

**Kingdom of Cambodia**

**Nation Religion King**



**Ministry of Health**

# **National Guidelines for the Management of Acute Malnutrition**



**National Nutrition Programme**

**National Maternal and Child Health Centre**

**August 2012**

With technical support from Valid International and Steering Committee on Management of Acute Malnutrition (NIPH, CDC, WHO, UNICEF, WFP, USAID, RACHA, RHAC, URC, WVC, HKI, MAGNA, IRD, SP and VSO).

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## Preface

Globally, malnutrition is the underlying cause of an estimated 35% of deaths of children under five years of age. Poor nutritional status also contributes to increased child morbidity and reduced cognitive ability and productivity in adulthood. Malnutrition is still a serious public health problem in Cambodia. The Cambodian Anthropometric Survey (CAS) 2008 and the Cambodia Demographic and Health Survey (CDHS) 2010 show that there is no improvement in childhood malnutrition between 2005 and 2010. CDHS 2010 reveals that chronic malnutrition in children under five years of age (stunting) remains very high at 39.9%, underweight at 28.3% and acute malnutrition (wasting) at 10.9%. With these high malnutrition rates, Cambodia is unlikely to reach the targets set in the Cambodia Millennium Development Goal by 2015.

The National Nutrition Program (NNP) has implemented various interventions to address malnutrition problem in Cambodia, interventions include both prevention and treatment of malnutrition. Since 2003, NNP has introduced hospital-based management of severe malnutrition but the expansion of the program was slow. The results of the CAS 2008 have brought the NNP and development partners together to develop a better and more comprehensive strategy to response to the very high rates of malnutrition and proposed response of a combination of short-, medium- and long-term actions for achieving sustainable impact. One of the intermediate actions proposed is identification and management of acute malnutrition for children under five years of age. As a result, in 2010 the NNP with technical support from the Steering Committee on Management of Acute Malnutrition developed interim guidelines and training materials for the management of acute malnutrition. The initial implementation to field test the guidelines and training materials was conducted in late 2010 and in February 2011 an assessment of the initial implementation was conducted. The NNP has used the findings from the assessment to revise the guidelines training materials and Job Aid for the Management of Acute Malnutrition in 2012.

These guidelines provide detailed protocols for management of acute malnutrition that includes case finding at the community level, inpatient management of severe acute malnutrition in hospitals, outpatient management of severe acute malnutrition without medical complications at health centres, and the management of moderate acute malnutrition at health centres. These guidelines will also link to existing interventions related Infant and Young Child Feeding (IYCF), Micronutrients and the Integrated Management of Childhood Illness (IMCI). The main purpose of these guidelines is to reach the maximum number of acutely malnourished children and ensure access and coverage by providing treatment and management at many decentralised sites at health centre level, instead of at a few centrally located hospitals.

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Professor **Eng Huot**  
Secretary of State for Health

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## Abbreviations

ANC	Antenatal Care
BP-100	RUTF used in Cambodia to treat severe acute malnutrition without medical complications
BFCI	Baby Friendly Community Initiative
BFHI	Baby Friendly Hospital Initiative
CAS	Cambodia Anthropometric Survey
CCP	Critical Care Pathway
CCWCFP	Commune Committee for Women and Children Focal Point
CDC	Communicable Diseases Control Department
CDHS	Cambodia Demographic and Health Survey
C-IMCI	Community Integrated Management of Childhood Illness
CMS	Central Medical Store
CSB	Corn Soya Blend
F-75	Therapeutic milk used in inpatient management of severe acute malnutrition
F-100	Therapeutic milk used in transition and rehabilitation phase of inpatient management of severe acute malnutrition
FGD	Focus Group Discussions
GAM	Global Acute Malnutrition
HIS	Health Information System
HKI	Helen Keller International
HIV	Human Immunodeficiency Virus
IMCI	Integrated Management of Childhood Illness
IRD	International Relief and Development
IYCF	Infant and Young Child Feeding
IU	International Unit
IV	Intravenous
LOS	Length of Stay
MAM	Moderate Acute Malnutrition
MCHN	Maternal and Child Health and Nutrition
MNPs	Multiple Micronutrient Powders

MPA	Minimum Package of Activities
MUAC	Mid-upper arm Circumference
NPH	National Paediatric Hospital
OD	Operational District
OPD	Out-patient Department
PHD	Provincial Health Department
PNC	Postnatal Care
RACHA	Reproductive and Child Health Alliance
RHAC	Reproductive Health Association of Cambodia
ReSoMal	Oral Rehydration Solution for Severely Malnourished Children
RH	Referral Hospital
RUTF	Ready-to-use Therapeutic Food (imported or locally produced)
SAM	Severe Acute Malnutrition
SD	Standard Deviation
SP	Samaritan's Purse
TSFP	Targeted Supplementary Feeding Program
URC	University Research Co., LLC
USAID	United States Agency for International Development
VHSGS	Village Health Support Group
W/H	Weight for Height
WFP	World Food Programme
WHO	World Health Organization
WVC	World Vision Cambodia



# Introduction

These guidelines provide a framework and protocols for a system of management of acute malnutrition that includes case finding at the community level, inpatient management of severe acute malnutrition in hospitals, outpatient management of severe acute malnutrition without medical complications at health centres, and the management of moderate acute malnutrition at health centres. These guidelines will also link to interventions taking place concerning Infant and Young Child Feeding (IYCF), micronutrients and the Integrated Management of Childhood Illness (IMCI).

Identification and medical treatment of underweight children is currently implemented at the health centre level through the Integrated Management of Childhood Illness (IMCI). At the hospital level inpatient therapeutic programmes (including medical treatment and provision of therapeutic food) for severe acute malnutrition are currently being scaled up.

## *Who should use these guidelines?*

The guidelines should be used by:

- Policy makers and programme managers, as a guide for establishing and monitoring a system for management of acute malnutrition;
- Health service providers responsible for the care and treatment of acutely malnourished children as a guide for health providers to implement case finding at the community level, inpatient management of severe acute malnutrition in hospitals, outpatient management of severe acute malnutrition without medical complications at health centres, and the management of moderate acute malnutrition at health centres.

## *When to use these guidelines*

The guidelines should be used for both planning and implementing any programme that identifies and treats child acute malnutrition. The guidelines provide clear steps for implementing the following programme components:

- Community mobilization and case finding
- Inpatient management of severe acute malnutrition in hospitals
- Outpatient management of severe acute malnutrition without medical complications at health centres
- Management of moderate acute malnutrition at health centres

## *How to use these guidelines*

The guidelines provide clear step-by-step actions. Protocols are provided in the Annexes and Job Aid. The protocols can be pulled out and copied so that they are easy to use and follow.

## 1. Overview

Worldwide there are about 60 million children with moderate acute malnutrition and 13 million with severe acute malnutrition. Every year there are 3.5 million child deaths associated with moderate acute malnutrition and 1.5 million associated with severe acute malnutrition.<sup>1</sup> If the Millennium Development Goals of reducing child mortality and child malnutrition by 50% are to be met, wasting needs to be addressed not only in emergencies but wherever it is identified.<sup>2</sup> About 15% of South Asian children have moderate acute malnutrition and about 2% of children in developing countries have severe acute malnutrition<sup>1</sup>. In Cambodia according to CDHS 2010, this translates to about 231,000 cases with moderate acute malnutrition and 80,000 cases of severe acute malnutrition per year.<sup>3</sup>

Due to volatile food prices and the impact of the current economic crisis, the 2008 Cambodia Anthropometric Survey (CAS)<sup>4</sup> reveals that the improvements seen in the earlier part of the decade have not continued or have stagnated and possibly worsened with chronic child malnutrition remaining one of the highest in the region at 40% and rates of underweight and wasting in under-5 children remaining essentially the same. The situation of wasting has reached 10% or greater in some urban poor areas and in 9 provinces.

Until recently the management of acute malnutrition, especially severe acute malnutrition has been restricted to facility-based approaches, greatly limiting coverage and impact. The community-based approach to the management of acute malnutrition was developed in 2001.<sup>5</sup> The approach aims to reach the maximum number of acutely malnourished children and ensure access and coverage by providing treatment at many decentralised sites, instead of a few centrally located inpatient facilities. The evidence from programmes that have managed acute malnutrition in an emergency context has demonstrated that most children with severe acute malnutrition (SAM) without medical complications can be treated as outpatients without being admitted to an inpatient facility. Central to out-patient care of children with SAM has been the innovation of ready-to-use therapeutic food (RUTF) designed to match the nutrient profile of therapeutic milk (F-100). RUTF is a

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<sup>1</sup> Collins, Steve, et al., 'Management of severe acute malnutrition in children', *The Lancet*, vol.368, no9551, 2 December 2006, pp.1992-2000

<sup>2</sup> Gross, Rainer, and Patrick Webb, 'Wasting time for wasted children: Severe child under nutrition must be resolved in non emergency settings'. *The Lancet*, vol.367, no 9517, 8 April 2006, pp.1209-1211

<sup>3</sup> National Institute of Statistics, Ministry of Planning, Cambodia Demographic and Health Survey 2010 (CHHS 2010)

<sup>4</sup> National Institute of Statistics, Ministry of Planning, Cambodia Anthropometrics Survey 2008. (CAS 2008)

<sup>5</sup> Collins, S. "Community-based therapeutic care: A new paradigm for selective feeding in nutritional crisis," Humanitarian Practice Network Paper 48, ODA 2004.

generic term that includes pastes that are lipid-based instead of water-based which, unlike liquid F-100, allows RUTF to be used and stored at home with little risk of microbial contamination.

The three main innovations that have made the community-based approach possible are:

- The use of RUTF as it is safe to use at home;
- The use of mid-upper arm circumference (MUAC) both for screening and as an admission criteria for treatment;
- Defining acute malnutrition as being with complications leading to inpatient treatment or without medical complications allowing for out-patient treatment.

The Management of Acute Malnutrition consists of four main components:

### ***1.1- Community mobilization and case finding***

Early identification of acute malnutrition and referral for treatment is a key to the success of addressing acute malnutrition in Cambodia. The approach requires major community involvement to find children early in the onset of malnutrition, and raise awareness in communities that there is a simple and effective management of acute malnutrition available.

Hospital staff, health centre staff, and Village Health Support Groups (VHSGs) screen children for acute malnutrition at any point of contact and refer them to the nearest health facility that provides management of acute malnutrition.

### ***1.2- Inpatient management of severe acute malnutrition in hospital***

Children with bilateral pitting oedema, and/or severe wasting ( $W/H < -3$  SD), without appetite and/or with medical complications according to the severe classification in IMCI, infants <6 months, and infants >6 months but weigh <4 kg are managed in an inpatient care unit until stabilized.

These guidelines do not give all details on inpatient management of severe acute malnutrition. For detailed guidelines on inpatient management, health care providers in hospital should follow the guidelines based on the World Health Organisation “Management of Severe Malnutrition: A Manual for Physicians and Senior Health Workers” (Geneva 1999).

### ***1.3- Outpatient management of severe acute malnutrition without medical complications at health centre***

Children 6 months and above with severe acute malnutrition with appetite and without medical complications or medical complications that can be treated in health centre are managed with take-home food and systematic medication. Management and rehabilitation continues at home with regular visits to the health centre. The child comes to the health centre every two weeks for a medical check-up, weight, MUAC and oedema measurement and to receive food rations and feeding counselling.

### ***1.4- Management of moderate acute malnutrition at health center***

In Cambodia the management of moderate acute malnutrition may be managed through various services and programmes, which will be discussed in more depth in section 3.3. However, in these guidelines the focus is on Targeted Supplementary Feeding Programs for children aged 6-59 months with moderate acute malnutrition.

*Targeted supplementary feeding programmes (TSFP):* Aim to give a nutritional supplement that provides 500-1000kcal daily. It also incorporates a monthly follow up of moderately acutely malnourished children receiving a nutritional supplement which means that their progress can be followed and it is easier to verify whether they have recovered from their malnutrition episode.

**Figure 1, 2 and 3** (found at end of sections 3.1, 3.2 and 3.3) provides a flow chart for screening, referral, management, and discharge; this should be consulted for a detailed description of how the different components are linked.

Also, important to the Management of Acute Malnutrition is referral between components of the program and linking with preventive interventions.

### ***1.5- Referral between components***

Good coordination and communication between inpatient and outpatient care, and with community providers, is essential to make sure children do not get lost in the system. Careful monitoring and tracking helps prevent this. Referral slips are used between programs. Community providers such as VHSGs are informed when a child defaults from any programme so that they can follow up with the child and caretaker at home and investigate the reasons.

### ***1.6- Linking with interventions aimed at preventing acute malnutrition***

Preventive actions, particularly for children under 2 years of age who are the most vulnerable, need to be made available and accessible on a much wider scale in Cambodia. Preventive actions include:

- appropriate care, service and counselling to ensure optimal infant and young child feeding (IYCF) practices , especially complementary feeding promotion
- Multiple Micronutrient Powders (MNPs)
- growth promotion and assessment<sup>6</sup>
- vitamin A and iron/folic acid supplementation and promotion of iodized salt
- National Safe Motherhood Protocols for Health Centre revised in 2010<sup>7</sup>
- The Baby Friendly Community Initiative (BFCI), Baby Friendly Hospital Initiative (BFHI) and other community-based activities (e.g. Home-based Care Team).

The health workers can use the opportunity when managing children with acute malnutrition in a hospital or health centre to reinforce the preventive interventions outlined above as follows:

- Those children who have not received these interventions such as immunisations, vitamin A and de-worming and promotion of iodized salt should receive them.
- The outpatient management of severe acute malnutrition provides a useful opportunity for caretakers of children to receive appropriate care, service and counselling to ensure optimal IYCF practices. As they have to return every two weeks to the health centre with their children to complete treatment it provides a good opportunity to reinforce and monitor the progress concerning the impact of these messages.
- Also, at the health centre level, cases of acute malnutrition can be identified through IMCI, growth assessment or at outreach sessions organised by the health centre.

## 2. Identification of acute malnutrition

### *2.1. Community mobilization and case finding for early identification of acute malnutrition*

The success of this programme depends entirely on the strength of the community involvement in the programme, as this leads to effective case finding and early identification and referral of children with acute malnutrition

The community mobilization component represents the corner stone of effective implementation of the programme. The identification, referral, and follow up of

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<sup>6</sup> This is important for children with chronic illnesses, including TB and HIV-infected children (see MoH Guidelines for the prevention and treatment of opportunistic infections among HIV-exposed and HIV-infected Children, 2011)

<sup>7</sup> Safe Motherhood Clinical Management Protocol for Health Centre, MoH, 2010

cases of acute malnutrition are based on the performance of the community network in undertaking mobilization activities. The identification of an effective community-based network will enable the achievement of the main objectives of a programme managing acute malnutrition: increased coverage, early detection of cases, better access to care and a genuine ownership of the programme by the community.

In order to develop the community component it is important to start with a rapid community assessment to:

- Identify the main features of the local community and factors which may influence implementation;
- Understand the local perception of malnutrition and typical health-seeking behaviours;
- Identify key community figures and appropriate “volunteers” to conduct activities related to a programme that manages acute malnutrition such as case finding and home visits, as well as social support mechanisms and community groups;
- Identify channels of communication (formal and informal) through which the messages can reach the community;
- Identify potential barriers to accessing the service.

Children are screened for acute malnutrition during any contact with VHSGs, health centre staff and hospital staff. Screening can be carried out at the health centre or by health staff and VHSGs during any other outreach activities and during Child Health Fairs. Screening should not be confined to health workers and VHSGs alone. Agriculture extension workers, local community groups, active caretakers, and mothers of children who have already had their children treated for acute malnutrition can all identify and refer children with acute malnutrition to the nearest health facility providing management of acute malnutrition.

Any opportunity to identify acutely malnourished children should be taken. Training in the use of MUAC and checking for bilateral pitting oedema should be given and MUAC bands distributed to those trained.

**Step 1** is to identify key people at all levels, including in the community that should be informed/oriented about the programme, including PHDs, ODs, Hospitals, Health Centres, District Governors, Commune Chiefs, Village Chiefs, and CCWCFPs (Commune Committee for Women and Children Focal Point). They need to understand who the programme is for, the criteria to be admitted to the programme, the treatment that will be provided, and how to access the service.

**Step 2** is to identify the right children by checking MUAC and bilateral pitting oedema. Community workers, health centre staff and volunteers such as VHSGs will use MUAC and the presence of bilateral pitting oedema for screening. Hospital and health centre staff will use MUAC and check for oedema. Weight-for-height (W/H) will be used only for inpatient care (a reference sheet for calculating W/H is included in the **Job Aid 3.1a**).

**Step 3** is the referral of the child to a health centre or hospital for treatment and management. At the health facility the child will be admitted to the appropriate programme by health centre or hospital staff (inpatient management of severe acute malnutrition, outpatient management of severe acute malnutrition without medical complications, or services addressing moderate acute malnutrition).

## **2.2. Referral**

The tools for assessing acute malnutrition in community are MUAC and/or the presence of bilateral pitting oedema. At hospital level, W/H measurements are also used for assessment. *Children referred from health centres for inpatient care should be directly admitted at the hospital level based on their referral slip (See Job Aid 3.1b and 3.1c).*

A key challenge is to ensure that VHSGs and health centre staff refer only those children who should be admitted. It is therefore essential that they are well trained to use MUAC and assess bilateral pitting oedema. If there are large numbers of children referred to programmes that do not fit the admission criteria this must be immediately addressed by investigating where the incorrect referrals are coming from and discussing the criteria for and the effects of inappropriate referral. Retraining should be provided where required.

