - Vitamin or mineral deficiency
    - Malabsorption
    - Rumination
    - Infection, especially: Diarrhoea, dysentery, pneumonia, HIV/AIDS, tuberculosis, urinary infection, otitis media, malaria, Schistosomiasis, Hepatitis/ cirrhosis
    - Other serious underlying disease: congenital abnormalities (eg Down's syndrome), neurological damage (eg cerebral palsy), inborn errors of metabolism

When a child fails to respond the common causes must be investigated:

- ✓ Follow-up through home visits by outreach workers/volunteers to check whether a child should be referred back to the clinic between visits.
- ✓ Discuss with caregiver aspects of the home environment that may be affecting the child's progress in the programme (find out if Plumpy'nut® is being shared).
- ✓ At health facility make sure you carry out medical evaluation and appetite test.
- ✓ A follow-up home visit is essential when the patient fails to attend appointments.
- ✓ **After assuring that treatment is being given correctly by health workers and caregivers, children who are failing to respond should be referred to the nearest ITP for further investigation**

When failure to respond is commonly seen in a program or facility:

- ✓ The common causes listed above should be systematically examined to determine and rectify the problems.
- ✓ If this is not immediately successful then an external evaluation by someone with experience of running a programme for treatment of malnutrition should be conducted.
- ✓ Review of staff supervision with refresher training if necessary.
- ✓ Re-calibration of scales (and lengthboards).



### 6.3 **Outpatient management of moderate acute malnutrition**

Early diagnosis and management of moderately acutely malnourished children will prevent many children from developing the complications related to severe acute malnutrition. Every effort should be made to identify these children and manage them according to this protocol.

#### 6.3.1 **Admission criteria**

Weight/Height 70 – 79%
<b>OR</b>
MUAC 11cm – 11.9 cm (6-59 months)
<b>AND</b>
No oedema

#### 6.3.2 **Admission procedures**

Admission procedures are similar to those for OTP with a few modifications. The dosage of RUTF (or use of CSB) will be different as will the medications and frequency of follow-up.

##### ☞ **STEP 1: Screen**

- ✓ Measure weight, height, MUAC, and oedema
- ✓ Diagnose moderate acute malnutrition
- ✓ Screen for Clinical complications requiring inpatient admission (see diagram in *Section 4.2: ITP admission criteria*)
- ✓ Do the appetite test<sup>54</sup>
- ✓ Decide whether child needs inpatient treatment
  - If 'YES':
    - If necessary, take immediate steps to stabilize the child
    - Refer child to the closest inpatient treatment
  - If 'NO':  
Admit child by criteria to SFP and continue to step 2

##### ☞ **STEP 2: Admit**

- ✓ Completely fill the OTP monitoring card<sup>65</sup>. Document that child is Moderately Malnourished.

##### **Don't forget:**

- |   |
|---|
| <ul style="list-style-type: none"><li>☑ Introduce counselling and testing for HIV (see <i>Section 7.1: HIV and malnutrition</i>)</li><li>☑ Screen for TB and refer when necessary (see <i>Section 7.2: TB and malnutrition</i>)</li></ul> |
|---|

<sup>54</sup> See Annex 26: Performing the Appetite Test

<sup>55</sup> See Annex 31: OTP card

☞ **STEP 3: Provide Nutrition And Medical Treatment**

- ✓ Give admission medication (see *Section 6.3.6: Medical treatment*).
- ✓ Give correct ration of RUTF or CSB to feed until the review date (see *Section 6.3.6: Supplementary Feeding dosing*)

☞ **STEP 4: Health Education And Follow-Up**

- ✓ Important information about RUTF and hygiene should be given to the caregiver<sup>56</sup>. Be sure that caregiver understands the messages on the Patient Card<sup>57</sup>.
- ✓ All children returning home with an RUTF ration should be put in contact with a community health worker. Advise the care giver to inform their local clinic about the admission to OTP and to show the clinic's health staff the Patient Card.
- ✓ The local clinic will inform the community health workers about the admission and maintain routine communication with them to monitor the patient's health status..

☞ **STEP 5: Make Next Appointment**

- ✓ Before returning home, each caregiver should be given an appointment at the health facility for the next consultation day. Emphasize the importance of follow-up.
- ✓ Children will be given appointments every two weeks for two visits, then monthly until the end of treatment.

### **6.3.3 Follow – up visits**

- ✓ Complete each section of the followup section on the monitoring card
- ✓ Give medical treatment when necessary
- ✓ Record any action taken and/or medication given in response to any health problems
- ✓ Follow-up HIV test and TB screening
- ✓ Ask for other tests if necessary
- ✓ Refer to ART (Antiretroviral Treatment) centre when necessary
- ✓ Discuss with the caregiver any action taken and advice for home care
- ✓ Refer to an inpatient treatment centre if condition deteriorates significantly to fit criteria for inpatient admission (see diagram in *Section 4.2: ITP admission criteria*)
- ✓ Identify non-responders and take necessary action

### **6.3.4 Information to give to the caregiver**

When a child is first admitted to the programme it is essential to ensure that information on how to give Supplementary Food how to take the medications at home and basic hygiene is clearly understood. It is also important to encourage caregivers to return to the clinic at any time if their child's condition deteriorates. At the end of the first SFP visit, it is vital to check whether caregivers have understood the advice given by the health worker by asking some simple questions before they leave.

The family should receive nutritional counselling at some point in their treatment. The child should be encouraged to continue to eat the family diet with the addition of prescribed RUTF.

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<sup>56</sup> See Annex 25: Information to give to caregivers on admission to OTP

<sup>57</sup> See Annex 32: OTP Patient Card

<sup>58</sup> See Annex 28: Characteristics of Corn Soya Blend (CSB)

### 6.3.5 Supplementary Feeding dosing

Children in SFP should continue their family diet.

- If CSB <sup>58</sup>is available, give CSB (7.5 kg per month)
- If CSB is not available, give Plumpy'nut® according with Supplementary Feeding Protocol:

Weight (kg)	Sachets/day	Sachets/week	Sachets/2 weeks
< 10	1	7	14
> 10	2	14	28

### 6.3.6 Medical treatment

Medication	Age / Weight	Prescription	Length of treatment
Vitamin A	< 6 months	None	One dose on admission
	6 - 12 months	100,000 iu	
	> 12 months	200,000 iu	
Albendazole	< 1 year old	None	One dose on week 2
	1-2 years	200 mg <sup>59</sup>	
	> 2 years	400 mg	

### 6.3.7 Criteria to move from SFP to OTP or ITP

Outpatients who develop the signs of a serious medical complication (pneumonia, dehydration, etc.), or any of the following should be offered transfer to the inpatient facility for management of their condition until they are fit to return to Phase 2 as outpatients.

- ✓ Signs of serious medical complication
- ✓ Failure of the appetite test
- ✓ Major illness or death of the main care giver so that the substitute caregiver requests or requires in-patient care
- ✓ Inability of the child to come to the health facility for outpatient treatment

If the patient is being treated for MAM as an outpatient and develops any of the following he or she should receive treatment for SAM (OTP):

- ✓ Development of oedema
- ✓ Development of refeeding diarrhoea sufficient to lead to weight loss

When transferred to ITP, the Phase 1 protocol is initially applied, however, routine medications are individually prescribed depending upon what has already been given and the cause of the transfer.

### 6.3.8 Monitoring

Clinical Measurements	Frequency
Weight and oedema	Every visit
WFH	Every visit
Body temperature is measured	Every visit
The standard clinical signs (stool, vomiting, etc)	Every visit
MUAC is taken	Every visit
Appetite test is done	Every visit
Height/Length is measured	Every month

### 6.3.9 Discharge

#### ☞ STEP 1: Identify children meeting the criteria for discharge

Decide if the child is cured according with the criteria

**WFH ≥ 85% during two consecutive visits**  
and  
**MUAC > 12 cm for two consecutive visits**

#### ☞ STEP 2: Prepare children for discharge

- ✓ Record discharge data in the front of the OTP card

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- ✓ Check immunisation card and give vaccinations if necessary
- ✓ Advise caregiver to feed the child frequently with energy and nutrient-dense foods
- ✓ Advise caregiver to ensure that child receives vitamin A and Albendazole every 6 months

**Remember, all this information should always be recorded on OTP card on discharge:**

- Anthropometric measurements – weight, height, MUAC
- WFH in percentage of median
- Mean weight gain
- Discharge criteria
- HIV Status

**Record on RTHC discharge weight and HIV status (qualification for Cotrimoxazole)**

<sup>59</sup> For ease of administration, half a 400mg tablet is preferable

## 7 HIV and TB screening

**The HIV status of every child admitted for nutritional treatment should be known**

### 7.1 HIV and malnutrition

Please refer to the *Swaziland National Paediatric HIV Guidelines* for full diagnosis and referral information as well as for infant feeding recommendations. Please refer to the *Early Infant Diagnosis Manual* for further information and algorithms regarding HIV DNA PCR.

#### 7.1.1 Rapid test all children

- ✓ A positive rapid test in an infant less than 18 months of age indicates HIV exposure. Further testing (DNA PCR) should be performed in infants 12-18 months with a positive rapid HIV test to determine *actual infection*.
- ✓ If the mother or child report being HIV negative or if their status is unknown the child must be tested or retested as soon as possible. While a documented negative HIV test on the mother from antenatal care (ANC) can be helpful, infection may occur at any time, hence the child's status at time of malnutrition diagnosis must be determined.
- ✓ A rapid test may be omitted only in the following circumstances:
  - Exposed infants 12 months old or less
  - A documented negative rapid test performed 3 months after discontinuation of breastfeeding, or
  - A documented negative DNA PCR performed 6 weeks after discontinuation of breastfeeding
- ✓ If the biological mother or father is not present with the child to give consent to testing, request that they accompany the child to a subsequent visit. If the child's biological parents are no longer alive determine the child's next of kin or guardian and request their consent for testing at a subsequent visit.

#### 7.1.2 Work up and refer positive and exposed children

- ✓ All exposed children and HIV positive children <5 years of age should begin **Cotrimoxazole Prophylaxis** per the national guidelines.
- ✓ Children testing HIV positive who are **greater than 18 months** may be reliably diagnosed with HIV and should have a CD4 drawn immediately and be referred to the closest (or family's preferred) antiretroviral treatment (ART) centre. Most of these children will qualify for HAART and should begin adherence counselling as soon as possible.
- ✓ Children testing HIV positive who are **12-18 months** and are malnourished should have a CD4 drawn immediately as well as a DNA PCR. These children should be referred to an ART centre immediately as many will be HIV positive and will qualify for HAART.

- ✓ Exposed children < 12 months and children **<12 months** with a positive HIV rapid test should have an HIV DNA PCR performed per the national protocol. While these children may still be HIV negative, severe malnutrition may be evidence of rapidly advancing HIV infection, hence presumptive diagnosis may be made. **These children are particularly vulnerable and their complete evaluation should not be delayed pending HIV DNA PCR results** A CD4 must be drawn immediately. This information, along with the child's clinical picture and response to malnutrition treatment will help guide decisions as to whether HAART should be given. All children in this category should be referred to ART centres for evaluation along with their families.
- ✓ It should be noted that many exposed infants less than 12 months are replacement fed and therefore at a high risk for malnutrition whether HIV infected or not. Obtaining HIV DNA PCR and CD4 in a timely fashion can also help expedite the appropriate treatment for these children.

**HIV Exposed infants less than 12 months of age are particularly vulnerable and may deteriorate rapidly hence their evaluation should not be delayed.**

These children should receive:

- HIV DNA PCR
- CD4 count
- Referral to ART centre with their families for assessment of HAART eligibility

### 7.1.3 Summary of tests

- **DNA PCR:** For all infants and children who are exposed or have a positive rapid test who are <18 months regardless of breastfeeding status (unless they have a previously positive DNA PCR test or a previously negative DNA PCR performed >6 weeks following discontinuation of breastfeeding).
- **CD4:** This should be drawn immediately on all positive and exposed malnourished children; it may be drawn before PCR results are available.

If you cannot perform either of these tests at your site refer the family to a health facility that can.

