



Government of Malawi
Ministry of Health

Training Course on
INPATIENT
MANAGEMENT OF
SEVERE ACUTE
MALNUTRITION

**Manual for the
Home-Craft Workers
Module**



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Preface

The *Malawi Inpatient Management of Severe Acute Malnutrition Training Package* includes training modules, training guides, training aids, training planning tools, and job aids. The training package is based on the 2002 World Health Organisation (WHO) Training Course on the Management of Severe Malnutrition (SAM) and has been updated to include the 2013 WHO update on management of SAM in infants and children. The training package guides participants in applying the National Guidelines for the Community-based Management of Acute Malnutrition (CMAM), 2016.

This *Module* is one of a set of training guides and modules for conducting the *Training Course on Inpatient Management of Severe Acute Malnutrition*. This module is specifically intended for home-craft workers who, alongside clinicians and nurses, participate in the inpatient management of children with SAM. Training facilitators of this module should follow instructions outlined in the *Facilitator Guide for Home-Craft Workers Module*.

Acronyms and Abbreviations

AWG	average daily weight gain
cm	centimetre(s)
CMAM	Community-based Management of Acute Malnutrition
CMV	combined mineral and vitamin mix
dl	decilitre(s)
ETAT	Emergency Triage Assessment and Treatment
g	gram(s)
Hb	haemoglobin
HCW	home-craft worker
HFA	height-for-age
HIV	human immunodeficiency virus
IM	intramuscular
IMCI	Integrated Management of Childhood Illness
IU	international unit(s)
IV	intravenous
IYCF	infant and young child feeding
kcal	kilocalorie(s)
kg	kilogram(s)
L	litre(s)
LOS	length of stay
M&R	monitoring and reporting
MAM	moderate acute malnutrition
mg	milligram(s)
ml	millilitre(s)
mm	millimetre(s)
MOH	Ministry of Health
MUAC	mid-upper arm circumference
NG	nasogastric
OPD	outpatient department
ORS	oral rehydration solution
QI	quality improvement
RDT	rapid diagnostic test
ReSoMal	rehydration solution for malnutrition
RUTF	ready-to-use therapeutic food
SAM	severe acute malnutrition
SFP	supplementary feeding programme
TB	tuberculosis
WFH	weight-for-height
WFL	weight-for-length
WFP	World Food Programme
WHO	World Health Organisation

Overview of the Module

This training module is aimed to equip home-craft workers (HCW) with comprehensive knowledge and skills to assist clinicians and nurses to manage a child with severe acute malnutrition (SAM) who is admitted to inpatient care. This module describes how to recognise a child with SAM; how to administer and monitor feeding; how to provide the essential components of daily care in the ward; how to monitor progress of care, how to prepare reports and improve quality of care; and how to prepare the mothers/caregivers for discharge to outpatient care.

This module is divided in the following five main sections:

1. Principles of Care
2. Feeding
3. Daily Care
4. Monitoring, Reporting and Quality Improvement
5. Involving Mothers in Care

1. Principles of Care

1.1 Introduction

Nutrition is a broad term referring to processes involved in eating, digestion and utilisation of food by the body for growth and development and maintenance of health.

Malnutrition occurs when an individual's food intake is not balanced with his or her nutritional needs resulting in poor health status.

This training focuses on the severe form of acute malnutrition. Severe acute malnutrition (SAM) is defined by severe wasting (thinness) and/or presence of bilateral pitting oedema.

Learning objectives

By the end of this section, you will be able to:

- Identify a child with SAM using visible clinical signs:
 - Visible severe wasting
 - Bilateral pitting oedema
 - Eye signs
 - Skin lesions
- Identify a child with SAM by weighing and measuring the child
 - How to measure mid-upper arm circumference (MUAC)
 - Determine severe wasting based on MUAC
 - Measure weight
 - Measure height or length
 - Determine severe wasting based on low weight-for-height (WFH) or weight-for-length (WFL) z-score
- Understand the criteria for admission in the CMAM program

1.2 Identifying SAM using Visible Clinical Signs

Visible clinical signs and anthropometric indicators are used to determine:

1. Whether a child has SAM and needs treatment,
2. If the child should be treated in Out-patient Therapeutic Program (OTP) or Nutrition Rehabilitation Unit (NRU).

We will first learn about the visible clinical signs, to be followed by the anthropometric indicators of SAM.

1.3 Visible Severe Wasting

A child with severe wasting has lost fat and muscle. A clinical term used for this condition is 'marasmus'.

To look for severe wasting, remove the child's clothes. Look at the front view of the child:

- Are the ribs easily seen?

- Does the skin of the thighs or upper arms look loose?

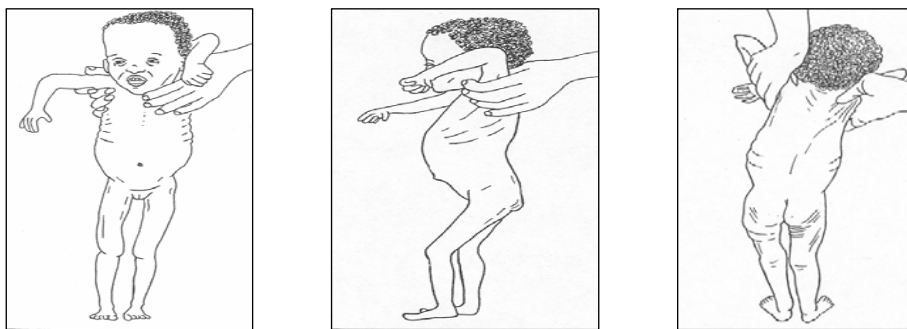
Look at the back view of the child:

- Are the ribs and shoulder bones easily seen?
- Is there too little flesh in the buttocks?

If the child is severely wasted, he or she will have folds of skin on the buttocks and thighs that look like ‘baggy pants’.

Because a wasted child has lost fat and muscle, the child’s mid upper arm circumference (MUAC) reading is low. The child weighs less than healthy children of the same height or length, therefore will have a low weight for height (WFH) or low weight for length (WFL).

MUAC or WFH/WFL should be checked to confirm severe wasting.



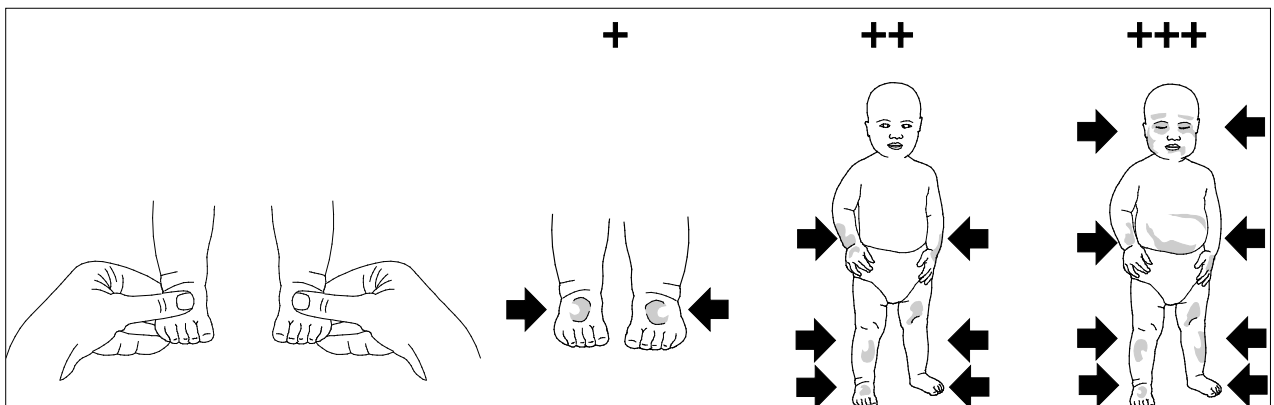
1.4 Bilateral Pitting Oedema (Swelling)

Oedema is an accumulation of fluid in the tissues. Oedema in a SAM child is bilateral and pitting.

To check for oedema, grasp both feet so that they rest in your hands with your thumbs on top of the feet. Press your thumbs gently for a few seconds (*count one hundred one, one hundred two, one hundred three*). The child has bilateral pitting oedema if a pit (dent) remains in both feet when you lift your thumbs.

The extent of oedema is commonly graded in the following way:

- + mild: oedema in both feet
- ++ moderate: oedema in both feet, plus lower legs, hands or lower arms
- +++ severe: generalised oedema, including both feet, legs, hands, arms and face



Pictures of Bilateral Pitting Oedema

Mild (Grade +)

This child has mild, grade + bilateral pitting oedema. However, the child might have grade ++ or +++, so legs and face will also need to be checked.



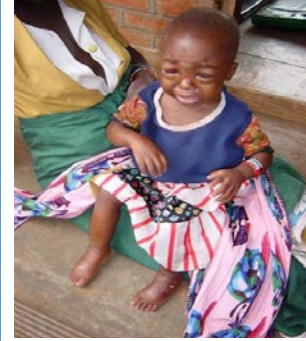
Moderate (Grade ++)

In this child both feet plus the lower legs, hands and lower arms are swollen. This is moderate or grade ++ bilateral pitting oedema.



Severe (Grade +++)

This child has grade +++ or severe bilateral pitting oedema. It is generalised, including feet, legs, arms, hands and face.



1.5 Dermatosis (Skin Lesions)

Dermatosis is a condition of the skin, common in children that have bilateral pitting oedema.

A child with dermatosis may have:

- Patches of skin that are abnormally light or dark in colour
- Shedding of skin
- Wounds and discharges from peeling of the skin
- There may be a severe rash in the nappy area.

Any break in the skin can let dangerous bacteria into the body, which is more serious when the skin has open wounds and discharges.

Care of dermatosis is discussed in **Section 3: Daily Care**.

1.6 Eye Signs

Children with SAM may have signs of eye infection and/or vitamin A deficiency which, if not treated immediately, may lead to blindness.

Treatment and care of all eye signs will also be discussed in **Section 3: Daily Care**.

1.7 Emergency Triage, Assessment and Treatment (ETAT)

SAM children should be triaged using ETAT principles upon admission. Home-craft workers, patient attendants should assist the clinicians and nurses in triaging.

During triage, sick children are screened immediately after their arrival in hospital, to identify:

- Those with emergency signs, who require immediate emergency treatment.
- Those with priority signs, who should be moved to the front of the queue so that they are treated without delay.
- Stable cases, who have neither emergency nor priority signs.

Emergency signs include:

- Signs of severe breathing problems (e.g. cough with fast breathing, chest indrawings, difficulties in breathing)
- Bluish discolouration of lips and tongue, due to lack of oxygen (central cyanosis)
- Signs of shock (cold hands, pulse difficult to feel, etc.)
- Loss of consciousness
- Convulsions
- No appetite
- Vomiting continuously
- Very weak and drowsy
- Hypoglycaemia
- High fever (axillary temperature $\geq 38.5^{\circ}\text{C}$)
- Hypothermia (axillary temperature $< 35^{\circ}\text{C}$)
- Severe anaemia (palmar pallor)
- Skin lesions
- Blinding eye signs of vitamin A deficiency
- Signs of severe dehydration in a child with diarrhoea (lethargy, sunken eyes, very slow return after pinching the skin or any two of these).

Children with these signs are at higher risk of dying. Therefore, should not be kept waiting on the queue or treatment room. Consult a clinician or nurse immediately.

If there are no emergency signs, check for the following priority signs, apart from malnutrition:

- Tiny infant: any sick child aged < 2 months
- Temperature: child is very hot
- Trauma or other urgent surgical condition
- Pallor
- History of poisoning
- Pain
- Respiratory distress
- Restless, continuously irritable or very weak
- Child referred from OTP or health centre
- Burns

If a child has any of the priority signs, move the child to the front of the queue to be assessed immediately by the clinician.



Exercise 1A

In this exercise, you will look at photographs of children and identify signs related to SAM.

Open your photo booklet. Each photo is numbered. For each photo listed below in this exercise, write down all the following signs you see:

- severe wasting
- oedema (swelling)
- dermatosis (skin lesions)

If the child has oedema, try to estimate the degree of severity (+, ++ or +++). If you see none of the signs, write NONE. When everyone in the group has finished, conduct a discussion of the photographs. Photo 1 is described below as an example.

Photo 1: Moderate (++) oedema, seen in feet and lower legs
 Severe wasting of upper arms; ribs and collarbones clearly show.

Photo 2:

Photos 3 and 4 (front and back view of same child):

Photo 5:

Photo 6

Photo 7

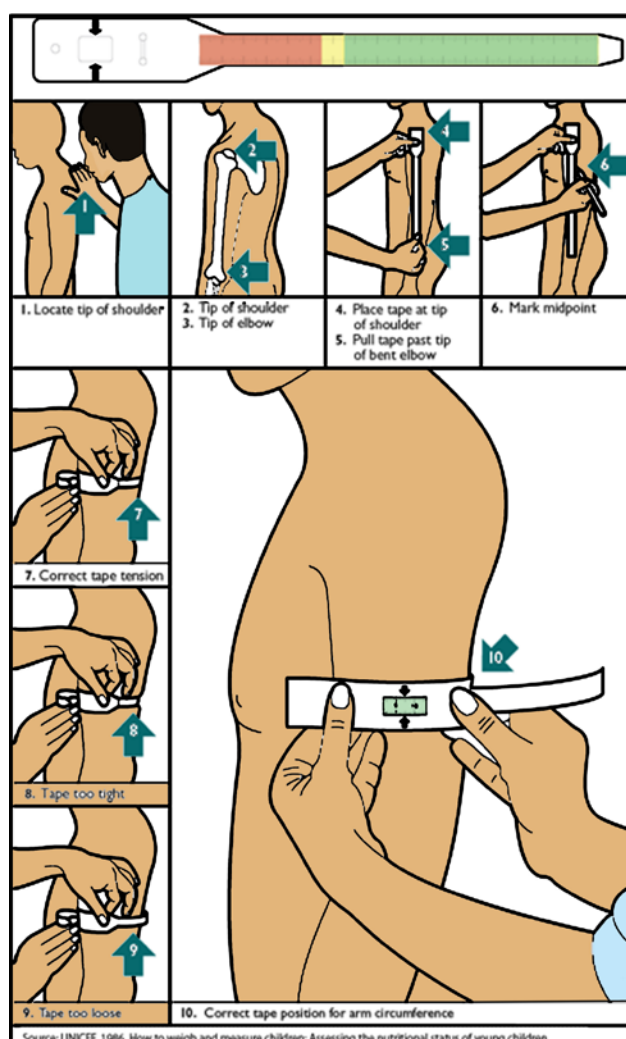
When you have completed this exercise,
tell a facilitator that you are ready for the group discussion.

1.8 Identifying SAM by Weighing and Measuring a Child

In addition to visible signs of SAM, it is important to measure a child's anthropometry. Anthropometric indicators are commonly used to classify the nutritional status of children and are therefore used as key criteria for admission to treatment.

1.8.1 Measuring Mid Upper Arm Circumference (MUAC)

- Always measure MUAC on the left arm.
- Measure the length of the child's upper arm, between the bone at the top of the shoulder [2] and the tip of the elbow [3] (the child's arm should be bent to easily locate the tip).
- Find the midpoint of the upper arm and mark it with a pen [6]. It is easier to use a string instead of the MUAC tape to find the midpoint.
- The child's arm should then be relaxed, falling alongside his or her body.
- Wrap the MUAC tape around the child's arm, so that all of it is in contact with the child's skin [7]. It should be neither too tight [8] nor too loose [9].
- Feed the end of the tape through the first opening and then through the second opening. The measurement is read from the window where the arrows point inward [10].
- Record the MUAC reading with a precision of 0.1 cm.



1.8.2 Interpretation of MUAC

MUAC is used to define severe wasting in different age groups of children, expressed in centimetres (cm) or millimetres (mm), as below:

- Children 6 – 59 months are severely wasted if MUAC is below 11.5 cm.
- Children 5 – 9 years are severely wasted if MUAC < 13.0 cm.
- Children 10 – 15 years are severely wasted if MUAC < 16.0 cm.

See **Table 1** on the next page for interpretation of different MUAC cut offs

Table 1. MUAC Cut Offs

Age	MUAC Measurement	Interpretation
6–59 months	< 11.5 cm	Severe wasting
	≥ 11.5 cm – < 12.5 cm	Moderate wasting
	≥ 12.5 cm	No wasting
5–9 years	< 13.0 cm	Severe wasting
	≥ 13 – < 14.5 cm	Moderate
	≥ 14.5 cm	No wasting
10–15 years	< 16 cm	Severe wasting
	≥ 16.0 – < 18.5 cm	Moderate wasting
	≥ 18.5 cm	No wasting

1.8.3 Measuring Weight

Weigh the child as soon as possible after he or she arrives, if his/her condition allows. Weigh the child once a day, preferably at about the same time each day. The weighing time should be about 1 hour before or after a feed.

Tips for Weighing a Child or Infant

- Always explain to the mother how the child will be weighed before weighing the child.
- Children should be weighed naked. Have the mother remove the child’s clothes.
- Put a soft cloth or the child’s wrapping on the scale to protect the child from the hard and potentially cold surface. Set the scale to zero.
- Read the child’s weight when the child is not moving. The child should remain still for the weighing.
- Scales must be cleaned and reset to zero after each weighing.

An electronic scale is the preferred type of scale to weigh children, and should have the following features:

- Is solidly built and durable
- Has a digital readout
- Measures up to 150 kg
- Measures to a precision of 0.1 kg (100 g) for children and to a precision of 0.01 kg (10 g) for infants
- Allows ‘tared weighing’

‘Tared weighing’ means that the scale can be reset to zero (‘tared’) with a person on it. Thus, a mother can stand on the scale and be weighed, and the scale can then be tared without the mother getting off. While remaining on the scale, a mother can then be given a child to hold and only the child’s weight will appear on the scale.

Tared weighing has two clear advantages:

- There is no need to subtract weights to determine the child’s weight alone (reducing the risk of error).
- The child is likely to remain calm when held in the mother’s arms.

There are many types of scales currently in use. Certain scales can be used for all ages, others only for older children, while others should be used only for infants. The appropriate ages are identified in parentheses after each type of scale.

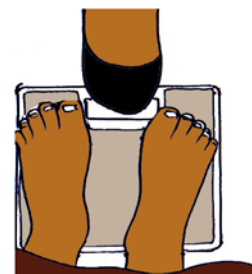
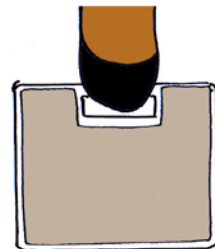
Solar Electronic Scale (All Ages)

There are solar electronic scales that have all the recommended features listed above, for example, UNICEF's UNISCALE.

Explain the tared weighing procedure to the mother. Stress that the mother must stay on the scale until her child has been weighed in her arms.

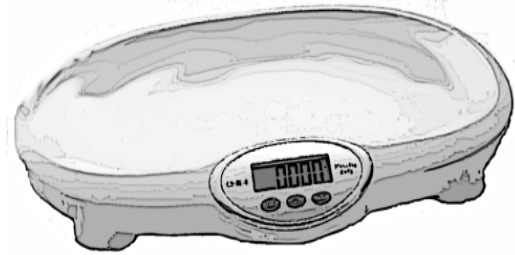
Be sure that the scale is placed on a flat, hard, even surface.

- To turn on the scale and cover the solar panel for a second. When the number 0.0 appears, the scale is ready.
- Check to see that the mother has removed her shoes. You or someone else should hold the naked child wrapped in a *chitenje* or blanket.
- Ask the mother to stand in the middle of the scale, feet slightly apart (on the footprints, if marked), and remain still. The mother's clothing must not cover the display area.
- Remind the mother to stay on the scale even after her weight appears, until the baby has been weighed in her arms.
- With the mother still on the scale and her weight displayed, tare the scale by covering the solar panel for a second. The scale is tared when it displays a figure of a mother and baby and the number 0.0.
- Gently hand the naked baby to the mother and ask her to remain still.
- The baby's weight will appear on the display. Record the weight of the baby.
- Be careful to read the numbers in the correct order (as though you were viewing them while standing on the scale, rather than upside-down).



Infant Bench Scale (Infants less than 12 months)

1. Have the mother remove the infant's clothes and hold the child.
2. Put a soft cloth or the infant's wrapping on the scale and turn it on. Wait until the scale shows zeros.
3. Within 60 seconds of the scale showing zeros, have the mother put the infant on the scale. Advise the mother to remain close but not to touch the infant or the scale. The scale will display the infant's weight.
4. Read and write down the infant's weight with a 10-gram precision (e.g., 3 kg 470 g).
5. Turn off the scale and remove the infant.
6. Clean the scale.



1.8.4 Measuring Length/Height

Depending on a child's age and ability to stand, measure the child's length or height. A child's length is measured lying down (recumbent). Height is measured standing upright.

- If a child is less than 2 years old (or less than 87 cm if the age is not available), measure recumbent length.
- If the child is aged 2 years or older (or 87 cm or more if the age is not available) and able to stand, measure standing height.

In general, standing height is about 0.7 cm less than recumbent length. This difference was taken into account in developing the World Health Organisation (WHO) growth standards used to make the charts in the Growth Record.

It is important, therefore, to adjust the measurements if length is taken instead of height, and vice versa.