As mentioned previously in the identification section:

- A child with acute malnutrition may be found at home by community workers, community volunteers, such as VHSGs, during outreach by health centre staff, at the health centre, (via IMCI or growth assessment/monitoring or checking MUAC and oedema of any sick or underweight child in the health centre) or in the hospital, and;
- Depending on the condition of the child s/he will enter the appropriate service for management of acute malnutrition.

With all of these components a good referral system is essential. All referrals will use the same referral criteria. Some programmes may choose to use referral papers filled out by community workers and taken to the health facility by the caretaker. If referral papers are not available a verbal referral is acceptable. Referral between hospitals and health centres involved in the management of



acute malnutrition should use a referral slip, which is provided in **Job Aid 3.1b**. The referral paper should always be sent with the child that is being referred. The following types of referral are possible:

### **2.2.1. From the hospital**

At hospital level, the health staff working in the hospital's general Out-patient Department (OPD) has an important role to play in the referral of cases with acute malnutrition. They should be trained on how to use a MUAC tape, do MUAC measurements and check for bilateral pitting oedema on all children under 5 arriving at general OPD. They also should be informed on the existence of the outpatient (IMCI recording form) and inpatient admission form [(Critical Care Pathway (CCP))] and refer children with such forms directly to the different options of management of acute malnutrition:

- A child with severe acute malnutrition and no appetite or with medical complications should be referred to inpatient management of severe acute malnutrition in hospital.
- A child with severe acute malnutrition without medical complications or medical complications that can be treated in health centre is referred to their local health centre if outpatient management of severe acute malnutrition exists there. *Children referred from inpatient should be directly admitted at health centre based on referral slip (See Job Aid 3.1b).*
- A child with moderate acute malnutrition is referred to community to a service addressing management of moderate acute malnutrition.

### **2.2.2. From the health centre**

- A child with bilateral pitting oedema or MUAC <11.5cm with medical complications according to severe classification in IMCI or with no appetite has an IMCI recording form and follow up form (**See Job Aid 3.1d and 3.1e**) completed and follow the below process:
  - Keep the child warm. Use blankets and a hat
  - Treat and prevent hypoglycaemia
  - Give one dose of antibiotic
  - Do not give iron
  - Refer to hospital to stabilise their condition in inpatient care.
- Referral from outpatient management of severe acute malnutrition without medical complications to services addressing moderate acute malnutrition. A TFSP would be an appropriate intervention for continued follow up when a child is discharged from outpatient management of severe acute malnutrition.



- Referral to outpatient management of severe acute malnutrition from services addressing moderate acute malnutrition if a child's nutritional status deteriorates and they fulfil admission criteria for outpatient management of severe acute malnutrition.

### **2.2.3. From the community**

A child with any form of acute malnutrition is referred to the health centre by VHSGs for assessment and appropriate management, see referral form for use by VHSGs in **Job Aid 3.1c**. The target groups are:

- Infants < 6 months: Check for bilateral pitting oedema and visible wasting
- Children 6 – 59 months: Check MUAC [red (<11.5 cm) or yellow (11.5-<12.5 cm)]<sup>8</sup> and bilateral pitting oedema

## **3. Management**

As described previously there are three management options for children with acute malnutrition (See **Table 1** for admission criteria for each option):

- 3.1. Inpatient Management of Severe Acute Malnutrition in hospital
- 3.2. Outpatient Management of Severe Acute Malnutrition without medical complications at health centre
- 3.3. Management of Moderate Acute Malnutrition at health centre

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<sup>8</sup> Change to colours. Please note – cut off for MUAC can be 12.5 cm (YELLOW – for moderate acute malnutrition) in areas with Management of Moderate Acute Malnutrition Programmes such as targeted supplementary feeding. In areas that do not have these interventions cut off for MUAC is <11.5 cm (RED - for severe acute malnutrition)

**Table 1: Admission criteria for appropriate management of acute malnutrition**

<b>Inpatient Management of Severe Acute Malnutrition (Hospital)</b> <b><u>Children 0 – 59 months</u></b> <b><u>(or ≥60 months -up to height 120 cm)</u></b>	<b>Outpatient Management of Severe Acute Malnutrition without medical Complications (Health Centre)</b> <b><u>Children 6-59 months</u></b>	<b>Management of Moderate Acute Malnutrition (Health centre)</b> <b><u>Children 6-59 months</u></b>
<ul style="list-style-type: none"> <li>• Bilateral pitting oedema</li> </ul> <p><b>Or</b></p> <ul style="list-style-type: none"> <li>• W/H &lt;-3SD</li> </ul> <p><b>Or</b></p> <ul style="list-style-type: none"> <li>• <b>Infants &lt;6 months with:</b> Bilateral pitting oedema or visible wasting</li> </ul> <p><b>Or</b></p> <ul style="list-style-type: none"> <li>• <b>Infant &gt; 6months but weight &lt; 4kg</b></li> </ul>	<p>MUAC &lt;11.5 cm</p> <p><b>Or</b></p> <p>children referred from inpatient management of severe acute malnutrition</p> <p><b>AND ALL OF THE FOLLOWING:</b></p> <ul style="list-style-type: none"> <li>▪ Appetite</li> <li>▪ <b>No medical complications* or medical complications that can be treated in health centre</b></li> <li>▪ Alert</li> </ul> <p>*[without medical complications according to severe classification for IMCI (See Job Aid 3.1f)] or no appetite</p>	<p><i>Admission criteria for targeted supplementary feeding programme for children 6 - 59 months</i></p> <p>MUAC 11.5 – &lt;12.5 cm</p> <p><b>With</b></p> <ul style="list-style-type: none"> <li>▪ <b>No medical complications or medical complications that can be treated in health centre</b></li> </ul>

Note: For Provinces where there is no out patient management of severe acute malnutrition at health centre, all SAM will be referred to hospital.

The following three sections present each option separately and detail the steps to be taken after a child is enrolled into the programme. Although the programs are presented separately it is possible for children to move from one option to another. This was illustrated in the previous section on Referral. Reporting requirements for each option are included in the section Reporting, Monitoring, and Supervision.

### ***3.1. Inpatient management of severe acute malnutrition in hospital***

This section describes the steps following identification of a child for inpatient management of severe acute malnutrition in hospital. (See Section two:

**Identification of Acute Malnutrition**). These guidelines focus on treatment for children aged 0- 59 months or  $\geq 60$  months – height up to 120 cm with severe acute malnutrition who have medical complications according to severe classification in IMCI guidelines (**see Job Aid 3.1f**) or who have no appetite. All cases of bilateral pitting oedema are admitted. Infants less than six months old with severe acute malnutrition require specialised treatment in inpatient care aiming at rehabilitating exclusive breastfeeding. Clinicians treating these children are treating the most severely ill and need to have completed WHO six day training course on Management of Severe Malnutrition. All procedures and guidelines will be in the guidelines for the inpatient management of children with severe acute malnutrition from the WHO Manual “Management of Severe Malnutrition: A Manual for Physicians and Other Senior Health Workers.” For a list of equipment and supplies needed for the inpatient treatment of severe acute malnutrition see **Table 5** at the end of this section. Also, that there will be some areas where children will be referred to outpatient management of severe acute malnutrition without medical complications at health centre to complete their treatment.

The general principles of the inpatient care (WHO protocol) are:

1. Treat and prevent hypoglycaemia
2. Treat and prevent hypothermia
3. Treat and prevent dehydration (hypovolemic shock)
4. Correct electrolyte imbalance
5. Start cautious feeding (F-75)
6. Treat and prevent infection (treat incipient or developed septic shock, , if present)
7. Identify and treat any other problems, including vitamin A deficiency, severe anaemia, Beriberi and heart failure
8. Achieve transition to catch-up diet (F-100 and BP-100)
9. Provide sensory stimulation and emotional support
10. Prepare for follow up in (outpatient) care after stabilisation and complications treated or if outpatient care is not available, prepare for follow up (at home) after stabilization and transition

Complications related to severe acute malnutrition such as shock, severe anaemia, corneal ulceration, and severe dehydration should also be urgently treated. Malaria and pneumonia are also frequent. SAM is common among children who have HIV infection. Therefore, children presenting with SAM should be routinely offered Provider Initiated Testing and Counselling (PITC). Informed consent should be solicited from the care provider.

These children often fail to respond to treatment and need specific care<sup>9</sup> . Feeding counselling should be given to caretakers. Children who fail to thrive and gain weight

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<sup>9</sup> Chapter 6, Guidelines for the management of prevention and treatment of opportunistic infections among HIV exposed and HIV-infected children in Cambodia

(<2-3g/kg/day for three days during rehabilitation period) even if they are HIV negative should be tested for TB or other chronic illness and treated.

**The steps of inpatient care following identification include:**

- Step 1: Triage at OPD or at admissions
- Step 2: Admission in the paediatric/malnutrition ward, including prevention and treatment of **hypoglycaemia** and **hypothermia**
- Step 3: Systematic treatment with antibiotics
- Step 4: Assessment and Treatment of medical complications, including monitoring of danger signs
- Step 5: Feeding the child until stabilisation and transition
- Step 6: Correct micronutrient deficiencies
- Step 7: Emotional stimulation and sensorial development
- Step 8: Monitoring of management progress
- Step 9: Prepare for and ensure follow up after discharge

**Step 1: Triage at OPD or at admissions** The health care providers working in OPD or in other triage should: Check all children in the queue with signs of hypoglycaemia and give 50 ml of a 10% sugar solution (4 teaspoon of sugar dissolved in 200 ml water) to children who have signs of hypoglycaemia

- If the child is coming directly from home: Measure MUAC and check for bilateral pitting oedema and determine if the child is severely malnourished (See **Table 2** below for admission criteria).
- For cases referred from health centres with a referral slip: Refer the child to the paediatric/malnutrition ward directly.

**Table 2: Admission criteria for inpatient management of severe acute malnutrition in hospital**

<b>Inpatient management of severe acute malnutrition in hospital</b> <b>Children aged 0 – 59 months</b> <i><b>(or ≥60 months with height up to 120 cm)</b></i>
<ul style="list-style-type: none"> <li>▪ Bilateral pitting oedema</li> </ul> <p><b>Or</b></p> <ul style="list-style-type: none"> <li>▪ W/H &lt; - 3 SD</li> </ul> <p><b>Or</b></p> <ul style="list-style-type: none"> <li>▪ Malnourish children referred from outpatient care</li> </ul> <p><b>Or</b></p> <ul style="list-style-type: none"> <li>▪ <b>Infants &lt;6 months with:</b>                      Bilateral pitting oedema Or visible wasting</li> </ul> <p><b>Or</b></p> <ul style="list-style-type: none"> <li>▪ <b>Infants &gt; 6 months but weight &lt; 4 kg</b></li> </ul>

## **Step 2: Admission in the paediatric/malnutrition ward, including prevention and treatment of hypoglycaemia and hypothermia**

- Children referred from health centres for inpatient care should be directly admitted at the hospital level based on their referral slip (See Job Aid 3.1b and 3.1c)
- All children under five years of age admitted to the paediatric ward should be assessed for acute malnutrition, including oedema and weight for height, and if severely acute malnourished, their malnutrition should be treated, as well as any illness. Their nutritional information and results of the assessment should be marked clearly on their patient chart in the ward.
- Explain to the caretaker that the child needs to be treated in hospital until his/her condition stabilizes. (If the child has been referred from outpatient management of severe acute malnutrition without medical complications then explain that the child will soon be able to continue treatment on an outpatient basis after being treated in hospital if the caretaker prefers). If the child is above 6 months, has no medical complications and has come directly to the inpatient care facility (direct admission) then explain it may be possible to treat the child on an outpatient basis if there is a health centre that carries out outpatient management of severe acute malnutrition without medical complications close enough to where they live. However, appetite test should be performed before referring the child to outpatient management of severe acute malnutrition without medical complications (See Job Aid 3.1g).
- Fill out an inpatient admission form - CCP (**See Job Aid 3.1h**)
- Assign a number (use the same number on the referral slip if the child is from outpatient management of severe acute malnutrition without medical complications).
- Keep the child warm. Use blankets and a hat. Teach caretaker how to hold the infant using the Kangaroo method.
- If child conscious, give first F-75 immediately

## **Step 3: Systematic treatment with antibiotics**

Routine drugs are given to all children admitted to inpatient care. It includes antibiotic treatment starting on day 1 for all admissions (**See Annex 1 or Job Aid 3.1i**). Check the referral slip from the health centre (outpatient management of severe acute malnutrition without medical complications) to see if routine drugs have already been given (**See Annex 2 or Job Aid 3.1j**).

Note the following: For children referred from the outpatient management of severe acute malnutrition without medical complications, the first dose of Amoxicillin should have been given in the health centre before referral. Where this has not been done children should receive Amoxicillin routinely as first line

treatment. Antibiotics are given to all children on admission to inpatient management of acute malnutrition. The drug of choice will depend on the condition of the child.

#### **Step 4: Assessment and treatment of medical complications including monitoring of danger signs**

During the full medical examination particular attention should be given to assessment of the following conditions which are closely associated with severe acute malnutrition.

- Severe dehydration\*
- Septic shock
- Congestive heart failure
- Severe anaemia
- Severe vitamin A deficiency
- Dermatitis or kwashiorkor
- Absent bowel sounds, gastric dilatation and intestinal splash with abdominal distension
- HIV and TB status <sup>10</sup>

\* Dehydration in severely malnourished children, ReSoMal should be given instead of ORS. ReSoMal is **Re**hydration **S**olution for **Mal**nutrition. It contains less sodium, but more potassium and sugar than ORS. For information on dehydration and how to use ReSoMal, see Job Aid 3.1k.

Children with other underlying medical conditions may present as severely malnourished. Severely malnourished children should first be treated according to the protocol for the management of severe acute malnutrition.

The dietary management of children with SAM and HIV+ or TB does not differ from the dietary management of other children with severe acute malnutrition<sup>11</sup>. HIV+ children should be treated in the malnutrition ward but TB cases should be treated in TB room, but they need to receive the feed from the malnutrition unit.

Care should be taken in prescribing drugs to severely malnourished children. They may have abnormal kidney and liver function and changed levels of the enzymes necessary to metabolize and excrete drugs. *Drugs for HIV and TB can damage the liver and pancreas. Therefore, ARVs should not be started in the acute phase of the treatment of severe malnutrition, **but** either during rehabilitation phase (after stabilization) or before discharge.*

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<sup>10</sup> Children with severe malnutrition should be routinely offered HIV and TB counselling and testing

<sup>11</sup> Chapter 6, MoH Guidelines for the prevention and treatment of opportunistic infections among HIV-exposed and HIV-infected Children, 2011.

### **Step 5: Feeding the child until stabilisation and transition**

Feeding should start immediately after the child is admitted with a starter diet called "F-75". F-75 is designed to meet the child's needs without overwhelming the body metabolism at this early stage of treatment.

Most of the severely acutely malnourished children who fulfil the criteria for inpatient care have infections, impaired liver and intestinal function, and problems related to imbalance of electrolytes when first enrolled. They are unable to tolerate the usual amounts of dietary protein, fat and sodium. It is important to begin feeding these children with a diet that is low in these nutrients.

Children should be fed with a cup and spoon. Bottles and teats should be prohibited/banned in the ward. Breastfeeding should be encouraged and its frequency monitored. All women with a child under 2 years of age should receive BF support while in the hospital and assistance with relactation if necessary.

F-100 should not be given to children < 6 months.

#### **CAUTION**

**The routine use of IV fluids is strongly discouraged:** IV fluids should only be used to resuscitate severely acutely malnourished children from hypovolaemic collapse (shock). They should be used by a skilled health worker who is trained in the care of severely malnourished children.

- F-75 therapeutic milk (75 kcal/100 ml) is a product that has been especially designed for use with the treatment of severe acute malnutrition.
- F-75 is given at regular intervals throughout the day and the night. Depending on the capacity of the inpatient facility, this should be at the beginning of treatment eight times a day at three hour intervals over 24 hours. When the child's condition is improved, give F-75 six feeds at regular intervals throughout the day. There should not be other food given to the child, except breast milk.
- Quantities of F-75 to give are shown in Job Aid 3.1l.
- If the child is breastfed, encourage the mother to continue breastfeeding. Breastfed children should be offered breastmilk on demand, at least 8 times per day. This will increase the mother's breastmilk supply and comfort her child.
- If the child is under 2 years old and has stopped breastfeeding, the mother should be encouraged to relactate. See **Job Aid 3.1m** for how to help a mother to relactate. Relactation usually takes 3-5 days, but can take longer.

F-75 ration (100kcal/kg/day) should be monitored by a health worker and given frequently in small amounts adapted to the weight of the child.

The caretaker must be actively involved in feeding. Caretakers often think that F-75 is not enough or too light for their child: they should be informed and sensitized on the importance of not introducing other foods until the child is stabilized.

The mother should also be supported to continue breastfeeding on demand of the child. This includes HIV+ mothers who are on triple antiretroviral treatment or prophylaxis (ARVs)<sup>12</sup>. Recording of breastfeeding should be included in the 24 hr feeding record. If after a few days, the appetite and the general condition of the child do not improve, the child should be reassessed and HIV infection or tuberculosis should be suspected.