### 7.1.4 Caregivers who decline testing

Families declining testing should be carefully counselled about the importance of timely diagnosis and management of paediatric HIV. Counselling and testing should be offered at all subsequent visits.

### 7.1.5 Mothers of severely malnourished children

All mothers of children with acute malnutrition should be counselled and tested for HIV and, if positive, should have a CD4 drawn and/or be referred to the nearest ART centre for management. Protecting the mother's health will also have important implications for the child; particularly if the mother is lactating. Under-5 mortality has been shown to triple if a child's mother dies.

## 7.2 **TB and malnutrition**

With the HIV epidemic, the prevalence of tuberculosis (TB) in adults and children is increasing dramatically. The risk of transmission to children is high and diagnosis may be difficult. Because of this all children with malnutrition and their caregivers must be screened for TB, as this can be a significant contributor to malnutrition in both HIV negative and HIV positive children.

**1. A child with failure to thrive or weight loss** (i.e qualifying for malnutrition treatment) with any of the following should be evaluated on the **National TB screening tool** and if positive, referred to a health facility capable of performing a chest X-ray and further tests.

In the absence of the normal of the National screening tool, any child with one of the following items on history or physical exam should be evaluated for TB

History:

- Cough or respiratory symptoms for 2 weeks or more that are not responding to treatment with broad-spectrum antibiotics
- Fevers or night sweats for 2 weeks
- History of contact with an adult or adolescent with TB, in particular one residing in the same household
- History of contact with an adult with a cough for 2 weeks or more
- History of contact with an adult who died recently, particularly one with a chronic cough
- Failure to gain weight despite adequate nutrition

Physical exam:

- Any pulmonary findings including crackles, rhonchi, wheezes, or focally decreased breath sounds persisting after 2 weeks of pneumonia treatment with no previous pulmonary diagnosis
- Non-painful enlarged cervical or axillary lymph nodes with or without fistula formation
- Distended abdomen with ascites
- Non-painful enlarged joints
- Pleural or pericardial effusion

**2. A child with a cough > 2 weeks** should be given a 10-day course of amoxicillin (75-100 mg/kg divided tds), or other available broadspectrum antibiotic to treat pneumonia and should be referred for a chest X-ray and for evaluation at a health facility should they not completely recover within 2 weeks.

**3. Failure to respond:** any child failing treatment for malnutrition after two weeks should be re-evaluated for TB as above. This is important in both HIV positive and negative children.

**4. Known diagnosis:** for children on TB treatment and malnutrition treatment the health care worker should emphasize adherence to TB treatment. The success of malnutrition treatment depends on effectively treating TB.

## 8 Nutrition Education

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The parents and caregivers of children who become malnourished often come from the poorest sections of society. They frequently have not attended school, or have only had basic education. Many cannot read or write. They are often unaware of the nutritional needs of children, the importance of play and psychosocial stimulation in child development, the critical effect of hygiene and pollution in disease causation, the basic measures to take when children become ill and the signs and symptoms of serious disorders. Basic facts about breastfeeding sexually transmitted disease and HIV, reproductive health and the ill effects of some traditional practices should also be part of their basic education.

Such caregivers come together at the inpatient therapeutic feeding programme or at the distribution sites of OTP. It is important that these opportunities be taken to hold educational sessions for the caregivers, each weekday in the inpatient facility and each week at OTP sites.

The main topics to include are:

- ✓ Importance of good nutrition:
  - Nutrients, nutrient dense foods, and the importance of a balanced diet
  - Causes, effects and prevention of malnutrition
- ✓ Infant and young child feeding:
  - Feeding infants during the first six months
  - Feeding infants 6-24 months and beyond (complementary and active feeding)
  - Feeding children who refuse to eat and during illness
  - Infant Feeding in the context of HIV/AIDS
- ✓ Promotion of hygiene and sanitation:
  - Food and water hygiene
  - Personal hygiene
  - Environmental hygiene
- ✓ Child growth monitoring and immunisation
  - Importance of child growth monitoring
  - How to read the child growth curve, and when static weight is noticed to seek further help
  - Immunisation



## 9 Monitoring and Evaluation

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### 9.1 Recording

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

The importance of registration and being able to follow a patient as they are transferred from one component of the program to another is critical. If each institution and facility records each arrival as a new admission (for them) then many patients who have been transferred between facilities will be registered twice, or even more often, as new cases.

### 9.2 Monitoring individual treatment

**Key elements of a system to track and monitor the individual are:**

- Routine medical, nutritional and follow-up data collected and recorded on cards that are maintained in an efficient filing system
- Supervision and case review
- Effective exchange of information on individual children between individual programs as well as between the programme and the community

#### 9.2.1 9.2.1 Tools to monitor individual treatment

##### 9.2.1.1 Registration book

- Hospital or patient number.
- Name and physical address sufficiently detailed for a home visitor to find the actual homestead. If there is no address then directions and a description of the homestead should be given.
- Name of nearest RHM
- Age (specify if in months or years) and sex (M or F)
- HIV status. If not known on admission counsel and test. If not known on discharge, write unknown and give reasons.
- Nutritional status assessment: weight, height, WFH, oedema, MUAC. Diagnosis of malnutrition.
- Type of admission:
  - **New admissions:** All cases newly admitted or those already discharged for over 2 months.
  - **Transfers (ITP/OTP):** Patients that have started the therapeutic/supplementary feeding at a site, and are referred to other due to deteriorating or improving conditions.
  - **Follow up from ITP/OTP (only SFP):** Admission of patients discharged cured from ITP or OTP for a 3 month follow up.
  - **Readmissions:** Admission of patients that have already been treated and discharged as cured or have defaulted in the last 2 months.
- Discharge data: Date, weight, height, WFH, oedema, MUAC.  
Outcome:

- 
- **Cured:** Patients that have reached the discharge criteria
  - *SFP*: **MAM Cured:** Patients admitted with MAM that have reached the discharge criteria.
  - *SFP*: **Successfully completed 3 month program:** Patients admitted after recovered from SAM (b2 and b3) that finish the 3 month follow up
- **Deaths:** Patients that have died, while being in the programme.
- **Defaulters:**
  - *ITP*: Patient who leave the hospital or are discharged against medical advice.
  - *OTP*: Patients who are absent to review appointments for one month or more.
  - *SFP*: Patients who are absent to review appointments for one month or more. In the case of follow ups missed at least one of the 2 followup review visits.
- **Non-responders:** Patients that have not reached the discharge criteria after 40 days (*ITP*) or 60 days (*OTP/SFP*) in the programme.
- **Others:** Patients discharged for other reasons (e.g. mistake on admission) or in cases where record is not available.
- **Transfers to ITP/OTP:** Patients that have started therapeutic feeding in the *SFP/OTP/ITP* and are referred to an *ITP/OTP* site to continue the treatment due to deteriorating or improving conditions.

#### 9.2.1.2 Daily monitoring chart for inpatient<sup>60</sup>

The daily multichart is the primary tool for managing malnutrition and is recommended for all facilities looking after these patients. Each patient should have his or her own chart; each page has space to record for 21 days. The chart is designed so that it:

- Allows proper control of all aspects of the nutritional care of the patient (from admission to follow-up) .
- Gives detailed information for each individual cases progression (changes in nutritional status, treatment phase and diet, clinical signs).
- Inspection of the charts allows a clinician to quickly see if a patient needs special attention and allows all supervisors to control the quality of work of their staff.
- The charts and registration book contain all the information needed to analyse and report the results of the centre in a standard way.

### 9.2.1.3 OTP card<sup>61</sup>

This card contains all information for the management of malnourished children as outpatients. Each sheet lasts a patient for 16 weeks of outpatient treatment.

Each patient should have his or her own OTP card completely filled out. It is the primary tool for managing malnutrition and is recommended for all facilities looking after these patients. The chart is designed so that it:

- Allows proper control of all aspects of the care of the patient (from admission to follow-up and throughout his/her stay in the OTP)
- Gives detailed information for each individual case's progression (changes in health and nutritional status, treatment phase and diet, medical treatments, clinical signs, temperature, etc.).
- All the essential information is recorded systematically in the same predetermined part of the chart. The information can thus be found easily and quickly for each patient regardless of the healthcare provider.
- Inspection of the charts allows the clinician in charge to quickly see if a patient needs special attention and allows all supervisors to control the quality of work of their staff.
- The charts and registration book contain all the information needed to analyse and report the results of the centre in a standard way.
- Charts are kept at the site where the child is being treated so that they can be referred to when a child returns to the site.

### 9.2.1.4 Patient card for OTP<sup>62</sup>

A Patient Card is given to caregivers to take home. This contains key information about the child and basic information on their progress in the programme (weight, height, ration received). This is the caregiver's record of the child's progress in the programme. It can be presented at any clinic visit to inform health workers of the child's progress.

It also contains important messages about the use of Plumpy'nut®.

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<sup>60</sup> See Annex 30: Multichart

<sup>61</sup> See Annex 31: OTP card

<sup>62</sup> See Annex 32: OTP Patient Card

### 9.2.1.5 Referral slips

For referral purposes the standard referral slips will be used. They will be used every time that a child is referred from one component of care to another. It will facilitate the early identification and admission of acute malnourished children.

Anthropometric measurements, diagnosis and reason for referral should be included.

## 9.3 Supervision and case review

It is essential for good monitoring that record cards be filled in correctly. Supervisors<sup>63</sup> should check that admissions and discharges are made according to protocols, that medicines and other therapeutic products have been given correctly, that any deterioration in condition is identified and acted upon, and that absences and transfers are followed.

The progress and management of children not responding to treatment should be reviewed at monthly meetings in the OTP. A physician should also review these children. Where there is both *OTP and ITP*, both programmes should meet and discuss the patients progress.

These meetings should also include a review of deaths occurring in the OTP and ITP in order to identify any problems in the implementation of treatment protocols. These problems can be used as teaching examples to improve practice. In the meetings patterns may be identified that reveal performance of individuals and quality of work on certain days of the week.

## 9.4 Exchange of information

Another important element of the monitoring system is the exchange of information on individual children between components and between the programme and the community.

- *Absences and defaulters*: Absences and defaults from OTP should be followed by community health workers/volunteers; the child and caregiver should be encouraged to return to complete treatment. If they do not return, the reason for default should be recorded on the card (if known) to help health workers understand the family's circumstances and avoid further absences. In some cases, the information can help health workers to modify protocols.
- *Deaths*: If a child dies, a record is kept of symptoms, management, and suspected cause of death (for OTP this is collected by community health workers/volunteers). This information should be recorded on the child's card as it can help to identify problems in treatment and action protocols.
- *Non-recovered*: Information collected by community health workers/volunteers during follow-up visits is important for the analysis of underlying causes of non-recovery. Information received by the health worker, along with that reported by the caregiver, should be recorded as additional information on the card. This is used for further discussion with the caregiver and to inform decisions about referral for further medical investigations.

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<sup>63</sup> See Annex 33: Supervision checklists

## 9.5 Monitoring programme effectiveness

Supervisors should collect quantitative data on the outcome of all programme activities and calculate standard indicators for nutritional intervention. This allows the progress and effectiveness of a programme to be monitored. Statistics can be obtained from registration books or individual charts.

### 9.5.1.1 Indicators

#### Cure rate:

The definition of successful recovery is of a patient that achieves the discharge criteria used by the programme.

*Recovery rate = Total number of patients cured / Total number of discharges*

#### Death rate:

*Death rate = Number of patient died in the programme / Total Number of discharges*

#### Defaulter rate:

*Defaulter rate = Number of true defaulters / Total Number of discharges*

#### Mean length of stay (LOS) for cured children:

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

*Mean LOS = sum number of days for each recovered patient/Number recovered patients*

### 9.5.1.2 Consolidated report for whole programme

The reports for the individual components of the programme operating within a region are examined and collated to produce a consolidated report for the region's programme. The sum of programme entrances, exits, and the outcomes will tell how many children are receiving this treatment and how successful the treatment is.