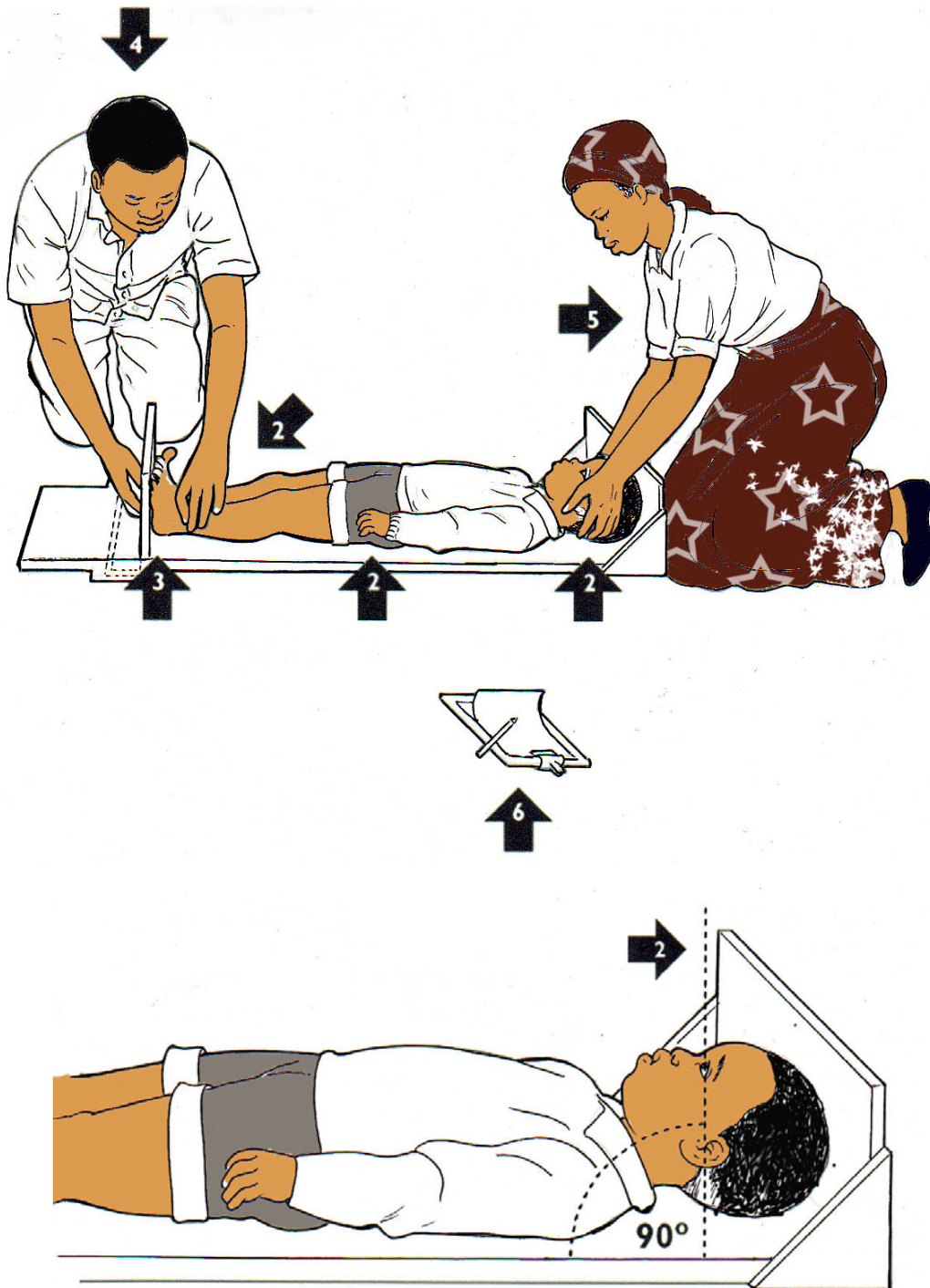
If a child less than 2 years old will not lie down for measurement of length, measure standing height and add 0.7 cm to convert it to length. If a child aged 2 years or older cannot stand, measure recumbent length and subtract 0.7 cm to convert it to height.

Whether measuring length or height, the mother should be nearby to help soothe and comfort the child.

Length Board (under 2 years *OR* less than 87 cm tall and age is not known *OR* 2 years or older or at least 87 cm tall but unable to stand)

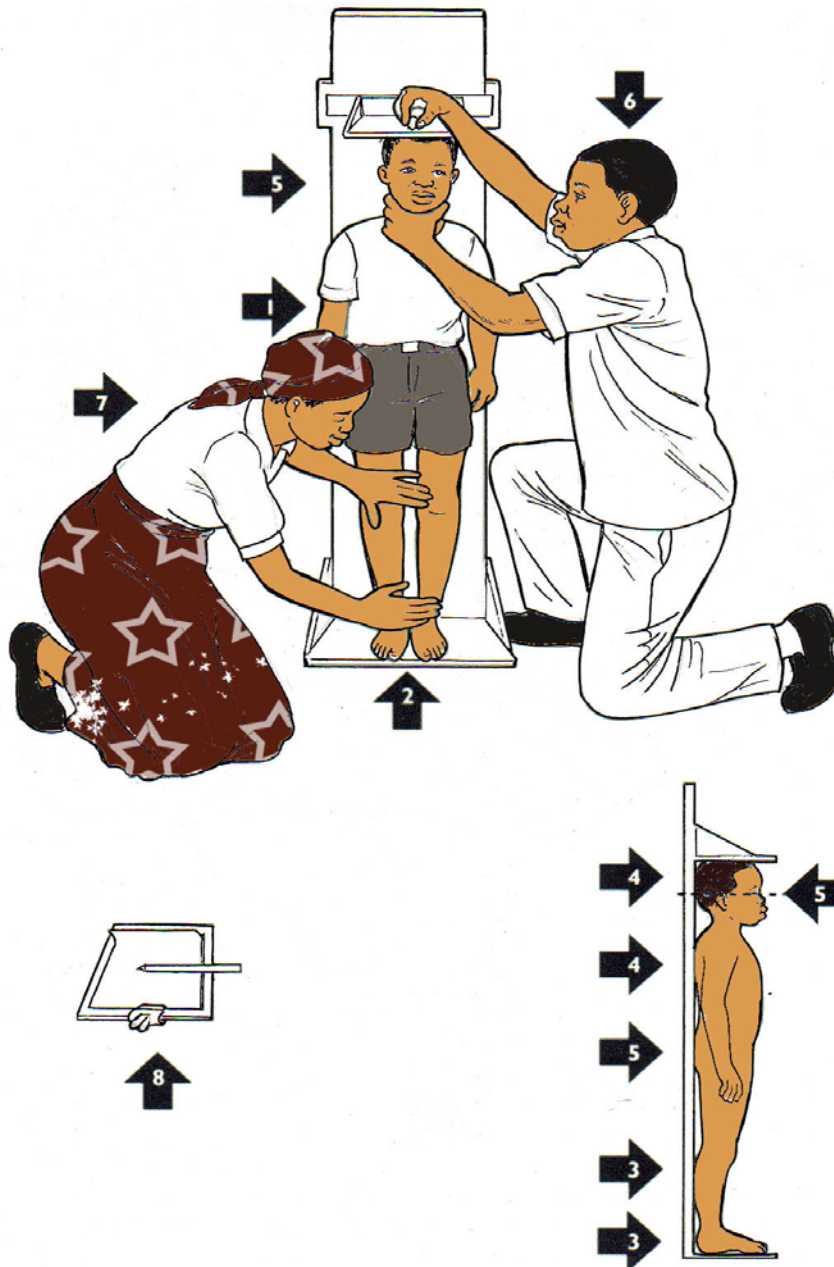
1. Lay the child down along the middle of the board.
2. The assistant holds the sides of the child's head while firmly touching the head against the fixed headboard with the hair compressed.
3. The measurer places her hands on the child's legs and keeps one hand on the knees to prevent flexion.
4. With the legs immobilised the moveable board is pushed firmly against the child's feet.
5. The footboard should be perpendicular to the axis of the board and vertical.

6. The length is read to the nearest 0.1 cm.



For children taller than 87 cm, height is measured with the child standing

1. The child stands upright against the middle of the measuring board.
2. The child's head, shoulders, buttocks, knees and heels are held against the board by the assistant.
3. The child should be looking straight ahead (neither up nor down).
4. The moveable headboard is pressed firmly against the head compressing the hair.
5. The height is measured after checking that the headboard is level (the reading should be the same on both sides of the measuring board).



The facilitator will demonstrate how to measure MUAC, weight, length and height, followed by a practice session.

1.8.5 Determining Severe Wasting Based on WFH

Weight-for-height (WFH) or weight-for-length (WFL) is an indicator used for defining wasting. WFH and WFL Reference Tables are provided in **Annex A: *Weight-for-Length/height Reference Table*** or ***Weight-for-Length/Height Reference Table Job Aid***

The categories are:

- WFH < -3 z-score for severe wasting,
- WFH ≥ -3 and < -2 z-score for moderate wasting,
- WFH ≥ -2 z-score for mild wasting.

To use the Weight-for-Height/Length Reference Table:

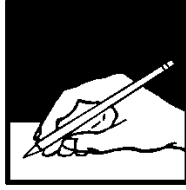
- Find the child's length or height in the middle column of the table.
- If the length or height is between those listed, round up or down as follows: If the height/length of the child is 0.5 cm or more than the lower height/length, round up. Otherwise, round down.
- Then look in the left columns for boys or the right columns for girls to find where the child's weight is situated.
- Look at the top of the column to see what the child's z-score category is.

The child's weight may be between two SD-scores. If so, indicate that the weight is between these scores by writing less than ($<$). For example, if the score is between -1 SD and -2 SD, write < -1 SD.

Examples of WFH z-scores

Verify the category of WFH on the weight-for-length or weight-for height Reference tables provided in **Annex A: *Weight-for-Length/Height Reference Table***.

- A boy is 80 cm in length and weighs 9.2 kg. His score is above -2 z-score and below -1 z-score. Record his WFH z-score as < -1 z score, indicating mild wasting.
- A girl is 77 cm in length and weighs 7.4 kg. Her WFH z-score is $= -3$ z-score, indicating moderate wasting.
- A girl is 90 cm in height and weighs 10.3 kg. Her weight is above -3 z-score and below -2 z-score. Record her WFH z-score as < -2 z-score, indicating moderate wasting.



Exercise 1B

Refer to the z-scores in the Weight-for-Height/Length Reference Table Job Aid, or **Annex A Weight-for-Height/Height Reference Table**. Indicate the WFH z-score for each child listed below.

1. Chimwemwe, girl, length 63.0 cm, weight 5.0 kg

2. Chikondi, boy, age 4, height 101.0 cm, weight 11.8 kg

3. Takondwa, girl, length 69.8 cm, weight 6.2 kg

- 4.a Kondwani, boy, age 20 months, length 82.0 cm, weight 8.5 kg

- 4.b Kondwani, boy, age 26 months, length 82.0 cm, weight 8.5 kg

- 4.c Kondwani, boy, and you do not know the age, length 82.0 cm, weight 8.5 kg

When you have completed this exercise, please discuss your answers with a facilitator.

1.9 Defining SAM in Children of Different Age Groups

For children of different age groups, SAM is defined as follows:

- In infants less than 6 months old:
 - presence of bilateral pitting oedema
 - severe wasting based on a WFL < -3 z-score.
- In children 6–59 months old
 - presence of bilateral pitting oedema
 - severe wasting based on MUAC less than 11.5 cm or a WFH < -3 z-score.
- In children 5–9 years old
 - presence of bilateral pitting oedema
 - severe wasting based on MUAC less than 13.0 cm
- In children 10–15 years old
 - presence of bilateral pitting oedema
 - severe wasting based on MUAC less than 16.0 cm

1.10 Understanding the Criteria for Admission into CMAM

Recommended admission criteria for infants and children into the CMAM programme are summarized in **Table 2**.

Table 2. Summary of CMAM Admission Criteria

NRU	
<p>A. Children > 6 Months Bilateral pitting oedema +++</p> <p>OR Marasmic kwashiorkor defined as any grade of bilateral pitting oedema and severe wasting:</p> <ul style="list-style-type: none"> ○ MUAC < 11.5 cm (6–59 months) ○ MUAC < 13.0 cm (5–9 years) ○ MUAC < 16.0 cm (10–15 years) or ○ WFH/L z-score < -3 <p>OR Bilateral oedema + <u>or</u> ++ <u>or</u> severe wasting:</p> <ul style="list-style-type: none"> ○ MUAC < 11.5 cm (6–59 months) ○ MUAC < 13.0 cm (5–9 years) ○ MUAC < 16.0 cm (10–15 years) or ○ WFH/L z-score < -3 <p>WITH Any of the following danger signs:</p> <ul style="list-style-type: none"> ○ Anorexia (no appetite) ○ Intractable vomiting ○ Convulsions ○ Lethargy, not alert ○ Unconsciousness ○ Inability to drink or breastfeed ○ High fever (> 39° C rectal or > 38.5° C axillary) <p>OR WITH Any of the following medical complications:</p> <ul style="list-style-type: none"> ○ Hypoglycaemia ○ Hypothermia (< 35° C axillary or < 35.5° C rectal) ○ Infections ○ Severe dehydration ○ Shock ○ Very severe anaemia ○ Cardiac failure ○ Severe dermatosis ○ Signs of vitamin A deficiency ○ Diarrhoea ○ Malaria <p>OR Referrals from the OTP due to:</p> <ul style="list-style-type: none"> ● Deterioration in the child’s medical condition, based on the Outpatient Care Action Protocol ● Increase in bilateral pitting oedema ● Weight loss for 3 consecutive weeks or static weight for 5 weeks ● Not responding to treatment after 3 months in the OTP programme 	<p>B. Infants < 6 Months WFL z-score < -3 (if > 45 cm)</p> <p>OR Bilateral pitting oedema +, ++, or +++</p> <p>OR Visible severe wasting (if infant is < 6 months and < 45 cm in length)</p> <p>OR If infant is > 6 months and weighs < 3.0 kg</p> <p>OR Too weak to suckle effectively (independent of weight-for-length)</p> <p>OR Failure to gain weight*</p> <p>* Children < 6 months whose growth is faltering or are below -3 z-scores on the weight-for-age growth curve must be referred to a clinician for further assessment. Children who do not gain weight following breastfeeding counselling and/or treatment of underlying medical conditions should be referred to the NRU.</p>

OTP

Children 6–59 Months

MUAC < 11.5 cm

OR WFH/L z-score < -3

OR Bilateral pitting oedema + or ++

AND RUTF appetite test passed

No medical complications

Clinically well and alert

If child is HIV-positive, admit to OTP if:

MUAC < 12.5 cm

OR WFH/L z-score -3 to -2

AND RUTF appetite test passed

No medical complications

Clinically well and alert

Children 5–15 years

MUAC: 5–9 years < 13.0 cm

10–15 years < 16.0 cm

OR Bilateral pitting oedema + or ++

If child is HIV positive, admit to the OTP with:

MUAC: 5–9 years: 13.0–14.5 cm

10–15 years: 16.0–18.5 cm

AND

RUTF appetite test passed

No medical complications

Clinically well and alert

SFP

Children 6–59 Months

MUAC 11.5–12.5 cm

OR WFH/L z-score -3 to -2

OR Discharged from SAM treatment in OTP or NRU

NB: Admit HIV+ children with MAM to OTP

Children 5–15 Years

MUAC: 5–9 years: 13.0–14.5 cm

10–15 years: 16.0–18.5 cm

OR Discharged from SAM treatment in OTP or NRU

NB: Admit HIV+ children with MAM to OTP

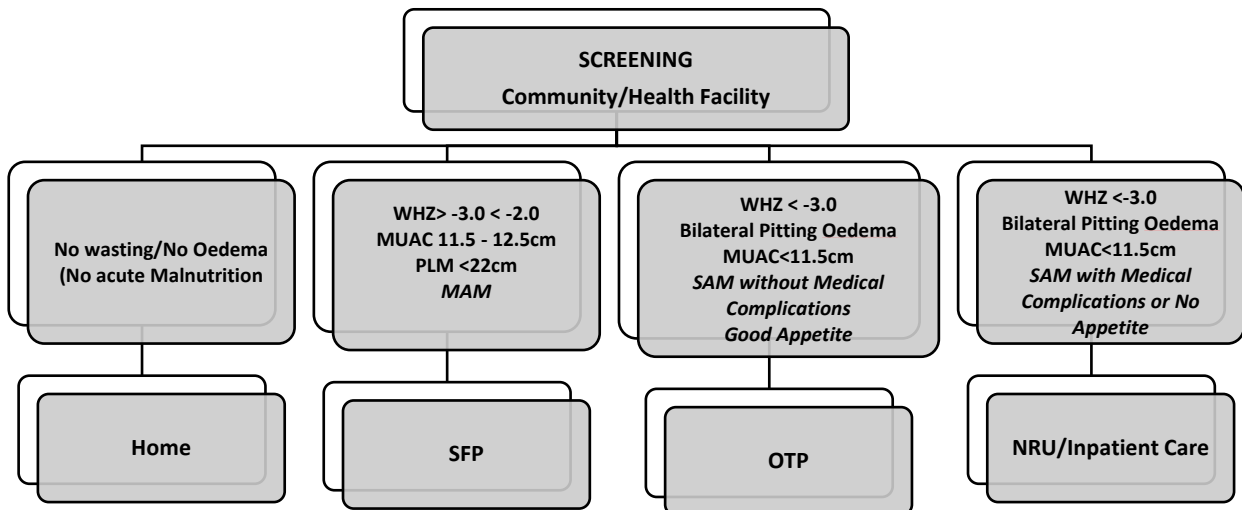
Pregnant and lactating women

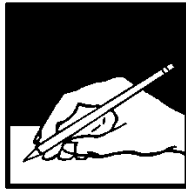
MUAC < 22.0 cm

OR Mothers of infants < 6 months old who are discharged from inpatient care

The care pathway of the management of SAM in children is presented in **Figure 1** below.

Figure 1. Classification of the Management of Acute Malnutrition





Exercise 1C

In this exercise, you will look at photographs and consider information about a child to determine if the child should be admitted for the management of SAM. Use the criteria given on the [previous page](#) in this module. Refer to the Weight-for-Height/Length Reference Table Job Aid or in **Annex A *Weight-for-Length/Height Reference Table***, as needed.

Photo 18: This child is a girl, age 20 months. She is 67 cm in length. She weighs 6.5 kg, and has a MUAC of 11.8 cm. Should she be admitted for the management of SAM? Is she admitted to Inpatient Care or Outpatient Care? Why or why not?

Photo 19: This child is a girl, age 7 months. She is 60 cm in length and weighs 4.2 kg and has a MUAC of 10.4 cm. Should she be admitted for the management of SAM? Is she admitted to Inpatient Care or Outpatient Care? Why or why not?

Photo 20: This child is a boy, age 18 months. He is 65 cm in length and weighs 4.8 kg and has a MUAC of 10.8 cm. Should he be admitted for the management of SAM? Is he admitted to Inpatient Care or Outpatient Care? Why or why not?

When you have completed this exercise, tell a facilitator that you are ready for the group discussion and drill.

1.11 How Does the Condition of SAM Affect Care of a Child?

In SAM, the body is lacking adequate food nutrients to maintain the growth of the child and provide energy for physical activities and the functions of important body organs.

Therefore, to survive on the limited energy available, the body systems begin to slow down.

A child with SAM must be treated differently from other children:

1. Rapid changes, such as giving too much feeds too soon or too many fluids, would make the child worse and lead to death. Therefore, feeds must be started with care and slowly increased.

During feeding if the child's condition gets worse:

- Inform the clinician or nurse.
 - Reduce the diet to 50% of the recommended intake until all signs and symptoms disappear.
 - The child should be returned to the stabilization phase if deterioration occurs during the transition or rehabilitation phase.
2. Restrict salt intake. If a SAM child has dehydration or watery diarrhea, a special rehydration solution called Rehydration Solution for Malnutrition (ReSoMal) should be used instead of ORS. ReSoMal has less sodium than ORS, therefore more suitable for children with SAM
 3. Immunity is decreased, therefore are at risk of infections. All children with SAM are given antibiotics. Iron is not given during stabilization phase because it can make infections worse.
 4. SAM child is at high risk of hypothermia and hypoglycemia. To prevent hypothermia, child must be kept in a warm room, wrapped in blankets or close to mother (kangaroo care).

It is very important to feed the child within 30 minutes of admission in inpatient care. While awaiting to give the feeds, give the child **sugar water** as it is quicker to prepare. **To make sugar water- dissolve 10 mg (1 teaspoon) of sugar into 100 ml water (cooled, boiled water)**



SHORT ANSWER EXERCISE

Briefly answer these questions as a review of the previous section:

1. When a child has SAM, why is it important to begin feeding slowly and cautiously?
2. When should iron be given in the inpatient care
3. For rehydration of children with SAM with diarrhoea and recent sunken eyes should be given:
 - A: ReSoMal
 - B: ORS
 - C: Either of the above
4. Why is it important to feed the child within 30 minutes of admission in inpatient care?