When the child has regained appetite, infections are treated and oedema has reduced (usually after 2 to 7 days), the diet is changed to allow catch-up growth. The child should be given F-100 for a few days and quantities of F-100 to give are shown in (WHO Training – Director Course – or **See Job Aid 3.1n**). Then conduct appetite test for BP-100. If BP-100 is accepted, change to BP-100 for a few days before discharge. Quantities of BP-100 to give are shown in **Annex 3 or Job Aid 3.1o and key messages are shown in Job Aid 3.1p**. Breastfeeding support should continue.

The transition between F-75 and catch up diets (F-100 or RUTF) should be progressive and the catch up diets should be increased gradually to the desired 150 to 220 ml of F-100 /kg/day or 150 to 220 kcal of RUTF/kg/day. Children should be referred to outpatient management of severe acute malnutrition without medical complications at health centre.

However, some HIV-infected children with sores in the mouth or children needing nasogastric feeding for another reason will not be able to take RUTF and should be fed F-100. These children will remain in inpatient care and fed F-100 until the end of the recovery phase or until they are able to eat RUTF.

Children less than 6 months should not receive F-100 or RUTF. They should be fed with supplementary suckling method or relactation (**See Job Aid 3.1m**) using F-75 until the child is gaining weight and then gradually moving back to exclusive breastfeeding before being discharged.

Right from the initial phase of treatment, mothers should be encouraged to continue to breastfeed. If the child is not breastfed, possibility of relactation or wet nursing should be explored.

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<sup>12</sup> Chapter 5, National guideline for the prevention of mother-to-child transmission for HIV (March 2011)



IYCF counseling and cooking demonstrations (**See Job Aid 3.1q**) should also be implemented as part of case treatment at hospitals. The National Program has tools and materials available for these activities.

Some children with uncomplicated SAM may have been referred to inpatient care if there is no caretaker for the child at home or if the family lives too far away from an outpatient management point to attend bi-weekly follow ups. These children should be fed with RUTF if they are 6 months or older and they have good appetite according to outpatient feeding protocols.

### **Step 6: Correct micronutrient deficiencies**

F-75, F-100 and BP-100 contain micronutrients. However, Folic Acid and B1 for Beriberi (according to hospital guidelines 1996) should be given on day 1 for all children. ***Vitamin A should not be given to children at admission, who will receive F-75, F-100 or BP-100. They should receive one dose of vitamin A at discharge.***

### **Step 7: Emotional stimulation and sensorial development**

#### **7.1: Emotional and physical stimulation**

Severely malnourished children have delayed mental and behavioural development, which, if not treated, can become 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 retardation and emotional impairment.

#### **7.2: Rehabilitation**

Care must be taken to avoid sensory deprivation. It is essential that the caretaker be with her child in hospital, and that she be encouraged to feed, hold, comfort and play with her child as much as possible. The number of other adults who interact with the child should be as few as possible. Each adult should talk, smile and show affection towards the child. Medical procedures, such as venepuncture, should be done by the most skilled person available, preferably out of earshot and sight of the other children. Immediately after any unpleasant procedure the child should be held and comforted.

#### **7.3: The environment**

The austerity of a traditional hospital has no place in the treatment of malnourished children. Rooms should be brightly coloured, with decorations that interest children. Colourful mobiles should be hung over every cot, if possible. A radio can provide background music. The

atmosphere in the ward should be relaxed, cheerful and welcoming. Toys should always be available in the child's cot and room, as well as in the play area; they should be changed frequently. Toys should be safe, washable and appropriate for the child's age and level of development. Inexpensive toys made from cardboard boxes, plastic bottles, tin cans and similar materials are best, because caretakers can copy them.

#### **7.4: Play activities**

Malnourished children need interaction with other children during rehabilitation. After the initial phase of treatment, the child should spend prolonged periods with other children on large play mats, and with the caretaker or a play guide. The child can also be fed in the play area. These activities do not increase the risk of cross-infection appreciably and the benefit for the child is substantial. One person, usually a nurse or volunteer, should be responsible for developing a curriculum of play activities and for leading the play sessions. Activities should be selected to develop both motor and language skills, and new activities and materials should be introduced regularly. One aim should be to play with each child, individually, for 15–30 minutes each day, in addition to informal group play. Caretakers can be trained to supervise play sessions. Learning through play should be fun for children. A child's efforts to perform a task should always be praised and never criticized. When a child is taught a skill, the nurse or volunteer should demonstrate the skill first, then help the child do it, and finally let the child do it alone. This sequence should be repeated until the child has mastered the skill.

#### **7.5: Physical activities**

Physical activities promote the development of essential motor skills and may also enhance growth during rehabilitation. For those children who are unable to move, passive limb movements and splashing in a warm bath are helpful. For other children, play should include such activities as rolling on a mattress, running after and tossing a ball, climbing stairs, and walking. The duration and intensity of physical activities should increase as the child's nutritional status and general condition improve. If there is sufficient space, an outdoor playground should be developed.

### **Step 8: Monitoring of management progress**

The inpatient admission form - CCP (**See Job Aid 3.1h**) should be completed each day while providing treatment in order to monitor the progress of the child. Children who require inpatient care can deteriorate quickly. It is essential to monitor them closely so that any deterioration in their clinical condition can be picked up rapidly. Ensure that all the measurements in **Table 3** are completed during inpatient care. Children treated for shock, severe dehydration or very

severe anaemia need frequent monitoring of danger signs of over hydration (every 10 minutes). For children admitted with bilateral pitting oedema, their base/admission weight will be taken as the weight they are when oedema has subsided.

**Table 3: Monitoring the child in inpatient care**

Measurements to be done if treatment of severe dehydration, septic shock, or severe anaemia	Measurements to be taken <b>AT EACH FEED</b>	Measurements to be taken every four hours	Measurements to be taken and recorded <b>ONCE DAILY</b>
Signs of over hydration and heart failure (fast breathing, respiratory distress, a rapid pulse, engorgement, cold hands and feet and cyanosis of the fingertips and under the tongue) should be checked every 10 minutes.	<ul style="list-style-type: none"> <li>▪ Quantity of F-75 or F-100 or BP-100 the child takes</li> <li>▪ Amount and frequency of vomiting</li> <li>▪ Frequency of breastfeeding</li> </ul>	<ul style="list-style-type: none"> <li>▪ Body temperature</li> <li>▪ Respiratory rate/chest drawing in</li> <li>▪ Heart rate/ Pulse</li> </ul>	<ul style="list-style-type: none"> <li>▪ Weight</li> <li>▪ Weight gain</li> <li>▪ Oedema</li> <li>▪ Frequency and type of stools</li> <li>▪ Dehydration</li> <li>▪ Cough</li> <li>▪ Liver size</li> <li>▪ Extremities</li> <li>▪ Palmar pallor</li> </ul>

If a child is **failing to respond**, the underlying causes must be investigated and addressed appropriately and recorded on the inpatient admission form - CCP. The following criteria suggest failure to respond:

- Failure to regain appetite by day 4 after admission.
- Failure to start to lose oedema by day 4 after admission.
- Oedema still present at day 10 after admission.
- Failure to stabilise by day 10.

If children have signs suggestive of TB – carry sputum smear for microscopy and take a chest x ray, Tuberculin Skin Test (TST), lumbar puncture, pleural tap, and HIV test according to national TB and HIV guidelines.<sup>13</sup>

If a child is **responding to treatment, has regained appetite, oedema are reduced** and all complications have been treated, the child moves into the transition phase of treatment. The following steps describe this phase:

<sup>13</sup> National Guidelines for Diagnosis & Treatment of TB in Children. National Centre for TB & Leprosy. (CENAT), Cambodia, 2008

- When all complications have been treated, check the child has an appetite. If the child has appetite and reduced oedema, give F-100 for a few days and assess the child's progress following the WHO Management of Severe Malnutrition: A Manual for Physicians and Other Senior Health Workers.
- Ensure that other elements of care are provided during this **transition phase**. These include:
  - Continue treatment for any complicating illness
  - Give any needed additional systematic medicines or vaccinations.
  - Continue to monitor the child's progress, appetite, consumption and weight gain.
  - If the child is breastfeeding, ensure that breastfeeding is going well and that the mother is breastfeeding frequently. Provide additional breastfeeding or relactation support if needed (**See Job Aid 3.1m**). Do not discharge or refer until breastfeeding is going well.
  - Provide age-appropriate counselling and advice on IYCF using locally available foods for continued care at home once the child is recuperated.
  - Provide counselling on good home hygiene and health care practices
  - Review danger signs (lack of appetite, failure to gain weight, listlessness, illness) that the caretaker should look for once the child is taken home or referred for further treatment elsewhere. Remind the caretaker to immediately bring the child back if s/he shows these danger signs.
  - Organize and provide feeding demonstrations using local foods to caretakers while the child is hospitalized (**See Job Aid 3.1q**)
  - Emotional stimulation and sensorial development (**see Step 7 above**)
- If this child is to stay in the hospital to complete treatment, continue to use F-100 (give F-100 according to WHO Protocol for use of F-100) for inpatient treatment. Follow all other treatment protocols in the WHO Management of Severe Malnutrition: A Manual for Physicians and Other Senior Health Workers.
- If the child can be referred for outpatient management of severe acute malnutrition without medical complications in a health centre in catchment area, transition the child from F-100 to BP-100 for a few days before discharge (See **Table 4** below for exit and discharge criteria). The child should be able to eat 75% of the daily BP-100 ration (**See Annex 3 or Job Aid 3.1o**). Transition usually takes 24 to 48 hours. Test this for a few days before discharge by ensuring that the child is consuming at least 75% of the daily BP-100 ration before discharging the child.

**Table 4: Exit/discharge criteria from inpatient care**

Category	Criteria
<b>Referral to outpatient management of severe acute malnutrition</b>	<ul style="list-style-type: none"> <li>▪ Medical complications treated</li> <li>▪ Appetite has returned (the child has taken at least 75% of the prescribed BP-100 ration for a few days. This should be explained in feeding guidelines (during transition period F-75, F-100 and BP-100)</li> <li>▪ Oedema has resolved or reduced</li> <li>▪ If child &lt; 2 years old, child is BF well</li> </ul>
<b>Discharge: ‘Cured’ when there is no outpatient management of severe acute malnutrition</b>	<ul style="list-style-type: none"> <li>▪ Good appetite</li> <li>▪ No oedema</li> <li>▪ Clinically well</li> <li>▪ Target weight gain reached (15%) <b>(See Job Aid 3.1r)</b></li> </ul> <p>Followed by 3 follow up visits:</p> <ul style="list-style-type: none"> <li>○ 1<sup>st</sup> follow up visit 7 days</li> <li>○ 2<sup>nd</sup> follow up visit 14 days after 1<sup>st</sup> follow up visit</li> <li>○ 3<sup>rd</sup> follow up visit 14 days after the 2<sup>nd</sup> follow up visit</li> </ul>
<b>Discharge: ‘Non-Cured’, including self discharge</b>	<p>Child and caretaker leaving before reaching the discharge criteria as ‘Cured’. Three follow up visits as hospital outpatient:</p> <ul style="list-style-type: none"> <li>○ 1<sup>st</sup> follow up visit 7 days – give BP-100 for 2 weeks</li> <li>○ 2<sup>nd</sup> follow up visit 14 days after 1<sup>st</sup> follow up visit – give BP-100 for 2 weeks</li> <li>○ 3<sup>rd</sup> follow up 14 days after the 2<sup>nd</sup> follow up visit – give BP-100 for 3 weeks</li> </ul>
<b>‘Lost follow up of non-cured’: miss two consecutive follow up visits</b>	<p>Child and caretaker not coming for two consecutive follow up visits</p>
<b>Medical referral out of programme</b>	<p>Where the medical condition of the child requires referral out of inpatient care e.g. to referral hospital. Complications should be treated in the same hospital as much as possible</p>
<b>Died</b>	<p>Child died while in inpatient care</p>

## **Step 9: Prepare for and ensure follow up after referral or discharge**

### **Exit/discharge procedure from inpatient care**

#### ***a) Where there is outpatient management of severe acute malnutrition without medical complications:***

Explain to the caretaker that her child will continue management in the outpatient management of severe acute malnutrition without medical complications. If the caretaker had been referred from outpatient management of severe acute malnutrition then s/he will continue the management at the same health centre that s/he was originally referred from. If the child came as a direct admission to inpatient management of severe acute malnutrition at a hospital and is now ready to be referred to outpatient care, inform the caretaker where the nearest health centre to where s/he lives that carries out outpatient care. Hospital staff should be provided with a list of the health centres that carry out outpatient management of severe acute malnutrition without complication in their catchment area.

If the caretaker agrees to the referral to outpatient care:

- Complete a referral slip (**See Job Aid 3.1b**) including relevant details of treatment and drugs given and give to the caretaker to take to the relevant health centre. Give counselling to caretaker on the following:
  - How to continue feeding with BP-100 at home
  - Breastfeeding practices to follow at home (continue breastfeeding on demand, at least 8 times per day, until child completes treatment).
  - Home hygiene practices to follow
  - Review danger signs ((lack of appetite and listlessness, illness) and remind the caretaker to immediately bring the child back or take the child to the referral health centre if s/he shows these danger signs.
- Give the caretaker 7 day rations of BP-100 quantities by weight (**See Annex 3 or Job Aid 3.1o**)
- Give the caretaker any medications that the child needs to continue to take for the next 7 days.
- Explain to the caretaker when she should first present at the health centre for outpatient care and what to expect in terms of care there.
- Get agreement that caretaker will take the child for this treatment, as well as for follow up visits at least every two weeks at the same health centre and more often if needed.

#### ***b) Where there is NO outpatient management of severe acute malnutrition without medical complications and the caretaker prefers to continue treatment as hospital outpatient through follow up visits:***

- Complete routine medications.

- Ensure that breastfeeding is going well.
- Give the caretaker 7 day rations of BP-100 quantities by weight (**See Annex 3 or Job Aid 3.1o**)
- Give the caretaker any medications that the child needs to continue to take for the next 7 days.
- Explain to the caretaker that she needs to return to the hospital as below schedule:
  - 1<sup>st</sup> follow up visit 7 days – give BP-100 for 2 weeks
  - 2<sup>nd</sup> follow up visit 14 days after 1<sup>st</sup> follow up visit – give BP-100 for 2 weeks
  - 3<sup>rd</sup> follow up visit 14 days after the 2<sup>nd</sup> follow up visit – give BP-100 for 3 weeks
- Get agreement from the caretaker will take the child for this treatment, as well as for follow up visits.
- Tell the caretaker to take the child to the closest health centre or to come back to the hospital immediately if the child’s condition deteriorates.

***c) Where there is NO outpatient management of severe acute malnutrition without medical complications and the caretaker prefers to continue inpatient treatment at this hospital:***

Continue treatment for the transition, rehabilitation and follow up phases following WHO Management of Severe Malnutrition: A Manual for Physicians and Other Senior Health Workers. These are described briefly below:

**Transition phase:** The second phase of inpatient treatment of severe acute malnutrition, when with the return of the child's appetite and reduced oedema, the feeding is moved from F-75 to F-100.

**Rehabilitation phase:** The third phase of inpatient treatment of severe acute malnutrition, when correction of the electrolyte imbalance is continued, intensive feeding is given to recover most of the lost weight, assistance with BF is provided, emotional and physical stimulation are increased, the caretaker or caregiver is trained to continue care at home, and preparations are made for discharge of the child. All elements included under the transition phase are continued until the child meets discharge criteria (weight gain of 15%).