To make this report as accurate as possible it is vital that transfers in and out of a programme are closely monitored and recorded; the number transferred-out for one component should match the number transferred in for another component. Exits from the programme will include the deaths (most should occur for the in-patient facility), defaults, unknown outcomes, medical transfers and numbers cured from all components of the program. It is vital that transfers not be counted as exits.

It is useful to report the average length of stay of patients in the ITP separately from OTP to ensure that the majority of patients are not being kept in the ITP for Phase 2 but are being appropriately transferred to the OTP program.

Each program is responsible for preparing their own report. The reports consolidated from the different programmes are compiled centrally.

### 9.5.2 Minimum standards

Reference values have been developed by the Sphere project. They provide benchmarks against which to interpret the functioning of individual programmes. They give an indication of what might be considered "acceptable" and "bad" functioning under average conditions<sup>64</sup>.

	<b>Acceptable</b>	<b>Alarming</b>
<b>Recovery rate</b>	> 75%	< 50%
<b>Death rate</b>	< 10%	> 15%
<b>Defaulter rate</b>	< 15%	> 25%
<b>Length of stay</b>	< 4 weeks	> 6 weeks
<b>Coverage</b>	> 50-70%	< 40%

The length of stay in OTP is usually more than 6 weeks. This is not alarming in terms of the individual patient's probable outcome, as the patients are at home. However, an OTP program with prolonged stay should be evaluated as this leads to excessive numbers of children in the programme at any one time and increases the cost of the programme in terms of staff time and consumption of RUTF.

<sup>64</sup> It has been observed that these standards are not applicable to high HIV prevalence context. There is not yet an international agreement for minimal standards in nutritional programmes in high HIV prevalence countries.

## **10 Supplies and Storage**

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### **10.1 Organising storage facilities**

Upon arrival at each facility, stock deliveries must be checked to assure that the quantity (amount ordered equals amount delivered), quality, and type of goods is correct. If the delivery does not match with the order, he or she should inform Central Medical Stores (CMS) and SNNC immediately. Poor quality goods should be returned to CMS.

If the correct amount and condition of goods matches the invoice, sign the invoice, assure that the driver signs it, and keep a copy for your records. Place the boxes in your storage rooms as soon as possible.

According to the basic rules for storage, food products should be:

- ✓ Placed on palettes at least 10 cm from the wall to assist airflow and prevent condensation
- ✓ Separated into categories
- ✓ Used according with expiry date or date of arrival
- ✓ Kept in a clean and tidy store at all times

### **10.2 Stock management**

Records of each product used to treat malnutrition (i.e. F100 powder or Plumpy'nut®) must be itemised on individual stock sheets (one sheet per product). Exits and entries should be noted and the balance should correspond to the physical stocks held. The following checks should be made monthly:

- ✓ Check to ensure that the centre has sufficient stocks to meet its needs for three months. This allows a two-month emergency supply to be kept in case of interruptions to supply or of increases in need.
- ✓ A physical inventory of stock should be held.
- ✓ Check that quantities of stock are commensurate with the number of patients served
- ✓ Check the expiry date of products on delivery
- ✓ Report expired products to SNNC through the Regional office to facilitate the destruction of the products.

In clinics, every week prior to distribution, the amount necessary (according to the expected number of patients served) should be readily available. Should a warehouse be employed every entry and exit has to be recorded; unused packets returned to the warehouse should be documented.

In hospitals and health centres, supply will be organised with the pharmacy. For OTP assure the day before of the distributions that the amounts in each site (i.e. OPD, ART centre, or other clinic site) are enough to cover the needs. For inpatients, verify each Friday that supplies will be enough to feed the patients throughout the weekend or holiday.



### **10.3 Keeping the facility supplied**

Needs are calculated according to the number of children expected and the amounts available in the facility. It is necessary to have an emergency stock for unexpected situations.

In the first order, stock for three months will be ordered; each centre should always have a two-month emergency stock.

Plumpy'nut®, F75, F100 and ReSoMal should be ordered using the ordinary system for medical supply procurement at Central Medical Stores.



## 11 Annexes

### 11.1 Annex 1: How to measure weight

#### 11.1.1 *With Salter scale:*



### 11.1.2 With Seca scale:

1. To turn on the scale cover the solar panel, with your finger, for a second. The 0 should appear on the display.
2. The scale should be on a hard horizontal surface with the display visible.
3. The children need to be undressed.



4. 4.1 Small children should be weighed held by the mother.
  - a. Weigh mothers alone, dressed but without shoes or heavy objects.
  - b. Ask to remain on the scale and tare by covering the solar panel for a second. It's tared when the display shows the picture of a mother with a baby.
  - c. Give her the baby. Ask to stand still.
  - d. Record baby's weight that appears on the display.



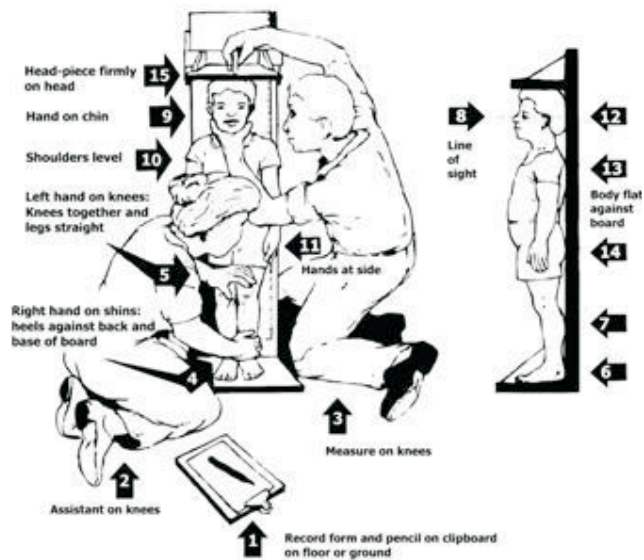
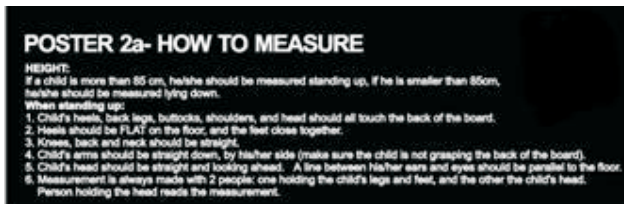
#### 4.2 Older children (>24 months) are weighed alone:

- a. Turn on the scale.
- b. The child stands still on the scale, with the feet slightly apart, in the centre of the platform.
- a. Record child's weight that appears on the display.



## 11.2 Annex 2: How to measure height or length

### 11.2.1 Height



## 11.2.2 Length

### POSTER 2b- HOW TO MEASURE

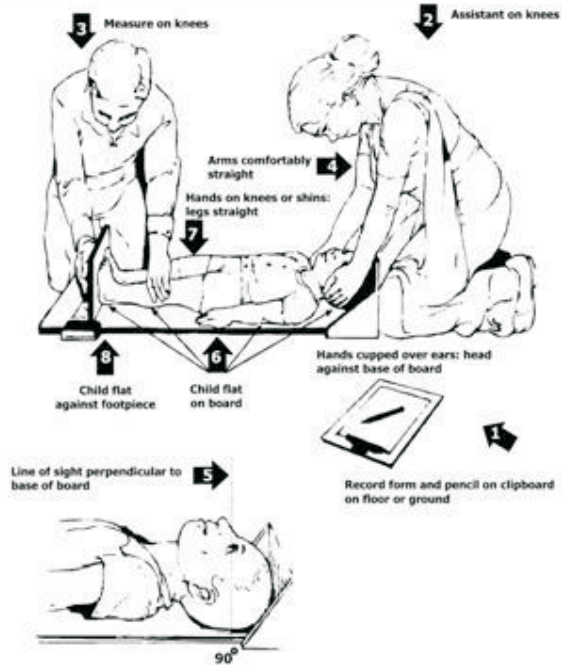
#### LENGTH

##### When lying down:

One person holds the child's head, making sure the child's head is touching the back of the board. The child's eyes should be looking straight up. The other person holds down the child's knees, pressing the sliding woodpiece against the child's heels and soles of his/her feet.

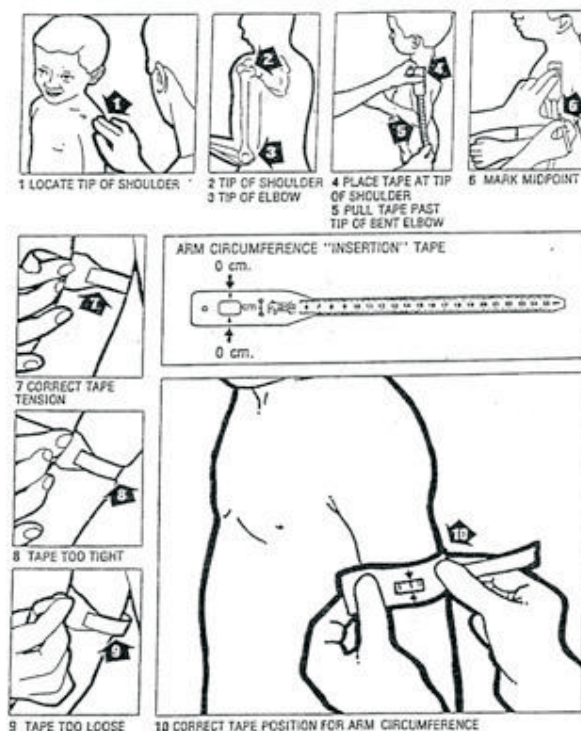
Align the child with the board.

Child's arms should be lying alongside his/her body, and if necessary, the mother can hold the arms down. Person holding the feet reads the measurement.



## 11.3 Annex 3: How to measure MUAC<sup>65</sup>

### POSTER 3- CHILD MID-UPPER ARM CIRCUMFERENCE MEASUREMENT



#### <sup>65</sup> Why use MUAC

- *The interface between the programme and the beneficiary community is strengthened.* MUAC is simple to use, and allows community volunteers to refer children directly to the programme.
- *It is a one-stage process, in which community referral entitles an individual to admission to a programme.* Experience shows that a two-stage process using a sufficiently sensitive MUAC threshold for community referral, followed by admission using WFH, leads to many children being referred but not admitted. This results in reduced coverage by creating confusion and disillusionment.
- *It is simple and cheap.* Other service providers can also screen and refer using MUAC without greatly increasing their workload. Links between the MAM programme and other sectors and services are therefore facilitated. The confusion caused by using different weight-based indicators is eliminated.
- *It enables programme sites to function more efficiently.* Delays and overcrowding are reduced because people do not need to be re-screened for admission.
- *It is less prone to mistakes.* Comparative studies have shown that MUAC is subject to fewer errors than weight for height.
- *It is more sensitive.* MUAC is a better indicator of mortality risk associated with malnutrition than WFH. It is therefore a better measure by which to identify children most in need of treatment.