Fill in the blanks based on your reading in the module and the guidelines:

5. Two conditions that are related and must be treated immediately in a child with SAM are _____ and _____.
6. If a child with SAM has diarrhoea, a special rehydration solution called _____ should be given. This solution has less _____ than standard low-osmolality ORS.

Indicate in the blank whether the statement is true or false:

7. _____ Giving iron too early in treatment can have dangerous effects.
8. _____ All children with SAM and medical complications should be given antibiotics.
9. _____ ReSoMal can be given freely to children with SAM

Tell the facilitator when you are ready to discuss these questions with the group.

1.12 Essential Components of Care

1.12.1 Feeding with F-75, RUTF, F-100, Infant Formula or F-100 Diluted

- **F-75** is the ‘starter’ formula therapeutic milk to use during initial management, beginning as soon as possible and continuing for 2-7 days until the child is stabilised.
- As soon as the child is stabilised RUTF or F-100 will be introduced. RUTF or -100 contains is necessary to rebuild wasted tissues as it contains more energy and protein than F-75
- Infants with bilateral pitting oedema are given F-75, until the oedema has resolved.

Use of different types of feeds in inpatient care is covered detail in **Section 2: Feeding**.

1.13 Procedures for the Successful Management of the Child with SAM

Treatment of children with SAM involves 10 World Health Organization (WHO) steps in two phases: stabilization phase (**Phase 1 and transition phase**) and rehabilitation phase (**Phase 2**). **Figure 2 below** summarises the WHO 10 Steps in the inpatient management of SAM. Refer to the job aid **10 Steps protocol for the inpatient management of SAM** for details.

Figure 2. The WHO 10 steps for treatment of SAM

Steps and Action	Stabilisation		Rehabilitation
	Day 1–3 Phase 1	Day 3–7 Transition	Week 2—recovery Phase 2
1 Prevent or treat hypoglycaemia	→	→	
2 Prevent or treat hypothermia	→	→	
3 Prevent or treat dehydration	→	→	
4 Correct urea and electrolyte imbalance	→	→	
5 Treat and prevent infection	→	→	
6 Correct micronutrient deficiencies	No iron →	No iron →	With iron→
7 Start cautious feeding	→	→	
8 Give catch-up diet for rapid growth			→
9 Provide loving care, play and stimulation	→	→	→
10 Prepare for follow-up and discharge to OTP		→	→

Stabilisation phase (Phase 1)

- Life-threatening problems are identified and treated
- F-75 is given for repair of body functions
- Children on F-75 should not gain weight. Rapid weight gain at this stage can be dangerous.

Transition phase

- The diet is changed to RUTF (or F-100) to increase the energy intake
- The child starts to gain weight.
- The transition phase is important because a sudden change to large amounts of food can be dangerous and lead death.

Rehabilitation Phase (Phase 2)

- The child is transferred to OTP to complete recovery.
- There are a few exceptions where children cannot be safely transferred to OTP. The following are conditions for children to stay in inpatient care throughout the rehabilitation phase:
 - Infants < 6 months
 - Children < 3 kg
 - Children who do not tolerate RUTF
 - Children who have no access to an OTP near their homes
 - Children whose caregiver refuses OTP, despite being adequately counselled

Tell the facilitator when you have reached this point in the module.
There will be a brief video showing signs of SAM and the transformations that can occur when severely malnourished children are correctly managed.

You will also discuss photos 21–29, which show children before and after treatment for SAM. Look at these photos while waiting for the video.

2. Feeding

2.1 Introduction

Feeding is a critical part of managing children with SAM. Feeding must be started cautiously in small, frequent amounts. If feeding begins too aggressively, a child's systems may be overwhelmed, leading to sudden death. Therefore, feeding in children with SAM is structured as follows:

- i. F-75 – The 'starter' formula is to be given until the child is stabilised. F-75 is specially made to meet a child's needs without overwhelming the body's systems at this early stage of treatment.
- ii. RUTF or F-100 (catch-up feeds) are given after stabilisation (usually after 2–7 days). RUTF or F-100 are used to rebuild tissues.
- iii. F100-Diluted is used for infants less than 6 months of age who have **no oedema**. F-75 is used for infants less than 6 months of age who have **bilateral pitting oedema**. Breast milk, infant formula milk is also used in this age group

Learning objectives

By the end of this section, you will be able to:

- Prepare F-75, F-100, F-100-Diluted and learn about RUTF
- Plan feeding for a child 6 months or older who is:
 - Taking F-75 during stabilisation
 - Adjusting to RUTF or F-100 during transition
 - Taking RUTF or F-100 during rehabilitation
- Plan feeding for an infant less than 6 months with SAM who is:
 - Breastfed
 - Non-breastfed
 - Measure and give feeds to children
 - Record intake and output for a 24-hour period
 - Plan feeding for the NRU

2.2 Preparing Therapeutic Milk and Learning about RUTF

In the next exercise, you will prepare F-75, F-100 and F-100 Diluted using the commercial packages or the local recipes used in the NRU that you will visit during this course.

2.2.1 Preparation of therapeutic milk from commercial packages

Preparation of therapeutic milk from the old commercial F-75 and F-100 sachets

When preparing therapeutic milk from the old commercial sachets, follow the instructions on the package, and follow these procedures:

1. Decide the type of milk and total amounts that need to be prepared. This will be based on the number of children who are on F-75 or F-100
2. Boil water to treat it.

- Cool the water. The water should be cooled because adding boiling water to the powdered ingredients may create lumps.
- Add water to the powder.
- Whisk the mix vigorously.
- Give feeding based on child's body weight.

Type of Therapeutic Milk	Added water	Total amount
F-75	500 ml	600 ml
F-100	500 ml	600 ml
F-100 for preparing F-100 Diluted ¹	675 ml	775 ml

Preparation of therapeutic milk from the new commercial F-75 and F-100 tins

When preparing therapeutic milk from the new commercial tin packages, follow the instructions on the package, and follow these procedures:

- Decide the type of milk and total amounts that need to be prepared. This will be based on the number of children who are on F-75 or F-100
- Boil water to treat it.
- Ensure that the water temperature is not below 70°C (**i.e. cooled for not less than 3 - 5 minutes after boiling**)
- Add water to the powder.
- Whisk the mix vigorously.
- Cool the prepared milk to feeding temperature before administering.
- Give the feed based on child's body weight.

Type of Therapeutic Milk		Added water	Total amount
F-75	1 Scoop (white)	25 ml	28 ml
	1 Tin	2200 ml	2480 ml
F-100	1 Scoop (blue)	25 ml	29 ml
	1 Tin	2200 ml	2158 ml
F-100 for preparing F-100 Diluted ²	1 Scoop (blue)	34 ml	39 ml
	1 Tin	2970 ml	2913 ml

2.2.2 Preparation of therapeutic milk from local ingredients

Recipes and instructions on how to prepare therapeutic milk from local ingredients are given in **Table 3 and Annex B**.

¹ Small amounts of F-100 Diluted can be prepared by adding 35 ml boiled cooled water to 100 ml F-100.

² Small amounts of F-100 Diluted can be prepared by adding 35 ml boiled cooled water to 100 ml F-100.

The top three recipes given for F-75 include cereal flour and require cooking. The bottom three recipes for F-75 can be used if there is no cereal flour or no cooking facilities.

Tips for correct preparation (all recipes)

- If possible, use a dietary scale that is accurate to at least 5 g. A scale made with its own bowl is convenient. If yours has only a flat platform, choose a suitable container for weighing the ingredients. Weigh the empty container first, and account for this when weighing the ingredients.
- Small plastic bags can be used as containers for dry ingredients. They are so light that their weight can be ignored.
- For measuring oil, choose a small container to reduce the surface to which the oil can stick. Let the oil drain out well when transferring it to the blender or jug. Then rinse the container with a little of the boiled water you will use for the milk preparation and add the rinsing to the blender or jug.
- Be sure that the scale is set at zero before weighing.
- Wash hands before measuring ingredients.
- If using scoops for measurement, level ingredients with a knife to ensure consistent measurement. Be aware that equal weights of milk powder and sugar do not occupy the same volume; milk powder is a bigger volume. Therefore, one must either weigh these ingredients or know the corresponding volume for each.
- Mix oil well so that it does not separate out. Oil is a vital source of energy; if oil floats to the top of the mixture, there is a risk that some children will get too much and others too little. If possible, use an electric blender to thoroughly mix the oil. Otherwise, use a strong rotary whisk or balloon whisk. Use a long whisk so that your hands do not dip into the formula while whisking.
- If there is a change in the type of milk supplied, change to a recipe appropriate for the type of milk available.
- If using combined mineral and vitamin mix (CMV) read the label carefully to ensure that you use the correct amount for your recipe. For example, if the scoop provided with the CMV is for making 2 litres, use ½ scoop to make 1 litre. Carefully measure to determine the exact amount in ½ scoop.
- Be careful to add the correct amount of water to make 1,000 ml of formula. If 1,000 ml of water is mistakenly added, the resulting formula will be about 15 percent too dilute.

Your facilitator will lead a demonstration on preparation of therapeutic milk from commercial packages and local ingredients.

Table 3: Therapeutic Milk Recipes

If you have cereal flour and cooking facilities, use one of the top three recipes for F-75.			
Alternatives	Ingredients	Amount for F-75	
If you have dried skimmed milk	Dried skimmed milk	25 g	
	Sugar	70 g	
If you have dried whole milk	Cereal flour	35 g	
	Vegetable oil	30 g	
	Combined mineral and vitamin mix (CMV)*	½ level scoop	
	<i>Water to make 1,000 ml</i>	<i>1,000 ml**</i>	
	Dried whole milk	35 g	
	Sugar	70 g	
If you have fresh cow's milk or full-cream (whole) long-life milk	Cereal flour	35 g	
	Vegetable oil	20 g	
	CMV*	½ level scoop	
	<i>Water to make 1,000 ml</i>	<i>1,000 ml**</i>	
	Fresh cow's milk or full-cream (whole) long-life milk	300 ml	
	Sugar	70 g	
If you do not have cereal flour or there are no cooking facilities, use one of the following recipes for F-75.			No cooking is required for F-100.
Alternatives	Ingredients	Amount for F-75	Amount for F-100
If you have dried skimmed milk	Dried skimmed milk	25 g	80 g
	Sugar	100 g	50 g
	Vegetable oil	30 g	60 g
	CMV*	½ level scoop	½ level scoop
	<i>Water to make 1,000 ml</i>	<i>1,000 ml**</i>	<i>1,000 ml**</i>
If you have dried whole milk	Dried whole milk	35 g	110 g
	Sugar	100 g	50 g
	Vegetable oil	20 g	30 g
	CMV*	½ level scoop	½ level scoop
	<i>Water to make 1,000 ml</i>	<i>1,000 ml**</i>	<i>1,000 ml**</i>
If you have fresh cow's milk or full-cream (whole) long-life milk	Fresh cow's milk or full-cream (whole) long-life milk	300 ml	880 ml
	Sugar	100 g	75 g
	Vegetable oil	20 g	20 g
	CMV*	½ level scoop	½ level scoop
	<i>Water to make 1,000 ml</i>	<i>1,000 ml**</i>	<i>1,000 ml**</i>

* The contents of CMV are listed in **Annex B**.

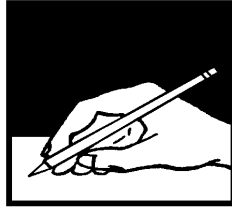
** Important note about adding water: Add just the amount of water needed to make 1,000 ml of formula.

(This amount will vary from recipe to recipe, depending on the type of ingredients available)

If you have cereal flour and cooking facilities, use one of the top three recipes for F-75:

2.2.3 RUTF

- RUTF is an energy-dense, mineral/vitamin-enriched food that is equivalent to F-100.
- The RUTF (*Chiponde*) used in Malawi has similar nutritional quality as F-100
- RUTF plays an important role in outpatient care, as it allows children to continue treatment at home.
- Ready-to-use-therapeutic food (RUTF) is a groundnut paste composed of vegetable fat, peanut butter, skimmed milk powder, lactoserum, maltodextrin, sugar and mineral and vitamin complex.
- Clean drinking water must be made available to children while they consume RUTF.
- Product should be given to children that have passed the appetite taste.



Exercise 2A

In this exercise, your group will prepare the commercial F-75, F-100 and Infant Formula according to the instructions on the package or the therapeutic milk recipes used in the hospital that you will visit during this course. Your facilitator will give you a copy of the recipes to be used.

Notice the differences in the F-75, F-100, F-100 Diluted and Infant Formula. You will have a chance to taste each formula.

While preparing the milk, think about the following issues in relation to your own hospital, and be prepared to discuss them with the group:

- What aspects of preparing the therapeutic milk would be difficult in my hospital?
- How can I make sure that the therapeutic milks are prepared correctly?
- Are the necessary ingredients and equipment available?
- Do any new supplies or equipment need to be purchased, such as correctly sized scoops, or hand whisks?

When you have finished preparing F-75 and F-100, your facilitator will distribute packets of RUTF and discuss with you the contents of the RUTF and how it is used.

2.3 Feeding the Child with F-75 during Stabilisation

2.3.1 Determining Frequency of Feeds

On Day 1, feed the child small amounts of F-75 every 2 hours (12 feeds in 24 hours) including through the night.

If the child has been diagnosed with hypoglycaemia (low sugar), give one-quarter of the 2-hourly amount every 30 minutes for the first 2 hours or until advised by the clinician or nurse.

For example, if the child is supposed to receive 40 ml of F-75 every 2 hours, give 10 ml of F-75 every 30 minutes.

Night feeds are extremely important. Many children die from hypoglycaemia because of missed feeds at night. Children must be awakened for feeding at night.

After the first day:

- Increase the volume per feed but slowly so that the child's system is not overwhelmed. The child will slowly be able to take larger amounts of feeds, and less frequently (every 3 hours or every 4 hours).
- Encourage the mother to continue breastfeeding between the feeds and whenever the child demands.

2.3.2 Determining the Amount of F-75 Needed per Feed

Given the child's starting weight and the frequency of feeding, use a reference table to determine the amount of F-75 needed per feed.

Refer to **Annex C: Therapeutic Food Reference Table - Stabilisation Phase Reference Tables for F-75 for Children with Severe Wasting (Marasmus)**.

On the F-75 Reference Tables, the required daily amount has been divided by the number of feeds to show the amount needed per feed.

For example, if a 5 kg child is supposed to receive 3 hourly feeds of a total daily amount of 650 ml:

- *divide $24/3 = 8$ feeds in 24 hours*
- *thereafter, $650 \text{ ml}/8 \text{ feeds} = 81.25 \text{ ml}$*
- *therefore, the child will receive 80 ml per feed, every 3 hours.*

Tips for using the F-75 Reference Tables

Be sure that you use the correct reference table:

- The first table is used for most children with severe wasting and those with mild (+) or moderate (++) oedema (See **Annex C: Therapeutic Food Reference Table - Stabilisation Phase Reference Tables for F-75 for Children with Severe Wasting (Marasmus)**)
- If the child has severe oedema (+++), the amount of feeds given to a child with severe oedema is less than the amount given to a child with severe wasting or mild (+) or moderate (++) oedema. Therefore, use the F-75 Reference Table for severe oedema (see **Annex C: F-75 Reference Table - Stabilisation Phase Reference Tables for F-75 for Children with Severe Bilateral Pitting Oedema (Kwashiorkor) (+++)**)

- Note that children's weights listed on the reference tables are all in even digits (2.0 kg, 2.2 kg, 2.4 kg, etc.). If a child's weight is between these (for example, if the weight is 2.1 kg, use 2.0 kg or if 2.3 kg, then use 2.2 kg), use the amount of F-75 provided for the lower weight.
- While the child is on F-75, **always use the admission weight** to determine feeding amounts even if the child's weight changes, because the child's weight is not expected to increase when the child is on F-75.
- If the child was admitted with severe oedema, continue using the F-75 table for severe oedema for the entire time that the child is on F-75. As above, continue using the **child's admission weight** to determine the amount of F-75 feed, even when the oedema reduces and the child's weight decreases.
- If the child has been diagnosed and treated for dehydration or shock, weigh the child again after treatment, and use the new weight to determine the amount of F-75 to receive.
- Continue and support breastfeeding between the feeds and whenever the child demands.



SHORT ANSWER EXERCISE

For each child listed below, use your F-75 Reference Tables to determine the amount of F-75 to give per feed. The starting weight and oedema classification is given for each child, as well as the current frequency of feeds for the child.

Child 1: 6.8 kg, no oedema, 3-hourly feeds

Give _____ ml F-75 per feed.

Child 2: 8.5 kg, mild (+) oedema, 2-hourly feeds

Give _____ ml F-75 per feed.

Child 3: 5.2 kg, severe (+++) oedema, 2-hourly feeds

Give _____ ml F-75 per feed.

Child 4: 7.0 kg, severe (+++) oedema, hypoglycaemia, half-hourly feeds

Give _____ ml F-75 per feed.

Child 5: 9.6 kg, moderate (++) oedema, 4-hourly feeds

Give _____ ml F-75 per feed.

Tell your facilitator when you have reached this point in the module. When everyone is ready, there will be a group oral drill on determining amounts of F-75 to give.

2.3.3 Feeding Orally or by Nasogastric Tube if Necessary

Oral feeding

- It is best to feed a child with a cup.
- Encourage the child to finish the feed.
- Do not use a feeding bottle.
- It takes skill to feed a very weak child, so nursing staff should do this task at first if possible.
- Mothers may help with feeding after the child becomes stronger and more willing to eat.
- Never leave a child alone to feed.
- Spend time with the child, hold the child and encourage him or her to eat.
- Catch dribbles by holding a saucer under the cup, as shown below. The saucer will allow feeding more quickly without worrying about spilling. At the end of each feed estimate the amount that spilled in the saucer and replace the feed.
- Encourage breastfeeding between the feeds and whenever the child demands. Ensure that the child still eats the required feeds of F-75 even if breastfed.



Feeding orally with cup and saucer.

Feeding children who have diarrhoea and vomiting

If a child has continuing diarrhoea after he or she has been rehydrated, offer Rehydration Solution for Malnutrition (ReSoMal) after each loose stool between feeds to replace losses from stools. As a guide:

- Children under 2 years should be given 50–100 ml of Resomal after each loose stool
- Older children (≥ 2 years) should be given 100–200 ml per loose stool (or 15-30 ml/kg per loose stool).

(The amount given in this range should be based on the child's willingness to drink and the amount of ongoing losses in the stool).

- Children with oedema should receive 30 ml of ReSoMal after each loose stool.
- If a child vomits during or after a feed, estimate the amount vomited and offer that amount of feed again. If the child keeps vomiting, offer half the amount of feed twice as often. For example, if the child is supposed to take 40 ml of F-75 every 2 hours, offer half that amount (20 ml) every hour until vomiting stops.

Preparation of ReSoMal

ReSoMal can either be prepared from ORS or commercially pre-packaged.

Your facilitator will demonstrate how to prepare ReSoMal, refer to the hand out **Job Aid ReSoMal Preparation** for instructions.

Nasogastric feeding

Consult the nurse or clinician to insert an NG tube if the child:

- Takes less than 80 percent of two consecutive feeds during stabilization
- Has pneumonia (rapid respiration rate) and difficulty swallowing
- Has painful lesions/ulcers of the mouth
- Has a cleft palate (deformity in the mouth)
- Is very weak and shows difficulty remaining awake

A child should not have the NG tube longer than three days. NG tube should only be used in the stabilisation phase.



Child with nasogastric tube.

Feeding Using a Nasogastric Tube

- As the child is being fed with the NG tube encourage the mother on good hygiene practices, for example, wash hands before feeds and keeping utensils clean and dry.
- Assist the mother with administering the first feed; demonstrate the correct feeding position, which is the upright position.
- After the feeding syringe, has been attached to the nasogastric tube, milk should be poured in and allowed to flow downward freely. In cases where the free flow of milk is not achieved, raise up the feeding syringe and nasogastric tube apparatus to a higher position.
- The nasogastric tube can also be squeezed for several seconds and then released to facilitate the flow.
- **ONLY** when these attempts fail should a plunger be used in a slow, twisting motion. This will aid in pushing the milk downward with minimal air entry. This must be done by a nurse or experienced home-craft worker.
- Mothers should be allowed to feed the child using the nasogastric tube once given a demonstration on how to feed correctly.
- Feeding should be done when the child is calm to avoid backflow of gastric contents; if the child is still breastfeeding, allow the child to be breastfed.
- Inform the nurse if the tube is blocked. Do not force F-75 through the NG tube.
- Abdominal distension can occur with oral or NG feeding, but it is more likely with NG feeding. If the child develops a hard, distended abdomen, inform the Nurse or Clinician.
- NG tube can be removed when the child either takes:
 - 80% of the day's amount orally; or
 - Two consecutive feeds fully by mouth.Discuss with the nurse when NG tube is ready for removal.

Exception: If a child takes two consecutive feeds fully by mouth during the night, wait until morning to remove the NG tube, just in case it is needed again in the night.

2.3.4 Recording Intake and Output on a 24-Hour Food Intake Chart

An example of a completed 24-Hour Food Intake Chart is on [page 37](#).

Instructions for completing the 24-hour food intake chart

In the spaces above the chart, record the:

- Child's name
- Hospital number
- Admission weight
- Today's weight. If the child was rehydrated on the first day, list the rehydrated weight as the admission weight.