**Follow up:** The final stage of treatment of severe acute malnutrition. After discharge, the child and the child’s family are followed up to prevent relapse and assure the sustained mental, emotional and physical development of the child. The latter normally consists of routine visits (every week or every other week and additionally if problems or questions arise) to or from a health provider for a medical check-up, growth assessment, feeding and health counselling, and a continued intensive feeding regimen using RUTF and/or home foods to allow for



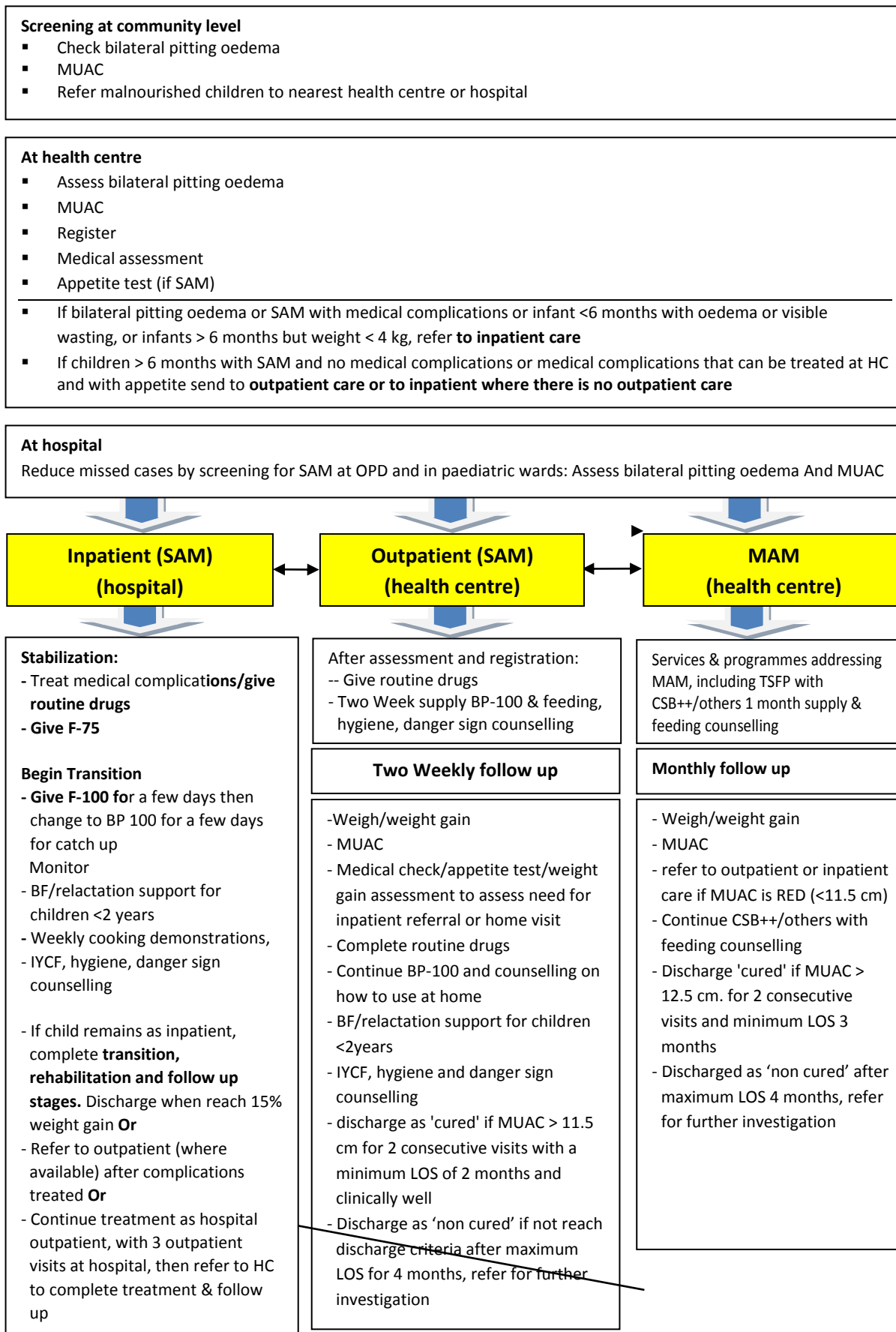
further catch-up growth. When these are done, the risk of death can be substantially reduced and the opportunity for full recovery greatly improved.

**Table 5: Equipment and supplies for inpatient care**

Equipment and Supplies	Reference Sheets and Protocols
<p>See WHO training modules – Course Director Guide for all supplies needed to inpatient treatment of severe malnutrition but main items include:</p> <ul style="list-style-type: none"> <li>▪ F-75</li> <li>▪ F-100</li> <li>▪ BP-100</li> <li>▪ ReSoMal</li> <li>▪ Weighing scales (UNISCALE)</li> <li>▪ Glucometer and strips</li> <li>▪ Height board/Microtoise</li> <li>▪ MUAC tapes</li> <li>▪ Weighing scales appropriate for infants &lt;6 months (10g divisions)</li> <li>▪ Medical supplies and equipment</li> <li>▪ Folic Acid (only 5 mg but need 1 mg)</li> <li>▪ Iron (only IFA)</li> </ul>	<p>Follow WHO training modules</p> <ul style="list-style-type: none"> <li>▪ W/H charts (See Job Aid 3.1a)</li> <li>▪ Table target weight gain for discharge (15%) (See Job Aid 3.1r)</li> <li>▪ Critical Care Pathway (CCP) (See Job Aid 3.1h)</li> <li>▪ Admission and discharge criteria (Table 2&amp;4)</li> <li>▪ Dosage of F-75 (See Job Aid 3.1l), F-100 (See Job Aid 3.1n), BP-100 (See Annex 3 or Job Aid 3.1o) and ReSoMal (See Job Aid 3.1k)</li> <li>▪ Antibiotics and routine medicine protocol for inpatient care (See Annex 1 or Job Aid 3.1i)</li> <li>▪ Referral slips (See Job Aid 3.1b&amp;3.1c)</li> <li>▪ Monthly report form (See Annex 4 or Job Aid 4.1)</li> <li>▪ IYCF promotion materials, including cooking demonstration guidelines (NNP) (See Job Aid 3.1q) and BFCI Flipchart</li> <li>▪ List of health centres offer outpatient management of severe acute malnutrition without medical complications</li> </ul>



**Figure 1: Flow chart for Inpatient Management of SAM in hospital**



### ***3.2. Outpatient management of severe acute malnutrition without medical complications at health centre***

This section describes the steps following the identification of a child for outpatient management of severe acute malnutrition without medical complications or complications that can be treated at health centre. The possible sources of children admitted include those referred from VHSGs, those screened at the health centre, those referred from management of moderate acute malnutrition and those referred from inpatient care. For a list of equipment and supplies needed for outpatient treatment of severe acute malnutrition see **Table 8** at the end of this section. The following are 5 steps of outpatient management of severe acute malnutrition without medical complications:

- Step 1: Confirm child fulfils criteria for admission (See Job Aid Table 6)**
- Step 2: Decide whether to enrol the child:** Examine the child for medical complications and record results in IMCI recording form (**See Job Aid 3.1d**). Test appetite of child (**See Job Aid 3.1g**) and record results in follow up form (**See Job Aid 3.1g&e**)
- Step 3: Systematic treatment:** Give routine drugs in outpatient care protocols (**See Annex 2 or Job Aid 3.1j**)
- Step 4: BP- 100 provision and key messages:** Provide BP-100 and give key messages to caretaker
- Step 5: Monitor progress**

#### **Step 1 – Confirm child fulfils criteria for admission:**

If the child has been referred from the community it is important to assess oedema and MUAC to ensure the child is going to be admitted to the correct service (**See Table 6** below for admission criteria). If a child does not match the criteria the health centre staff will need to refer the child to the correct service or explain to the caretaker that the child has been referred incorrectly. This should be followed up to ensure it was a mistake or misunderstanding. If the case is a self-referral by the caretaker, she/he should have the criteria explained to them, and told that the child does not have acute malnutrition and therefore does not need to be managed in outpatient care.

Children with medical complications that can be treated in health centre, should be treated in health centre. Children with medical complications according to severe classifications for IMCI, bilateral pitting oedema, and severely malnourished infants under 6 months are referred to inpatient management of severe acute malnutrition until stabilized or the oedema subsides. They then continue their management at a health centre that provides outpatient management of severe acute malnutrition. On discharge from the outpatient management of severe acute malnutrition,

children should be referred to services addressing moderate acute malnutrition to ensure their long-term recovery. With early identification of acute malnutrition the majority of children can be managed successfully at home without any need for inpatient care.<sup>14</sup>

**Table 6: Admission criteria for outpatient management of severe acute malnutrition without medical complications at health centre**

<b>Outpatient Management of Severe Acute Malnutrition without medical complications</b> <b><u>Children aged 6-59 months</u></b>
<p>MUAC &lt; 11.5 cm</p> <p><b>Or</b></p> <p>children referred from inpatient management of severe acute malnutrition</p> <p><b>AND ALL OF THE FOLLOWING:</b></p> <ul style="list-style-type: none"> <li>▪ Appetite</li> <li>▪ <b>No medical complications* or medical complications that can be treated at health centre</b></li> <li>▪ Alert</li> </ul> <p>*(without medical complications according to severe classification for IMCI (<b>See Job Aid 3.1f</b>) or with no appetite</p>

**Step 2 – Decide whether to enrol the child:**

- Explain the purpose of the management/programme to the caretaker
- Examine the child for medical complications and record results in IMCI recording form (**See Job Aid 3.1d**). Test for appetite (**See Job Aid 3.1g**) of child and record results in follow up form (**See Job Aid 3.1e**)
- If s/he does not fulfil medical and appetite criteria the child will need to be referred for inpatient care
- If the child is within the criteria to be managed as an outpatient, explain to the caretaker that s/he will need to bring the child back to the health centre every two weeks for medical check-ups, to be weighed and retest appetite to see if the child is getting better, and to receive another supply of BP- 100 for two weeks

<sup>14</sup> Collins S, Sadler K. Out-patient care for severely malnourished children in emergency relief programmes: a retrospective cohort study. *Lancet* 2002;360(9348):1824-30.

- Children referred from inpatient care should be directly admitted to outpatient care based on referral slip and should be kept in the program for at least two months (minimum length of stay).

### Step 3 – Systematic treatment:

Give routine drugs according to the protocol (**See Annex 2 or Job Aid 3.1j**). Check immunisation status on the Child Health Card (Yellow Card) or by asking the caretaker. If not already vaccinated, plan to give vaccines in next visit. Record medications given on the IMCI recording form. Measles vaccine should be given at admission if the child has not received the vaccine at 9 month. The 2<sup>nd</sup> measles dose should be given at 18 months according to the new EPI guidelines.

Dehydration in severely malnourished children, ReSoMal should be given instead of ORS. ReSoMal is **Rehydration Solution for Malnutrition**. It contains less sodium, but more potassium and sugar than ORS. For information on dehydration and how to use ReSoMal, see Job Aid 3.1k.

### Step 4 – BP- 100 provision and key messages<sup>15</sup>:

- Explain how the BP-100 should be used using the key messages/ leaflet (**See Job Aid 3.1p**). If the mother is still breastfeeding she should always offer breast milk freely. If the child is not breastfeeding and < 2 years of age, encourage caretaker to relactate and if the child is > 2 years, s/he must always be given water to drink freely.
- The caretaker is advised that although she may give other foods to the child, the child should consume the daily ration of BP-100 before giving any other foods. Emphasise that the BP-100 is vital for the recovery of the child and as it is a medicine for malnourished children and it should not be shared.
- Provide the BP-100 according to the child's weight each two weeks using the protocol –Quantity of BP-100 to give (**See Annex 3 or Job Aid 3.1o**).
- Tell the caretaker when s/he should come back for the next follow up visit. Make it clear that the child should be brought back to the health centre at any time if the child's condition deteriorates. Ask the caretaker to repeat back how s/he will give the BP-100 and routine medicine, and when she will return to the health centre.

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<sup>15</sup> The internationally recommended food ration for outpatient management of children with severe acute malnutrition is a Ready-to-Use Therapeutic Food (RUTF). A common RUTF, Plumpynut, is not generally acceptable to children in Cambodia (Bourdier, F. Socio-anthropological investigation related to the acceptability of Plumpynut in Cambodia.IRD 2009). There is currently BP-100 available in Cambodia.

- Give Key Messages/leaflet (**See Job Aid 3.1p**). Also give messages and counselling based around IYCF using BFCI promotion materials and flipcharts provided.
- Complete the follow up form (**See Job Aid 3.1e**) and file.

**Step 5 - Monitor progress:** When children attend the health centre every two weeks:

- A medical check-up and appetite test is performed, weight and MUAC are checked.
- Explain to caretaker that her child needs to gain weight each visit.
- Use Protocol Requiring Inpatient Treatment - medical complications according to severe classification for IMCI (**See Job Aid 3.1f**) and see below Protocol for Home Visit to determine if either of these actions are needed.
- The management and ration given are filled in on the follow up form (**See Job Aid 3.1e**).
- Progress is checked against the exit criteria (**See Table 7 below**).
- The messages around how to use BP-100 and IYCF already given should be followed up and discussed with the caretaker. As the caretaker and child return every two weeks, this provides a good opportunity for the more in depth counselling activities around how to use BP-100 and IYCF which contribute more to their effectiveness than just being given health/nutrition messages and advised to do it.

Refer children with signs suggestive of chronic illness such as TB to referral hospital and the health worker may need to be aware of this possibility for children who are not responding to medical and nutritional management in outpatient care.

**Table 7: Exit/discharge criteria for outpatient management of severe acute malnutrition without medical complications**

Category	Criteria
<b>Discharged Cured</b>	MUAC >11.5cm for 2 consecutive follow up visits with a minimum length of stay of 2 months and clinically well
<b>Referred</b>	Referred to inpatient care if not responding (losing weight for 2 consecutive follow up visits or static weight for 3 consecutive follow up visits) or have complications according to severe classification for IMCI ( <b>See Job Aid 3.1f</b> ) or no appetite
<b>Defaulted</b>	Absent for 2 consecutive follow up visits
<b>Non-cured</b>	Discharge criteria not reached after 4 months (need to refer for medical check, e.g. TB)
<b>Died</b>	Died during time registered for outpatient management of severe acute malnutrition

The follow up form (**See Job Aid 3.1e**) should be checked every two weeks to determine if any children have been absent. Where possible inform VHSGs and ask them to follow up with a home visit to see why the child is absent, and see if the caretaker will bring the child to the next follow up visit for outpatient management of severe acute malnutrition without medical complications. The following is protocol for home visits (**See Job Aid 3.2a**):

- Absent for 2 consecutive follow up visits
- Eats less than 75% of BP-100 by 2<sup>nd</sup> follow up visit
- General medical deterioration ( but not medical complications as outlined in **Job Aid 3.1f**)
- Below admission weight on 2<sup>nd</sup> follow up visit
- Weight loss for any follow up visit
- Static weight for 2 consecutive follow up visits
- Returned from inpatient care during 1<sup>st</sup> 2 weeks
- Refused hospital referral

If a child is absent for two consecutive visits they must be recorded as a defaulter. Discharge Criteria and Procedure are as below:

#### **Exit/discharge procedure**

- Explain to the caretaker that the child is recovered (or if not recovered why s/he is being discharged).
- Note the final outcome on the follow up form under “Children discharged cured” or “non-cured.”
- Advise the caretaker to take the child to health centre if the child refuses to eat or has any of the following:
  - High fever
  - Frequent watery stools with blood or diarrhoea lasting more than 4 days
  - Difficult or fast breathing
  - Vomiting
  - Development of oedema
- Counsel the caretaker on good nutrition, hygiene and feeding practices and the importance of continued breastfeeding.
- Ensure the caretaker understands how to use any medications that have been given or prescribed.

*Where there is the management of moderate acute malnutrition –TSFP*

- Explain that the child will remain in the targeted supplementary feeding programme for three months. Provide a referral slip to management of moderate acute malnutrition (**See Job Aid 3.1b**)

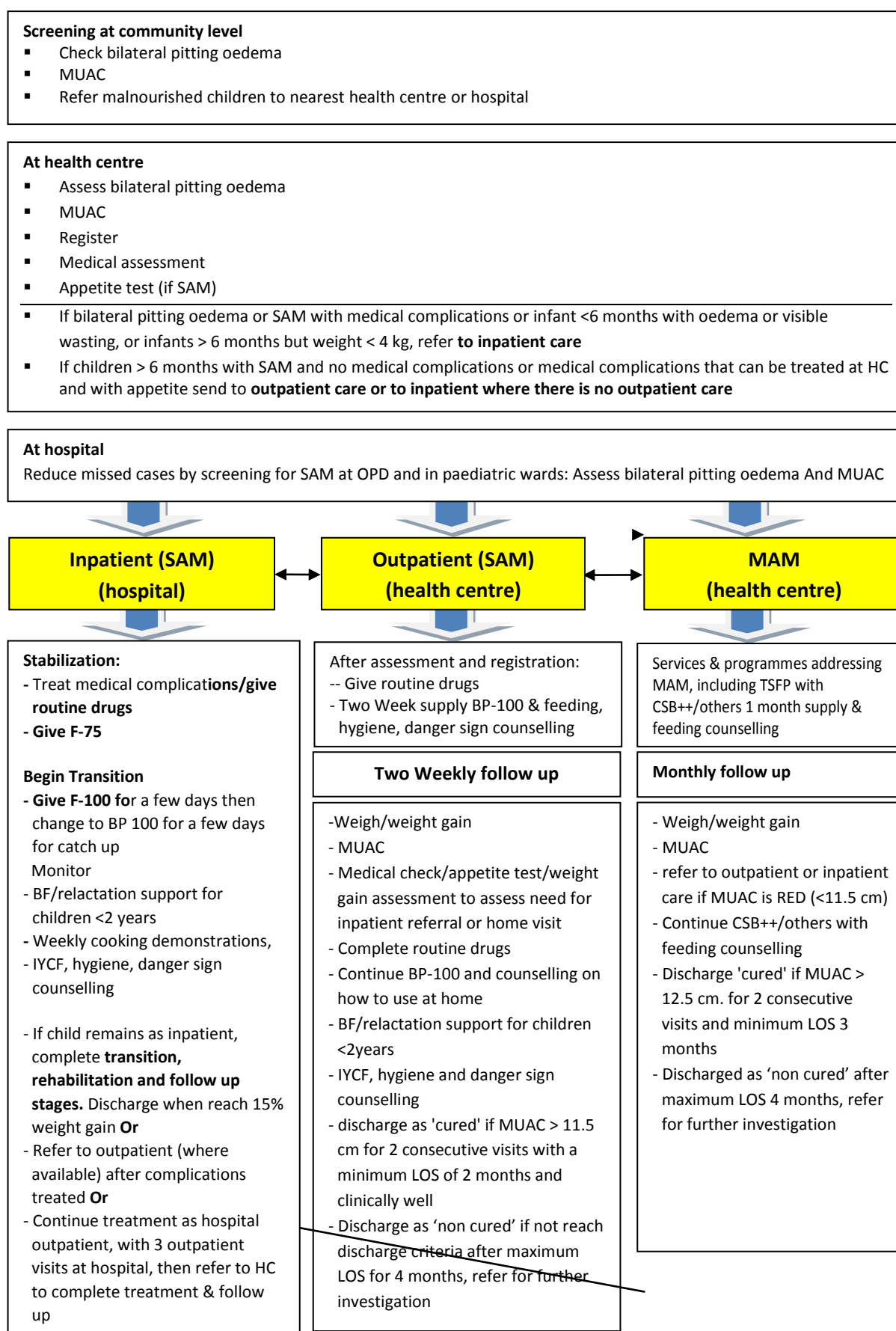
Where there are no TSFP

- Provide sufficient BP- 100 for two weeks.
- Refer to other services and programmes addressing MAM or those addressing prevention of malnutrition.