Valid International

#### 11.4 Annex 4: How to assess oedema

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



<b>Grade 1 (+)</b>	Below the ankle joints (On the foot only)
<b>Grade 2 (++)</b>	Below the knee joints and below the wrist joints (lower leg and back of hands)
<b>Grade 3 (+++)</b>	Generalized including the eyes, face, back and extremities



**11.5 Annex 5: Weight for Length/Height tables for children (49-130 cm height)**

**TABLE 1- CHILDREN (WEIGHT FOR LENGTH)**  
 Boys and Girls (49cm- 84.5 cm). Weight for Height Reference Tables  
 Weight-for-length, in % of the NCHS median, for children measuring less than 85 cm  
 (measured in a recined position) according to NCHS/CDC/WHO (1982) values

WEIGHT-FOR-LENGTH							WEIGHT-FOR-LENGTH						
Malnutrition							Malnutrition						
Height			Moderate Wasting 70 to 79%		Severe Wasting < %70		Height			Moderate Wasting 70 to 79%		Severe Wasting < %70	
	100%	85%	80%	75%	70%	60%		100%	85%	80%	75%	70%	60%
(cm)	In Kg	in Kg	in Kg	in Kg	in Kg	in Kg	(cm)	in Kg	in Kg	in Kg	in Kg	in Kg	in Kg
49.0	3.2	2.7	2.6	2.4	2.3	1.9	67.0	7.6	6.5	6.1	5.7	5.3	4.6
49.5	3.3	2.8	2.6	2.5	2.3	2.0	67.5	7.8	6.6	6.2	5.8	5.4	4.7
50.0	3.4	2.9	2.7	2.5	2.4	2.0	68.0	7.9	6.7	6.3	5.9	5.5	4.7
50.5	3.4	2.9	2.7	2.6	2.4	2.0	68.5	8.0	6.8	6.4	6.0	5.6	4.8
51.0	3.5	3.0	2.8	2.6	2.5	2.1	69.0	8.2	7.0	6.6	6.1	5.7	4.9
51.5	3.6	3.1	2.9	2.7	2.5	2.2	69.5	8.3	7.1	6.7	6.2	5.8	5.0
52.0	3.7	3.1	3.0	2.8	2.6	2.2	70.0	8.5	7.2	6.8	6.3	5.9	5.1
52.5	3.8	3.2	3.0	2.8	2.6	2.3	70.5	8.6	7.3	6.9	6.4	6.0	5.2
53.0	3.9	3.3	3.1	2.9	2.7	2.3	71.0	8.7	7.4	7.0	6.5	6.1	5.2
53.5	4.0	3.4	3.2	3.0	2.8	2.4	71.5	8.9	7.5	7.1	6.6	6.2	5.3
54.0	4.1	3.5	3.3	3.1	2.9	2.5	72.0	9.0	7.6	7.2	6.7	6.3	5.4
54.5	4.2	3.6	3.4	3.2	2.9	2.5	72.5	9.1	7.7	7.3	6.8	6.4	5.5
55.0	4.3	3.7	3.5	3.2	3.0	2.6	73.0	9.2	7.9	7.4	6.9	6.5	5.5
55.5	4.4	3.8	3.5	3.3	3.1	2.6	73.5	9.4	8.0	7.5	7.0	6.5	5.6
56.0	4.6	3.9	3.6	3.4	3.2	2.8	74.0	9.5	8.1	7.6	7.1	6.6	5.7
56.5	4.7	4.0	3.7	3.5	3.3	2.8	74.5	9.6	8.2	7.7	7.2	6.7	5.8
57.0	4.8	4.1	3.8	3.6	3.4	2.9	75.0	9.7	8.2	7.8	7.3	6.8	5.8
57.5	4.9	4.2	3.9	3.7	3.4	2.9	75.5	9.8	8.3	7.9	7.4	6.9	5.9
58.0	5.1	4.3	4.0	3.8	3.5	3.1	76.0	9.9	8.4	7.9	7.4	6.9	5.9
58.5	5.2	4.4	4.2	3.9	3.6	3.1	76.5	10.0	8.5	8.0	7.5	7.0	6.0
59.0	5.3	4.5	4.3	4.0	3.7	3.2	77.0	10.1	8.6	8.1	7.6	7.1	6.1
59.5	5.5	4.6	4.4	4.1	3.8	3.3	77.5	10.2	8.7	8.2	7.7	7.2	6.1
60.0	5.6	4.8	4.5	4.2	3.9	3.4	78.0	10.4	8.8	8.3	7.8	7.2	6.2
60.5	5.7	4.9	4.6	4.3	4.0	3.4	78.5	10.5	8.9	8.4	7.8	7.3	6.3
61.0	5.9	5.0	4.7	4.4	4.1	3.5	79.0	10.6	9.0	8.4	7.9	7.4	6.4
61.5	6.0	5.1	4.8	4.5	4.2	3.6	79.5	10.7	9.1	8.5	8.0	7.5	6.4
62.0	6.2	5.2	4.9	4.6	4.3	3.7	80.0	10.8	9.1	8.6	8.1	7.5	6.5
62.5	6.3	5.4	5.0	4.7	4.4	3.8	80.5	10.9	9.2	8.7	8.1	7.6	6.5
63.0	6.5	5.5	5.2	4.8	4.5	3.9	81.0	11.0	9.3	8.8	8.2	7.7	6.6
63.5	6.6	5.6	5.3	5.0	4.6	4.0	81.5	11.1	9.4	8.8	8.3	7.7	6.7
64.0	6.7	5.7	5.4	5.1	4.7	4.0	82.0	11.2	9.5	8.9	8.4	7.8	6.7
64.5	6.9	5.9	5.5	5.2	4.8	4.1	82.5	11.3	9.6	9.0	8.4	7.9	6.8
65.0	7.0	6.0	5.6	5.3	4.9	4.2	83.0	11.4	9.6	9.1	8.5	7.9	6.8
65.5	7.2	6.1	5.7	5.4	5.0	4.3	83.5	11.5	9.7	9.2	8.6	8.0	6.9
66.0	7.3	6.2	5.9	5.5	5.1	4.4	84.0	11.5	9.8	9.2	8.7	8.1	6.9
66.5	7.5	6.4	6.0	5.6	5.2	4.5	84.5	11.6	9.9	9.3	8.7	8.2	7.0

## TABLE 1- CHILDREN (WEIGHT FOR HEIGHT)

Boys and Girls (85cm- 130.0 cm). Weight for Height Reference Tables  
 Weight-for-height, in % of the NCHS median, for children measuring 85 cm and above  
 (measured in a standing position) according to NCHS/CDC/WHO (1982) values %.

WEIGHT-FOR-HEIGHT							WEIGHT-FOR-HEIGHT						
Malnutrition							Malnutrition						
Moderate Wasting 70 to 79%							Severe Wasting <70%						
Height (cm)	100% in Kg	85% in Kg	80% in Kg	75% in Kg	70% in Kg	60% in Kg	Height (cm)	100% in Kg	85% in Kg	80% in Kg	75% in Kg	70% in Kg	60% in Kg
85.0	12.0	10.2	9.6	9.0	8.4	7.2	107.5	17.7	15.0	14.1	13.3	12.4	10.6
85.5	12.1	10.3	9.7	9.1	8.5	7.3	108.0	17.8	15.2	14.3	13.4	12.5	10.7
86.0	12.2	10.4	9.8	9.1	8.5	7.3	108.5	18.0	15.3	14.4	13.6	12.7	10.8
86.5	12.3	10.5	9.8	9.2	8.6	7.4	109.0	18.1	15.4	14.5	13.6	12.7	10.9
87.0	12.4	10.6	9.9	9.3	8.7	7.4	109.5	18.3	15.6	14.6	13.7	12.8	11.0
87.5	12.5	10.6	10.0	9.4	8.8	7.5	110.0	18.4	15.7	14.8	13.8	12.9	11.0
88.0	12.6	10.7	10.1	9.5	8.8	7.6	110.5	18.6	15.8	14.9	14.0	13.0	11.2
88.5	12.8	10.8	10.2	9.6	8.9	7.7	111.0	18.8	16.0	15.0	14.1	13.1	11.3
89.0	12.9	10.9	10.3	9.7	9.0	7.7	111.5	18.9	16.1	15.1	14.2	13.3	11.3
89.5	13.0	11.1	10.4	9.7	9.1	7.8	112.0	19.1	16.2	15.3	14.3	13.4	11.5
90.0	13.1	11.1	10.5	9.8	9.2	7.9	112.5	19.3	16.4	15.4	14.4	13.5	11.6
90.5	13.2	11.2	10.6	9.9	9.2	7.9	113.0	19.4	16.5	15.5	14.6	13.6	11.6
91.0	13.3	11.3	10.7	10.0	9.3	8.0	113.5	19.6	16.7	15.7	14.7	13.7	11.8
91.5	13.4	11.4	10.8	10.1	9.4	8.0	114.0	19.8	16.8	15.8	14.8	13.8	11.9
92.0	13.6	11.6	10.8	10.2	9.5	8.2	114.5	19.9	16.9	16.0	15.0	14.0	11.9
92.5	13.7	11.6	10.9	10.3	9.6	8.2	115.0	20.1	17.1	16.1	15.1	14.2	12.1
93.0	13.8	11.7	11.0	10.3	9.7	8.3	115.5	20.3	17.3	16.2	15.2	14.2	12.2
93.5	13.9	11.8	11.1	10.4	9.7	8.3	116.0	20.5	17.4	16.4	15.4	14.3	12.3
94.0	14.0	11.9	11.2	10.5	9.8	8.4	116.5	20.7	17.6	16.5	15.5	14.5	12.4
94.5	14.2	12.0	11.3	10.6	9.9	8.5	117.0	20.8	17.7	16.7	15.6	14.6	12.5
95.0	14.3	12.1	11.4	10.7	10.0	8.6	117.5	21.0	17.9	16.8	15.8	14.7	12.6
95.5	14.4	12.2	11.5	10.8	10.1	8.6	118.0	21.2	18.0	17.0	15.9	14.9	12.7
96.0	14.5	12.4	11.6	10.9	10.2	8.7	118.5	21.4	18.2	17.1	16.1	15.0	12.8
96.5	14.7	12.5	11.7	11.0	10.3	8.8	119.0	21.6	18.4	17.3	16.2	15.1	13.0
97.0	14.8	12.6	11.8	11.1	10.3	8.9	119.5	21.8	18.5	17.4	16.4	15.3	13.1
97.5	14.9	12.7	11.9	11.2	10.4	8.9	120.0	22.0	18.7	17.6	16.5	15.4	13.2
98.0	15.0	12.8	12.0	11.3	10.5	9.0	120.5	22.2	18.9	17.8	16.7	15.5	13.3
98.5	15.2	12.9	12.1	11.4	10.6	9.1	121.0	22.4	19.1	17.9	16.8	15.7	13.4
99.0	15.3	13.0	12.2	11.5	10.7	9.2	121.5	22.6	19.2	18.1	17.0	15.8	13.6
99.5	15.4	13.1	12.3	11.6	10.8	9.2	122.0	22.8	19.4	18.3	17.1	16.0	13.7
100.0	15.6	13.2	12.4	11.7	10.9	9.4	122.5	23.1	19.6	18.4	17.3	16.1	13.9
100.5	15.7	13.3	12.6	11.8	11.0	9.4	123.0	23.3	19.8	18.6	17.5	16.3	14.0
101.0	15.8	13.5	12.7	11.9	11.1	9.5	123.5	23.5	20.0	18.8	17.6	16.5	14.1
101.5	16.0	13.6	12.8	12.0	11.2	9.6	124.0	23.7	20.2	19.0	17.8	16.6	14.2
102.0	16.1	13.7	12.9	12.1	11.3	9.7	124.5	24.0	20.4	19.2	18.0	16.8	14.4
102.5	16.2	13.8	13.0	12.2	11.4	9.7	125.0	24.2	20.6	19.4	18.2	16.9	14.5
103.0	16.4	13.9	13.1	12.3	11.5	9.8	125.5	24.4	20.8	19.6	18.3	17.1	14.6
103.5	16.5	14.0	13.2	12.4	11.6	9.9	126.0	24.7	21.0	19.7	18.5	17.3	14.8
104.0	16.7	14.2	13.3	12.5	11.7	10.0	126.5	24.9	21.2	19.9	18.7	17.5	14.9
104.5	16.8	14.3	13.4	12.6	11.8	10.1	127.0	25.2	21.4	20.1	18.9	17.6	15.1
105.0	16.9	14.4	13.6	12.7	11.9	10.1	127.5	25.4	21.6	20.4	19.1	17.8	15.2
105.5	17.1	14.5	13.7	12.8	12.0	10.3	128.0	25.7	21.8	20.6	19.3	18.0	15.4
106.0	17.2	14.6	13.8	12.9	12.1	10.3	128.5	26.0	22.1	20.8	19.5	18.2	15.6
106.5	17.4	14.8	13.9	13.1	12.2	10.4	129.0	26.2	22.3	21.0	19.7	18.4	15.7
107.0	17.5	14.9	14.0	13.1	12.3	10.5	129.5	26.5	22.5	21.2	19.9	18.6	15.9
							130.0	26.8	22.8	21.4	20.1	18.7	16.1