On the top row of the chart record:

- the date
- the type of feed to be given
- the number of feeds per day and
- the amount to give at each feed.

At each feed:

In the left column, record the time that the feed is given. Then complete the following steps and record information in the appropriate column:

1. Record the amount of feed offered.
2. After offering the feed orally, measure and record the amount left in cup.
3. Subtract the amount left from the amount offered to determine the amount taken orally by the child.
4. If necessary, give the rest of the feed by NG tube and record this amount.
5. Estimate and record any amount vomited (and not replaced by more feed).
6. Ask whether the child had diarrhoea (any loose stool) since last feed. If so, record 'yes'.

At the end of 24 hours:

1. Total the amount of feed taken orally (Column c).
2. Total the amount of feed taken by NG tube, if any (Column d).
3. Total the estimated amount lost through vomit (Column e).
4. Add the totals taken orally and by NG tube. Then subtract any loss from vomiting. The result is the total volume taken over 24 hours. Record this at the bottom of the 24-Hour Food Intake Chart and on the Daily Care Chart.

Tell a facilitator when you have reached this point. When everyone is ready, there will be a demonstration of how to use the 24-Hour Food Intake Chart.

Example of a 24-HOUR FOOD INTAKE CHART

Complete one chart for every 24-hour period during stabilisation and transition.

Starting weight (kg): 4.2Today's weight (kg): 4.2Oedema: **0** + ++ +++DATE: **June 4, 2016**

TYPE OF FEED (circle): F-75 F-100 Infant Formula or F-100-Diluted RUTF									
FEEDS	GIVE 12 milk feeds of 45 ml, or 540 ml per day (X)					GIVE ___ RUTF feeds of about ___ packet, or ___ packets per day (Y)			
Time	a. Amount of milk offered (ml)	b. Amount of milk left in cup (ml)	c. Amount of milk taken orally (ml) (a-b)	d. Amount of milk taken by NG tube if needed (ml)	e. Estimated amount of milk vomited (ml)	f. Estimated amount of RUTF taken (proportion of packet)	g. Amount of milk offered to complete the RUTF feed (ml) (20 g RUTF or 2 teaspoons = 135 ml F-75 or 100 ml F-100)	i. Passed loose stools (Yes/No)	j. Comments (e.g., if vomited feeds were replaced, etc.)
8:00	45	0	45	—					
10:00	45	15	30	—					
12:00	45	15	30	—					
14:00	45	25	20	—	10				
16:00	45	35	10	35					
18:00	45	35	10	35					
20:00	45	30	15	30					
22:00	45	25	20	25	10				
24:00	45	20	25	20					
2:00	45	10	35	10					
4:00	45	5	40	—					
6:00	45	5	40	—					
TOTALS			C. 320	D. 155	E. 20	F.	G.		
24-HOUR INTAKE	Total daily amount of milk taken (H)= (C) + (D) – (E) = 455 ml Estimated proportion of daily amount of milk taken (H/X): 455/540 or 84 %					Estimated proportion of daily amount of RUTF taken (F/Y): _____ %			



SHORT ANSWER EXERCISE

Answer the following questions about the 24-Hour Food Intake Chart for Mateyu on the previous page:

1. At what times did Mateyu's feeding day begin and end?
2. How many times was Mateyu fed during the 24-hour period?
3. What amount of F-75 was Mateyu offered at each feed?
4. At 10:00 did Mateyu take enough (80%) of the F-75 orally?
5. At 12:00 did Mateyu take enough of the F-75 offered?
6. What apparently happened at the 14:00 feed?
7. How was the feeding method changed at 16:00? Why do you think the staff changed the feeding method?
8. How was Mateyu fed from 20:00 to 2:00?
9. At 4:00 and 6:00 did Mateyu take enough F-75 orally?
10. What was the total volume of F-75 taken by Mateyu over the 24-hour period? Include the amount taken orally and by NG tube, and subtract the amount vomited.
11. Should Mateyu's NG tube be removed?

Compare your answers to this exercise to the answers beginning on page 140.

2.3.5 Adjusting the Child's Feeding Plan for the Next Day

The total amount of F-75 given per day is based on the admission weight and does not change.

Each day, review the child's 24-Hour Intake Chart to determine if the child is ready for larger, less frequent feeds, while maintaining the same total amounts given per day.

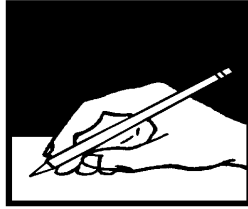
Criteria for increasing volume/decreasing frequency of feeds

- If the child is vomiting, frequent diarrhoea or poor appetite, continue 2-hourly feeds.
- If the child is not vomiting, or has less frequent diarrhoea (for example, less than five watery stools per day) and finishing most feeds, change to 3-hourly feeds.
- After a day on 3-hourly feeds: If the child is not vomiting, has less diarrhoea and finishing most feeds, change to 4-hourly feeds.

Compare the total amount of F-75 the child took for the day to the 80% column on the F-75 Reference Tables to confirm that the child has taken enough.

If not, NG feeding may be needed. Continue to offer each feed orally first; then use an NG tube to complete the feed if the child does not take at least 80% orally.

Note: Feeding a child with SAM in the NRU is not the task of the home-craft worker or the mother alone. Therapeutic feeding falls under the responsibility of the clinician, who together with his/her team is in charge to ensure the correct feeding and the monitoring of outcomes of all children in the ward. **Teamwork**, including sharing tasks and responsibilities, is essential for quality care.



Exercise 2B

In this exercise, you will review 24-Hour Food Intake Charts and descriptions of children to determine their feeding plans for the next day.

Case 1 – Dalitso

Dalitso was admitted to the NRU with diarrhoea and recent sunken eyes. He had no oedema. He was clinically well and alert, but had signs of dehydration. During the first two feeds of the day, Dalitso was still being given ReSoMal. After he was rehydrated, he began 2-hourly feeds of F-75 at 12:00. His rehydrated weight was 4.6 kg, so he was given **10 feeds** of **50 ml** each to finish the day's amount of 600 ml. He took all of his feeds very well, although his diarrhoea continued.

Dalitso's completed 24-Hour Food Intake Chart for day 1 is shown here. Study the chart. Then answer the questions on the following page about Dalitso's feeding plan for day 2.

24-HOUR FOOD INTAKE CHART

Complete one chart for every 24-hour period during stabilisation and transition.

Starting weight (kg): 4.6* Today's weight (kg): Same Oedema: 0 + ++ +++
 (*weight after rehydration)

DATE: 4/12/2016 (day 1)

TYPE OF FEED (circle): <u>(F-75)</u> F-100 Infant Formula or F-100-Diluted RUTF									
FEEDS	GIVE <u>12 minus two</u> milk feeds of <u>50</u> ml, or _____ ml per day (X)					GIVE _____ RUTF feeds of about _____ packet, or _____ packets per day (Y)			
Time	a. Amount of milk offered (ml)	b. Amount of milk left in cup (ml)	c. Amount milk taken orally (ml) (a-b)	d. Amount of milk taken by NG tube if needed (ml)	e. Estimated amount of milk vomited (ml)	f. Estimated amount of RUTF taken (proportion of packet)	g. Amount of milk offered to complete the RUTF feed (ml) (20 g RUTF or 2 teaspoons = 135 ml F-75 or 100 ml F-100)	i. Passed loose stools (Yes/No)	j. Comments (e.g., if vomited feeds were replaced, etc.)
12:00	50	20	30						
14:00	50	0	50						
16:00	50	0	50					Yes (small)	
18:00	50	0	50						
20:00	50	0	50						
22:00	50	0	50						
24:00	50	0	50					Yes (small)	
2:00	50	0	50						
4:00	50	0	50						
6:00	50	0	50					Yes (small)	
TOTALS			C. 480	D. 0	E. 0	F. 0	G.	Total Yes: 3	
24-HOUR INTAKE	Total daily amount of milk taken (H)= (C) + (D) – (E) = <u>480</u> ml Estimated proportion of daily amount of milk taken (H/X): _____ %					Estimated proportion of daily amount of RUTF taken (F/Y): _____ %			

Case 1 – Dalitso, continued

- 1a. Since Dalitso only had 10 feeds rather than 12, his total food intake cannot be compared to the 80% column on the F-75 Reference Tables Job Aid. Instead, look at how much of each feed he took. Did Dalitso take at least 80% of each feed?
- 1b. Although Dalitso still has diarrhoea, it is only a small amount. According to the criteria on [page 49](#) of this module, is Dalitso ready to change to 3-hourly feeds?
- 1c. Enter instructions for Dalitso’s feeding plan for day 2 on the following excerpt from the 24-Hour Food Intake Chart: **DATE:** _____ **TYPE OF FEED:** _____ **GIVE:** _____ feeds of _____ ml
- 1d. Starting with the first feed at 8:00, list the times at which Dalitso will need to be fed on day 2:
- 1e. On day 2, Dalitso took most of every feed for a total of 600 ml during the day. He had two diarrhoea stools and no vomiting. His weight has not changed, and there is still no oedema. Record information from day 2 on the following excerpt from the Daily Care Chart of the Treatment Card:

DAYS IN HOSPITAL	Week 1							Week 2	
	1	2	3	4	5	6	7	8	9
Date	4/12								
Daily weight (kg)	4.6								
Weight gain (g/kg) <i>Calculate when on RUTF/F-100 and breastfed infant</i>	-								
Bilateral pitting oedema 0 + ++ +++	0								
Diarrhoea (write number of loose stools)	2								
Vomiting (write the frequency)	0								
RESOMAL.....ml									
FEED PLAN: Type of feed	F-75								
Number of daily feeds	12-2								
Amount to give per feed (ml)(packet)	50								
Total amount taken (ml)(packet)	480								
NG tube Yes /No	No								
Breastfeeding Yes/No	Yes								

Case 2 – Peter

Peter weighed 4.8 kg when he was admitted to Inpatient Care on day 1. He had no oedema. He was given 12 feeds of 55 ml F-75 on day 1. Peter was a reluctant eater, but he finished most of his feeds and changed to 3-hourly feeds (8 feeds per day) on day 2. On day 2, Peter was still reluctant to eat. At two feeds, he took less than 80% of the amount offered, but he took more at the next feeds, so an NG tube was never used.

Peter's completed 24-Hour Food Intake Chart for day 2 is shown below.

2a. Did Peter take at least 80% of the expected daily total? (Refer to the last column of the F-75 and F-100 Reference Tables Job Aid.)

2b. Should Peter continue on 3-hourly feeds on day 3, or should he change to 4-hourly larger feeds? Why?

2c. Enter instructions for Peter's feeding plan for day 3 on the following excerpt from the 24-Hour Food Intake Chart:

DATE:	TYPE OF FEED:	GIVE:	<i>feeds of</i>	<i>ml</i>
--------------	----------------------	--------------	-----------------	-----------

24-HOUR FOOD INTAKE CHART

Complete one chart for every 24-hour period during stabilisation and transition.

Starting weight (kg): **4.8** Today's weight (kg): **4.8** Oedema: **0** + ++ +++

DATE: **6/2/2016 (day 2)**

TYPE OF FEED (circle): F-75 F-100 Infant Formula or F-100-Diluted RUTF									
FEEDS	GIVE 8 milk feeds of 80 ml, or _____ ml per day (X)					GIVE _____ RUTF feeds of about _____ packet, or _____ packets per day (Y)			
Time	a. Amount of milk offered (ml)	b. Amount of milk left in cup (ml)	c. Amount milk taken orally (ml) (a-b)	d. Amount of milk taken by NG tube if needed (ml)	e. Estimated amount of milk vomited (ml)	f. Estimated amount of RUTF taken (proportion of packet)	g. Amount of milk offered to complete the RUTF feed (ml) (20 g RUTF or 2 teaspoons = 135 ml F-75 or 100 ml F-100)	i. Passed loose stools (Yes/No)	j. Comments (e.g., if vomited feeds were replaced, etc.)
8:00	80	10	70						
11:00	80	0	80					Yes	
14:00	80	0	80						
17:00	80	20	60						
20:00	80	10	70						
23:00	80	10	70						
2:00	80	20	60						
5:00	80	0	80						
TOTALS			C. 570	D. 0	E. 40	F. 0	G.	Total Yes: 1	
24-HOUR INTAKE	Total daily amount of milk taken (H)= (C) + (D) - (E) = 530 ml Estimated proportion of daily amount of milk taken (H/X): _____ %					Estimated proportion of daily amount of RUTF taken (F/Y): _____ %			

2.4 Transition Phase

2.4.1 Adjusting to RUTF or F-100

Stabilization phase may take 2 - 7 days. But as soon as appetite returns, the child is ready to transition to rehabilitation. Slowly introduce catch up feeds to the child: either RUTF or F-100. It is important to monitor the child carefully during transition. If the transition happens too rapidly and is not monitored, heart failure may occur, leading to death.

For a period of 1 to 3 days of transition, the child should be offered similar amounts and frequency of feeds as during stabilisation; but now using RUTF or F-100 instead of F-75. This amount is appropriate until the child is used to the new food.

2.4.2 Recognising Readiness for Transition

Look for the following signs of readiness for transition, usually after 2–7 days in stabilization:

- Appetite has returned (child easily finishes 3 or 4-hourly feeds of F-75)
- Oedema has reduced
- Medical complication has resolved
- The child may also smile at this stage.

2.4.3 Introducing RUTF, and Completing with F-75 if Necessary

- Introduce RUTF gradually at each feed in prescribed amounts according to the child's body weight.
- Give RUTF at every feed, 6 times a day with plenty of clean drinking water.
- Breastfed children should be offered breast milk freely between the feeds.
- Closely monitor the 24-hour therapeutic food intake and assist the child to complete the feeds, and ensure that the child takes no other foods.

A small number of children with SAM will take longer to move from the milk diet to the RUTF diet.

- When the child does not eat RUTF well, top up with F-75 to match the missed amount.
- The child should continue to be offered RUTF at each feed.
- Use F-75 to top up the RUTF feeds until the child eats the RUTF well: top up the RUTF based on **20 grams of RUTF (2 teaspoons) equals about 135 ml F-75³**.
- If the child takes RUTF voluntarily and eats up to 75% of its daily prescribed amount, stop topping up with F-75.
- If the child refuses RUTF (fails appetite test), give F-100 at the same volume and frequency as the child was receiving F-75, but remember to test appetite for RUTF at the beginning of every 24-hour food intake. When the child can take RUTF, switch the diet from F-100 to RUTF.

The transition phase prepares the child for referral to Outpatient Care and may last up to 3 days until the child eats RUTF well. When the child eats two full meals of RUTF only, he or she is ready for transfer to Outpatient Care.

³ This is an acceptable approximation. If tables are to be constructed, *135 ml of F-75 = 18.5 g of RUTF* and *10 g of RUTF = 54 ml of F-100* should be used for conversion and the resulting values rounded to the nearest 5 or 10 ml.

Feeding with RUTF

Advise the mother to:

- Wash her hands and those of her child before giving the RUTF.
- Sit with the child in her lap and gently offer the RUTF.
- Encourage the child to eat the RUTF without force-feeding.

In addition, explain the following key messages to the mother on how to use RUTF in inpatient care:

1. Sick children often do not like to eat. Give small regular amounts of RUTF and encourage the child to eat. Your child should have __ packets per day. If your child cannot yet eat the whole amount of RUTF per meal, then your child will be offered therapeutic milk to complete the feed, until your child eats a full RUTF meal.
2. Continue to breastfeed regularly (if applicable). Offer breast milk first before every RUTF feed.
3. Always give RUTF after breastfeeding but before the F-75 feeds.
4. Offer the child plenty of clean water to drink while he/she is eating RUTF. Children will need more water than normal.
5. Wash the child's hands and face with soap before feeding if possible.
6. Keep the RUTF packet clean and covered between feeds.
7. RUTF is a food and medicine for a person who is severely malnourished. It should not be shared.
8. RUTF should never be added to or mixed with porridge.
9. Never stop feeding when the child has diarrhoea and inform the health worker. After RUTF give extra clean water.

Feeding procedures with RUTF

- Give the RUTF to the mother to feed the child. The mother should be encouraged to give RUTF feeds according to the child's body weight at the same time as feeds were given during the stabilisation phase—about 150 kcal/kg/day.
- Children should be offered as much clean water to drink as they want during and after they have taken some of the RUTF.
- Observe the feeding. Some children initially refuse the RUTF. In this case, complete the missed amount of the feed with F-75 diet until the child eats 75 percent of the RUTF, then stop the complementary F-75. Breastfed children should be offered breast milk on demand before being fed RUTF.

See Annex C: Therapeutic Food Reference Tables - RUTF Reference Table for the amounts of RUTF to provide during transition.

2.4.4 In Special Cases when RUTF Cannot Be Given, Give F-100 Slowly and Gradually

In special cases when RUTF cannot be given (e.g., no RUTF is available, medical condition does not allow, child refuses RUTF), F-100 should be given.

The feeding technique for F-100 is given according to the following schedule:

- **First 48 hours (2 days):** Give F-100 every 4 hours in the same amount as you last gave F-75. **Do not increase this amount for 2 days.**

- **Then, on the third day:**
 - Increase each feed by **10 ml** if the child is finishing the feeds.
 - If the child does not finish a feed, offer the same amount at the next feed; then if feed is finished, increase by 10 ml.
 - Continue increasing the amount until some food is left after most feeds.
 - If the child is breastfeeding, encourage the mother to breastfeed between feeds of F-100 and on demand.

Use the F-75 Reference Table that gives amounts of F-75 of 130 ml/kg/day, for the amounts of volume of F-100 to give during transition. See **Annex C: Therapeutic Food Reference Table - Stabilisation Phase Reference Tables for F-75 for Children with Severe Wasting (Marasmus)**

Example of feeding schedule during transition

You will remember Dalitso from the last exercise. On day 1, Dalitso's weight after rehydration was 4.6 kg, and he was started on 50 ml of F-75 every 2 hours. Dalitso continued to feed well over the next 2 days. On day 2, he took 3-hourly feeds of 75 ml of F-75. On day 3, he took 4-hourly feeds of 100 ml of F-75. He also smiled at his mother and the nurses.

On **Day 3**, Dalitso weighs 4.6 kg and easily finished all of his 4-hourly feeds. Thus, on day 4, Dalitso is ready for transition. Dalitso's feeding schedule during transition will be as follows:

Offer RUTF according to Dalitso's weight (refer to RUTF table in Job aid: Therapeutic Feeds), spread over 6 feeds per day:

Day 4: At 8am, offered RUTF approximating 1/3 of a packet (3 teaspoons) per feed, and with a total of 1¾ packets of 92 g RUTF per day. After 3-4 hours, Dalitso took less than 1/3 of the packet (approximately he took 2 teaspoons of RUTF). Therefore, 70 ml of F-75, was given to Dalitso, to top up for the 1 teaspoon of RUTF he failed to finish (2 teaspoons or 20 g RUTF is approximating 135 ml of F-75). At 12pm, advised mother to give next feed (3 teaspoons of RUTF), and following review at next feeding schedule, Dalitso took 2½ teaspoons of RUTF. This is more than 75% of Dalitso's recommended feeds. Therefore, Dalitso did not receive additional F-75.

Day 5: Continue offering RUTF every 4 hours approximating 1/3 of a packet per feed, and with a total of 1¾ packets of 92 g RUTF per day (same as day 4). If Dalitso is still not able to finish the feeds, top up with F-75 of equal to the calories of the RUTF he failed to finish.

Day 6: Continue 4-hourly feeds with RUTF.

IMPORTANT:

- It is easier to check amount of RUTF left in the sachet than the amount taken, to calculate volume of F-75 needed to top up. Approximately 20 g or 2 teaspoons of RUTF = 135 ml of F-75, therefore, half a packet of the 92 g RUTF (46 g) is equivalent to 310 ml of F-75.
- If a child fails RUTF appetite test, give F-100, but continue checking appetite test with RUTF, until the child starts tolerating RUTF.

2.4.5 Monitoring Carefully during Transition

Every 4 hours, ask the clinician or nurse to check the child's respiratory and pulse rate. Increase in respiratory or pulse rate may be sign of heart failure.

More information on monitoring danger signs is discussed in **Section 3, Daily Care**, and summarized in **Annex D: Monitoring Danger Signs in Inpatient Management of SAM**.

2.4.6 Recording Intake/Output; Planning Feeds for the Next 24 Hours

Record the amount of RUTF (with F-75 completion of the feed) or F-100 offered at each feed, and the child's intake and output (vomiting or diarrhoea) on the 24-Hour Food Intake Chart. Also, enter the total amount taken during the day. Enter the feeding plan for the next day on a new 24-Hour Food Intake Chart.

Child on RUTF:

DATE: <u>9/12/2016</u> TYPE OF FEED: <u>RUTF</u> GIVE: <u>6</u> feeds, daily feed = 1.5 packets

Child on F-100:

DATE: <u>9/12/2016</u> TYPE OF FEED: <u>F-100</u> GIVE: <u>6</u> feeds of <u>105</u> ↑ ml

On the third day, when feeds should increase by 10 ml (as long as the child is taking all that is offered), mark an arrow by the **starting amount** per feed, for example, **105 ml** ↑ in F-100 intake.