**Table 8: Equipment and supplies for outpatient management of severe acute malnutrition without medical complications at health centre**

Equipment & Supplies	Reference Sheets & Protocols
<ul style="list-style-type: none"> <li>▪ Weighing scale (UNISCALE)</li> <li>▪ MUAC tapes</li> <li>▪ Clean water for drinking (jug and cups)</li> <li>▪ Water and soap for hand-washing</li> <li>▪ RUTF (BP-100)</li> <li>▪ Essential medicines</li> </ul>	<ul style="list-style-type: none"> <li>▪ IMCI recording form (see Job Aid 3.1d)</li> <li>▪ Follow up form (Job Aids 3.1e)</li> <li>▪ Flow chart (Figure 2)</li> <li>▪ Admission (Table 6) and exit/discharge criteria (Table 7)</li> <li>▪ BP-100 dosage and how to prepare (Annex 3 or Job Aid 3.1o)</li> <li>▪ Routine medicine protocol (Annex 2 or Job Aid 3.1j)</li> <li>▪ Referral slips for inpatient care and outpatient care (Job Aid 3.1b)</li> <li>▪ Protocol for home visit (Job Aid 3.2a)</li> <li>▪ Referral slips from community (Job Aid 3.1c)</li> <li>▪ Monthly report (Annex 5 or Job Aid 4.2)</li> <li>▪ BP-100 Key messages/leaflet (Job Aid 3.1p)</li> <li>▪ IYCF promotion materials (BFCI Flipchart)</li> </ul>

**Figure 2: Flow chart for Outpatient Management of Severe Acute Malnutrition Without Medical Complications at Health Centre**





### 3.3. Management of Moderate Acute Malnutrition at health centre

Moderate acute malnutrition (MAM) may be managed through various services and programmes.

This includes: *Community-based programmes such as Positive Deviance/Hearth or social support such as cash transfer or food vouchers or a nutritious food supplement such as fortified blended food as part of a family food basket or complementary feeding promotion or in-home fortification of complementary feeding with multiple micronutrient powders (MNPs)*. The main aim of programmes such as the Hearth Model and social support interventions is to prevent and treat under nutrition. If a child is moderately acutely malnourished this type of intervention may help him to recover and prevent further deterioration.

*Blanket supplementary feeding programmes:* In situations of high food insecurity and a high prevalence of acute malnutrition (i.e.  $\geq 15\%$ ), including all children 6-23 months, for blanket Supplementary Feeding Programme is appropriate. The main aim of this intervention is to reduce high wasting prevalence ( $\geq 15\%$  or 10-14%) with aggravating factors in highly food insecure and difficult to reach population.<sup>16,17</sup>

Targeted supplementary programmes link well with outpatient programmes that manage severe acute malnutrition as these children, once discharged from outpatient management of severe acute malnutrition can continue to receive a nutritional supplement in a targeted supplementary programme and also have the advantage of continuing to be monitored monthly. In addition, if a child deteriorates whilst in the TSFP they can be referred for management of severe acute malnutrition services.

*Pregnant and Lactating Women:* Pregnant and lactating women have higher nutritional needs because of the growth and development of the foetus and to provide breast milk for their baby. Thus targeted supplementary programmes often include malnourished pregnant women from the 2<sup>nd</sup> trimester and lactating women up to 6 months after delivery. However these guidelines focus on acutely malnourished children. Pregnant and lactating women have not been included in these guidelines as their nutritional needs will be managed through existing Mother and Child Health and Nutrition (MCHN) programmes, through nutrition counselling in order to improve their nutritional status. In addition to counselling affected women and their families, efforts should be made to bring the findings from pregnancy weight gain monitoring to the VHSGs and to encourage community based discussions on the situation of pregnant women and their need to eat for two.<sup>18</sup>

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<sup>16</sup> Decision Tree for response options – Nutrition interventions food products (Draft). WFP

<sup>17</sup> Integrated Food Security and Humanitarian Phase Classification reference Table FSAU Technical Series report. No IV. 11

<sup>18</sup> National Nutrition Strategy 2009 -2015, NNP, National Maternal and Child Health Centre. 2009. Pg 4

However, this section focuses on TSFP for children aged 6-59 months with moderate acute malnutrition in areas of high food insecurity and/or high Global Acute Malnutrition (GAM) rates. It has also been already stated that TSFP can be linked with outpatient management of severe acute malnutrition without medical complications at health centre. Thus, this section provides more detail on this particular programme.

This section describes the steps following the admission of a child to a TSFP (see **Table 9** below for admission criteria). TSFP provides take-home food rations and routine medical treatment for children with MAM. Refer to **Table 11** at the end of the section for a list of equipment and supplies needed for a TSFP.

A child *less* than six months old is not admitted to a TSFP. If the infant is moderately acutely malnourished with complications and/or there are problems with suckling and the infant is unable to breastfeed sufficiently, the mother and infant should be *referred to hospital*. If there are no medical complications and the mother is breastfeeding the mother should be given breastfeeding support and counselling.

*The below steps are based-on TSFP for management of moderate acute malnutrition at health centre. The NNP and development partners will develop guidelines for the community-based management of moderate acute malnutrition after these guidelines are finalized and field tested.*

The steps of TSFP following identification include:

- Step 1:** Admission
- Step 2:** Routine medication
- Step 3:** Food provision
- Step 4:** Monitoring of management progress and discharge

#### **Step 1: Admission**

- Confirm child fulfils criteria for admission (**See Table 9 below**)
- Explain to the caretaker that their child needs to be enrolled in the programme and why
- Give child an admission number
- Complete the admission section of the TSFP register
- Fill out the ration card for CSB++ (**See Job Aid 3.3a**) and give to the caretaker

Explain to caretaker that her/his child needs to gain weight every follow up visit and they have to reach the 'Green Colour' of MUAC before they can be discharged from the programme.

**Table 9: Admission criteria to a targeted supplementary feeding programme**

<b>Targeted supplementary feeding programme</b>
<b>Children aged 6-59 months</b>
<ul style="list-style-type: none"><li>▪ MUAC 11.5 – &lt;12.5 cm (Yellow)</li></ul> <p><b>OR</b></p> <ul style="list-style-type: none"><li>▪ Children aged 6 -59 months discharged from inpatient (for those reach discharge criteria 15% weight gain) or outpatient care with referral slip independently of their nutritional status. These children are kept for minimum 3 months and then can be discharged.</li></ul>

### **Step 2: Routine medication**

- Check the Child Health Card (Yellow Card) for vitamin A and Mebendazole. Give vitamin A if not given in the last four months. Give Mebendazole if not given in the last six months (check with IMCI) (**See Annex 6 or Job Aid 3.3b**)
- Refer for vaccination (as per national guidelines) if not already vaccinated.

### **Step 3: Food provision**

Nutritional treatment in TSFP is given through a take-home supplementary ration. This is intended to supplement the diet at home.

- The supplementary ration is given to the caretaker to take home. The ration is Corn Soya Blend (CSB) ++, a fortified blended food especially designed for moderately malnourished children 6-59 months. It is meant to supplement what they are already consuming at home. The quantity provided should be **200g/day** (840 kcal). This is distributed monthly and **thus 6 kg** is the take home ration.
- Clear advice must to be given to caretakers on how to prepare the ration using leaflet. Where possible demonstrations on how to prepare the ration should be given at least once every two months. Generally the instructions are as follows:
  - The dry mix should be prepared as **1 part CSB++** with **3-4** parts of water: 3 table spoons of CSB++ with one bowl of water. The daily ration of 200 g is equivalent to one bowl – Chan Changkeh (standard type of bowl used in Cambodia for eating).
  - This is followed by a cooking time of minimum 5 minutes (till boiled) and not exceeding 10 minutes.

- Ensure the caretaker understands that the ration is intended for the malnourished individual and is not a household ration for sharing.
- Explain how to store the food safely.
- Make sure the caretaker knows when to return to the TSFP (once a month) and brings the ration card and Child Health Card (Yellow Card) to each distribution.
- Also give messages and counselling based around IYCF using the promotion materials and flipcharts provided.

#### **Step 4: Monitoring of treatment progress and discharge**

- Children and caretakers should attend the health centre every month for monitoring and to receive their supplementary ration.
- During each visit weigh the child, measure the MUAC and check for oedema.
- Referral to outpatient management of severe acute malnutrition without medical complications should be made if the child becomes more wasted and meets criteria for SAM.
- A moderately malnourished child with medical complications should be referred to hospital for the treatment of complications and caretakers should be informed to bring the child back after the medical complications are treated.
- The child should be discharged when they have reached a MUAC of >12.5 cm. for two consecutive follow up visits with a minimum LOS of 3 months in the programme.
- Children return each month until they reach criteria for discharge. **See Table 10** below for discharge criteria of TSFP. However maximum length of stay is 4 months. If child has not reached criteria for discharge within 4 months –look for signs suggestive of chronic illness such as TB or other causes of non response such as sharing of ration or child not consuming ration. The child should be discharged as ‘non-cured’ and should be referred for further medical investigation.
- The messages around IYCF already given should be followed up and discussed with the caretaker. As the caretaker and child return each month, this provides a good opportunity for the more in depth counselling activities around IYCF using BFCI flipchart which contribute more to their effectiveness than just being given health/nutrition messages and advised to do it.

Health centre staff should check the list of children enrolled in TSFP every month to determine if any children have been absent. Where possible inform VHSGs and ask them to follow up with a home visit to all moderately malnourished children to monitor CSB++ preparation, feeding practices, and medical condition.

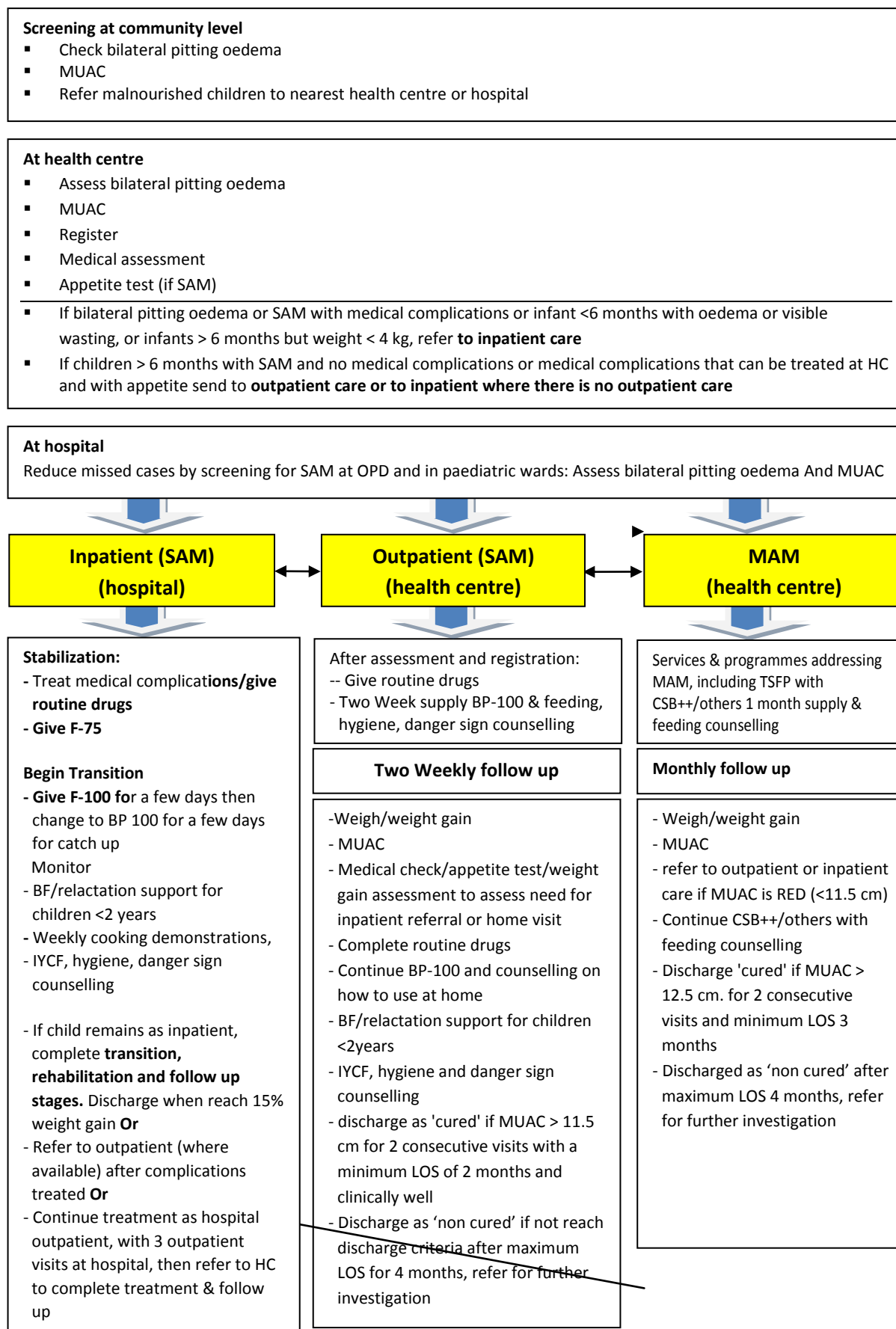
**Table 10: Discharge criteria for a TSFP**

Category	Criteria
<b>Cured (Children aged 6-59 months)</b>	MUAC >12.5cm for two consecutive follow up visits and be in programme minimum LOS for 3 months
<b>Referred</b>	<p>If a child meets the criteria for outpatient management of severe acute malnutrition without medical complications, refer the child to health centre offers outpatient care</p> <p>If a moderately malnourished child with medical complications according to severe classification for IMCI, refer the child to hospital for the treatment of medical complications (not to malnutrition unit)</p> <p>If a child has not reached discharge criteria within maximum of stay of 4 months, s/he is referred for further investigation.</p>
<b>Defaulted</b>	Absent for two consecutive follow up visits
<b>Died</b>	Died during time registered in TSFP

**Table 11: Equipment and supplies needed for a targeted supplementary feeding programme**

Equipment & Supplies	Reference Sheets & Protocols
CSB ++	Registration book and ration cards (See Job Aid 3.3a)
Educational materials for caretakers – how to prepare CSB ++	Flow chart (Figure 3)
Routine drugs required for TSFP	Admission and discharge criteria (Table 9 & 10)
MUAC tapes	CSB++ Key Messages (Job Aid 3.3c)
Weighing scales ( UNISCALE)	Routine medicine protocol (See Annex 6 or Job Aid 3.3b)
	Monthly report (See Annex 7 or Job Aid 4.3)
	Referral slips from community to health centre (See Job Aid 3.1c)
	Referral slips from health centre (TSFP) to inpatient care (See Job Aid 3.1b)
	IYCF promotion materials (BFCI Flipchart)
	Education materials for caretakers – how to prepare CSB ++ (Leaflet)

**Figure 3: Flow chart for Management of Moderate Acute Malnutrition (TSFP)**



## 4. Reporting, Monitoring, and Evaluation

At the core of monitoring is the capacity to collect, manage and utilise key information. Quantitative data is collected in the outpatient management of severe acute malnutrition without medical complications, inpatient management of severe acute malnutrition and management of moderate acute malnutrition. Qualitative data can be collected through consultation with affected communities and stakeholders at various stages of implementation of the management of acute malnutrition. The data is used to monitor:

- Individual child progress and outcomes
- Programme outcomes and coverage

### 4.1. Monitoring the individual child

Children move between outpatient and inpatient care as their condition improves or deteriorates. It is important to be able to track children between these components. A child's progress is closely monitored and recorded throughout their management. Medical checks, illnesses reported by the caretaker, medicines received, anthropometric measurements, appetite assessment, and attendance are all noted regularly. This information together with information on referral and follow up visits are used to ensure that progress is monitored and problems identified in a timely manner and action taken. Key elements of a system to track and monitor the child are:

- Routine collection of medical, nutritional and follow up data recorded on admission forms (IMCI recording form or CCP) and maintained in an efficient filing system;
- Supervision and case review;
- The effective exchange of information on individual children among the different components of management of acute malnutrition including the community.

#### 4.1.1. Admission forms

Children in outpatient management of severe acute malnutrition without medical complications are monitored using IMCI recording form and follow up form (See Job Aid 3.1d and 3.1e). Children in TSFP may be monitored in a registration book and the caretaker given a ration card. (See Job Aid 3.3a)

#### 4.1.2. Supervision and case review

It is important that records are accurate. Supervisors should check that admissions and discharges are made according to protocols, and that routine drugs and nutritional commodities have been given correctly. They must also regularly check that deterioration in the condition of the child is



being identified and acted upon according to the protocol, and that absence and referrals are noted and followed up.