11.6 Annex 6: Weight for Height tables for adolescent boys (130.5 to 163.0 cm height)

**TABLE 2- ADOLESCENT BOYS**  
Adolescent Boys 130.5 cm to 146.0 cm (18yrs). Weight for Height Reference Table

Height (cm)	MEDIAN			Target weight			Moderate wasting W/H 70 to 79 %			Severe wasting W/H < 70 %		
	MEDIAN			85%			80%			75%		
	Height (cm)			Weight (kg)			Weight (kg)			Weight (kg)		
130.5	27.2	23.1	21.8	20.4	19.0	16.3	37.9	32.2	30.3	28.4	26.5	22.7
131.0	27.5	23.3	22.0	20.6	19.3	16.5	38.3	32.5	30.6	28.7	26.8	23.0
131.5	27.8	23.6	22.2	20.9	19.5	16.7	38.6	32.8	30.9	29.0	27.0	23.2
132.0	28	23.8	22.4	21.0	19.6	16.8	39.0	33.1	31.2	29.3	27.3	23.4
132.5	28.3	24.1	22.6	21.2	19.8	17.0	39.3	33.4	31.4	29.5	27.5	23.6
133.0	28.6	24.3	22.9	21.5	20.0	17.2	39.7	33.7	31.8	29.8	27.8	23.8
133.5	28.9	24.6	23.1	21.7	20.2	17.3	40.0	34.0	32.0	30.0	28.0	24.0
134.0	29.2	24.8	23.4	21.9	20.4	17.5	40.4	34.3	32.3	30.3	28.3	24.2
134.5	29.5	25.1	23.6	22.1	20.7	17.7	40.8	34.7	32.6	30.6	28.6	24.5
135.0	29.9	25.4	23.9	22.4	20.9	17.9	41.1	35.0	32.9	30.8	28.8	24.7
135.5	30.2	25.6	24.2	22.7	21.1	18.1	41.5	35.3	33.2	31.1	29.1	24.9
136.0	30.5	25.9	24.4	22.9	21.4	18.3	41.9	35.6	33.5	31.4	29.3	25.1
136.5	30.8	26.2	24.6	23.1	21.6	18.5	42.3	35.9	33.8	31.7	29.6	25.4
137.0	31.1	26.4	24.9	23.3	21.8	18.7	42.6	36.2	34.1	32.0	29.9	25.6
137.5	31.4	26.7	25.1	23.6	22.0	18.8	43.0	36.6	34.4	32.3	30.1	25.8
138.0	31.8	27.0	25.4	23.9	22.3	19.1	43.4	36.9	34.7	32.6	30.4	26.0
138.5	32.1	27.3	25.7	24.1	22.5	19.3	43.8	37.2	35.0	32.9	30.7	26.3
139.0	32.4	27.6	25.9	24.3	22.7	19.4	44.2	37.6	35.4	33.2	30.9	26.5
139.5	32.7	27.8	26.2	24.5	22.9	19.6	44.6	37.9	35.7	33.5	31.2	26.8
140.0	33.1	28.1	26.5	24.8	23.2	19.9	45.0	38.3	36.0	33.8	31.5	27.0
140.5	33.4	28.4	26.7	25.1	23.4	20.0	45.4	38.6	36.3	34.1	31.8	27.2
141.0	33.8	28.7	27.0	25.4	23.7	20.3	45.8	38.9	36.6	34.4	32.1	27.5
141.5	34.1	29.0	27.3	25.6	23.9	20.5	46.2	39.3	37.0	34.7	32.3	27.7
142.0	34.4	29.3	27.5	25.8	24.1	20.6	46.7	39.7	37.4	35.0	32.7	28.0
142.5	34.8	29.6	27.8	26.1	24.4	20.9	47.1	40.0	37.7	35.3	33.0	28.3
143.0	35.1	29.8	28.1	26.3	24.6	21.1	47.5	40.4	38.0	35.6	33.3	28.5
143.5	35.5	30.1	28.4	26.6	24.9	21.3	48.0	40.8	38.4	36.0	33.6	28.8
144.0	35.8	30.4	28.6	26.9	25.1	21.5	48.4	41.1	38.7	36.3	33.9	29.0
144.5	36.1	30.7	28.9	27.1	25.3	21.7	48.8	41.5	39.0	36.6	34.2	29.3
145.0	36.5	31.0	29.2	27.4	25.6	21.9	49.3	41.9	39.4	37.0	34.5	29.6
145.5	36.9	31.3	29.5	27.7	25.8	22.1	49.8	42.3	39.8	37.4	34.9	29.9
146.0	37.2	31.6	29.8	27.9	26.0	22.3	50.2	42.7	40.2	37.7	35.1	30.1
146.5	37.6	31.9	30.1	28.2	26.3	22.6	50.7	43.1	40.6	38.0	35.5	30.4

### 11.7 Annex 7: Weight for Height tables for adolescent girls(130.5 to 163.0 cm height)

**TABLE 3- ADOLESCENT GIRLS**  
Adolescent Girls 130.5cm to 163.5cm (18 yrs). Weight for Height Reference Table

Height (cm)	MEDIAN 100%	Target weight 85%	Moderate wasting 70 to 79 %			Severe wasting < 70 %			MEDIAN 100%	Target weight 85%	Moderate wasting 70 to 79 %			Severe wasting < 70 %		
			80%	75%	70%	70%	75%	60%			70%	75%	60%			
130.5	27.4	23.2	21.9	20.6	19.2	16.4	147.0	38.4	32.7	30.7	28.8	26.9	23.0			
131.0	27.7	23.5	22.2	20.8	19.4	16.6	147.5	38.8	33.0	31.0	29.1	27.2	23.3			
131.5	28.0	23.8	22.4	21.0	19.6	16.8	148.0	39.1	33.2	31.3	29.3	27.4	23.5			
132.0	28.3	24.1	22.6	21.2	19.8	17.0	148.5	39.5	33.5	31.6	29.6	27.7	23.7			
132.5	28.6	24.3	22.9	21.5	20.0	17.2	149.0	39.8	33.8	31.8	29.9	27.9	23.9			
133.0	29.0	24.6	23.2	21.8	20.3	17.4	149.5	40.1	34.1	32.1	30.1	28.1	24.1			
133.5	29.3	24.9	23.4	22.0	20.5	17.6	150.0	40.5	34.4	32.4	30.4	28.4	24.3			
134.0	29.6	25.2	23.7	22.2	20.7	17.8	150.5	40.8	34.7	32.6	30.6	28.6	24.5			
134.5	30.0	25.5	24.0	22.5	21.0	18.0	151.0	41.2	35.0	33.0	30.9	28.8	24.7			
135.0	30.3	25.8	24.2	22.7	21.2	18.2	151.5	41.5	35.3	33.2	31.1	29.1	24.9			
135.5	30.6	26.0	24.5	23.0	21.4	18.4	152.0	41.9	35.6	33.5	31.4	29.3	25.1			
136.0	31.0	26.3	24.8	23.3	21.7	18.6	152.5	42.3	35.9	33.8	31.7	29.6	25.4			
136.5	31.3	26.6	25.0	23.5	21.9	18.8	153.0	42.6	36.2	34.1	32.0	29.8	25.6			
137.0	31.7	26.9	25.4	23.8	22.2	19.0	153.5	43.0	36.6	34.4	32.3	30.1	25.8			
137.5	32.0	27.2	25.6	24.0	22.4	19.2	154.0	43.4	36.9	34.7	32.6	30.4	26.0			
138.0	32.4	27.5	25.9	24.3	22.7	19.4	154.5	43.8	37.2	35.0	32.9	30.7	26.3			
138.5	32.7	27.8	26.2	24.5	22.9	19.6	155.0	44.2	37.6	35.4	33.2	30.9	26.5			
139.0	33.0	28.1	26.4	24.8	23.1	19.8	155.5	44.6	37.9	35.7	33.5	31.2	26.8			
139.5	33.4	28.4	26.7	25.1	23.4	20.0	156.0	45.1	38.3	36.1	33.8	31.6	27.1			
140.0	33.7	28.7	27.0	25.3	23.6	20.2	156.5	45.5	38.7	36.4	34.1	31.9	27.3			
140.5	34.1	29.0	27.3	25.6	23.9	20.5	157.0	46.0	39.1	36.8	34.5	32.2	27.6			
141.0	34.4	29.2	27.5	25.8	24.1	20.6	157.5	46.5	39.5	37.2	34.9	32.6	27.9			
141.5	34.7	29.5	27.8	26.0	24.3	20.8	158.0	47.0	40.0	37.6	35.3	32.9	28.2			
142.0	35.1	29.8	28.1	26.3	24.6	21.1	158.5	47.6	40.5	38.1	35.7	33.3	28.6			
142.5	35.4	30.1	28.3	26.6	24.8	21.2	159.0	48.2	41.0	38.6	36.2	33.7	28.9			
143.0	35.8	30.4	28.6	26.9	25.1	21.5	159.5	48.9	41.6	39.1	36.7	34.2	29.3			
143.5	36.1	30.7	28.9	27.1	25.3	21.7	160.0	49.7	42.2	39.8	37.3	34.8	29.8			
144.0	36.4	31.0	29.1	27.3	25.5	21.8	160.5	50.5	43.0	40.4	37.9	35.4	30.3			
144.5	36.8	31.3	29.4	27.6	25.8	22.1	161.0	51.6	43.8	41.3	38.7	36.1	31.0			
145.0	37.1	31.5	29.7	27.8	26.0	22.3	161.5	52.8	44.9	42.2	39.6	37.0	31.7			
145.5	37.4	31.8	29.9	28.1	26.2	22.4	162.0	54.4	46.3	43.5	40.8	38.1	32.6			
146.0	37.8	32.1	30.2	28.4	26.5	22.7	162.5	56.1	47.7	44.9	42.1	39.3	33.7			
146.5	38.1	32.4	30.5	28.6	26.7	22.9	163.0	56.7	48.2	45.4	42.5	39.7	34.0			
							163.5	56.7	48.2	45.4	42.5	39.7	34.0			

## 11.8 Annex 8: How to conduct a home visit

### SiSwati:

#### **Nawufika ekhaya,**

- Zitsa, yenta umnakekeli ativele akhululekile, munike litsemba
- Nika umnakekeli sihloko lenitawukhuluma ngaso
- Ngekudla lokungemaseko lamatsatfu,
- Timphawu letikhomba indlala,
- Bumcoka bekumikisa umntfwana kuyawukala ngenyanga .
- Kwelashwa kwebantfwana labanetinkhomba tekungondleki kahle etibhedlela
- Kufundzisa umnakekeli ngekutsatsa i-plumpynut.
- Yiva kutsi yini lakwatiko umnakekeli ngaletihloko
- Cala uchaze ngaletihloko, nemiphumela yekungahambisani neticwayiso
- Buta umnakekeli kutsi kungafikwa kanjani kutsi bantfwana baphephe ekugulisweni tifo letiphatselene nendlala.
- Cela kukala umkhono wemntfwana khona utewumecwayisa umnakekeli nangabe umntfwana adzinga lusito.
- nangabe libhande leligegeletele umkhono wemntfwana lihlangu lapho ku-yellow noma laku-**bovu** khona, cela umnakekeli aphutfumise umntfwana emfolamphilu lodvutane.

#### **Nasewuhamba,**

- nangabe imiphumela yekukala umntfwana ibe YELLOW, BROWN noma RED, gcizelela kutsi umnakekeli aye esibhedlela ngoba umntfwana usengotini,
- nangabe umntfwana utsatsa i-plumpynut, gcizelela imilayeto lehambelana nekuhloba, kungaphi i-plumpynut yemntfwana labanye bantfwana , kanye nekuchubeka baye esibhedlela.
- yisho lilanga lapho utawubuya khona.