2.5 Feeding RUTF or F-100 during Rehabilitation

After successful transition (which takes 1- 3 days), then child can be transferred to Outpatient Care to continue treatment.

In Outpatient Therapeutic Program (OTP), children are monitored weekly in a health facility and continue taking the RUTF at home.

Note: The management of SAM in OTP is covered in a separate training.

Where a child cannot be transferred to OTP and remains in hospital until full recovery, RUTF or F-100 will be prescribed according to the child's body weight.

The following are reasons for children to remain in hospital for rehabilitation until full recovery on RUTF or F-100:

- Hospital and/or peripheral primary health care facilities have no access to RUTF,
- Child remains in hospital because of another medical condition, or special circumstances
- Child is unable to eat RUTF,
- Mother refuses the child to continue treatment as outpatient despite being adequately counselled,
- Child is unlikely to access Outpatient care, e.g in border areas.

Annex C: Therapeutic Food Reference Tables: Reference Table for Quantity of F-100 to Give to an Individual Child per Feed and Reference Table for Amounts of RUTF to Give Children per Day or Week, Based on 92 g Packets Containing 500 Kcal provide references for F-100 and RUTF showing the **150–220 kcal/kg/day** range of intakes suitable for rehabilitation of children of different weights up to 20 kg.

2.5.1 Encouraging the Child to Eat Freely on F-100 at Each Feed

After transition, a child enters the ‘rehabilitation’ phase and can feed freely on F-100 within the range specified on the F-100 Reference Table provided according to the child’s weight. Any amount less than this indicates that the child is not being fed freely or is unwell.

To identify the acceptable range:

EITHER

- Locate the child’s weight on the F-100 Reference Table and check against the amounts given. If the child’s weight is between two weights given on the F-100 Reference Table, use the range for the next lower weight.

OR

- If you need to calculate the acceptable range yourself (for example, if the child weighs more than 20 kg), multiply the child’s weight by 150 (minimum) and 220 (maximum); then divide each result by 6 (for 6 feeds per day). This will tell you how many ml to give per feed.
- An easier method may be to add together the feed volumes for an appropriate combination of children’s weights from the card. For example, if a child weighs 23.2 kg, add the volumes shown for a 20.0 kg child plus a 3.2 kg child.

Examples

Maria weighs 6.2 kg. According to the F-100 Reference Table, her feeds of F-100 may be in the range of 155–230 ml.

Lonely weighs 4.5 kg. Using the range for the next lower weight, 4.4 kg, Lonely’s feeds should be in the range of 110–160 ml.

Delia weighs 22 kg: Add volumes for a 20.0 kg child and a 2.0 kg child, according to the F-100 Reference Table:

Minimum: 500 ml + 50 ml = 550 ml per feed

Maximum: 735 ml + 75 ml = 810 ml per feed

During free feeding:

- Breastfeeding should be continued between the feeds and on demand.
- Sit with the child and actively encourage eating.
- Never leave the child alone to feed.
- The child should eat as much as he or she wants at each feed, within the range shown on the F-100 Reference Table. Continue to feed every 4 hours within this range.
- Record each feed on the 24-Hour Food Intake Chart

2.5.2 Determining if F-100 Intake Is Acceptable

To determine if daily intake is acceptable:

- Compare the volume taken to the range given on the F-100 Reference Table.
- If the child is not taking the minimum amount, there may be a problem, such as an infection, or the child may need more encouragement to eat.

- In general, during rehabilitation if the child is gaining weight rapidly, he or she is doing well.
- During rehabilitation, if the child has diarrhoea but is still gaining weight, there is no need for concern, and no change is needed in the diet.
- After 1 week in rehabilitation, if the child is doing well, there is no need to continue using the 24-Hour Food Intake Chart.
- Monitoring for danger signs is no longer needed, however the monitoring of the response to treatment will continue (e.g., weight gain, clinical condition).

2.5.3 Adjusting Feeding Plan of F-100 as Necessary

During rehabilitation, a child is expected to gain weight rapidly, and the amount of F-100 given should be increased as the child's weight increases.

To plan feeds for the next day:

- Use the child's **current** weight to determine the appropriate range of F-100 each day.
- Choose a starting amount within the range. Base the starting amount on the amount taken in feeds during the previous day. If the child finished most feeds, offer a bit more (10 ml). If the child did not finish most feeds, offer the same amount as the day before.
- Do not exceed the maximum in the range for the child's current weight.
- If the amount of F-100 offered may be increased during the day, write a note to this effect on the 24-Hour Food Intake Chart: For example, use an arrow to show that an increase is permitted, for example, '*155 ↑, not to exceed 175*'.
- If the child is starting the day with the maximum amount allowed, write on the chart: '*Do not increase*'.



Exercise 2C

Case 1 – Dalitso

You may remember that Dalitso began transition on Day 4. After failing the appetite test, on Days 4 and 5 he was given 90 ml F-100 per feed. On Day 6 he increased to 135 ml by the last feed of the day. On Day 7 Dalitso began free feeding on F-100. Dalitso's 24-Hour Food Intake Chart for Day 7 is on the next page.

- 1a. What volume of F-100 was Dalitso offered at his last feed on Day 7?

- 1b. On Day 8, Dalitso's weight is 5.0 kg. What is the range of volumes of F-100 that is appropriate for Dalitso for each 4-hourly feed?

- 1c. What should be the starting amount of F-100 given on Day 8?

- 1d. What instructions should be written on the 24-Hour Food Intake Chart concerning the amount of F-100 to offer at subsequent feeds on Day 8?

- 1e. On Day 8, Dalitso reached the maximum volume per feed and still wanted more. The nurse gave him no more than the maximum allowed. On Day 9 Dalitso's weight is up to 5.2 kg. What should be the starting amount of F-100 on Day 9? Should this amount be increased during the day?

2.6 Feeding Infants less than 6 Months of Age

2.6.1 Nutritional Treatment for Breastfed Infants

Feeding approaches should aim at establishing, or re-establishing effective exclusive breastfeeding.

During the period where exclusive breastfeeding does not provide enough breast milk for the infant to gain weight appropriately, supplemental suckling with a milk supplement can help support and stimulate breastfeeding.

Note: Feeding of an in infant (special baby) should be planned with an experienced nurse and discussed with the home-craft workers.

Important points to note:

- ✓ Infants less than 6 months with SAM without oedema should be supplemented with F-100 Diluted.
- ✓ Infants with oedema should be supplemented with formula or F-75 until the oedema has resolved.
- ✓ Undiluted F-100 should never be given to infants less than 6 months old with SAM because it's too concentrated for the kidneys of the infant.

If the infant can suckle or is suckling weakly

- Breastfeed on demand. Offer breast milk at least every 3 hours for at least 20 minutes and on demand (whenever the infant cries or demands more).
- Within 30 – 60 minutes after a breastfeeding session, give maintenance amounts of F-100 Diluted at **130 ml/kg/day**, distributed across twelve or eight feeds per day (every 2-3 hours).
- Two hourly feeds are best for at least the first days and to stimulate breast milk production.
- Close monitoring and recording of feeding and vital signs (temperature, respiratory rate and pulse rate) are crucial, and are similar as described in the older child.

If the infant is NOT able to suckle

- Encourage Mother to start expressing her milk. Show her how to hand express the breast milk at least 8 to 12 times a day (every 2-3 hours). This will stimulate her breasts to make more milk.
- Measure (estimate) the expressed milk and feed it to the infant by NG tube. Complete the breast milk feed with a F-100 Diluted or F-75 (if the infant has bilateral pitting oedema) up to the full amount as indicated on the F-100 Diluted and F-75 reference table (see **Annex D: Reference Tables for Infants < 6 Months**).
- Encourage the mother to continue to offer the breast as much as possible

Regulation of amount of milk supplement (F-100 Diluted)

- Weigh the infant daily, and monitor for weight gain
- If the infant loses weight or doesn't gain weight over 3 consecutive days or continues to be hungry and is taking all the milk, inform an experience Nurse or Clinician.
- If the infant starts gaining weight, and breast feeding more, reduce the amount of therapeutic milk (by one-third), so that the infant is stimulated to take more breast milk. Discuss feeding plan with the Nurse.

- If after gradual decrease of the F-100 Diluted or F-75 weight gain of the infant is sufficient and maintained for 2–3 days, stop the F-100 Diluted or F-75.
- If after the volume of milk feeds is reduced and the child stops gaining weight, then inform the nurse or clinician.

The reference tables for amounts of F-100 Diluted or F-75 in case of bilateral pitting oedema until the oedema is resolved for breastfed infants is provided in **Annex D: Therapeutic Food Reference Tables for infants less than 6 months**.

Supplemental suckling

If an infant is able to suck but milk production is low, then supplemental suckling can be used.

This technique involves the infant suckling at the breast while also taking the milk supplement (F-100 or F-75) from a cup through a fine tube that runs alongside the nipple. The infant is fed by the milk supplement while suckling stimulates the breast to produce more milk:

While the mother holds a cup with the milk supplement, the end of a NG tube (size 8) is put in the cup and the tip of the tube is placed on the breast, at the nipple. The infant is offered the breast with the right attachment. The cup is placed 5-10 cm below the level of the nipple for easy suckling. When the infant suckles more strongly, the cup can be lowered to up to 30 cm.



After feeding is completed, the tube is cleaned: flush through with clean water using a syringe, then spin rapidly to remove the water inside the tube. If possible, leave the tube exposed to direct sunlight. Replace the tube every few days.

Breastfeeding support

- Support the mother to breastfeed every three hours for at least 20 minutes, and on demand.
- Encourage the mother to give her infant Kangaroo care. Skin-to-skin contact may help increase the amount of milk she can produce.

Monitoring re-lactation

- Breast milk production may start in a few days or a few weeks and is difficult to predict. Some women produce a full supply in just a few days, especially if their infants were still breastfeeding.
- If an infant had stopped breastfeeding completely, it may take a few weeks, or more, before much breast milk comes.
- If a mother has never breastfed her infant, she may never produce enough breast milk to establish exclusive breastfeeding. However, some breastfeeding is better than no breastfeeding. All women need encouragement to be patient; they must know that their milk may take a short or a long time to 'come in'.

The following are signs that breast milk is being produced:

- **Breast changes:** The breasts feel fuller or firmer, or may leak milk, or milk can be expressed.
- **Less milk supplement (F-100 Diluted or F-75) consumed:** The infant (who breastfeeds first before each supplementary milk feed) takes less milk supplement while continuing to gain weight. This should be monitored over time (e.g. five days).

- **Infant does not take second breast:** This may be a sign to reduce the amount of supplement offered, so that infant will want to suckle both breasts before each supplementary milk feed.
- **Stool changes:** The infant's stools become softer, more like the stools of a breastfed infant.

Criteria for discharge from hospital and progress to Outpatient Care for infants with breastfeeding support

- Breastfeeding infant - weight gain on exclusive breastfeeding is satisfactory, for 3 consecutive days.
- Mother and infant are linked to community-based IYCF support, e.g. care and support groups.

Inform the clinician to confirm that:

- Medical complication has resolved
- No Bilateral pitting oedema for two consecutive weeks
- Infant is clinically well and alert

The decision to discharge the infant should be made by a clinician or experienced nurse.

2.6.2 Nutritional Treatment for Infants without Prospect of Breastfeeding

If there is no prospect of being breastfed (mother is not alive), then:

- Infants with SAM without oedema should be fed using infant formula or F-100 Diluted.
- Infants with oedema should be fed with F-75 until the oedema has resolved and should then switch to infant formula or F-100 Diluted.

Feeding during rehabilitation in case the infant remains in hospital

- Give infant formula milk or F-100 Diluted providing **200 ml/kg/day**, or twice the volume given in the stabilisation phase.
- Mothers are prepared for discharging the infant on infant formula, and receive nutrition counselling.

Whenever a breast milk substitute is given as part of management of SAM in infants, it should not confuse or compromise the government policy concerning exclusive breastfeeding for infants less than 6 months.

2.7 Individual Monitoring of the Infant

Close monitoring during each day of the treatment is very important and must be emphasized. The following parameters should be monitored daily and recorded on the treatment card:

2.7.1 Monitoring weight gain

- Weigh the infant daily on appropriate infant scales with accuracy to 20 g.
- It is important to check scales are being properly used (e.g. reset to zero if necessary after each measurement).
- Infants should be weighed entirely without clothes – weight of clothes can make a big difference to the small changes in weights seen in such small infants.

- Weight gain should be calculated as grams per kg body weight per day. However, a useful rule of thumb for minimum acceptable weight gain in young infants is 20 g per day.

2.7.2 Monitoring urine frequency

- Ask how often the infant passes urine. Frequent urination (six or more wet nappies daily for less than 6 months) with pale, dilute urine, is a useful day-to-day sign of adequate fluid intake in the exclusively milk-fed infant.

2.7.3 Monitoring infant's level of activity

- Ask about the infant's level of activity. An infant is probably getting enough to eat if s/he:
 - is lively and interacts socially in a way appropriate to his/her age
 - wakes spontaneously every two to three hours demanding a feed, feeds vigorously

An infant who is not getting enough to eat may be very quiet and undemanding because he or she lacks the energy to insist on being fed.

2.8 Taking Care of the Mother (or Caregiver)

2.8.1 Feeding the mothers

A mother of an infant with SAM needs to be fed so she can care well for her child. She needs:

- high-quality food through 3 daily meals as well as snacks.
- adequate fluid intake (an extra litre per day compared to her usual intake) to ensure the milk production.

2.8.2 Listening to the mothers

Mothers in emergency situations or with very ill infants are often traumatized and depressed, and they may not interact with or respond to their infants.

It is helpful to get mothers to talk about their experiences and their feelings and doing so can help to resolve their problems. Then they may be able to respond better to their babies again.

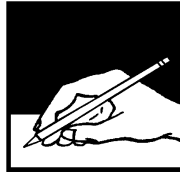
- Listen to a mother throughout this process, learn her difficulties, and help her to talk about them, including any that affect her ability to breastfeed and to care for her infant.
- Encourage women to listen to each other in support groups.
- Usually the best help comes from other women, of the same culture and social standing, who have had a malnourished infant that responded well to treatment. The regimen in the NRU must not be too strict.

2.8.3 Keeping mothers and infants together

- Do not separate mothers from their infants as this endangers breastfeeding, care and warmth for the infant, feeding and care of other children, and increases mothers' anxieties.
- The treatment of these infants is different from that of other children, and it is easier to look after them together.
- The arrangement also helps to provide the mothers with privacy. If the mother has other children, keep them with the mother too if possible.
- Keeping mothers and infants together does not cause cross infection.

Mothers and infants can be kept together more easily if they are given adult beds or mats to sleep on together, instead of putting the infants in separate baby cots.

Mothers and their infants are considered and treated together. Take care of both the mother and the infant. Provide food, treatment, psychosocial support and other care to both, as needed. Engage mothers in the care of their infants.



Exercise 2D

In this exercise, in group you will discuss two cases:

1. Alinafe is a breastfed infant with a length of 51 cm and weighs 2.7 kg. Alinafe lost weight in the previous 2 days, and looks unwell. Her mother is very worried and complains of breastfeeding difficulties despite the support she received on infant feeding from health workers in her community. Her WFH is <-3 z-score.
2. Thomu is an infant of 2 months old whose mother died during childbirth. Thomu has a length of 54 cm and weighs 3.2 kg. Thomu is taken care of in the orphanage. His carer informs us that Thomu suffered from frequent episodes of diarrhoea since his arrival in the orphanage. Yesterday after Thomu passed several loose stools she got worried because she noticed Thomu was not well and the look of his eyes had changed.

Discuss (and develop) a feeding plan for Alinafe and Thomu.

2.9 Feeding in the NRU

- It is important to plan feeding for the NRU so that the staff know how much food to prepare, how much food to put in cups at each feed, etc.
- This plan should be written by the nurse and shared with the home-craft workers.
- Feeds are prepared for every feed session; feeds are not kept for next meals

Note: Prepared milk should be used as soon as possible and leftover milk should be thrown away immediately

2.9.1 Determining a Schedule for Feeding and Related Activities

The ward schedule should include times for the following activities:

- Preparing feeds (as often as necessary to ensure freshness)
- Reviewing patient charts and planning feeding for the day
- Feeding according to 2-hourly, 3-hourly and 4-hourly plans
- Weighing
- Bathing
- Shift changes

Once these activities are scheduled, you will see where time for organised play and educational activities can most conveniently fit in.

Time for Preparing Feeds

- Decide whether feeds should be prepared every 12 hours, or, if refrigeration is poor or there are very many children, it is necessary to make feeds for every feed. This will depend on storage capabilities, the length of time feed will stay fresh and the availability of kitchen staff.
- Leftover milk should be discarded after feeds. Cups should be taken away after each feed (the milk amount that is not taken by the child should be recorded on the 24-hour food intake chart).
- In the absence of refrigeration, decide what to do for the leftover milk, e.g., distribute leftover milk after every feed immediately to the other children in the hospital.
- RUTF does not require any preparation. Therefore, children on RUTF are given their full ration for the day in the morning and instructions on how to feed the child are provided to mothers.
- The feeding of the children should continue to be supervised and/or assisted.

Time for Review and Planning

Select a time of day to:

- Review each child's past 24-Hour Food Intake Chart
- Plan feeding for each child (if this has not already been done during physician rounds)
- Compile feeding plans for each child onto a feeding chart for the entire ward.

An example of a completed Daily Feeds Chart is shown on [page 85](#).

This chart is used in the kitchen for staff to:

- Know how much F-75, F-100 and F-100 Diluted to prepare
- Know how much RUTF to give for the day.
- Plan and take out reserves from the store for the day.

Feeding Times

- Select a time of day that each ‘feeding day (24 hours)’ will start. This is usually in the morning after totals have been done from the previous day, and a Daily Feeds Chart has been prepared for the new day. The time selected should be after staff have arrived and had time to prepare the food.
- Plan times for 2-hourly, 3-hourly and 4-hourly feeds. At almost every hour, some children will have feeds. Ensure that no feeds occur at times of shift changes. For example, if shift changes are on the hour, plan for feeds to occur on the half-hour.
- Keep in mind that a few children, for example, those with hypoglycaemia or continued vomiting, may be on a special half-hourly or hourly feeding schedule. Those children will need special attention to ensure that the more frequent feeds are provided outside the normal schedule.

Weighing and Bathing

- Daily weighing will need to occur at about the same time each day, preferably 1 hour before or after a feed.
- Since the children are undressed for weighing, this is also a good time for bathing. Generally, children on 2-hourly feeding schedules are likely to be too ill to be bathed.
- Children on 3-hourly and 4-hourly schedules may be bathed when they are weighed if this is convenient.

Shift Changes

- Shift changes may already be fixed for your hospital, and you may need to work around them in planning your schedule.
- Keep in mind that no feeding should be scheduled during a shift change. It is best for shifts to overlap slightly so that instructions may be communicated from one shift to the next.

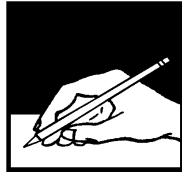
2.9.2 Example Ward Schedule

At Chinsapo Hospital there is good refrigeration. There are usually 10–15 children in Inpatient Care. There is adequate staff to prepare feeds twice daily, so it is decided to prepare feeds every 12 hours.

There are three nursing shifts per day. Each shift overlaps with the previous one by 30 minutes, so there is time to communicate instructions. The ‘feeding day’ starts at 10:00. after the senior nurse has had time to review charts from the day before and plan for the day. Beginning with the morning shift change, the schedule for the ward is as follows.

Example Ward Schedule

TIME	Activities by Feeding Schedule			Other Ward Activities/Comments
	2-hourly	3-hourly	4-hourly	
<i>Shift change 6:30–7:00; instructions given</i>				
7:00	Weigh	Feed	Weigh, bathe	
8:00	Feed	Weigh, bathe		Senior Nurse reviews each child’s past 24-Hour Food Intake Chart and weight; plans feeding for the day; completes Daily Feeds Chart
9:00				Prepare feeds for next 12 hours
10:00	Feed	Feed	Feed	Start of new ‘feeding day’
11:00				Organised play, parent education
12:00	Feed			
13:00		Feed		
<i>Shift change 13:30–14:00; instructions given</i>				
14:00	Feed		Feed	
15:00				Organised play, parent education
16:00	Feed	Feed		
17:00				Organised play, parent education
18:00	Feed		Feed	
19:00		Feed		
20:00	Feed			
<i>Shift change 20:30–21:00; instructions given to night staff</i>				
21:00				Prepare feeds for next 12 hours
22:00	Feed	Feed	Feed	
23:00				
24:00	Feed			
1:00		Feed		
2:00	Feed		Feed	
3:00				
4:00	Feed	Feed		
5:00				
6:00	Feed		Feed	



Exercise 2 E

In this exercise, you will draft a schedule for your own ward, using your own information on shift changes, frequency of making feeds, etc.

If there are other staff members from your hospital attending this training course, it is suggested that you work together on this exercise.

Draft your ideas on a blank piece of paper first. Then use the blank schedule on the next page (or develop your own format). Be sure to include times for:

- Preparing feeds (as often as necessary)
- Reviewing charts and planning feeding for the day
- Feeding
- Weighing
- Bathing
- Shift changes

Consider the following questions and be prepared to discuss them.