Health workers should review the management of children with static weight or weight loss, or those that have not recovered after two months in outpatient management of severe acute malnutrition, at monthly meetings. The health centre staff should discuss the information in the IMCI recording form and follow up form in order to decide on appropriate action. These monthly meetings should also include a review of deaths and defaulting occurring in the programme in order to identify any problems in the system.

#### **4.1.3. Exchange of information**

An important element of the monitoring system is the tracking and exchange of information on individual children between components and between the programme and the community, through existing mechanism and meetings, e.g. Health Centre Management Committee meeting, VHSG meeting at health centre and health centre meeting at OD.

**Referrals to inpatient care** - Contact needs to be established to ensure that children are admitted and referred with adequate information to ensure correct medical and nutritional treatment.

**Inpatient deaths and defaulters** - If a child is referred from outpatient management of severe acute malnutrition to inpatient care at a hospital, his/her IMCI recording form remains in a file set aside for management of severe acute malnutrition without medical complications. If that child does not return back to the health centre after one or two weeks, information should be sought from the inpatient care unit, or through volunteers visiting the child's home. If a child dies whilst being treated in the hospital or defaults, this information should pass to the health centre so that the IMCI recording form can be completed and the case exited.

Note: For programme reporting purposes, to ensure not counting deaths and defaulters twice the child should be discharged to inpatient care when referred, and readmitted when they return.

**Outpatient management of severe acute malnutrition absences and defaulters** - Absences and defaulters should be followed-up by VHSGs and the caretaker encouraged to return with the child to complete management. If the child does not return the reason for defaulting should be recorded on the IMCI recording form to help health centre staff understand the family's circumstances and avoid further absences. In some cases this information can help health centre staff to modify protocols.



**Deaths** - If a child dies within management of acute malnutrition, a record is kept of their symptoms and the suspected diagnosis. Information on this can help to identify problems in management and protocols.

**Non-cured** - When follow up visits are required for children not responding well in the information collected by VHSs during follow up visits is important for the analysis of underlying causes of non-cured. Information received during follow up should be recorded by the health worker, along with that reported by the caretaker, as additional information on the child's IMCI recording form. This is used in further discussion with the caretaker and to inform decisions about whether to refer the child for medical investigation.

If a child has been followed and investigated for underlying causes but they are still not recovering after 4 months in outpatient management of severe acute malnutrition without medical complications or 4 months in TSFP, they should be discharged as 'non-cured'.

## ***4.2. Monitoring programme outcomes***

Quantitative data are collected on the outcome of all activities in the programme, and standard indicators for nutritional interventions are calculated. Routine programme data are collected in four categories:

- Trends in total admissions, exits and the number of children in the programme;
- The percentage of admissions by category;
- The trends of exits by category;
- Additional information on exits and length of stay.

**Total admissions, exits and number registered** - Trends in total admissions, total exits and numbers registered helps to see how quickly the management of acute malnutrition is reaching the target population. These trends can also show the effect of events such as public holidays and harvest times and trigger adjustments that might be required to accommodate them.

**Admissions by category - Monitoring** the composition of admissions by category can identify differences in the nature of malnutrition in different areas. It can also show trends over time, such as an increase in other admissions (adults and adolescents). If there is a significant difference in the composition of admissions between areas it may be necessary to check for differences in the way particular groups are classified (e.g. how oedema is identified or how the 'other' category is understood).

**Outcomes/exits by category** - Trends in outcomes/exits are monitored to identify any changes in the number of deaths, defaults or non-cured cases and to indicate areas that require further investigation.

All routine monitoring data should be compared to key indicators for management of acute malnutrition

Programme data is compared to monitoring indicators developed by the Sphere project (See Table 12 below).

**Table 12: Reference values for the main indicators Sphere© project**

Sphere minimum standards		
Indicators	Outpatient or inpatient care	TSFP
<b>Cured/Recovered</b>	>75%	>75%
<b>Deaths</b>	<10%	<3%
<b>Defaulters</b>	<15%	<15%
<b>Coverage</b>	50%-70%	50%-70%

#### **4.2.1. Admission and exit categories and definitions**

Management of acute malnutrition may take place in different health facilities (hospitals and/or health centres). Information needs to be collated to get overall outcomes. All acutely malnourished children who arrive at the health centres that carry out the outpatient management of severe acute malnutrition without medical complications or TSFP for moderate malnutrition are registered. Children who are then referred to inpatient care, either immediately or after some time in the outpatient management of , are recoded as ‘exits’. When the child returns to the health centre for outpatient management from inpatient care, the child is recorded as ‘returned’ from inpatient care, **not** as a new admission.

Severely malnourished children presenting directly to inpatient care are recorded as ‘moved in’ when they arrive at the health centre, after being discharged from inpatient care. This avoids double counting of new cases of severe malnutrition between the programmes. Admission and exit categories and definitions are given in the **Tables 13 and 14** and accompanying notes below.

**Table 13: Admission and exit categories for outpatient management of severe acute malnutrition without medical complications**

ADMISSIONS	Definition
New Cases *	<ol style="list-style-type: none"> <li>1) New cases that comply with admission criteria for outpatient care</li> <li>2) Includes all children presenting to the health centre who are referred immediately to inpatient care</li> <li>3) Includes all children refusing refer to inpatient care on presentation</li> <li>4) Includes all children referred from TSFP to outpatient care due to deterioration in their condition</li> <li>5) Children referred from inpatient care – cases that had arrived as direct admissions to inpatient care at hospital and are now discharged to outpatient care</li> <li>6) Children moved from another health centre where there is no out patient care to receive outpatient care</li> </ol>
Old Cases (Return)	<ol style="list-style-type: none"> <li>1) Returned from inpatient care to outpatient care: cases that were referred from outpatient care and are returning to continue their management in outpatient care</li> <li>2) Returned from TSFP to outpatient care: cases that were referred from outpatient care to TSFP and are returning to continue their management in outpatient care <b>(Must ADD)</b></li> <li>3) Returned defaulters who, on return, have not yet reached programme discharge criteria</li> </ol>
<b>EXITS**</b>	
Discharged – cured	Cases meeting programme discharge criteria
Death	Cases who die while registered in the programme
Defaulter	Cases that absent for 2 consecutive follow up visits (one month). This provides time for follow up after the first absence to encourage return
Non-cured	Cases who do not meet discharge criteria after 4 months: Refer for further medical investigation
Refer to inpatient care or move out	<ol style="list-style-type: none"> <li>1) For children presenting to the health centre who are referred immediately to inpatient care, or</li> <li>2) For children who are admitted to outpatient care who are referred to inpatient care due to deterioration in their condition</li> </ol>

Note:

- Children moved from another health centre that carries out outpatient care to continue their treatment in another out outpatient care (Example: Case that caretakers move to live elsewhere is considered as “New case”)
- Refer to In patient from out patient care should be recorded as “Refer”
- Medical referrals from outpatient care to a hospital other than inpatient care for medical treatment or investigation (Example, Malaria, TB...)

See the following tables for the admission and exit categories for TSFP (**Table 14**)

**Table 14: Admission and exit categories for TSFP**

<b>ADMISSIONS</b>	<b>Definition</b>
New cases	<ol style="list-style-type: none"> <li>1) New cases that comply with admission criteria</li> <li>2) Cases that were discharged from outpatient care to TSFP to continue recovery</li> <li>3) Children moved from another TSFP to continue their treatment (from other health centre)</li> </ol>
Old cases	<ol style="list-style-type: none"> <li>1) Returned defaulters who, on return, have not yet reached programme discharge criteria</li> <li>2) Returned from inpatient care or outpatient care: cases that were referred from TSFP to continue their management in inpatient or outpatient care and return to TSFP</li> </ol>
<b>EXITS</b>	
Discharged-cured	Cases meeting discharge criteria
Death	Cases who die while registered
Defaulter	Cases are classified as defaulter if absent for 2 consecutive follow up visits (2 months in a row). This provides time for follow up after the first absence to encourage return
Non-cured	Cases who do not meet discharge criteria after 4 months: Refer for further medical investigation
Refer to outpatient /inpatient care or moved to another TSFP	<ol style="list-style-type: none"> <li>1) This is used for children who deteriorate in the TSFP and need to be referred to the outpatient or inpatient care</li> <li>2) Children moved to another TSFP to continue their treatment (to other health centre)</li> </ol>

#### 4.2.2. *Additional routine information*

Other information is collected routinely to complement the data on admissions and exits and allow deeper analysis. The following additional information is recommended:

**Relapses (re-admissions after discharge)** - A record of the number of readmissions helps programme managers to understand the situation outside the programme (interventions at the household level may be needed to address high readmission levels). It can also indicate that children are being discharged too early.

Other information can be collected and compiled separately. The following is recommended:

**Reasons for default** - This information is collected either by health centre staff recorded on the child's IMCI recording form (or on a paper kept with the form), or through Focus Group Discussions (FGDs) in the community. It can help to identify trends in defaulting and identify adjustments to the programme that should be considered (e.g. the need to expand to other health centres to facilitate access).

**Reasons for non-cured (non-recovery)** - Routine review of this information can help to identify common problems of non-recovery such as HIV infection, TB, sharing food in the household or poor access to clean water. It can indicate the need for stronger sectoral links and advocacy for social support interventions, directly observed therapy, short course (DOTS) TB programmes or water and sanitation interventions.

**Length of stay** - The average length of stay of each child can be calculated every month for discharges cured/recovered (only those who were classified as 'new admissions'). If a large number of children are discharged as recovered in a given month (over thirty), a random sample of IMCI recording form and follow up form can be taken

#### 4.2.3. *Compilation reports*

Routine data is compiled into reports. Examples of monthly compilation reports for inpatient, outpatient and moderate management of acute malnutrition are given in **Annexes 4, 5, and 7**. These are compiled into quarterly and yearly reports.

Compilation reports can be generated manually or using an Excel spreadsheet.

*Reporting lines*

The monthly report should go from health centre to OD, PHD and HIS and NNP.

The provincial and referral hospital monthly report should go to OD, PHD, and HIS and NNP. Feedback should be provided from the national to sub-national level.

Two indicators and their recording and reporting have been incorporated into the existing HIS and being filed tested in target provinces are as below:

- 1) Number of severely acute malnourished children aged 6-59 months without medical complications managed at health centre during last month
- 2) Number of severely acute malnourished children aged 0-59 months managed in hospital during the last month

### ***4.3. Monitoring - VHSGs***

A case finding report to be compiled by VHSGs is outlined in Job Aid 4.7. It provides details of all children screened and how many needs to be referred. This should be cross checked with the health centre data (no. of children with acute malnutrition enrolled) to see if children being referred are arriving at health centre.

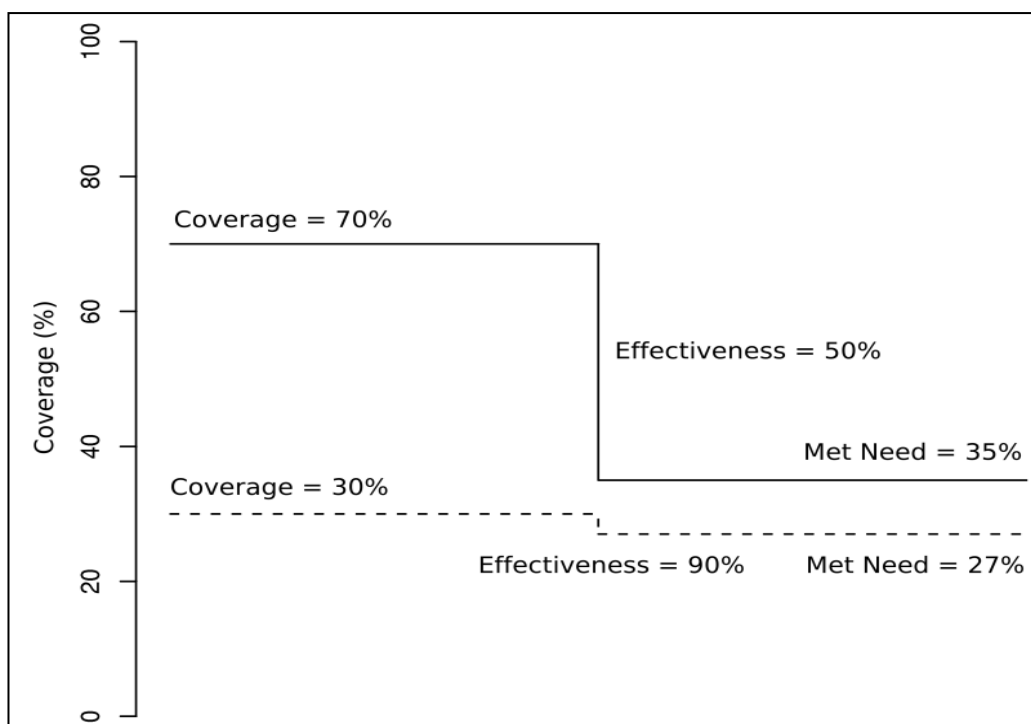
### ***4.4. Monitoring programme coverage***

The priority in management of acute malnutrition in these three settings is to make management accessible to the greatest possible number of acutely malnourished children in an affected population. It is important, therefore, to assess the proportion of children in need of assistance who actually receive care in the programme, i.e. the coverage.

Coverage is usually expressed as a percentage. For example, if there are 100 severely acutely malnourished children living in a programme area and 70 of them are in the programme, programme coverage is 70%.

Coverage is one of the most important indicators of how well a programme is meeting need. A high coverage programme with a low cure rate may be better at meeting need than a low coverage programme with a high cure rate. See **Graph 1** for a hypothetical illustration of this.

**Graph 1: Coverage, cure rate and impact**



Met need is the product of the coverage and the cure rate. If, for example, a programme has coverage of 70% and a cure rate of 90%, then met need can be calculated as:

$$[(70/100) \times (90/100)] \times 100 = 63\%$$

Thus, we can say that the programme is meeting 63% of need. High quality programmes have both high coverage and high cure rates.

#### **4.4.1. Coverage surveys**

The coverage of a programme can be mapped and estimated using a one of several techniques including CSAS (Centric Systematic Area Sampling), LQAS (Lot Quality Assurance Sampling) or SQUEAC (Semi Quantitative Evaluation of Coverage and Access). All three methods will assist with evaluating the impact of the programme and are also effective tools for identifying areas with poor access to the programme and potential causes of the poor access.

For more details about CSAS and coverage in general see the CTC Field Manual<sup>19</sup>. For more information about the SQUEAC method see the ENN Field Exchange June 2008<sup>20</sup>

<sup>19</sup> Valid International. Community based Therapeutic Care: A Field Manual. 2006. First edition. Available from: <http://www.validinternational.org>

<sup>20</sup> ENN. The Field Exchange. June 2008. SQUEAC: Low resource method to evaluate access and coverage of programmes by M.Myatt.

## Supervision

The national supervision team conduct quarterly monitoring and supervision for the management of acute malnutrition at all levels (**See Annex 8 or Job Aids 4.4, 4.5 and 4.6 for supervision checklist**) at all levels.

- 1) A team of National and PHD supervisors should conduct quarterly supervision and OD supervisors should conduct supervision every 2 months for:
  - supervision of health centres carrying out outpatient care and management of moderate acute malnutrition
  - supervision of provincial and referral hospitals implementing inpatient care
- 2) HC supervisors should conduct supervision every 2 months of VHSGs

## Roles and Responsibilities of Relevant Stakeholders

### *National Nutrition Programme*

- Develop/ update/ revise national guidelines and training materials as needed
- Develop and disseminate IEC/BCC materials as required.
- Conduct orientation meetings at national level and assist PHD and OD to organize and conduct orientation meetings at sub-national level.
- Be trained as national trainers for Management of Acute Malnutrition. Provide training to PHD and OD trainers and assists these trainers in conducting training for health center staff
- Follow up of implementation after training
- Monitor and assess the progress and impact of the implementation of the program
- With partners develop roll out plan
- Forecast and submit request to the MoH for required commodities and supplies. Ensure sufficient commodities and supplies are delivered according to request from hospitals and PHD and OD
- Provide feedback to sub-national level on their report and the progress of the implementation



### *Provincial Health Department and Operational District*

- Organize and conduct orientation meetings at sub-national level.
- Be trained as PHD/ OD trainers for Management of Acute Malnutrition. Conduct training of health centre staff and assist health centre staff in conducting training to VHSGs.
- Follow up of implementation after training – ensure management of acute malnutrition is being carried out according to National Interim Guidelines for Management of Acute Malnutrition in health centres and at Hospital
- Monitor the implementation of the program
- Conduct monthly meetings with health centres
- Compile monthly reports that they will receive from hospital(s) and health centres according to indicators/outcomes outlined in Monitoring and Supervision section of National Guidelines for Management of Acute Malnutrition and submit to NNP and HIS
- Request sufficient commodities and supplies from Central Medical Store (CMS) in a timely manner to ensure stock is always available at the health centres and hospital(s)
- Ensure follow up of cases that have been referred between inpatient and outpatient management of acute malnutrition
- Attend monthly meetings that health centre staff will hold with VHSGs

### *Health Centre*

- Participant the training of health centre staff on management of acute malnutrition.
- With assistance from PHD and OD, conduct training of VHSGs.
- Implement outpatient management of severe acute malnutrition without medical complications.
- Implement Targeted Supplementary Feeding Program for Management of Moderate Acute Malnutrition
- Refer and follow up cases for inpatient management of severe acute malnutrition.
- Compile monthly reports according to indicators/outcomes outlined in Monitoring and Supervision section of National Guidelines for Management of Acute Malnutrition and send it to OD.