### English

#### **On Arrival:**

- Greet the people in the homestead
- Be humble, make the caregiver comfortable, and give her hope.
- Introduce the purpose of your visit and the topics to be discussed:
  - A balanced diet
  - Symptoms of malnutrition
  - The importance of taking the child to the clinic for growth monitoring every month
  - Treatment of malnutrition in children at the clinic
  - Educating the caregiver about how to feed Plumpy'nut® to the child
- Involve the caregiver by asking questions about the topics to be discussed.
- Explain to the caregiver about the topics, and the consequences of not heeding to teachings regarding the health of the child.
- Ask the caregiver what she thinks is the best way to prevent malnutrition in children.
- Ask for permission to take the MUAC measurement of the child so that if the child needs help on nutritional care, she can be referred to a health facility.
- If the MUAC measurement reflects a **Yellow** or **Red** colour, ask the caregiver to take the child to the nearest health facility for further assessment and treatment.

**When Leaving:**

- If the child's MUAC was **Yellow** or **Red** emphasize that the child should go to a health facility immediately.
- If the child is already on treatment for malnutrition using Plumpy'nut® Nut, emphasize the messages on health and hygiene, that Plumpy'nut® Nut is a medicine, not sharing the Plumpy'nut® Nut with other children and continuing to go to hospital for monitoring and receiving the treatment.
- Make an appointment for the next visit.
- Thank them for welcoming you in their home and leave.

**11.9 Annex 9: Equipment needed in ITP sites**

- Height boards
- Scale
- Cups
- Measuring jugs
- Buckets
- Utensils for boiling water
- Registration book
- Daily monitoring Card
- Daily feeding schedule
- Monthly report form

### 11.10 Annex 10: Characteristics of ReSoMal vs low-osmolarity ORS

	<b>ReSoMal</b>	<b>ORS</b>
Sugar (g/L)	35	20
Sodium (mmol)	45	75
Potassium (mmol)	40	20
Magnesium (mmol)	3	0
Zinc (mmol)	0.3	0
Copper (mmol)	0.045	0
Base (mEq/L)	30	30
Osmolarity (mOsm/L)	300	245



### 11.11 Annex 11: Characteristics of F75

- **REMARKS :**

Phase 1 therapeutic milk must be used in accordance with the recommendations of doctors and nutritionists. It is advisable to use this milk during Phase 1 of the dietary treatment of severe malnutrition only.

**Attention:** as this milk is not intended to make the child gain weight, its use should be restricted to Phase 1 of the treatment.

**Phase 1 therapeutic milk contains all the nutrients necessary for the treatment; it is not recommended to allow the child any other food.**

- **COMPOSITION :**

Skimmed milk powder, vegetable fat, sugar, maltodextrin, vitamin and mineral complex.

- **PREPARATION :**

Each sachet of 410 g represents the quantity necessary to be added to two litres of boiled water in order to obtain 2.4 litres of Phase 1 therapeutic milk:

The dry extract is 170 grams per litre and the energy density 75 Kcal/100 ml.

- **USE :**

Administer at the rate of 135 ml / Kg / day in 8 to 12 meals per day. As the energy density is 75 Kcal for 100 ml, this is equivalent to 100 Kcal / bodyweight / day.

- **NUTRITIONAL VALUE for 1 litre of Phase 1 therapeutic milk :**

Kcalories (750), protein (9 g), fats (20 g), carbohydrates (133.50 g).

Vitamins: Vit A (1500 mcg), vit D (30 mcg), vit E (22 mcg), Vitamins: Calcium (320 mg), phosphorus (242 mg), vit B1 (0,7 mg), vit B2 (2 mg), vit B6 (0,7 mg), vit potassium (1567 mg), magnesium (105 mg), zinc B12 (1 mcg), vit C (100 mg), folic acid (350 mcg), (20.6 mg), copper (2.86 mg), iron (<0.1 mg), iodine (77 mcg), niacin (10 mg), vit K (40 mcg), biotin (100 mcg), sodium (<150 mg), selenium (47 mcg), pantothenic acid (3 mg).

Osmolarity = 280 mOsm / Kg H<sub>2</sub>O

- **CONSERVATION:**

Best before: 18 months after the manufacturing date.

During storage keep in a dry and cool area if possible.

- **QUALITY CONTROL CHARACTERISTICS**

1. Smell of therapeutic milk F75 in powder: Open the sachet and smell the product straightaway. The smell must be neutral and typical of milk powder. It must not be pungent.
2. Physical characteristics of F75 powder: F75 powder is light yellow. The powder must be thin without lumps. If there are lumps, they should easily be broken under finger pressure.
3. Solubility: Preparation of F75 therapeutic milk must be done with clean warm drinking water. The solution obtained must be white as cream and homogeneous. Some yellow slicks can appear at the surface because of the free fat contained in the powder.
4. Smell of solution of F75: The smell must be typical of milk, not pungent or unpleasant.
5. Taste: The taste must be characteristic of milk. A rancid, pungent or unpleasant taste means that the properties are altered. It does not make the product unfit for human consumption.

## 11.12 Annex 12: Preparation of F75

Red scoop of F75	Water (ml)	
1	20	
2	40	
3	60	
4	80	
5	100	
6	120	
7	140	
8	160	
9	180	
10	200	
F75 sachet	Water (ml)	F75 milk
1/4 = 102g	500	600 ml
1/2 = 205g	1000	1200 ml
1	2000	2400 ml
2	4000	4800 ml

## 11.13 Annex 13: Amount of F75 to give in Phase 1

### 11.13.1 *All cases except those with severe oedema*

Weight (kg)	Dose of F75 / feed (ml)
2.0 - 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
4.5 - 4.9	80
5.0 - 5.4	90
5.5 - 5.9	100
6.0 - 6.9	110
7.0 - 7.9	125
8.0 - 8.9	140
9.0 - 9.9	155
10.0 - 10.9	170
11.0 - 11.9	190
12.0 - 12.9	205
13.0 - 13.9	230
14.0 - 14.9	250
15.0 - 19.9	260
20.0 - 24.9	290
25.0 - 29.9	300
30.0 - 39.9	320
40.0 - 60.0	350



**11.13.2 Cases with severe oedema (+++)**

<b>Weight (kg)</b>	<b>Dose of F75 / feed (ml)</b>
3.0 - 3.4	50
3.5 - 3.9	50
4.0 - 4.4	55
4.5 - 4.9	65
5.0 - 5.4	70
5.5 - 5.9	80
6.0 - 6.9	90
7.0 - 7.9	100
8.0 - 8.9	110
9.0 - 9.9	125
10.0 - 10.9	135
11.0 - 11.9	150
12.0 - 12.9	165
13.0 - 13.9	185
14.0 - 14.9	200
15.0 - 19.9	210
20.0 - 24.9	230
25.0 - 29.9	240
30.0 - 39.9	255
40.0 - 60.0	280

## 11.14 Annex 14: Characteristics of F100

### • REMARKS

Therapeutic milk is used to treat malnourished individuals and is for use in therapeutic feeding programmes. It should be used in accordance with the recommendations of doctors and nutritionists. This product contains all the nutrients necessary in the treatment of severe malnutrition; therefore it is recommended not to use additives.

### • COMPOSITION

Skimmed milk powder, vegetable fat, lactoserum, malto-dextrin, sugar, mineral and vitamin complex.

### • PREPARATION

Each sachet contains the quantity necessary to be added to 2 litres of boiled water in order to obtain 2.4 litres of therapeutic milk. For other amounts, see the table below. The dry extract is 190 grammes per litre and the energy density 100 Kcal/100 ml.

### • NUTRITIONAL VALUE

Osmolarity: < 320 mOsm/L

Composition	/100 g of powder	/1litre of therapeutic milk	Composition	/100 g of powder	/1litre of therapeutic milk
Energy	520 Kcal	988 Kcal	Vit B12	1.6 µg	3.1 µg
Proteins	> 10 % energy		Biotin	60 µg	116 µg
Lipids	> 45 % energy		Pantothenic acid	3 mg	5.8 mg
Humidity	2.5 g max	-	Vit K	15 µg	29 µg
Vit A	800 µg	1544 µg	Sodium	<290 mg	<560 mg
Vit D	15 µg	29 µg	Calcium	300 mg	579 mg
Vit E	20 mg	38,6 mg	Phosphorus	300 mg	579 mg
Vit C	50 mg	96,5 mg	Magnesium	80 mg	154 mg
Vit B1	0.5 mg	0,97 mg	Zinc	11 mg	21,2 mg
Vit B2	1.6 mg	3.1 mg	Iodine	70 µg	135 µg
Niacin	5 mg	9,7 mg	Potassium	1100 mg	2123 mg
Vit B6	0.6 mg	1.2 mg	Copper	1.4 mg	2.7 mg
Folic acid	200 µg	386 µg	Selenium	20 µg	38,6 µg
			Iron	< 0,2 mg	< 0,4 mg

### • CONSERVATION

Best before: 18 months after the manufacturing date. During storage, keep in a dry and cool area if possible.



• **QUALITY CONTROL OF CHARACTERISTICS**

- .1 **Smell: Open the sachet and smell the product straightaway** The smell must be neutral and typical of milk powder. It must not be pungent.
- .2 **Physical characteristics:** F100 powder is light yellow. The powder must be thin without lumps. If there are lumps, they should easily be broken under finger pressure.
- .3 **Solubility:** Preparation must be done with warm drinking water. The solution obtained must be white as cream and homogeneous. Some yellow slicks can appear at the surface because of the free fat contained in the powder.
- .4 **Smell solution:** The smell must be typical of milk, no pungent or unpleasant.
- .5 **Taste:** The taste must be characteristic of milk. A rancid, pungent or unpleasant taste means that properties are altered. It does not make the product unfit for human consumption.

### 11.15 Annex 15: Preparation of F100 milk

Red scoop of F100	Water (ml)	
1	18	
2	36	
3	54	
4	72	
5	90	
6	108	
7	126	
8	144	
9	162	
10	180	
F100 sachets	Water (ml)	F100 milk
1/4 = 110 g	500	600ml
1/2 = 230 g	1000	1200ml
1	2000	2400ml
2	4000	4800ml

**11.16 Annex 16: F100 to give in Transition Phase**

<b>Weight (kg)</b>	<b>Dose of F100 / feed (ml)</b>
3.0 - 3.4	60
3.5 - 3.9	65
4.0 - 4.4	70
4.5 - 4.9	80
5.0 - 5.4	90
5.5 - 5.9	100
6.0 - 6.9	110
7.0 - 7.9	125
8.0 - 8.9	140
9.0 - 9.9	155
10.0 - 10.9	170
11.0 - 11.9	190
12.0 - 12.9	205
13.0 - 13.9	230
14.0 - 14.9	250
15.0 - 19.9	260
20.0 - 24.9	290
25.0 - 29.9	300
30.0 - 39.9	320
40.0 - 60.0	350

**11.17 Annex 17: F100 to give in Phase 2**

<b>Weight (kg)</b>	<b>Dose of F100 / feed (ml)</b>
3.0 - 3.4	110
3.5 - 3.9	120
4.0 - 4.9	150
5.0 - 5.9	180
6.0 - 6.9	210
7.0 - 7.9	240
8.0 - 8.9	270
9.0 - 9.9	300
10.0 - 11.9	350
12.0 - 14.9	450
15.0 - 19.9	550
20.0 - 24.9	650
25.0 - 29.9	750
30.0 - 39.9	850
40.0 - 60.0	1000

## 11.18 Annex 18: Characteristics of Plumpy'nut®

- **CONDITIONS OF USE**

Plumpy'nut® is designed to be used:

In dietary treatment of severe malnutrition: The nutritional value of Plumpy'nut® is similar to that of NUTRISET therapeutic milk F100. It is recommended to use Plumpy'nut® in Phase 2 of the dietary treatment of severe malnutrition. The recommended dose varies up to 200 Kcal /body weight / day.

Plumpy'nut® is available in individual sachets of 500 Kcal (92 g) and is ready-to-eat. It can be used simply by opening the sachet and eating it (no cooking or diluting is necessary).

- **ADVANTAGES OF Plumpy'nut®**

Plumpy'nut® is a new concept in food products which offers the following advantages:

- It can be eaten as it is, without being diluted in water, thus eliminating the risk of bacterial contamination associated with using polluted water.
- With its high density nutritional content and an energy value of 500 Kcal per sachet, the distributors know the quantity given to and food value received by the recipients.
- Its optimum weight/volume ratio ensures that transport and distribution are cheap and easy.
- It can easily be eaten by a child on its own without help from its mother or other adult.
- It can be used at home with supervision from a health centre.