- Is there a need to adjust shifts, kitchen hours or other aspects of your hospital's schedule to accommodate feeds?
- When are there times in the schedule to include opportunities for play or for educating parents about feeding their children?

When you have finished making a schedule for your ward, tell a facilitator that you are ready for a group discussion.

2.9.3 Preparing a Daily Feeds Chart

An example of a Daily Feeds Chart is on the [next page](#). To prepare a Daily Feeds Chart:

- Enter the name of each child in the ward in the first column.
- Note that children on F-75 will have information recorded in the left-hand section of the chart, and children on F-100 will have information recorded in the right-hand section.
- Infant Formula or F-100 Diluted used in the nutritional recovery for infants less than 6 months (or expressed breast milk) are also recorded on the Chart.
- Looking at each child's individual 24-Hour Food Intake Chart for the coming day, transfer:
 - The number of feeds planned for the child for the day
 - The amount of F-75, F-100, Infant Formula or F-100 Diluted needed per feed, and the amount of RUTF needed per day. (*Note: If a child may be increasing the size of F-100 feeds during the day, enter the amount of the largest feed that you expect him to take; to ensure that there is enough food, it is better to estimate high*)
- Determine the total amount of F-75, F-100, Infant Formula or F-100 Diluted needed for each child by multiplying the number of feeds by the amount per feed.
- Add the individual totals to determine the total amount of F-75, F-100, Infant Formula or F-100 Diluted and RUTF needed for the day for the ward.
- Round up the amount needed to the nearest half-litre (since the feeds are prepared in half-litre batches).
- You might find it helpful to prepare some extra feed in case there are new admissions, some is spilled, etc. Enter the amount to prepare in the appropriate space on the chart.



Exercise 2F

In this exercise, you will finish completing a Daily Feeds Chart and determine how much F-75, F-100, and Infant Formula or F-100 Diluted to prepare for the ward. Use the partially completed Daily Feeds Chart on the next page.

1. Piyasi is the eighth child in the ward. It is his fourth day in the ward and he is still on F-75. His feeding plan for the day is below. Add Piyasi's feeding plan to the Daily Feeds Chart.

DATE: 17/05/16 **TYPE OF FEED:** F-75 **GIVE:** 6 feeds of 130 ml

2. Vera is the ninth child in the ward. She is starting her second day of transition, so her planned amount of F-100 should not be increased during the day. Vera's feeding plan for the day is below. Add her feeding plan to the Daily Feeds Chart.

DATE: 17/05/16 **TYPE OF FEED:** F-100 **GIVE:** 6 feeds of 160 ml

3. Feeds are prepared every 2 hours at this hospital. Complete the bottom part of the Daily Feeds Chart to determine how much of the ingredients to take from the store for the feeding in a day.

This will be done as a group exercise.
Your facilitator will demonstrate this on the chart.

2.9.4 Planning Staff Assignments Related to Feeding Children

The major tasks involved in feeding are:

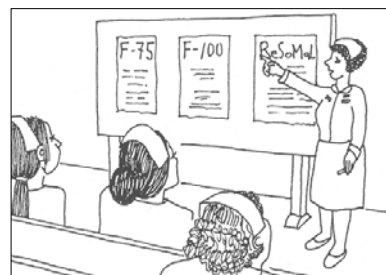
- Preparing F-75, F-100, and F-100 Diluted or Infant Formula
- Measuring out F-75 and F-100, and F-100 Diluted or Infant Formula feeds in amounts prescribed for each child, Mothers with children on RUTF receive the daily amount of RUTF at once and are advised on the amount of RUTF the child should eat per feed.
- Feeding children
- Recording feeds (and vomiting and diarrhoea) on intake chart
- Planning feeding schedule for an individual child for the next day
- Preparing the Daily Feeds Chart

2.9.5 Preparing Staff to Do Assigned Feeding Tasks

If staff do not know how to do the tasks that you plan to assign them, you will need to provide some training. Training need not be lengthy or formal; it may be done through staff meetings or on the job. Good training includes:

Information. Staff must be told (and preferably informed in a written job description) what tasks are expected of them.

- Give instructions about how to do the tasks using job aids, such as a poster on the wall with recipes for F-75 and F-100, F-100 Diluted etc.
- Information may also be given orally, for example, in a staff meeting about how to complete patient records.



Examples: Staff must be shown how to do the tasks.

For example:

- They might watch a demonstration of preparing feeds or feeding a very weak child.
- They might look at a correctly completed 24-Hour Food Intake Chart.



Practice. Practice is the most important element of training. For example:

- Staff must actually prepare feeds with supervision until they can do it correctly.





Exercise 2 G

In this exercise, you will discuss various ways in which information, examples and practice can be provided for feeding-related tasks.

First answer the questions below. Be prepared to discuss your answers with the group.

1. List one feeding-related task that staff in your hospital does not know how to do correctly.
2. Which staff members are (or will be) responsible for this task? Do they know they are responsible for it? If not, how can you inform them of their responsibility?
3. In training staff to do this task, how could you provide **information** cheaply, quickly and realistically?
4. How could you provide **examples** cheaply, quickly and realistically?
5. How could you provide **practice** cheaply, quickly and realistically?
6. If you were to train staff to do this task, would there be any remaining problems interfering with doing the task? If so, what problems, and how could they be overcome?

Tell a facilitator when you are ready for the group discussion.

3. Daily Care

3.1 Introduction

Attentive and consistent daily care will make the difference in the recovery of a child with SAM. The routine of daily care in inpatient management of SAM includes such tasks as weighing, feeding, bathing, giving antibiotics, and monitoring and recording each child's progress. Throughout a very busy day, and also through the night, the staff must be patient and caring with both the children and their mothers.

Weighing and measuring tasks were described in **Section 1: Principles of Care**. Feeding tasks were described in **Section 2: Feeding**. This section describes other tasks of daily care. You will practise these tasks during ward visits. You will also practice completing and interpreting the Monitoring and Weight Charts of the Inpatient Care Treatment Chart.

Learning objectives

By the end of this section, you will be able to:

- Handle a child with SAM with poor appetite and medical complications
- Care for the skin and bathing
- Care for the eyes
- Monitor pulse, respirations and temperature, and watching for danger signs
- Understand the importance of continuing care at night
- Prepare and maintain a weight chart

3.2 Handling a Child with SAM in Inpatient Care

Children with SAM must be handled very gently, especially at the beginning of their care. The body of a child with SAM is fragile and bruises easily.

It is important to speak quietly and handle children as little as possible at first. Hold and touch children with loving care when feeding, bathing, weighing and caring for them. The child must stay calm and not become upset.

Through tone of voice, gentle manner and caring attitude, home-craft workers set a good example for the mothers of how to provide tender, loving care. Good home-craft workers also win the trust of mothers and make them more likely to stay with their children in the hospital for the necessary length of time. The number of other adults interacting with each child should be limited, and the most skilled staff available should perform medical procedures, preferably out of earshot and sight of the other children.

Health workers can set a good example by:

- Removing the child's clothes gently
- Bathing the child gently
- Talking softly to the child while giving treatments
- Holding the child close while feeding
- Encouraging a mother who is helping to provide care
- Comforting a child after a painful procedure

As the child recovers, stimulation of the child should increase. Play, physical activities and mental and emotional stimulation become very important to the child's complete recovery. There will be more information on these activities in **Section 5: Involving Mothers in Care**.



SHORT ANSWER EXERCISE

Check all of the appropriate responses or actions in the situations described below.

1. A mother pays little attention while a nurse bathes her child. The mother sits quietly, does not participate and is hesitant to touch the child.

- A. Look at the mother directly and explain the bathing procedure.
- B. Reassure the mother that she will not hurt her child by bathing and holding her or him gently.
- C. Show the mother how to bathe and hold the child gently.
- D. Leave the mother alone with the child, assuming she will figure out how to finish the bath.
- E. Watch and help while having the mother dress and warm the child after the bath.

2. A mother falls asleep and does not finish feeding her child F-75 during the night.

- A. Let the mother sleep while you feed the child yourself.
- B. Gently wake the mother and ask, 'Can you finish the feed?'
- C. Wake the mother and tell her that the child could die if not fed every 2 hours.
- D. Suggest that the mother take turns sleeping and giving feeds with another woman whose child is nearby.

Check your own answers to this exercise against the answers given on page 151 at the end of the module.

3.3 Completing the Inpatient Care Treatment Card Daily

All tasks done during the daily care of a SAM child in the ward should be recorded in the Inpatient Care Treatment Card. This is an updated chart which replaces the multi-chart previously used in the NRU. It has six sections: 1) initial management chart, 2) daily care chart, 3) monitoring chart, 4) weight chart, 5) 24-hour food intake chart, and 6) outcome chart. These sections should be appropriately completed by the health worker who is providing the specific care to the SAM child.

Demonstration on how to complete the Treatment Card

Pages 73 and 74 shows example of a completed Daily Care Chart and Monitoring Chart of the Treatment Card.

Tell a facilitator when you have reached this point in the module. When everyone is ready, your facilitator will present a brief demonstration of how to complete the charts

CHILD NAME: Atuweni M/F AGE: 2 years Months HOSPITAL NUMBER: Date: Time: 7:00

DAILY CARE CHART

DAYS IN HOSPITAL	Week 1							Week 2		Week 3											
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Date	1/15	1/16	1/17	1/18	1/19	1/20	1/21	1/22	1/23												
Daily weight (kg)	8.8	8.8	8.8	8.8	8.7	8.8	8.9	9.0													
Weight gain (g/kg) <i>Calculate when on RUTF/F-100 and breastfed infant</i>	—	—	—	—	—	—	5.6	0	11.2												
Bilateral pitting oedema 0 + ++ +++	0	0	0	0	0	0	0	0	0												
Diarrhoea (Write number of loose stools),	0	0	0	0	0	0	0	0	0												
Vomiting (write the frequency)	0	0	0	0	0	0	0	0	0												
RESOMAL.....mls																					
FEED PLAN: Type of feed	F75	F75	F75	F75	F75	F100	F100	RUTF	RUTF												
# daily feeds	12	12	8	6	6	6	6	6	6												
Amount to give per feed (ml)(packet)	95	95	145	135	195	195	195	42	42												
Total amount taken (ml)(packet)	310	1140	1130	1120	1170	1170	1170	2.8	2.8												
NG tube Yes/No	No	No	No	No	No	No	No	No	No												
Breastfeeding Yes/No	Y	Y	Y	Y	Y	Y	Y	Y	Y												
ANTIBIOTICS AND OTHER DRUGS	<i>List prescribed antibiotics and other drugs in left column. Allow one row for each daily dose. Draw a box around days/times that each drug should be given. Sign when given.</i>																				
<u>Benzylpenicillin</u>	08:00 AC	AC																			
	14:00 BP	BP																			
	20:00 TA	TA																			
	02:00 AC	AC																			
<u>Gentamicin</u>	08:00 AC	AC	AC	AC	AC	AC	AC	AC													
<u>Amoxycillin</u>	08:00 //	//	AC	AC	AC	AC	AC	AC													
	16:00 //	//	BP	BP	BP	BP	BP	BP													
	00:00 //	//	TA	TA	TA	TA	TA	TA													
ANTIMALARIAL:	<u>None</u>																				
VITAMIN A treatment dose on days 1, 2, and 14																					
Albendazole/Mebendazole. Give after 1 week.																					
IRON Give 3 mg/kg/day, 2 x daily, after 2 days starting to gain weight during transition. Do not give when on RUTF.	Crush 200 mg ferrous sulphate in 2-2.4 L F-100 or F-100 Diluted. Do not give iron if child is on RUTF.																				
EYE INFECTIONS	08:00 AC	AC	AC	AC	AC	AC	AC														
Tetracycline ointment 3x daily or Chloramphenicol 1 drop 4x daily	14:00 BP	BP	BP	BP	BP	BP	BP														
	20:00 PA	PA	PA	PA	PA	PA	PA														
	02:00 TA	TA	TA	TA	TA	TA	TA														
Corneal ulceration: As above, plus Atropine 1 drop 3 x daily	<u>None</u>																				
Ear, mouth, or throat problems																					
Dermatosis 0 + ++ +++	++	++	++	++	+	+	++	0													
Bathing, 1% potassium permanganate or zinc oxide	VR	VR	VR	VR	VR	VR	VR														

3.4 Caring for the Skin and Bathing

- Bathe children daily unless they are very sick. If a child is very sick, wait until the child is recovering before bathing him or her.
- If the child does not have skin problems, or has only mild or moderate dermatosis, use regular soap for bathing.
- A child with severe (+++) dermatosis, should be bathed for 10–15 minutes/day in a 1% potassium permanganate solution.
- Inform the nurse to make a 1% solution.
- Sponge the solution onto affected areas while the child is sitting in a basin. This dries the lesions. Sign on the Daily Care Chart of the Treatment Card when the bath is done. Circle '1% potassium permanganate' if it is used. (See example of the Daily Care Chart of the Treatment Card on [page 73](#).)
- If the child has severe dermatosis but is too sick to be bathed, inform the nurse to clean the wounds.
- If potassium permanganate solution is not available, apply zinc oxide or gentian violet (GV paint).
- Leave off nappies so the affected area can dry. Be sure to dry the child well after a bath and wrap the child warmly.



3.5 Caring for the Eyes

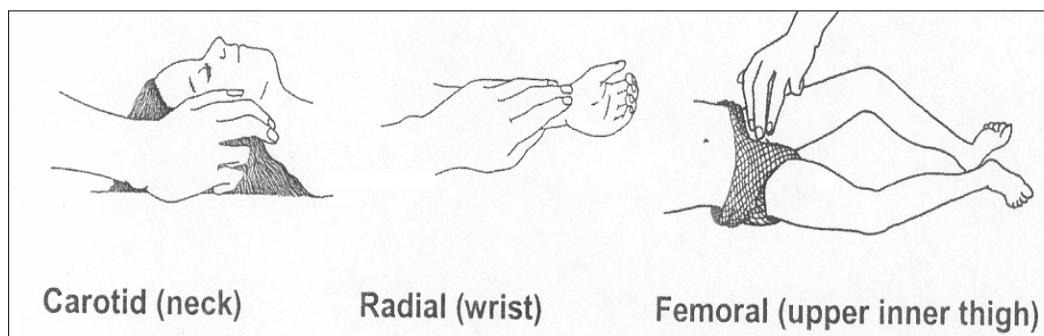
- Be gentle and use special care when examining the eyes. If any eye signs are identified, inform the nurse or clinician.
- Chloramphenicol eye drops or tetracycline eye ointment are given for eye infection or possible eye infection. These will be prescribed by a clinician. The nurse will sign on the Daily Care Chart when eye drops are given and shade out the boxes when eye drops are no longer needed.

3.6 Monitoring Pulse, Respirations and Temperature, and Watching for Danger Signs

- Measure pulse, count respirations and measure temperature every 4 hours, before feeding. This monitoring is very important because an increase in pulse rate or respiratory rate can signal a problem, such as an infection, or the child received too much fluids.
- An increase or decrease in temperature to above or below normal can signal a problem.
- It is critical to monitor the child closely (every 4 hours) during initial treatment and during transition when feeding on RUTF and/or F-100.
- After the child is stable and feeding well on RUTF or freely on F-100 and the child is gaining weight, monitor pulse, respirations and temperature less frequent e.g. twice daily.
- If there is no weight gain, or if the child loses weight, resume monitoring every 4 hours.
- Record results of monitoring on the Monitoring Chart, which is the third chart of the Treatment Card. When the first Monitoring Chart is full, simply add a new one.

3.6.1 Measuring Pulse Rate

Find the child's pulse in one of the following places:



Count pulses (beats) per minute, or count pulses per 30 seconds and multiply by 2. Record pulses (beats) per minute on the Monitoring Chart of the Treatment Card.

3.6.2 Measuring Respiratory Rate

- Watch the child's chest while the child is quiet. Count breaths per minute. Count for a full minute, as breathing may be irregular.
- Look for breathing movement anywhere on the child's chest or abdomen. Usually you can see breathing movement even when a child is dressed. If you cannot see the movement easily, ask the mother to lift the child's shirt. If the child starts to cry, ask the mother to calm the child before you start counting.
- Record breaths per minute on the Monitoring Chart of the Treatment Card.

3.6.3 Taking Temperature

- Usually axillary temperatures are used for routine monitoring.
- A digital thermometer may be used to take an axillary temperature. It is a small hand-held device with a "window" showing your temperature in numbers. There are many kinds of digital thermometers. Most digital thermometers are easy to use and measure body temperature in less than a minute. Carefully read the instructions before using your digital thermometer

Steps for Using a Digital Thermometer to Take Axillary Temperatures

- Clean the pointed end (probe) of the thermometer with soap and warm water or rubbing alcohol.
- Switch on the thermometer
- Put the end with the covered tip securely in the child's armpit.
- Keep the thermometer in the child's armpit until the digital thermometer beeps.
- Remove the thermometer when numbers show up in the "window".
- Read the numbers in the window.

A graph is used for recording temperature on the Monitoring Chart, so that increases and decreases in temperature can easily be seen. Along the bottom of the graph, enter the times at which monitoring will be done (at 4-hour intervals). When a temperature is taken, write an 'X' or large dot on the line above the time and across from the temperature. You may connect the points with a line. Indicate if axillary or rectal temperature is taken.

3.6.4 Recognising Danger Signs

Changes in Pulse, Respirations and Temperature

See **Table 4**, on the next page for normal ranges of Pulse, Respirations and temperature and summary of danger signs.

The following increases in pulse or respiratory rate should be confirmed to determine if there is problem:

- If pulse increases by 25 or more beats per minute, **repeat to confirm**.
- If respiratory rate increases by 5 or more breaths per minute, **repeat to confirm**.

If the above increases in pulse AND respiratory rates are **BOTH confirmed**, they are a danger sign. Call a clinician and nurse for help. Stop feeds and ReSoMal, until a clinician has reviewed the child.

If a child's axillary temperature drops below 35° C, the child is hypothermic. Inform the clinician or nurse. Have the mother hold the child next to her skin (apply the Kangaroo technique) or switch on a heater or lamp (with caution). Be sure the room is warm (25° C–30° C if possible) and the child is covered.

Changes in temperature can easily be seen on the temperature graph on the Monitoring Chart of the Treatment Card. Notice the changes in temperature on the example of the Monitoring Chart on [page 101](#).

Important: Inform a clinician or nurse immediately if there is a sudden increase or decrease in temperature.

Table 4. Summary of Danger Signs Related to Pulse, Respirations and Temperature

	Danger sign:	Suggests:
Pulse and respirations	Confirmed increase in pulse rate of 25 or more beats per minute, along with confirmed increase in respiratory rate of 5 or more breaths per minute	Infection <i>or</i> Heart failure (possibly from over-hydration due to feeding or rehydrating too fast)
Respirations only	Fast breathing: <ul style="list-style-type: none"> • ≥ 60 breaths/minute in infant less than 2 months • ≥ 50 breaths/minute in an infant 2–11 months • ≥ 40 breaths/minute in a child 1–5 years 	Pneumonia
Temperature	Any sudden increase or decrease Axillary temperature < 35° C, or rectal temperature < 35.5° C	Infection Hypothermia (possibly due to infection, a missed feed or child being uncovered)

Other Danger Signs

In addition to watching for increasing pulse or respirations and changes in temperature, watch for other danger signs, such as:

- loss of appetite
- difficult breathing
- difficult feeding or waking (drowsy)
- abdominal distension
- appearance or re-appearance of oedema
- large weight changes (> 5 g/kg/day)
- increased vomiting

Note: Alert a clinician or nurse immediately if any of these danger signs appear.

3.6.5 Continuing Care at Night

Many deaths in children with SAM occur at night because a feed is omitted or the child becomes uncovered and cold. It is extremely important that enough staff are assigned to work at night, and that they are properly trained.

Night duty staff must:

- Keep each child covered to prevent hypothermia.
- Feed each child according to schedule during the night (every 2 hours at least on the first day of admission). This will involve gently waking the child to feed.
- Take 4-hourly measurements of pulse, respirations and temperature.
- Watch carefully for danger signs and call a clinician or nurse if necessary

Now your facilitator will demonstrate how to complete the monitoring chart and provide instruction how to complete exercise 3A below.



Exercise 3A

In this exercise, you will make entries on a Monitoring Chart of a Treatment Card. Obtain a blank Monitoring Chart from the supply in your classroom.

Pretend that you are the home-craft worker who cares for Bwerani on her first day in the ward. At the times shown below, you monitor her progress. Make appropriate entries on the Monitoring Chart. For example, enter your signature or record results of monitoring. *Additional information about feeding is provided in italics. You do not need to record this information.*

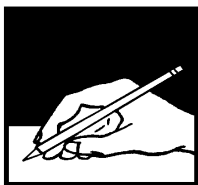
Day 1

- 8:00 Bwerani is given her first feed of F-75. It is recorded on the 24-Hour Food Intake Chart. She has also been given potassium permanganate solution on the worst patches of dermatosis.
- 9:00 You check Bwerani's pulse, respiratory rate and temperature. Her pulse rate is 100 beats per minute, her respiratory rate is 35 breaths per minute and her axillary temperature is 38° C.
- 10:00 Bwerani is given her second feed of F-75. It is recorded on the 24-Hour Food Intake Chart.
- 12:00 Bwerani is given her third feed of F-75. It is recorded on the 24-Hour Food Intake Chart.
- 13:00 You check Bwerani's pulse, respiratory rate and temperature. Her pulse rate is 105 beats per minute, her respiratory rate is 35 breaths per minute and her rectal temperature is 38° C.
- 14:00 The shift changes. Now pretend that you are the home-craft worker on the next shift. Bwerani is given her fourth feed of F-75. It is recorded on the 24-Hour Food Intake Chart
- 16:00 Bwerani is given her fifth feed of F-75. It is recorded on the 24-Hour Food Intake Chart.
- 17:00 You check Bwerani's pulse, respiratory rate and temperature. Her pulse rate is 110 beats per minute, her respiratory rate is 35 breaths per minute and her rectal temperature is 37.8° C.
- 18:00 Bwerani is given her sixth feed of F-75. It is recorded on the 24-Hour Food Intake Chart.
- 20:00 Bwerani is given her seventh F-75 feed.