- Request sufficient commodities and supplies from OD in a timely manner to ensure stock is always available at the health centres
- Conduct monthly meetings with VHSGs
- Inform VHSGs when cases being treated for severe or moderate acute malnutrition need a home visit and for what reason.
- Ensure that home visit reports from VHSGs are attached to individual follow up form of case at health centre.
- Regularly review with VHSGs (from VHSG referral book) that cases that have been referred to health centre are arriving.

### *VHSGs*

- Participant in the training of VHSGs.
- Conduct community mobilization/sensitisation – informing their villages about Management of Acute Malnutrition
- Conduct screening/case finding at community level- finding cases with low MUAC (Red and Yellow) or/and bilateral pitting oedema and referring to health centre
- Conduct home visits – carryout home visits on those children identified by health centre staff as needing a home visit. Need to report back result of home visit to health centre
- Provide education on how to use BP-100, CSB++ and IYCF
- Monitor CSB++ and BP-100 consumption at household level

## Annex 1: Systematic Treatment with Antibiotic for Inpatient Management of Severe Acute Malnutrition



### Antibiotics Reference Card Summary: Antibiotics for Severely Malnourished Children

IF:	GIVE:
<b>NO COMPLICATIONS</b>	<b>Cotrimoxazole</b> Oral (25 mg sulfamethoxazole + 5 mg trimethoprim / kg) every 12 hours for 5 days
<b>COMPLICATIONS</b> (shock, hypoglycaemia, hypothermia, dermatosis with raw skin/fissures, respiratory or urinary tract infections, or lethargic/sickly appearance)	<b>Gentamicin<sup>1</sup></b> IV or IM (7.5 mg/kg), once daily for 7 days, <b>plus:</b>  <b>Ampicillin</b> IV or IM (50 mg/kg), every 6 hours for 2 days  Followed by: <b>Amoxicillin<sup>2</sup></b> Oral (15 mg/kg), every 8 hours for 5 days
<b>If child fails to improve within 48 hours, ADD:</b>	<b>Chloramphenicol</b> IV or IM (25 mg/kg), every 8 hours for 5 days (Give every 6 hours if suspect meningitis.)
<b>If a specific infection requires an additional antibiotic, ALSO GIVE:</b>	<b>Specific antibiotic</b> as directed on pages 30 – 33 of the manual <i>Management of Severe Malnutrition</i>

<sup>1</sup>If the child is not passing urine, gentamicin may accumulate in the body and cause deafness. Do not give the second dose until the child is passing urine.

<sup>2</sup>If amoxicillin is not available, give ampicillin, 50 mg/kg orally every 6 hours for 5 days.

### Doses for Specific Formulations and Body Weight Ranges

ANTIBIOTIC	ROUTE / DOSE/ FREQUENCY/ DURATION	FORMULATION	DOSE ACCORDING TO CHILD'S WEIGHT		
			3 up to 6 kg	6 up to 8 kg	8 up to 10 kg
<b>Amoxicillin</b>	Oral: 15 mg/kg every 8 hours for 5 days	Tablet, 250 mg	¼ tablet	½ tablet	½ tablet
		Syrup, 125 mg/5ml	2.5 ml	5 ml	5 ml
		Syrup, 250 mg/5ml	1.5 ml	2 ml	2.5 ml
<b>Ampicillin</b>	Oral: 50 mg/kg every 6 hours for 5 days	Tablet, 250 mg	1 tablet	1½ tablet	2 tablets
	IV/IM: 50 mg/kg every 6 hours for 2 days	Vial of 500 mg mixed with 2.1 ml sterile water to give 500 mg /2.5 ml	1 ml	1.75 ml	2.25 ml
<b>Cotrimoxazole</b> sulfamethoxazole + trimethoprim, SMX + TMP	Oral: 25 mg SMX + 5 mg TMP /kg every 12 hours for 5 days	Tablet, 100 mg SMX + 20 mg TMP	1 tablet	1½ tablet	2 tablets
		Syrup, 200 mg SMX + 40 mg TMP per 5 ml	2.5 ml	4 ml	5 ml
<b>Metronidazole</b>	Oral: 7.5 mg/kg every 8 hours for 7 days	Suspension, 200 mg / 5 ml	1 ml	1.25 ml	1.5 ml
<b>Nalidixic Acid</b>	Oral: 15 mg/kg every 6 hours for 5 days	Tablet, 250 mg	¼ tablet	½ tablet	½ tablet
<b>Benzylpenicillin</b>	IV or IM: 50 000 units / kg every 6 hours for 5 days	IV: vial of 600 mg mixed with 9.6 ml sterile water to give 1 000 000 units /10 ml	2 ml	3.5 ml	4.5 ml
		IM: vial of 600 mg mixed with 1.6 ml sterile water to give 1 000 000 units /2ml	0.4 ml	0.7 ml	0.9 ml

## Doses for Selected Antibiotics, for Specific Formulations and Body Weights

ANTIBIOTIC	ROUTE / DOSE FREQUENCY/ DURATION	FORMULATION	DOSES FOR SPECIFIC BODY WEIGHTS <i>(Use closest weight)</i>									
			3 kg	4 kg	5 kg	6 kg	7 kg	8 kg	9 kg	10 kg	11 kg	12 kg
<b>Chloramphenicol</b>	IV or IM: 25 mg/kg every 8 hours (or every 6 hours if suspect meningitis) for 5 days	IV: vial of 1 g mixed with 9.2 ml sterile water to give 1g/10 ml	0.75 ml	1 ml	1.25 ml	1.5 ml	1.75 ml	2 ml	2.25 ml	2.5 ml	2.75 ml	3 ml
		IM: vial of 1 g mixed with 3.2 ml sterile water to give 1g/4ml	0.3 ml	0.4 ml	0.5 ml	0.6 ml	0.7 ml	0.8 ml	0.9 ml	1 ml	1.1 ml	1.2 ml
<b>Gentamicin</b>	IV or IM: 7.5 mg/kg once daily for 7 days	IV/IM: vial containing 20 mg (2 ml at 10mg/ml), undiluted	2.25 ml	3 ml	3.75 ml	4.5 ml	5.25 ml	6 ml	6.75 ml	7.5 ml	8.25 ml	9 ml
		IV/IM: vial containing 80 mg (2 ml at 40 mg/ml) mixed with 6 ml sterile water to give 80 mg/ 8 ml	2.25 ml	3 ml	3.75 ml	4.5 ml	5.25 ml	6 ml	6.75 ml	7.5 ml	8.25 ml	9 ml
		IV/IM: vial containing 80 mg (2 ml at 40 mg/ml), undiluted	0.5 ml	0.75 ml	0.9 ml	1.1 ml	1.3 ml	1.5 ml	1.7 ml	1.9 ml	2 ml	2.25 ml

### Doses of Iron Syrup for a Common Formulation

Weight of child	Dose of Iron Syrup: Ferrous Fumerate 100 mg per 5 ml (20 mg elemental iron per ml)
3 up to 6 kg	0.5 ml
6 up to 10 kg	0.75 ml
10 up to 15 kg	1 ml

## Annex 2: Routine Drugs in Outpatient Management of Severe Acute Malnutrition without medical complications

ROUTINE MEDICINES FOR OUTPATIENT SAM WITHOUT COMPLICATIONS				
Name of Product	When	Age/Weight	Prescription	Dose
<b>VITAMIN A*</b>	At discharge	6 months to < 1 year	100 000 IU	Single dose at discharge
		≥ 1 year	200 000 IU	
<b>Amoxicillin</b>	At admission	<b>All Beneficiaries</b>	25mg/kg/dose (based on IMCI Guidelines)	2 times/day for 7 days
<b>MEBENDAZOLE</b>	1 <sup>st</sup> follow up visit (on week 2)	< 1 year	<b>DO NOT GIVE</b>	None
		12-23 months	250 mg	Single dose on second visit
		24-59 months	500 mg	
<b>MEASLES VACCINATION</b>	At admission if not received at 9 months	From 9 months	Standard	Once at admission if not received at 9 months. Give 2 <sup>nd</sup> dose at 18 months

\* Vitamin A should not be given on admission to SAM children who receive F-75, F-100 or BP-100. One dose should be given at discharge.

IRON and FOLIC ACID: Not to be given routinely. Where anaemia is identified according to IMCI guidelines treatment should begin after 14 days in the programme. For severe anaemia refer to inpatient care

### Annex 3: BP-100 Quantity by Weight

Quantity of BP-100 (1 bar (2 tablets) = 300 kcal)

Weight of Child (kg)	Bars per week	Tablets per 2 weeks	Bars per day	Tablets per day
4.0 – 4.9	21	84	3	6
5.0 - 6.4	28	112	4	8
6.5 – 8.4	35	140	5	10
8.5 – 9.9	42	168	6	12
10.0-10.9	49	196	7	14
11.0-12.4	56	224	8	16
12.5 – 13.9	63	252	9	18
≥14	70	280	10	20

## Annex 4: Monthly Report for Inpatient Management of Severe Acute malnutrition in Hospital

Month and Year \_\_\_\_\_ Province: \_\_\_\_\_ Hospital Name: \_\_\_\_\_

Age in Month	Type of Admission							Type of Discharge/Exit		Died		Referral		
	W/H <-3 SD	Oedema	Visible Wasting	Referred from Outpatient	Referred from MAM	Total		Discharge: 'Cured' 15% weight gain	Discharge: 'Non-Cured'	Total	HIV+	Other Units	Other Hosp.	Outpatient
						All admissions	Known HIV+							
0-6														
6-59														
>60														
<b>Total</b>														
								%	%	%				
<b>Sphere standards</b>								<b>&gt; 75%</b>	<b>&lt; 15%</b>	<b>&lt; 10%</b>				

### Monthly Supplies Used

Supply	Unit	# of used
ReSoMal	Sachet 84 mg	
F-75	Sachet 84 mg	
F-100	Sachet 84 mg	
BP 100	Tablets	

Seen and approved by:

Chief of Ward

### Section food demonstration and education

Number of food cooking demonstration sessions	Number Caretakers attended

Date (day/month/year...../ ...../ .....

Report by:

## Annex 5: Monthly Report for Outpatient Management of Severe Acute Malnutrition without Medical Complications at Health Centre

PHD:				Report prepared by:						
OD:				Date:						
HC:				<b>Estimated target :severely malnourished &lt;5's (based on latest survey data and admission criteria)</b>						
BP- 100 given: ..... tablets										
A- Total beginning of the month	B-New Cases	C-Old Cases	D-Total admission	E- Discharges				F-Referred	G-Total Exits H=E+F	H-Total end of month H=D-G
	6- 59 months according to admission criteria	Return from Inpatient Care and return defaulters	D=B+C	E1- Cured	E2-Death	E3- Defaulter	E4-Non- Cured	To Inpatient Care		
<b>Sphere Standards</b>				>75%	< 10%	< 15%				
<p>E1: Cured = reaches discharge criteria  E2: Death = died will admitted in program  E3: Defaulter= absent for 2 consecutive visits  E4: Non Cured= does not reach the discharge criteria after 4 months in Outpatient management of severe acute malnutrition without complication  H: Total end of the month= Total beginning of the month(A)+ Total admissions (D)-Total exits (G)</p>										



## Annex 6: Routine drugs for Moderate Acute Malnutrition in TSFP

NAME OF PRODUCT	WHEN	AGE	PRESCRIPTION	DOSE
Vitamin A*	At admission	6 months to < 1 year	100 000 IU	Single dose on admission
		> = 1 year	200 000 IU	
Mebendazole**	At admission	< 1 year	DO NOT USE	NOTHING
		12-23 months	250 mg	Single dose on admission
		24 -59 months	500 mg	Single dose on admission

\* Do not repeat the dosage of Vitamin A if the child has already received a supplement of Vitamin A during the last 4 months

\*\* Or other Antihelminth according to national guidelines: Mebendazole every six months (around May and November): 1 to <2 years 250mg, > 2-5 years 500mg.

**IRON AND FOLIC ACID:** Should not be given routinely. If a child is diagnosed with anaemia then treat according to the WHO or MoH/national protocol.

## Annex 7: Monthly Report for Management of Moderate Acute Malnutrition – TSFP

PHD:				Report prepared by:							
OD:				Date:							
HC:				Estimated target :moderately malnourished <5's (based on latest survey data and admission criteria)							
CSB++ given: .....Kg											
A- Total beginning of the month	B-New Cases		C-Old Cases	D-Total admission  D=A+B+C	E- Discharges				F-Refer	G-Total Exits H=E+F	H-Total end of month  H=D-G
	6- 59 months according to admission criteria		Return from Out patient, Inpatient Care and returned defaulter		E1-Cured	E2-Death	E3-Defaulter	E4-Non-Cured	To Inpatient or Out patient Care		
					%	%	%	%			
<b>Sphere Standards</b>					>75%	< 3 %	< 15%				
<p>E1:Cured = reaches discharge criteria  E2: Death = Died while admitted in program  E3: Defaulter= absent for 2 consecutive visits  E4: Non Cured= does not reach the discharge criteria after 4 after 3 months  H: Total end of the month= Total beginning of the month(A)+ Total admissions (D)-Total exits (G)</p>											

## Annex 8: Supervision Checklist: Outpatient Management of Severe Acute Malnutrition without medical complications at health centre

Activity*	Yes	No	N/A	Comments
Correct identification of bilateral pitting oedema.				
Mid upper arm circumference measured accurately.				
Weight measured accurately				
Enrolment in outpatient management of severe acute malnutrition without medical complications according to correct admission criteria.				
Medical history and physical examination taken correctly and recorded.				
Correct administration of appetite test.				
Correct administration of routine medications.				
Correct administration of RUTF(BP-100).				
Passing on key messages and checking whether caretaker understands.				
During follow up visits, correct decisions concerning whether child needs referral to inpatient care or needs a home visit.				
Reporting of results of home visit.				
Including in monthly reports admissions and exits according to category for admissions and outcomes for exits (cured, defaulter, deaths, refers, non recovered).				

Discharged according to correct criteria.				
In good working condition equipment and materials, including weight scale, MUAC tapes.				
Sufficient supplies and materials: IMCI, Follow up Forms, Referral Slips Recording/Reporting forms, Job Aid, and IEC/BCC materials.				
Sufficient supplies: BP-100 and ReSoMal .				

**\*Please tick relevant column**

## Supervision Checklist: Management of Moderate Acute Malnutrition at health centre – TSFP

Activity*	Yes	NO	N/A	Comments
Mid upper arm circumference measured accurately.				
Weight measured accurately.				
Enrolment in to management of moderate acute malnutrition according to correct admission criteria.				
Correct administration of routine medications.				
Correct administration of CSB++.				
Passing on key messages and checking whether caretaker understands.				
During follow up visits, correct decisions concerning whether child needs referral to inpatient care or outpatient management of severe acute malnutrition without medical complications.				
Including in monthly reports admissions and exits according to category for admissions and outcomes for exits (cured, defaulter, deaths, refers, non recovered).				
Discharged according to correct criteria.				
In good working condition equipment and materials, including weight scale, MUAC tapes.				
Sufficient supplies and materials: IMCI, Follow up Forms, Referral Slips Recording/Reporting forms, Job Aid, and IEC/BCC materials.				
Sufficient supplies: CSB++.				

**\*Please tick relevant column**

## Supervisory checklist for field implementers of VHSGs

Activity*	Yes	No	Comments
Are cases being screened?			How many screened each month? _____
Are cases being referred?			How many referred each month? _____
Are cases being referred arriving at health centre?			How many referred arriving each month? _____
Correct identification of bilateral pitting oedema.			How many children are correctly identified? _____
Mid upper arm circumference measured accurately.			How many children are accurately measured? _____
Passing on key messages on CSB++ during home visits and checking whether caretaker understands.			How many caretakers received key message each month? _____
Passing on key messages on BP-100 during home visits and checking whether caretaker understands.			How many caretakers received key message each month? _____
Consumption CSB++ being followed up.			How many children are being followed up? _____
Consumption BP-100 being followed up.			How many children are being followed up? _____
Reporting of results of home visit.			Please indicate only key findings of:  - Progress:  - Challenges:  - Recommended for further follow up:
Reporting reasons for absence of follow up.			
Sufficient and in good working condition: MUAC, IEC/BCC materials.			

**\*Please tick relevant column**



## Glossary

**Early initiation of Breastfeeding** – Breastfeeding a newborn within the first hour of delivery. Early initiation of breastfeeding has been shown to reduce newborn and infant mortality, ensures that a newborn receives colostrums, the “first milk” that has high levels of antibodies, Vitamin A and other protective factors, helps establish breastfeeding, fosters bonding between mother and infant, takes advantage of the newborn’s alert state and intense suckling reflex, and reduces the risk of postpartum hemorrhage in mothers.

**Exclusive Breastfeeding** - Exclusive breastfeeding means giving infant only breast milk, and no other liquids or solids, not even water. Drops or syrups consisting of vitamins, mineral supplements, or medicines are permitted. Exclusive breastfeeding is recommended for the first 6 months of an infant’s life, due to its many scientifically proven benefits, including reduced risk of infant mortality, immune protection which reduces the incidence and severity of common childhood illnesses like diarrhea and respiratory infections, promotes recovery from illnesses, meets all water requirements, benefits maternal health, and provides considerable nutritional and economic benefits.