This form of utilisation allows the following economies:

- Reduced length of stay in hospital and residential care in feeding centres
- Reduction in the number of staff necessary for the preparation and distribution of food.

- **IT IS RECOMMENDED**

- that clean drinking water should be available to the child who eats Plumpy'nut® ,
- to give Plumpy'nut® to children who can express their thirst,
- to give Plumpy'nut® to children who are not allergic to cow's milk proteins or to peanuts.

- **COMPOSITION**

Vegetable fat, peanut butter, skimmed milk powder, lactoserum, maltodextrin, sugar, mineral and vitamin complex.

• **NUTRITIONAL VALUE**

**For 100 g of Plumpy'nut®**

Kilocalories (545), of which 10 % from proteins and 59 % from lipids.

<b>Vitamins:</b> Vit A (910 µg), vit D (16 µg), vit E (20 mg), vit C (53 mg), vit B1 (0,6 mg), vit B2 (1,8 mg), vit B6 (0,6 mg), Vit B12 (1,8 µg), vit K (21 µg), biotin (65µg), folic acid (210 µg), pantothenic acid (3,1 mg), niacin (5,3 mg).	<b>Minerals:</b> Calcium (320 mg), phosphorus (394 mg), potassium (1111 mg), magnesium (92 mg), zinc (14 mg), copper (1,78 mg), iron (11,53 mg), iodine (110 µg), sodium (< 290 mg), selenium (30 µg).
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• **CONSERVATION**

- Best before: 20 months after the manufacturing date.
- During storage keep in dry and cool area if possible

**11.19 Annex 19: Amount of Plumpy'nut® to give in Phase 2 and OTP / SFP**

**11.19.1 Severely Acute Malnourished Children**

<b>Weight (kg)</b>	<b>Sachets/day</b>	<b>Sachets/week</b>	<b>Sachets/2 weeks</b>
3.0 - 3.9	1.5	11	21
4.0 - 5.4	2.0	14	28
5.5 - 6.9	2.5	18	35
7.0 - 8.4	3.0	21	42
8.5 - 9.4	3.5	25	49
9.5 - 10.4	4.0	28	56
10.5 - 11.9	4.5	33	63
12.0 - 29.9	6	42	84

**11.19.2 Moderately Acute Malnourished Children or Children Receiving Supplementary Feeding**

<b>Weight (kg)</b>	<b>Sachets/day</b>	<b>Sachets/week</b>	<b>Sachets/2 weeks</b>	<b>Sachets/month</b>
< 10	1	7	14	31
> 10	2	14	28	62



## 11.20 Annex 20: How to prepare Diluted F100

Red scoop of F100	Water (ml)	
1	24	
2	48	
3	72	
4	96	
5	120	
6	144	
7	168	
8	192	
9	216	
10	240	
Sachets F100	Water (ml)	F100 diluted milk
1/4 = 115g	670	700ml
1/2 = 230 g	1350	1500ml
1	2700	3000ml
2	5400	6000ml

**11.21 Annex 21: Amount of Diluted F100 to give for infants during Supplementary Suckling**

<b>Weight (kg)</b>	<b>Dose of F100 diluted / feed (ml)</b>
<=1.2	25
1.3 - 1.5	30
1.6 - 1.7	35
1.8 - 2.1	40
2.2 - 2.4	45
2.5 - 2.7	50
2.8 - 2.9	55
3.0 - 3.4	60
3.5 - 3.9	65
4.0 - 4.4	70

## 11.22 Annex 22: Supplementary Suckling Technique

The aim is to stimulate breastfeeding and to supplement the child until breast milk is sufficient to allow the child to grow properly. The goal is to discharge the child home once growing well on breast milk alone.

Breast milk output is stimulated by the **Supplemental Suckling (SS) technique**. This technique allows the child to receive therapeutic milk via tube while actively breastfeeding.

The supplementation is given using a tube the same size as 8French NG tube:

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

11.23 **Annex 23: Amounts of F100 diluted (or F75 in oedematous infants) to give for infants not breastfed in Phase 1**

<b>Weight (kg)</b>	<b>Dose of F100 diluted / feed (ml)</b>
=< 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

11.24 **Annex 24: Amounts of Diluted F100 to give for infants not breastfed in Phase 2**

<b>Weight (kg)</b>	<b>Dose of F100 diluted/ feed (ml)</b>
=< 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

### **11.25 Annex 25: Information to give to caregivers on admission to OTP**

When a child is first admitted to the programme, it is essential to ensure that information on how to give RUTF, how to take the medications at home and basic hygiene is clearly understood. It is also important to encourage carers to return to the clinic at any time if their child's condition deteriorates. At the end of the first OTP visit, it is vital to check whether carers have understood the advice given by the health worker by asking some simple questions before they leave.

For ease of discussion RUTF will be referred to as Plumpy'nut® in this section as this is the only available RUTF product currently available in Swaziland.

Explain to the caretaker:

- Reasons for admission to OTP
- Principles for treatment
- Any medical action taken and advice for home care
- The caregiver is instructed to return to the health centre for regular checkups and treatment
- Plumpy'nut® is a food and a medicine for malnourished children only. It should not be shared with the other family members even if the child does not consume all the diet offered. Opened packets of Plumpy'nut® can be kept safely and eaten at a later time
- Wash with soap child's hand and face before feeding. Keep food clean and covered.
- The caregiver should be taught how to open the packet and to give Plumpy'nut® to the child in small frequent amounts.
- These children often only have moderate appetites and eat slowly. Give small regular meals of Plumpy'nut® and encourage the child to eat as often as possible (every 3 to 4 hours). The child can keep the Plumpy'nut® with him/her and eat it steadily throughout the day – it is not necessary to have set meal times if the food is with the child all the time. Tell the mother how much her child should eat each day.
- Plumpy'nut® is the only food the child needs to recover during his time in the programme. If other foods are given, always give the full ration of Plumpy'nut® per day before other foods.
- For breastfeeding children, encourage the caretaker to continue breastfeeding. Plumpy'nut® will be the only complementary food that she has to give. The child should get the total amount of Plumpy'nut® recommended by the health workers.
- Always offer plenty of clean water to drink while eating Plumpy'nut®.
- Always keep the child covered and warm
- With diarrhoea NEVER stop feeding. Continue giving Plumpy'nut® and EXTRA clean and safe water.
- IMPORTANT: The stools of the child are likely to change when using Plumpy'nut® and therefore could be reported as "bad diarrhoea". Indeed, the stools of children under Plumpy'nut® treatment are soft or pasty and with a similar colour to Plumpy'nut®. The caregiver should be aware of these changes in order to prevent too much exaggerated reporting of diarrhoea or refuse of the treatment

- The caregiver should return to the OTP site and not wait for the following visit, if any of the following occur:
  - Temperature: The body of the child is very hot or very cold on touch.
  - Intense diarrhoea:  $\geq 3$  liquid stools per day
  - Difficulty breathing or intense cough
  - Intense apathy: child more “sleepy” than usual, not playing, does not show interest for what is going on around him/her, not reactive when stimulated.
  - Development of Bilateral Oedema: swelling of both feet, which can extend to other parts of the body.
  - Refusal of the child to eat full Plumpy’nut® rations after day 3 of treatment.

### **11.26 Annex 26: Performing the Appetite Test**

- The caregiver should offer the child the Plumpy’nut® gently, with encouragement. If the child refuses then the caregiver should continue to quietly encourage the child and take time to do the test. The child must not be forced to take the feed.
- The child will need to take plenty of water with the Plumpy’nut®.
- A child that does not take at least 1/3 of the Plumpy’nut® sachet must be referred for inpatient care. Even if the caregiver/health worker thinks the child is not taking the Plumpy’nut® because they don’t like the taste or is frightened, the child still needs to be referred to inpatient care for a short time.
- Sometimes a child will not eat the Plumpy’nut® because he is frightened, distressed or fearful of the environment or staff. The appetite test should be conducted in a separate quiet area. If a quiet area is not possible then the appetite can be tested outside.

## 11.27 Annex 27: Routine Medicines in OTP/ SFP

### 11.27.1 Severely Malnourished Children

Medication	Age / Weight	Prescription	Length of treatment
Vitamin A	< 6 months	None	One dose on admission for Marasmus One dose on discharge for Kwashiorkor
	6 - 12 months	100 000 iu	
	> 12 months	200 000 iu	
Amoxicillin <sup>66</sup>	<10 kg	125 mg	One dose at admission + give treatment for 7 days at home
	10-30 kg	250 mg	
	>30 kg	500 mg	
Albendazole <sup>67</sup>	< 1 year old	None	One dose on week 2
	1-2 years	200 mg	
	> 2 years	400 mg	

### 11.27.2 Moderately Malnourished Children

Medication	Age / Weight	Prescription	Length of treatment
Vitamin A	< 6 months	None	One dose on admission
	6 - 12 months	100 000 iu	
	> 12 months	200 000 iu	
Albendazole	< 1 year old	None	One dose on week 2
	1-2 years	200 mg <sup>68</sup>	
	> 2 years	400 mg	

<sup>66</sup>If Amoxicillin is unavailable consider erythromycin (50 mg/kg/d divided BD or cotrimoxazole (20 mg sulfamethoxazole/kg/d divided BD).

<sup>67</sup> Give half a 400 mg tablet of albendazole for improved palatability in children when feasible

<sup>68</sup> For ease of administration, half a 400mg tablet is preferable



## 11.28 Annex 28: Characteristics of Corn Soya Blend (CSB)

### • CONDITIONS OF USE

It is used in food assistance programmes to address moderately malnourished children as well as other vulnerable groups (pregnant and lactating women, and chronically ill, i.e. HIV/AIDS and TB).

The daily ration is 250 g, which provides about 950 Kcal of energy and 36g of proteins. To consume, it is usually mixed with water and cooked as porridge.

### • ADVANTAGES

CSB is a fortified blended food. It is a reasonably good nutritional value for limited cost and it has been used for a wide range of purposes for the past 30 years or more.

Additionally,

- It's produced almost everywhere
- Soy provides a good profile of proteins
- It's fortified with micronutrients
- It's easy to cook for approximately 5-10 Minutes (as porridge)

### Options for improving nutritional quality

- The CSB does not provide enough energy and the overall fat content and essential fat acid levels are low. It is recommended to consume this blend adding oil during the preparation process.
- High fibre contained may also reduce intake. It is suggested to add oil and sugar to the product.

### • COMPOSITION

Corn Soya Blend is a fortified blended food consists of 75-80% maize meal and 20-25% processed Soya. It is fortified with a mix of micronutrients (vitamin A/C/B12, Thiamine, Riboflavin, Niacin, Folate, Iron, Calcium and Zinc).

**Nutritional value (per 100gr of dry product)**

Energy 380 Kcal (min)

Moisture 10% (max)

Protein 14% (N x 6.25) on dry matter

Fat 6% on dry matter

Crude Fibre 5% on dry matter

• **CONSERVATION**

- Best before: 6 months after the manufacturing date.
- CSB should be kept in a ventilated, dry and closed storage.