Answer the following questions:

1. Enter Bwerani's respiratory rate, pulse rate and temperature on the monitoring chart during your shift.
2. When should Bwerani's pulse rate, respiratory rate and temperature next be monitored?

When you have finished this exercise, discuss your answers with a facilitator.



Exercise 3B

In this exercise, you will review several Monitoring Charts and identify any danger signs.

Case 1 – Bwerani

Remember you are the home-craft worker who cares for Bwerani on her first day, was admitted to the SAM ward with an ear infection and fever. You began Bwerani's Monitoring Chart in the ward in the last exercise. Bwerani's continuing Monitoring Chart for the first 2 days is on the next page. Review her Monitoring Chart; then answer the questions below.

1. What happens to Bwerani's temperature at 5:00 on day 2?
2. Is this temperature change a danger sign? Why or why not?
3. Does Bwerani's pulse and respiratory rates indicate any danger signs?

Tell a facilitator when have completed the exercise. The facilitator will lead a group discussion.

3.6.6 Preparing and Maintaining a Weight Chart

How to weigh a child was explained in **Section 1 Principles of Care**. Remember to weigh the child about 1 hour before or after a feed, at about the same time each day.

After weighing the child each day, plot the child's weight on the weight chart included in the Treatment Card. The weight chart shows the child's progress toward discharge weight, any loss of weight due to oedema and/or failure to improve.

An example of a completed weight chart is shown on the next page. Study the example as you read the instructions below for preparing and maintaining a weight chart.

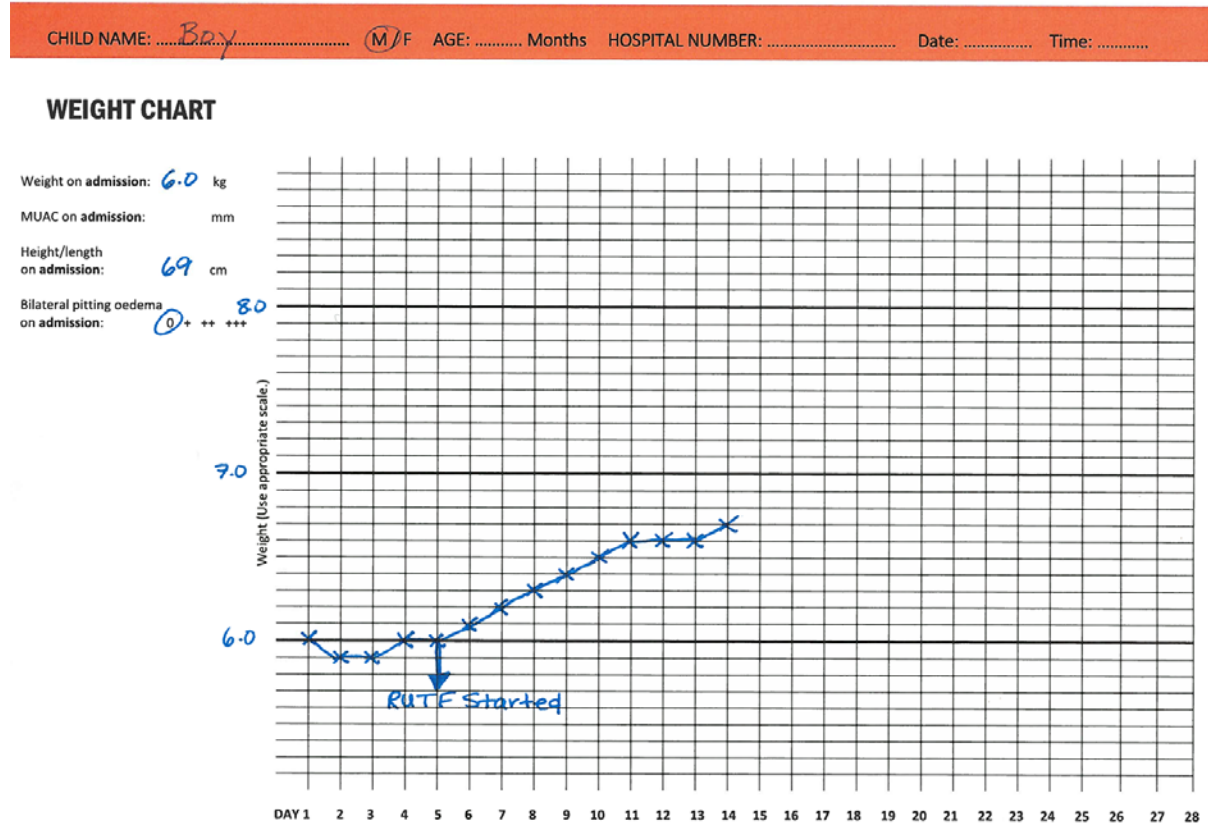
- Label the vertical axis of the graph with a range of weights that includes the child's starting weight, and allows for some weight loss as well as weight gain. Each horizontal line on the graph should represent a difference of 0.1 kg.
 - If the child has no oedema, label the axis so that the starting weight will be near the bottom, but allow a little space below for possible weight loss.
 - If the child has oedema, allow more space for weight loss (up to 30%) by placing the starting weight higher on the axis. As a general guideline, allow for up to:
 - 1 kg weight loss if mild (+) or moderate (++) oedema
 - 2 - 3 kg weight loss if severe (+++) oedema; of child is > 7kg, can expect weight loss of up to 3kg.
- Each day, plot the child's weight on the chart. Plot the starting weight above day 1, the next day above day 2, etc. Mark each point with an 'X' or large dot so that it shows up clearly.
- Connect the points for the daily weights to see the child's progress.
- To highlight the day that RUTF or F-100 is begun (the first day of transition), draw and label an arrow pointing to the weight for that day.

Your facilitator will demonstrate how to complete the weight chart, and provide instructions on how to do the exercise on the next page.

Example of Weight Chart for a Boy with No Oedema

Starting weight: 6.0 kg Length: 69 cm

WEIGHT CHART



The chart above shows a child who lost a little weight during the first few days on F-75, but then began to gain steadily after transition to RUTF.

Note: If possible, the child is transferred to outpatient care after stabilisation as soon as transfer criteria are met.

SHORT ANSWER EXERCISE

An example of a partially completed weight chart for a girl with mild (+) oedema is shown below. The child's starting weight is 5.3 kg and is 67 cm. Since she has mild oedema, space should be allowed for a 1 kg weight loss. To allow for this loss, the vertical axis is labelled so that 4.0 kg is at the bottom.

1. Plot the weights for the next several days on the chart and connect them with a line:

- Day 11 weight: 5.1 kg
- Day 12 weight: 5.2 kg
- Day 13 weight: 5.3 kg

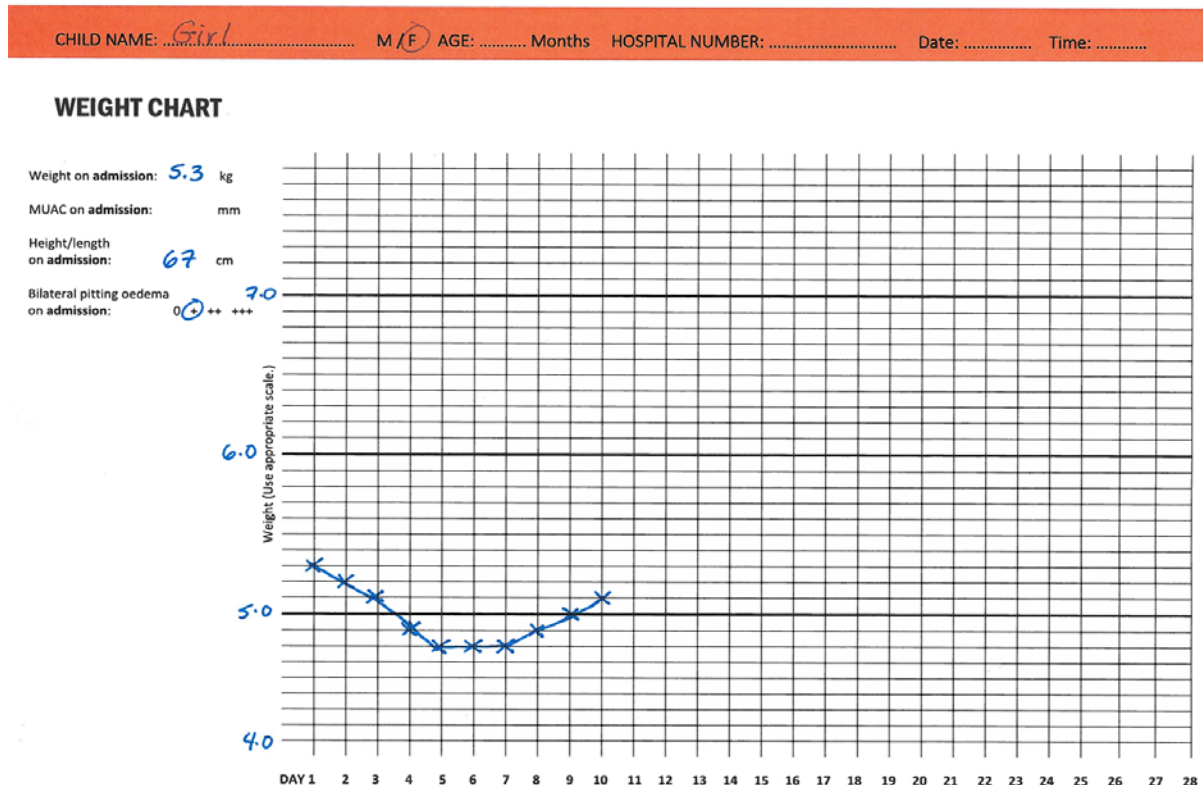
2. What was the child's lowest weight? On what day, did this occur?

4. Has the child made progress?

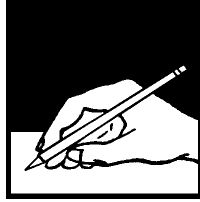
Example of Weight Chart for a Girl with Mild Oedema (+)

Starting weight: 5.3 kg Length: 67 cm

WEIGHT CHART



When you have completed this exercise, your facilitator will review the answers in a group discussion



Exercise 3C

In this exercise, you will prepare a weight chart for Daniel, a boy admitted with oedema of both feet (+) and severe wasting. Daniel's weight on admission is 10.1 kg. His height is 91 cm and MUAC is 112 mm. Enter this information in the blanks beside the weight chart on the next page.

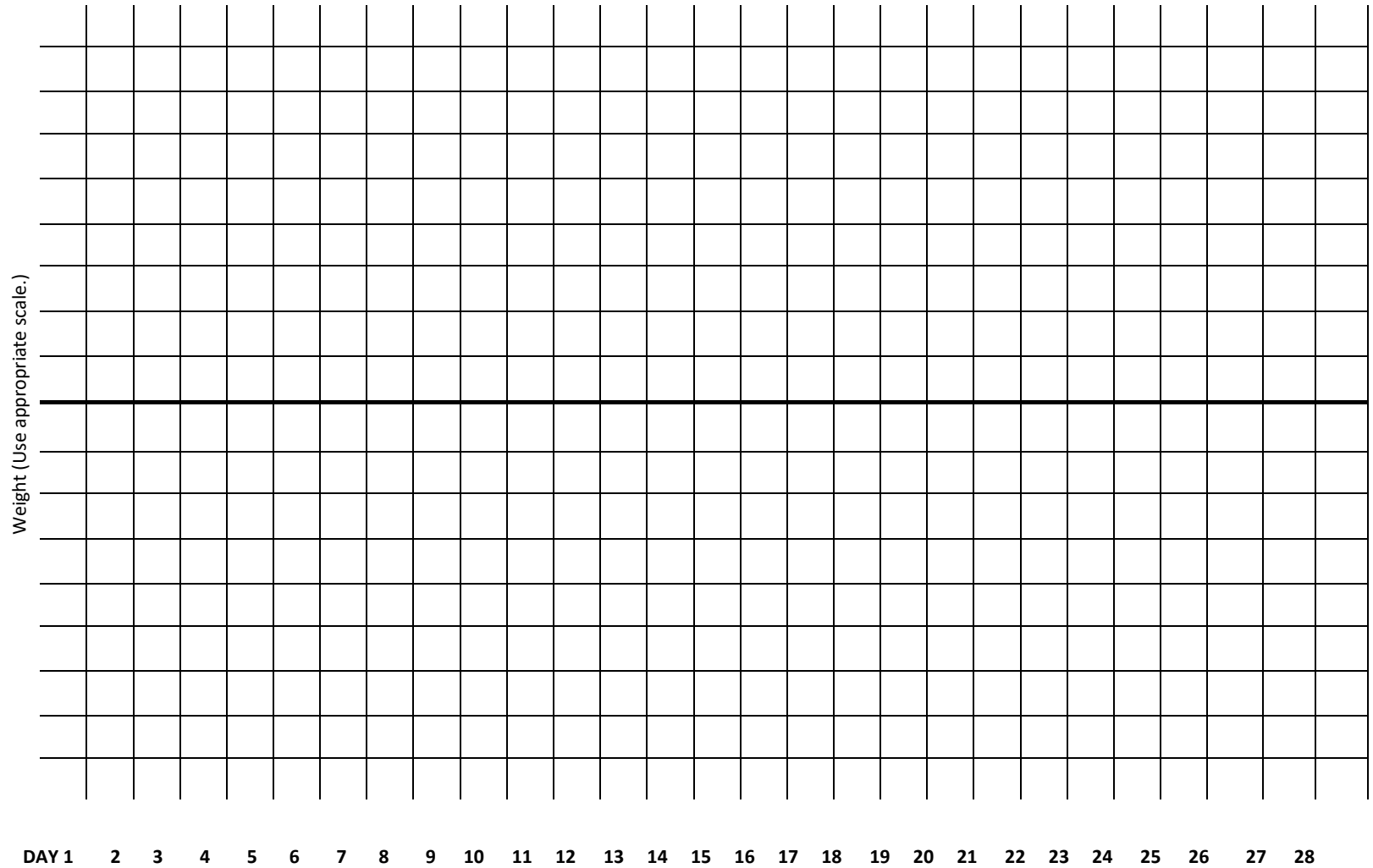
1. When labelling the vertical axis of Daniel's weight chart, how much weight loss should one allow for?
2. Label the vertical axis of Daniel's weight chart. Be sure that the range of weights includes the starting weight and the discharge weight, and allows for weight loss. Let each row of the weight chart represent 0.1 kg.
3. Plot Daniel's admission weight (10.1 kg) on the chart above day 1. Then plot the weights given below for days 2–14. Connect the points.

Day 2 – 10.05 kg	Day 6, transition to RUTF – 9.2 kg	Day 10 – 9.6 kg	Day 14 – 9.9 kg
Day 3 – 9.8 kg	Day 7, transition – 9.2 kg	Day 11 – 9.7 kg	
Day 4 – 9.6 kg	Day 8, transition – 9.3 kg	Day 12 – 9.65 kg	
Day 5 – 9.4 kg	Day 9, free feeding on RUTF – 9.4 kg	Day 13 – 9.8 kg	

4. Summarise Daniel's weight changes briefly in words:
5. Is Daniel's slight weight loss on day 12 a reason for concern? Why or why not?

WEIGHT CHART

Weight on **admission**: kg
 MUAC on **admission**: mm
 Height/length on **admission**: cm
 Bilateral pitting oedema on **admission**: 0 + ++ +++



3.7 Infection Prevention

- All health care workers should exercise handwashing:
 - Before and after handling a patient
 - When conducting a procedure
 - After conducting procedures involving risk of exposure to bodily fluids
 - Before preparations and administration of feeds
- Keep all decontaminated utensils and equipment in well-covered storage containers, such as basin/buckets with lids.
- Label all decontamination and storage containers with their correct labels.
- During health talks, responsible staff should educate caregivers on handwashing before preparing food, feeding their children, administering oral drugs, and administering oral rehydration fluids. Caregivers should also wash their hands before and after changing an infant's nappy and after using the toilet.
- Decontaminate and clean medical equipment such as tubes in separate basins from feeding/kitchen utensils.

Responsible staff should ensure caregivers and children with SAM maintain high standards of personal hygiene by educating caregivers on hygiene and sanitation and providing clean linens and clean water for personal hygiene.

4. Monitoring, Reporting and Quality Improvement

4.1 Introduction

Many problems occur in the management of SAM children such as: failure of child to respond to treatment, problems with staff performance, or feed preparations. These problems can affect the management of children and contribute poor child outcomes, including death.

Well-informed monitoring of data identifies aspects of the management of SAM that need improvement. This section teaches a process of monitoring, identifying, analysing and solving problems using quality improvement (QI) of inpatient management of SAM. This process can be used in solving problems of individual child or problems that may affect the entire performance of the NRU. It also briefly teaches how to report NRU data for the CMAM program.

Learning objectives

By the end of this section, you will be able to:

- Use a QI process to identify, analyse and solve problems on individual case management
- Monitor case management practices and ward procedures
- Monitor and report the performance on the management of SAM in the NRU

4.2 Quality Improvement

QI mainly focuses on how to better patient outcomes or performance of care, by identifying the problem and finding solutions to solve the problems. It requires team work from all personnel involved in the care of the patient during treatment.

For example, there is high number of deaths in the NRU occurring at night is increased. After, analysis and discussions of the team, they realise children are not receiving 2 hourly feeds at night. You will have to figure out why the children are not fed, and how you can improve to make sure the children receive all their feeds.

When a problem is identified, describe it in as much detail as possible.

To describe the problem, state when, where and with whom the problem is occurring. Also, try to determine when the problem began. Knowing the details will help you find the cause or causes of the problem.

Quality improvement will be covered in detail in a separate training. Below are the key steps in the process of quality improvement.

4.2.1 Investigating and Analysing Causes of Problems

It is critical to find the cause(s) of a problem before trying to solve it. Different causes require different solutions.

Investigation of causes may involve observing and asking questions of staff, reviewing Treatment Cards, and/or monitoring food preparation. You could use a checklist of treatment and ward procedures that will assist you in the identification of the problem and the cause of the problem.

4.2.2 Solving Problems

There are some problems that require individual solutions and should be handled privately. For example, if you find that a particular staff member is doing a procedure incorrectly or dangerously, correct that person privately.

On the other hand, some problems may be solved by working with staff members as a group to discuss the causes and possible solutions. Examples of problems that could be reviewed as a group include:

- A diarrhoea outbreak in the ward
- A high death rate in the NRU
- Problems with procedures involving all or many of the staff

Staff may have useful information to contribute on the causes of problems and creative ideas for solutions. They are also more likely to work together toward a solution if they are involved in decision-making that affects them.

Process for Problem Solving in a Group

When conducting a problem-solving session with a group, use the following process as a guide:

- Welcome everyone to the meeting and explain the purpose. Be careful not to sound like you are threatening or blaming anyone. Stress that you need their ideas to understand the causes of the problem and how to solve it.
- State the facts of the problem as clearly and completely as possible. Include when, where and with whom the problem is occurring.
- Discuss cause(s) of the problem that you have discovered through monitoring. Ask the staff if they agree or disagree with your analysis. Ask the staff if they can think of other possible causes. Ask questions to try to find the 'root' causes of the problem. Causes may include:
 - obstacles (such as lack of time, insufficient staff or lack of equipment)
 - lack of motivation (for some reason, staff are not motivated to do a task correctly)
 - lack of skill or information (staff do not know what to do or how to do it)

The group must avoid blaming particular staff or having the discussion turn into a complaint session.

It may be helpful to write down identified causes on a flipchart or large sheet of paper.

- Ask the staff to help you think of solutions appropriate for the causes. Different causes require different solutions. For example, if there is a problem due to lack of supplies, a solution is to obtain more supplies.
- If a task is done poorly because staff members do not enjoy it, a solution may be to rotate that task so that everyone takes a turn, but no one has to do it too often. If staff forget how to do a certain task, the solution may be to make a job aid and post it on the wall.
- Ask staff to think of solutions that they believe will work. Discuss the steps needed to implement the solutions, i.e., who will do what after the meeting.
- Thank the staff for their ideas. Review what was decided in the meeting.

After the meeting, it is important to implement the solutions as quickly as possible. Be sure to give feedback to staff on how the solutions are working. They will want to know if the problem is decreasing or is solved.



Tell a facilitator when you have reached this point in the module.