**Complementary feeding** – From the age of 6 months , babies require other foods in addition to breast milk; the process of feeding these foods in addition to breastfeeding is called complementary feeding. Complementary feeding should be: *timely*, meaning that infants should start receiving foods in addition to breast milk from 6 months onwards; *adequate*, meaning that the complementary foods should be given in amounts, frequency, consistency, and using a variety of foods to cover the nutritional needs of the growing child while maintaining breastfeeding; *safe* meaning that foods are prepared, given, and stored in a manner that minimize the risk of contamination with pathogens, with clean hands using clean utensils, and not fed with bottles or nipples; and *properly fed*, meaning that the child is fed by someone else, usually an adult, using active or responsive feeding techniques.

**Continued breastfeeding** – Breastfeeding the infant or young child after 6 months and through at least 2 years of life. Breastmilk continues to be an important source of macro and micronutrients during the first two years of life, while also providing critical immune protection. Breastfed children at 12-23 months of age receive on average 35-40% of total energy needs from breast milk with 60-65% to be covered by complementary foods (Dewey KG, Brown KH. Update on technical issues concerning complementary feeding of young children in developing countries and implications for intervention programs. Food Nutr Bull 2003; 24: 5-28.) Approximately 3.5 million children in the world continue to die annually from diarrhea, pneumonia and neonatal sepsis, all of which are significantly reduced by breast feeding, and over one third of the 10 million childhood deaths annually are associated with undernutrition (WHO, 2010). Breastfeeding has been identified as the single most effective child



survival intervention, estimated to prevent 1.3 million (or 13% of) deaths to children under 5 in the world annually (ref Jones, G., Steketee, R. W., Black, R. E., Bhutta, Z. A., Morris, S. & the Bellagio Child Survival Study Group (2003) How many child deaths can we prevent this year? Lancet 362: 65–71.).

**Malnutrition** – poor nutrition, a term usually used to refer to under-nutrition, but can also be applied to overweight or obesity. The term malnutrition is used to describe poor micronutrient status as measured by various indices or poor macronutrient status, as evidenced by low weight, short stature (height) or thinness (low weight for a given height). Under-nutrition is determined and presented in terms of Z-scores of less than -2 and -3 standard deviations (SD) compared with WHO Child Growth Standards (WHO Multicentre Growth Reference Study Group. 2006. *WHO Child Growth Standards: Length/height-for-age, weight-for-age, weight-for length, weight-for-height and body mass index-for-age: Methods and development*. Geneva: World Health Organization. Available at [http://www.who.int/childgrowth/standards/Technical\\_report.pdf](http://www.who.int/childgrowth/standards/Technical_report.pdf)). All children below -2 SD for height/length for-age, weight-for-height, and weight-for-age are considered to be under-nourished/malnourished.

**Acute Malnutrition** – also referred to as wasting, refers to low weight-for-height/length or a weight-for-height/length below -2 SD of the WHO Child Growth Standards. Acute malnutrition is an indicator of a recent nutritional problem, evidenced by a recent weight loss.

**Moderate Acute Malnutrition** – low weight-for-height, between -2SD and -3SD of the WHO Child Growth Standards.

**Severe Acute Malnutrition (SAM)** – very low weight-for-height, below -3SD of the WHO Child Growth Standards. Children who have SAM need immediate treatment as their risk of mortality is greatly elevated.

**Wasting** – low weight-for-height/length, also known as acute malnutrition (see above).

**Underweight** – low weight-for-age, between -2SD and -3SD of the WHO Child Growth Standards. Severely underweight is a weight-for-age below -3SD or below the red line on the weight-for-age chart on the Child Health Card (Yellow Card). Underweight is an indicator of both acute and/or chronic undernutrition.

**Stunting** – short or low height/length-for-age (severely stunted is a length/height-for-age below -3SD). Children under 2 years of age should be measured lying down, and this measurement is referred to as recumbent length, or more commonly length. Children over 2 years of age should be measured standing up, and this measurement is referred to as standing height or more commonly, height. Stunting is an indicator of linear growth retardation due to chronic undernutrition, or nutritional problem that occurs over a long time.

**MUAC** – mid upper arm circumference. A joint statement by WHO and UNICEF in 2009 presented an update on the community screening for the identification of 6-59 month old infants and children with severe acute malnutrition (SAM). The recommended diagnostic criteria for this population in the Joint Statement are severe wasting (weight-for-height below  $-3$  SD of the WHO Child Growth Standards or MUAC below 11.5 cm or the presence of bilateral oedema (WHO child growth standards and the identification of severe acute malnutrition in infants and children: a joint statement by the WHO and the United Nations Children's Fund. Geneva: WHO, 2009.)

**Growth Assessment Growth Promotion** – more commonly referred to as Growth Monitoring (GM) or Growth Monitoring and Promotion (GMP). Child growth is considered one of the most sensitive indicators of child health, thus growth assessment/growth promotion is used around the world as part of basic pediatric care – to prevent, detect, and treat health and nutrition problems. Growth monitoring is the regular recording of a child's weight, coupled with some specific remedial actions if the weight or growth is abnormal in some way. Thus, good growth monitoring includes more than routine weighing and plotting the child's weight and growth on a growth chart. It also means interpreting the child's weight and growth, and taking appropriate action based on the results. This action can be as simple as asking questions of the caretaker to find out reasons for good or poor growth, then providing tailored feeding and health advice (and/or treatment for illness) based on the caretaker's responses and negotiating changes in home practices with her. A 2004 survey conducted by WHO in preparation of the 2006 WHO Child Growth Standards found that growth monitoring is used universally in pediatric care throughout the world, with all countries reporting (154 countries or 87% of the 178 countries who responded to the survey) using weight-for-age growth charts and half relying on this index alone. (Worldwide practices in child growth monitoring. Original Research Article *The Journal of Pediatrics*, Volume 144, Issue 4, April 2004, Pages 461-465 Mercedes de Onis, Trudy M.A Wijnhoven, Adelheid W Onyango).

**Supplementary Feeding** - Providing extra food to children or families beyond the normal ration of their home diets. Supplementary feeding is an intervention aimed at supporting the nutritional well-being of the target population. It is also used to help in the management of acute malnutrition in situations where there is a raised prevalence of acute malnutrition among children under five ( $>15\%$  weight-for-height below  $-2$  SD) and the presence of aggravating factors such as poor food security in the general population, disease epidemic and raised mortality (severity of a crisis). Supplementary feeding either targets moderately malnourished individuals with a view to restoring adequate nutritional status (targeted supplementary feeding) or all those in a group thought to be at nutritional risk in order to prevent nutritional deterioration (preventive or blanket supplementary feeding). Children under 2, 3 or 5 years of age, pregnant women and lactating women are the most commonly targeted groups. The justification for a supplementary feeding intervention, the objectives, the target groups and a viable exit strategy should be defined at the start of the intervention.

**Positive Deviance/Hearth** - Positive Deviance (PD)/Hearth is a home or community based nutrition intervention for children who are at risk of or suffering from under-nutrition. The intervention uses the “positive deviance” approach to identify those behaviors practiced by the caretakers or caretakers of well-nourished children from poor families (known as “positive deviants”) and to refer such positive practices to others in the community with malnourished children or children of the same age. The “Hearth” or home (which can also be a community gathering place) is the location for the nutrition education and rehabilitation sessions. PD/Hearth is used to both prevent and treat under-nutrition. If a child is moderately acutely malnourished this type of intervention may help him to recover and prevent further deterioration.

**Cash Transfers** – Direct payment of money to eligible poor or underserved people, usually by the government or an agent acting on behalf of the government, as part of a social protection program. The aims of cash transfer programs are to decrease poverty, improve equity, and/or achieve health, nutrition and/or educational objectives. Cash transfers can be conditional or unconditional. Conditional cash transfer (CCT) programs are the most common type of cash transfer program. Conditional cash transfer programs make payments conditional upon the receivers' actions. Money is transferred to people or households who meet certain criteria at regular intervals. These criteria may include receiving vaccinations, getting regular check-ups at health facilities (usually linked to growth monitoring and promotion), enrolling children in school, or the like. Conditional cash transfers programs exist in Brazil, Chile, Colombia, Egypt, Guatemala, Honduras, Jamaica, Indonesia, Malawi, Mexico, Nicaragua, Panama, Peru, Turkey, Zambia, as well as other countries, and are being piloted in Cambodia.

**Food Vouchers** - Cards or coupons that can be redeemed for food items or spent in selected shops. Food vouchers are used to tackle hunger in places where food is available in the marketplace but where poor people cannot afford to buy it. Cash transfers and vouchers can sometimes cut down the costs of transporting and storing food. They benefit the local economy, because beneficiaries spend the money in local markets. People often prefer cash and vouchers to traditional food assistance, because they offer more choice and variety.

**F-75** – The therapeutic milk feed used in the initial, stabilization phase of inpatient management of severe acute malnutrition, sometimes called the “starter” feed. F-75 contains less protein and more sugar than F-100 (described below) and thus more easily tolerated in severely malnourished children at the start of treatment. Per 100 ml, F-75 provides: 75 kcals energy (thus the designation F-75), 0.9 g protein, 1.3 g lactose, 3.6 mmol potassium, 0.6 mmol sodium, 0.43 mmol magnesium, 2.0 mg zinc, and 0.25 mg copper. Five percent (5%) of energy comes from protein and 32% from fat, with 333 mOsmol/l osmolarity. F-75 can also be made on site using dry skimmed milk, dried whole milk, fresh cow's milk or long life whole milk, sugar, vegetable oil, water, a mineral mix (containing potassium, magnesium and other minerals), and if

cooking facilities are available, cereal flour; the recipe varies depending on the type of milk used or if there is no cereal flour or cooking facility available.

**F-100** – The therapeutic milk feed used in the transition and rehabilitation phases of inpatient management of severe acute malnutrition, sometimes called the “catch up” feed. Per 100 ml, F-100 provides: 100 kcals energy (thus the designation F-100), 2.9 g protein, 4.2 g lactose, 5.9 mmol potassium, 1.9 mmol sodium, 0.73 mmol magnesium, 2.3 mg zinc, and 0.25 mg copper. Twelve percent (12%) of energy comes from protein and 53% from fat, with 419 mOsmol/l osmolarity. F-100 can also be made on site using dry skimmed milk, dried whole milk, fresh cow’s milk or long life whole milk, sugar, vegetable oil, water, and a mineral mix (containing potassium, magnesium and other minerals); the recipe varies depending on the type of milk used. Cooking facilities are not needed as cereal flour is not part of the recipe.

**BP-100** – A high energy wheat and oat based biscuit, with high levels of protein and fortified with vitamins and minerals. BP-100 contains wheat flour (baked), oat flour (baked), vegetable oil, sugars, milk proteins, skimmed milk powder, vegetable protein, minerals and vitamins. Per 100 g, BP-100 provides: 527 kcal energy, 14.5g protein, 31.0g fat, <5.0g Ash, with a moisture content: <4.0g. BP-100 is the RUTF currently being used on a pilot basis to treat outpatient cases of severe acute malnutrition without medical complications in Kampong Speu.

**ReSoMal** – A special type of Oral Rehydration Solution (ORS) designed for the treatment of severely malnourished children. ReSoMal is composed of: Glucose 55mmol, Sucrose 73mmol, potassium 40mmol, sodium 45mmol, chloride 70mmol, citrate 7mmol, magnesium 3mmol, zinc 3000 µmol, copper 45µmol. Its osmofarity is 294mEq/litre. A sachet of 84 g has to be diluted in 2 litres of drinking water.

**CSB++** - Corn Soya Blend Plus Plus. Corn Soya Blend (CSB) is the main fortified blended food (FBF) distributed by the World Food Programme (WFP). FBFs are blends of partially precooked and milled cereals, soya, beans, and pulses fortified with micronutrients (vitamins and minerals). CSB++ contains corn (maize white or yellow), de-hulled soya beans, dry skim milk powder, sugar, refined soya bean oil, a vitamin/mineral premix (FBF-V-10), CA (H<sub>2</sub>PO<sub>4</sub>) monocalcium phosphate, and KCl (potassium chloride). The nutritional value per 100g dry of CSB++ is: 410 kcal (energy), 16% protein, 9% fax, 3% crude fiber, 1000 mg lysine, 576 mg methionine + cystine, 630 mg alpha linolenic acid, and 4680 mg linoleic acid. Compared to CSB, CSB++ has greater energy density (due to increased fat content), reduced crude fibre, reduced moisture content (and therefore better microbiological control) and reduced antinutrients through tighter control on aflatoxin and coliforms. CSB++ is made to be mixed with water and cooked as a porridge.

**Kangaroo Mother Care** – Kangaroo care (also Kangaroo Maternal [Mother] Care or Skin-to-Skin Contact and Breastfeeding) is a way of holding a preterm or full term newborn or infant so that there is skin-to-skin contact between the infant and its mother. The naked baby is held against the mother’s bare chest. Kangaroo care

consists of skin-to-skin contact, exclusive breastfeeding, and support for the mother-infant pair. Kangaroo care for preterm infants is typically practiced for two to three hours per day over an extended time period in early infancy. With babies who are medically stable, there is no maximum duration for kangaroo care. Some mothers may keep their babies in kangaroo care for many hours per day. The label kangaroo care was chosen to describe this strategy because the method is similar to how a kangaroo is carried by its mother. It is estimated that more than 200 neonatal intensive care units practice kangaroo care today compared to less than 70 in the early 1990s. One recent survey found that 82 percent of neonatal intensive care units (over 200 facilities) use kangaroo care in the United States. Kangaroo care has many proven benefits that include: normal temperature, heart rate and respiratory rates in newborns, strengthened immune protection, more success with breastfeeding, improved milk supply, increased weight gain, improved bonding, longer periods of sleep, decreased crying, longer periods of alertness, and earlier hospital discharge, among others.

**Relactation** – The process of “lactating again” or restarting breastfeeding in a woman who has previously stopped breastfeeding. Relactation usually takes 3-5 days and can be accomplished by putting the baby to the mother’s breast every couple of hours, during the day and night. Frequent suckling stimulates the mother’s breast milk production.

**Beriberi** – A disease caused by Vitamin B1 (thiamine) deficiency. Beriberi is common in parts South East Asia, attributed to a staple diet of polished white rice, because the thiamin-bearing husk has been removed. In Cambodia, beriberi is thought to be an important cause of infant death. Beriberi causes cardiovascular and neurological signs and symptoms, and is often difficult to diagnose as many of the signs and symptoms are similar to other diseases. In breastfed babies under 3 months, signs often appear like colic with screaming bouts, restlessness, anorexia and vomiting, which progress to oedema, cyanosis and breathlessness with signs of heart failure; these babies die from heart failure. Typhoid, malaria, pneumonia and septicaemia are commonly confused with this form of beriberi. In 4-6 month old children, the baby’s cry gets weaker and weaker until no sound is produced. Without treatment these infants progress over a few days to restlessness, oedema, breathlessness and then death. In 6-12 month old children, patients often appear to have encephalitis, meningitis, malaria, kwashiorkor or acute vitamin A intoxication. Signs include flickering of the eye, muscle twitching, a bulging fontanelle and convulsion or unconsciousness. Treatment of all forms of beriberi consists of giving thiamine supplements either orally or via injection. A rapid and dramatic response within hours can be seen when thiamine supplements are administered to patients, although complete treatment and recovery continues over a longer period.

**Ready to Use Therapeutic Foods (RUTF)** – RUTF are soft or crushable prepackaged foods that can be consumed easily by children from the age of six months without adding water and used in the treatment of acute malnutrition. RUTF have a similar

nutrient composition to F-100, which is the therapeutic diet used in hospital settings for acutely malnourished children. Unlike F-100, RUTF are not water-based, meaning that bacteria cannot grow in them. Therefore these foods can be used safely at home without refrigeration and even in areas where hygiene conditions are not optimal. Some examples of RUTF are PlumpyNut and BP-100.

**Stabilization phase:** The first phase of inpatient treatment of severe acute malnutrition, when life-threatening problems are identified and treated in a hospital or a residential care facility, specific deficiencies are corrected, metabolic abnormalities are reversed and feeding is begun (F-75). This includes treatment of hypoglycaemia, hypothermia and dehydration, as well as the correction of electrolyte imbalance, treatment of infection and the correction of micronutrient deficiencies while excluding iron.

**Transition phase:** The second phase of inpatient treatment of severe acute malnutrition, when with the return of the child's appetite and reduced oedema, the feeding is moved from F-75 to F-100. Additionally, routine antibiotic therapy is continued during this phase.

**Rehabilitation phase:** The third phase of inpatient treatment of severe acute malnutrition, when correction of the electrolyte imbalance is continued, iron is included in the correction of micronutrient deficiencies, intensive feeding is given to recover most of the lost weight, emotional and physical stimulation are increased, the caregiver is trained to continue care at home, and preparations are made for discharge of the child.

**Follow up:** The final stage of treatment of severe acute malnutrition. After discharge, the child and the child's family are followed to prevent relapse and assure the sustained mental, emotional and physical development of the child. The latter consists of routine visits (every week or every other week and additionally if problems or questions arise) to or from a health provider for a medical check-up, growth assessment, feeding and health counselling, and a continued intensive feeding regimen using RUTF and/or home foods to allow for further catch-up growth. When these are done, the risk of death can be substantially reduced and the opportunity for full recovery greatly improved.