**11.29 Annex 29: How to calculate mean weight gain**

Weight on discharge (g) – Weight on admission (g)

Weight on admission (kg) \* Length of stay (days)

Standard:

ITP: > 8 g/kg/day

OTP: > 4 g/kg/day





11:30 Annex 30: Multichart

MULTICHART																													
Registration No. ....ITP.....														Date of admission ___/___/___							Date of discharge ___/___/___								
Sheet No. ....														Hour.....am/pm							Cured <input type="checkbox"/>								
Child's name.....														Readmission after default <input type="checkbox"/>							Dead <input type="checkbox"/> Hour ..... am/pm Cause of death .....								
Age ..... Sex .....														Relapse <input type="checkbox"/>							Defaulter <input type="checkbox"/>								
Caretaker's name/phone .....														Transfer in <input type="checkbox"/>							Non responder <input type="checkbox"/>								
Address (describe location/landmarks) .....														From: .....							Unknown <input type="checkbox"/>								
														New admission <input type="checkbox"/>							Transfer out <input type="checkbox"/> To .....								
														HIV (0/+/-) .....							TB (0/+/-) .....								
ANTHROPOMETRY CHART	Date																												
	Height (cm)																												
	Weight (kg)																												
	W/H (%)																												
	MUAC (cm)																												
WEIGHT CHART	Oedema (0 to +++)																												
THERAPEUTIC DIET	Phase																												
	Diet name																												
	ml/feeds																												
	Sachets/day																												
	Therapeutic milks																												
	A=Absent																												
	V=vomit																												
	R=refuse																												
	ng=NG tube																												
	Iv= IV fluid																												
Amount taken																													
100%																													
3/4																													
1/2																													
1/4																													
ml=not																													
THERAPEUTIC FOODS	Plumpy'Nut/day (# sachets)																												
MEDICATION	Vitamin A																												
	Amoxiciline																												
	Albendazole																												
SURVEILLANCE	Stools (III)																												
	Vomits (III)																												
TEST RESULTS	Hb																												
	HIV (+/-/exp/unkn)																												
	TB																												
	Malaria																												

11:31 Annex 31: OTP card

Card for treatment of acute malnutrition															
OTP site		Region		Child		Registration Number									
General data															
First name		Age		Caretaker name		Distance to home		Address (describe location/coordinates)							
Family name		Sex		Phone #		ID card number									
BBS barcode/sh															
Admission															
Date (dd/mm/yy)		New admission		New admission		Transfer from									
Referred from:															
History & Examination															
Does the patient look		not ill / ill / very ill / comatose		Mouth		normal / swollen / cracked		Breathing				normal / asymmetrical / wheezing / rattling			
Behaviour		normal / asymptotic / irritable / irritable		Skin		no / mild / moderate / severe change		Ears		normal / discharge		Nodes		normal / asymmetrical / swollen	
Disability		Y / N If Yes		Extremities		warm / cold		Eyes		normal / recently swollen / staring / conjunctivitis / vit A def / photophobia					
Mother alive		Y / N		Father alive		Y / N		Breastfeeding		Y / N		Complementary food		Y / N	
HIV status						TB screening									
What is the HIV status of the child:															
Positive?		If Positive, is he/she followed? Y / N		If yes, where: <b>If no, refer for treatment</b>		Has he/she been diagnosed with TB recently? Y / N									
Exposed?		If Exposed, is he/she followed? Y / N		If yes, where: <b>If no, refer for treatment</b>		If yes, is he/she following a treatment? (please circle)		Treatment finished		Treatment abandoned		Where?			
Negative?		If negative, does he/she have a card proving it? Y / N		If no, refer for counselling and test		Have any of the household members been diagnosed with TB? Y/N		If yes, refer the patient for TB screening							
Unknown?				Refer for counselling and test		Is she/he coughing? Y/N		If yes, for how long?				If more than 2 weeks refer for TB screening			
						Is anybody in the household coughing? Y/N		If yes, for how long?				If more than 2 weeks refer for TB screening			
Transfers out during the treatment															
Location				Date (dd/mm/yy)				Reason							
Date (dd/mm/yy)		Notes / Remarks / other observations													
_ / _ / _															

### 11.32 Annex 32: OTP Patient Card

<p><b>Using Plumpynut at home</b></p> <ol style="list-style-type: none"> <li>1. Plumpynut is like a medicine. It is for the child only and should not be shared.</li> <li>2. Give small regular bites of Plumpynut and encourage the child to eat it often.</li> <li>3. Give plenty of clean water for the child to drink while he or she is taking the Plumpynut.</li> <li>4. Your child should have the recommended dose of Plumpynut each day. You should add other foods as advised by your healthcare worker.</li> <li>5. Use soap to wash the child's hands and face before feeding.</li> <li>6. Keep the child warm.</li> </ol> <p><u>If the child has diarrhea or becomes ill, continue feeding and go to the doctor.</u></p>	 <p>Wash hands before feeding the child. Geza tandra kucala bese ufunto umtswana</p>  <p>Use cool boiled water. Sebentiso emanti lapholle lablisise</p>  <p>Give water from a cup. Mnatsise emanti ngenko-mishi</p>  <p>Keep child warm. Ahlale ofufumele umtswana</p>	<ol style="list-style-type: none"> <li>1. I plumpynut ingumutsi, ifanele isentjethiswe nguloyo mntfwana lenikwe yena hhayi lomunye</li> <li>2. Mnike I Plumpynut oylume kancone kancone kepha emahlondla lamontyenti ngelilanga</li> <li>3. Mnatsise kakhulu emanti lahlabile</li> <li>4. Mnike iplumpynut lokalelwe yona ngelilanga. Mnike lokunye kudla lokucemphilo njengoba uchushisiwe esibhedlela.</li> <li>5. Cala umgeze tandla nebuso lomtswana bese uyamnika ke le Plumpynut</li> <li>6. Woba nesiciniseko kutsi lomtswana ufufumele</li> <li>7. Na kwenteka ashaka, chubeka umnike le Plumpynut bese umnikisa emattfolamphilo.</li> </ol>
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### 11.33 Annex 33: Supervision check-lists

#### 11.33.1 *OTP supervision checklist*

Facility:

Date:

Person interviewed:

Designation:

OTP supervision Checklist						
	Indicator	Poor	Satisfact.	Good	V.Good	Remarks
1	The standard materials for anthropometric measurements, are available					
2	Plumpy'nut® and routine drugs available					
3	OTP cards, patient cards and monthly report forms are available					
4	Nutrition screening at facility is well done					
5	Anthropometric measurements are well done					
6	Children are admitting following the protocol					
7	Appropriate referrals are made between inpatient and out patients and to programs for HIV/AIDS care and support					
8	Weight, MUAC and oedema are assessed in every visit					
9	Height is done once every month					
10	Appetite test is done on admission and every visit					
11	Drinking water is offered to the children during appetite test					
12	Diagnose of moderate and severe malnourished children is well done					
13	Amount of Plumpy'nut® is given according to the protocol					
14	Systematic treatment (routine medications) are given according to the protocol					
15	Appointments for follow up are given according to protocol					
16	All children are referred to HIV counseling and testing					
17	Children HIV positive are referred for medical assessment and treatment					
18	TB screening is done according to the protocol					
19	OTP card is correctly filled in					
20	Patient cards with proper information recorded are given to the caretaker					
21	Key messages given to caregivers during admission and follow ups					
22	Children are discharged according to IMAM criteria					
23	Health and nutrition education is done					
24	RHMs follow the children in the program					
25	RHMs do community screen and referrals of malnourished children					
26	All RHMs have a MUAC tape					
27	Monthly report done and submitted according to time set					
28	Stock control and orders are done on time					

Name, designation and signature of supervisor:

### 11.33.2 ITP supervision checklist

Facility:

Date:

Person interviewed:

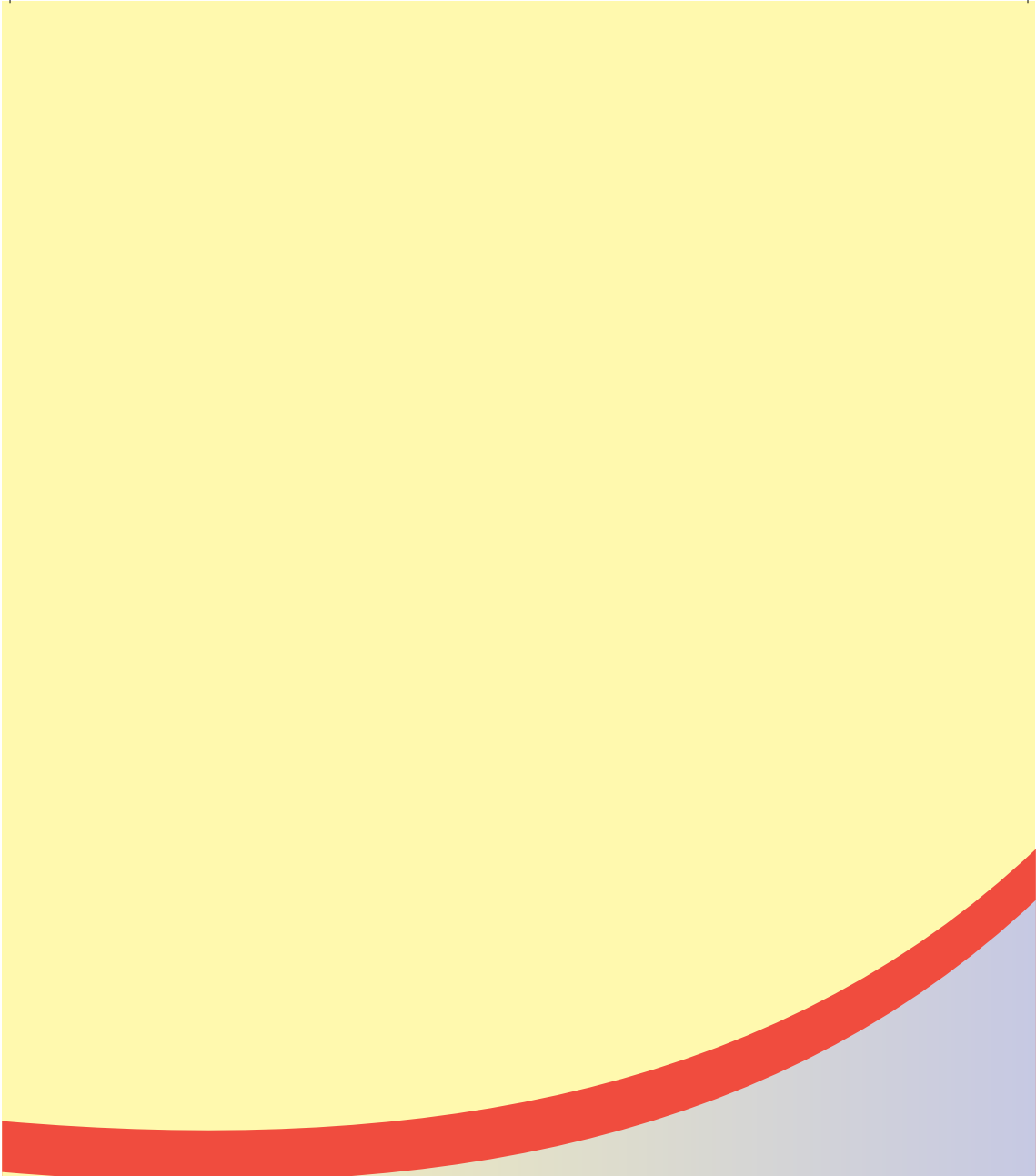
Designation:

ITP supervision Checklist						
	Indicator	Poor	Satisfact.	Good	V.Good	Remarks
1	Presence of trained health staffs in paediatric ward					
2	Anthropometric measurements are done according with to protocol					
3	Malnourished patients admitted according to the protocol					
4	Screening is correctly done					
5	Amount of milk or Plumpy'nut® is well calculated					
6	Feeds are prepared accurately					
7	Feeds are given on time					
8	Amount of milk taken is checked and recorded					
9	Systematic treatment is given according to the protocol					
10	Weight and oedema are checked daily					
11	MUAC is checked weekly					
12	Height is checked every 21 days					
13	Medical assessment is done daily					
14	Change of phases are done according to the protocol					
15	Complications are well identified and treated					
16	Standard hygiene practice are used in storing, preparing and handling therapeutic diets					
17	Information is well recorded in the multicharts and registration book					
18	Information about the treatment is given to the caregivers					
19	Health education is done					
20	All children are counseled for HIV					
21	HIV positive children start treatment when necessary					
22	Discharge information are recorded on multi-charts and registration book					
23	Children are discharged or transfer to OTP according to the protocol					
24	Monthly report done and submitted according to time set					
25	Stock control and orders are done on time					

Name, designation and signature of supervisor:







WORLD FOOD PROGRAMME  
Fighting Hunger Worldwide



**BIPAI**  
Baylor International  
Pediatric AIDS Initiative



EGPAF