Exercise 4A

This exercise will be a **role-play** of a problem-solving session in a NRU, participants will each take a role of someone who might be on the staff of a hospital.

Clinician in charge (this person will lead the problem-solving session)

Senior nurse on duty in the morning (in some hospitals, this person is called the 'Matron')

Senior nurse on duty in the afternoon

Night nurse

Home-craft worker

Hospital administrator

You will be given a card describing your knowledge and attitude about the situation being discussed.

One participant (the 'clinician') will lead the discussion using the process described in the module. Another will assist by recording on the flipchart. Others will participate in the discussion according to their assigned roles.

The objective is to describe the problem clearly, discuss possible causes, identify the most likely causes and identify possible solutions.

4.3 Monitoring Therapeutic Food Preparation

Problems like poor response to treatment may be due to problems with therapeutic food preparation. Periodically, or whenever you suspect that there is a problem, carefully observe preparation of feeds. Monitor the following:

- Are ingredients for the recipes available?
- Is the correct recipe used for the ingredients that are available?
- Are ingredients stored appropriately and discarded at appropriate times?
- Are containers and utensils kept clean?
- Do kitchen staff (and those preparing feeds) wash their hands with soap before preparing food?
- Are measurements made exactly with proper measuring utensils (e.g., correct scoops)?
- Are ingredients thoroughly mixed?
- For commercially prepared milk: Is correct amount of water added to make up the formula?
- Is food served at an appropriate temperature?
- Are correct amounts put in the cup for each child?
- Is leftover prepared food discarded promptly?

4.4 Monitoring Ward Procedures

Problems like long stay, inadequate weight gain during transition and rehabilitation, early departures and even deaths may be due to inadequate ward procedures. Whenever you suspect that there is a problem related to ward procedures, observe staff as they do those procedures or review relevant records. Procedures to monitor include the following:

4.4.1 Feeding

- Are correct feeds served in correct amounts?
- Are feeds given at the prescribed times, even on nights and weekends?
- Are children held and encouraged to eat (never left alone to feed)?
- Are children fed with a cup and saucer (never a bottle)?
- Is food intake (and any vomiting/diarrhoea) recorded correctly after each feed?
- Are leftovers recorded accurately?
- Is RUTF administered correctly?
- Is safe drinking water provided with RUTF?

4.4.2 Warming

- Is the room kept between 25° C and 30° C?
- Are blankets provided and children kept covered at night?
- Are safe measures used for re-warming children?
- Are temperatures taken and recorded correctly?

4.4.3 Weighing

- Are scales functioning correctly?
- Are they standardised weekly?

- Are children weighed at about the same time each day, 1 hour before or after a feed (to the extent possible)?
- Do staff adjust the scale to zero before weighing?
- Are children consistently weighed without clothes?
- Do staff correctly read weight to the correct degree of precision?
- Do staff immediately record weights on the child's Treatment Card?
- Are weights correctly plotted on the Weight Chart?

4.4.4 Ward Environment

- Are surroundings welcoming and cheerful?
- Are mothers offered a place to sit and sleep?
- Are mothers taught and encouraged to be involved in care?
- Are staff consistently courteous?
- As children recover, are they stimulated and encouraged to move and play?

4.4.5 Monitoring Hygiene

- Good hygiene is extremely important because children with SAM are highly susceptible to infection. Whenever you suspect that a problem may be related to hygiene, or periodically, visually inspect hygiene in the ward. Monitor such items as the following.

4.4.6 Hand Washing

- Are there working hand-washing facilities in the ward?
- Do staff consistently wash hands thoroughly with soap?
- Are their fingernails clean?
- Do they wash hands before handling food?
- Do they wash hands between patient visits?

4.4.7 Mothers' Cleanliness

- Do mothers have a place to bathe, and do they use it?
- Do mothers wash hands with soap after using the toilet or changing nappies (diapers)?
- Do mothers wash hands before feeding children?

4.4.8 Bedding and Laundry

- Is bedding changed every day or when soiled/wet?
- Are nappies, soiled towels and rags, etc. stored in bags, then washed or disposed of properly?
- Is there a place for mothers to do laundry?
- Is laundry done in hot water?

4.4.9 General Maintenance

- Are floors swept?
- Is trash disposed of properly?
- Is the ward kept as free as possible of insects and rodents?

4.4.10 Food Storage

- Are ingredients and food kept covered and stored at the proper temperature?
- Are leftovers discarded?
- Is all therapeutic food stored in a hygienic manner?

4.4.11 Dishwashing

- Are dishes washed after each meal?
- Are they washed in hot water with soap?

4.4.12 Toys

- Are toys available?
- Are toys washable? Are toys washed regularly, and after each child uses them?

4.5 Monitoring and Reporting in the Inpatient Management of SAM

4.5.1 Tools for Monitoring and Reporting

Register

A register is made available to collect information on the admission and exit categories during the month to ease reporting at the end of the month.

Monthly Report

Report forms are used to record information regarding admissions, transfers, and discharges in the inpatient care. Accurate recording of data on report forms is essential since the analysis of these data gives important information about the performance of the CMAM programme at the district.

Data Collection and Reporting

Monthly reports are compiled by the NRU in charge at the end of every month. Each NRU sends a monthly report to the District Health Office where the data are entered into a database. The District Health Officer responsible then produces a report for NRUs in the district.

The report form includes the following variables:

- Number of patients admitted and discharged, by age and admission/discharge criteria
- Number of patients who relapsed
- The total number of patients admitted by gender
- The total number of patients enrolled at the end of the month
- Additional information as required

Based on the monthly aggregated information, monthly performance indicators on the management of SAM may be calculated.

5. Involving Mothers in Care

5.1 Introduction

It is essential that a mother who has a child with SAM be with her child in the hospital. The mother must be encouraged to feed, hold, comfort and play with her child as much as possible for the following reasons:

1. Emotional and physical stimulation are crucial for the child's recovery and can reduce the risk of developmental and emotional problems.
2. The child's mother can provide more continuous stimulation and loving attention than busy staff can.
3. When mothers are involved in care at the hospital, they learn how to continue care for their children at home.
4. Mothers can make a valuable contribution and reduce the staff's workload by helping with various activities, such as bathing and feeding children.

Learning objectives

By the end of this section, you will be able to:

- Encourage involvement of mothers
- Involve mothers in comforting, feeding and bathing children
- Teach groups of mothers about feeding and care
- Teach mothers the importance of stimulation and how to make and use toys
- Understand the procedures for discharge, transfer and end of treatment
 - Discharge from hospital after stabilization and transfer to Outpatient Care
 - Discharge from hospital at the end of treatment at full recovery
- Prepare for discharge from hospital and continuing treatment at home
- Give advice on continued treatment in outpatient care and follow-up visits at the primary health care facility
- Make special arrangements for follow-up in case early discharge is unavoidable.

5.2 Encouraging Involvement of Mothers

There are many ways to encourage mothers to be involved in hospital care. Mothers can be taught to:

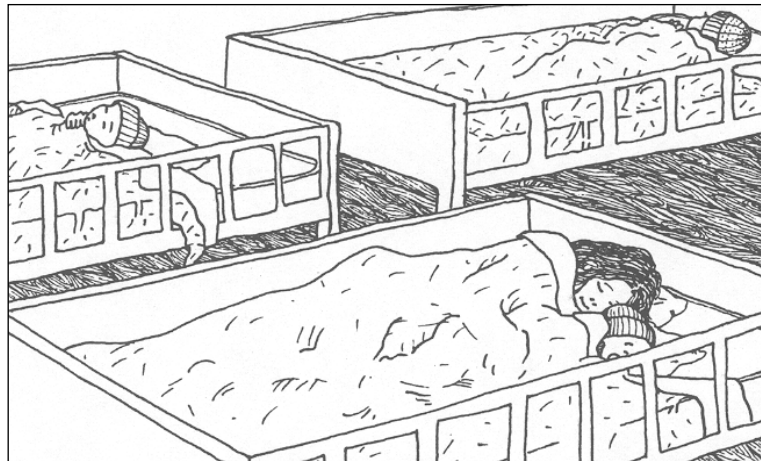
- Feed children
- Bathe and change children
- Play with children, supervise play sessions and make toys
- Clean the ward
- Organise and/or prepare food for other mothers.

It is necessary to provide mothers with food to enable them to stay with their children. In return, mothers can help with the above tasks on the ward. It may be helpful to organise a rotation of mothers to do these tasks under supervision. In that way, each mother can contribute to her child's care and still have some time off duty.

The staff must be friendly and treat mothers as partners in the care of the children. A mother should never be scolded or blamed for her child's problems or made to feel unwelcome. Teaching, counselling and befriending the mothers are essential to long-term treatment of the child.

Children with SAM should be sleeping in adult beds (see figure 3 below), where they can sleep with their mother in the night. Mothers should have a place to sit for relaxation. They also need washing facilities and a toilet, and cooking facilities. Some mothers may need medical attention, psychosocial support, and adapted food supplements themselves if they are malnourished.

Figure 3. Adult beds for SAM children in inpatient care



The staff should also make other family members feel welcome. All family members are important to the health and well-being of the child. When possible, fathers should be involved in discussions of the child's treatment and how it should be continued at home. Fathers must be kept informed and encouraged to support mothers' efforts in care of the children.



Exercise 5A

The group will discuss ways that facilities encourage mothers and other family members to be involved, as well as things that may hinder involvement. You may discuss examples from your own facilities and from the ward that you have visited during this training course.

Prepare for the discussion by listing a few ideas below.

Ways to encourage mothers and other family members to be involved:

Things that hinder involvement of mothers and other family members:

Tell a facilitator when you have completed the exercise and are ready for the group discussion.

5.3 Involving Mothers in Comforting, Feeding and Bathing Children

When teaching tasks such as feeding or bathing, staff should:

1. First show the mother how to do the task, explaining each step.
2. Let the mother try the task, assisting and encouraging her as she tries.
3. Ask questions to make sure that the mother understands what to do. For example, if you have just explained how to feed the child, ask the mother such questions as:
 - What will you feed your child?
 - How often will you feed him?
 - How much will you give him for a serving?
4. Observe when the mother does the task independently the first time.
5. Give positive feedback, that is, tell the mother what she did well. Make suggestions for improvements without discouraging the mother. For example, say 'Let's try together to do it this way...'

Tell a facilitator when you have reached this point in the module.



Exercise 5B

This exercise includes two role-plays of situations in which a home-craft worker is teaching a mother to bathe or feed a child. Your facilitator may assign you the role of a home-craft worker or a mother. If so, you will be given some information to help you prepare for your role. If you are an observer of the role-play, you will take notes. Give specific attention to avoid forced feeding of the child.

Role-Play 1

How would you feel if you were the mother in this situation?

How did the home-craft worker encourage or discourage the mother?

Role-Play 2

How would you feel if you were the mother in this situation?

How did the home-craft worker encourage or discourage the mother?

5.4 Teaching Groups of Mothers about Feeding and Care

There are many topics that can be efficiently presented to groups of mothers and other interested family members. Group teaching sessions may be held on such topics as nutrition and infant and young child feeding (IYCF), hygiene, use of RUTF and its key messages, use of ReSoMal in case of diarrhoea, infection prevention, bathing, play and stimulation, family planning, etc.

The selected staff **must know the important information to cover on a topic** and be able to:

- Communicate clearly in a way that mothers understand
- Prepare and use suitable visual aids, such as posters, real foods, etc.
- Demonstrate skills when necessary (e.g., cooking procedures, hand-washing, RUTF key messages, infection prevention, play and stimulation)
- Lead a discussion in which mothers can ask questions and contribute ideas.

The sessions should also include demonstrations and practice. Encourage questions from mothers so that the session is interactive.

5.4.1 Example Outline of a Teaching Session on Preparing Home Foods

An example of an outline of a teaching session for preparing home foods is provided in **Annex F**.

The purpose of cooking demonstrations is to teach mothers how to prepare nutritious food for children 6–24 months for eating at home when they have recovered.

The example shows nutritious complementary food from locally available resources, outlined in the Community counselling package of the Scale Up Nutrition (SUN) 1000 Special Days.

5.5 Preparing the Child and Mother for Discharge from Hospital

5.5.1 Preparing for Continuing Outpatient Treatment and Feeding at Home

When ready discharge from NRU advise the mother on:

- Feeding and care of the child or infant: provide specific counselling on breastfeeding, complementary feeding, use of RUTF or breast milk substitutes at home as appropriate
- Attending OTP every week for treatment and monitoring.
- Linking with community health workers for continuous IYCF support and home visits

For those eligible, a weekly supply of RUTF is provided and the key messages below.

RUTF Key Messages for use of RUTF in Outpatient Care

- Do not share RUTF. RUTF is a food and medicine for very thin and swollen children only.
- Give small, regular meals of RUTF and encourage the child to eat often (five to six meals per day). Thin and swollen children often do not like to eat. Your child should have ___ packets per day.
- Continue to breastfeed regularly (if child still breastfeeding). Offer breast milk first before every RUTF feed.
- Do not give other food. RUTF is the only food apart from breast milk that thin and swollen children need to recover during their time in outpatient care. Other foods, such as homemade foods

(such as *phala*), will be introduced when the child is recovering well and has eaten the full daily RUTF ration.

- Offer the child plenty of clean water to drink while he/she is eating RUTF. Children will need more water than normal.
- Wash the child's hands and face with soap before feeding if possible.
- Keep RUTF packet clean and covered between feeds.
- Keep the child covered and warm. Thin and swollen children get cold quickly.
- Do not stop feeding when a child has diarrhoea. Continue to feed RUTF and (if applicable) breast milk.
- Return to the health facility whenever the child's condition deteriorates or if the child is not eating sufficiently.

5.5.2 Preparing for Feeding the Child at Home after Full Recovery

A very small number of children remain in hospital until full recovery. When ready for discharge, link the mother and child with community-based IYCF support and other complementary community health, nutrition and food security initiatives and services.

If a supplementary feeding programme is available, the child will be admitted and receive supplementary food rations.

Advise the mother to give the child nutritious complementary foods at home. For a child 6–23 months, this means continuing breastfeeding and giving the child two or three meals of nutritious complementary food daily. For a child 2 years or older, this means giving the child three meals each day, plus nutritious complementary food between meals twice a day.

But before returning home, the child must become accustomed to eating nutritious complementary foods. While the child during rehabilitation is in the SAM ward, gradually introduce the mixed diet of home foods.

Appropriate mixed diets are the same as those recommended for a healthy child. They should provide enough calories, vitamins and minerals to support continued growth. Home foods should be consistent with the guidelines below:

- The mother should breastfeed as often as the child wants.
- If the child is no longer breastfeeding, animal milk (e.g., cow's milk) can serve as an important source of energy, protein, minerals and vitamins.
- Solid foods should include a well-cooked staple cereal. To enrich the energy content, add vegetable oil (5–10 ml for each 100 g serving) or margarine, avocado or groundnut paste or flour. The cereal should be soft and mashed; for infants use a thick pap.
- Give a variety of well-cooked vegetables, including orange and dark green leafy ones. If possible, include fruit in the diet as well.
- If possible, include meat, fish or eggs in the diet. Pulses, for example beans, are also good sources of protein.
- Give extra food between meals (healthy snacks).
- Give an adequate serving size (large enough that the child leaves some uneaten).

Here are examples of healthy snacks and foods that are high in energy and nutrients.

1. **Vegetables** include green leafy and yellow vegetables, such as *bonongwe*, *chisoso*, *khwanyana*, *mnhkwani*, *kholowa*, *rape*, *mpiru*, *kamganje*, carrots, eggplant, pumpkin, tomatoes and mushrooms. Vegetables provide the body with vitamins, minerals, water and dietary fibre.



2. **Fruits** include citrus fruits, such as oranges, lemons, baobab, and tangerines; bananas; pineapples; pawpaws; mangoes; *masawu*; *bwemba*; *malambe*; *masuku*; peaches; apples; guavas; and watermelons. Fruits provide the body with vitamins, minerals, water, energy and dietary fibre.



3. **Legumes and nuts** include groundnuts, soya beans, common beans, peas, cowpeas, ground beans (*nzama*), bambara nuts and pigeon peas. Legumes and nuts provide protein, fibre, and energy, and soybeans and nuts also contain healthy fats.



4. **Animal foods** include all foods of animal origin, including meat, eggs, milk products, fish (e.g., *matemba*, *utaka*, *usipa*, *kapenta*, *makakana*, *chambo*), and insects (e.g., *bwanoni*, *ngumbi*, *mafulufute*, *mphalabungu*). They provide the body with important protein, vitamins and minerals.



5. **Staples** include cereal grains, such as sorghum, millet, maize; starchy fruits, such as green bananas and plantains; and starchy roots (cassava, sweet potato and Irish potato). Staples provide carbohydrates and, depending on the food and on how it is processed, protein, fibre, and vitamins and minerals.



6. **Fats** can be both healthy and unhealthy. Healthy fats are found in vegetable oils, nuts and seeds, avocado, and fatty fish (*batala*), such as lake trout and tuna. Unhealthy fats, such as butter and fat from animal products other than fish, should be eaten sparingly.



7. **Water** is considered an essential nutrient because it is necessary for body functions. The water should be safe, clean and treated if necessary. Tea, *thobwa*, soup, milk, juice and fruit also contain water and can help meet the body's needs.



5.5.3 Preparing a Mother to Continue Appropriate Feeding at Home

- Discuss with the mother and father (and other family members, if possible) the child's previous diet and the foods that are available at home.
- Discuss practical ways to address specific problems in the child's past diet. Be sure to involve the mother as a partner in deciding what to feed the child, so that the decisions will be practical. Explain how to use or adapt available foods for a healthy diet that will meet the criteria listed above.
- Summarise what to feed the child, how much to give at each meal and how many meals and snacks to give. Write it down or give the mother a prepared card with feeding instructions. Use pictures for mothers that cannot read.
- Remind the mother to sit with the child and encourage the child to eat.
- Before discharge, when the child is adjusting to home foods under hospital supervision, have the mother practise preparing recommended foods and feeding them to her child.
- Review instructions before discharge and ask the mother questions to be sure she understands what to do, for example:
 - What will you feed your child? Where will you get the ingredients to prepare foods at home as you have done here?
 - How many meals and snacks will you feed your child each day?
 - How much will you feed your child at each meal or snack?
- Provide additional information and instruction if the mother needs it.



Exercise 5C

This exercise will be a group discussion of how hospitals can successfully prepare mothers to continue proper feeding at home. To prepare for the discussion, consider the questions below.

1. In your hospital, what will mothers be taught about feeding children at home?
 - a. What mixtures of foods will make good meals in your area?
 - b. What will be the main messages taught about feeding?
 - c. Will you need more information before deciding what to teach?
 - d. What information is needed and how will you get it?

2. Who will teach mothers about home foods and how to use RUTF (or breastmilk substitutes if appropriate) in the home? How will they teach?
 - a. Who is most suited to teach mothers about feeding?
 - b. How will demonstrations or examples be given in teaching sessions?
 - c. How can mothers practise making home foods in the hospital?
 - d. How can transition to home foods be supervised in the hospital?
 - e. How can home-craft workers work with mothers to ensure that advice about home feeding is practical and will be followed?

Tell a facilitator when you have reached this point in the module. There will be a brief video: *Teaching Mothers about Home Feeding*.

5.5.4 Teaching Mothers the Importance of Stimulation and How to Make and Use Toys

As the child recovers, he or she needs increasing emotional and physical stimulation through play. Play programmes that begin during rehabilitation and continue after discharge can greatly reduce the risk of permanent mental retardation and emotional problems.

The hospital can provide stimulation through the environment, by decorating in bright colours, hanging colourful mobiles and having toys available.

Mothers should be taught to play with their children using simple, homemade toys. It is important to play with each child individually at least 15–30 minutes per day, in addition to informal group play.

Inform the mother how to continue stimulating the child at home with play activities.



Tell a facilitator when you have finished reading one of the above sections. When everyone is ready, there will be a **Video** 'Malnutrition and Mental Development' about how to play with children to stimulate mental development.

5.6 Understanding Procedures for Discharge, Transfer and End of Inpatient Management of SAM in Children

The *National Guidelines for CMAM in Malawi* recommend that a child be kept in inpatient care until his or her condition is stabilised and appetite regained. Once medical complications have stabilised and appetite has returned, the child should be referred to a health facility that provides outpatient care services to continue with the management of SAM until full recovery.

In special cases where there is no access to RUTF or when a child remains in inpatient care until full recovery, a child is ready for discharge as **cured** from inpatient care if the discharge criteria are met.

5.6.1 Transfer from Inpatient Care after Stabilisation to Outpatient Care

A child aged 6 months or older is ready for **Transfer to Outpatient Care** if the following criteria are met:

- Appetite has returned (passed a RUTF appetite test—the child is eating 75 percent of the daily ration) and has started to gain weight.
- Medical complications are resolved or under control (e.g., started on anti-tuberculosis treatment with good response).
- Bilateral pitting oedema decreasing (if marasmic kwashiorkor on admission, bilateral pitting oedema has resolved).
- Child is clinically well and alert.

Breastfeeding infant less than 6 months of age is ready for **Transfer to Outpatient Care** if the following criteria are met:

- Medical complication has resolved.
- Bilateral pitting oedema has resolved.
- Infant is clinically well and alert.
- Weight gain on exclusive breastfeeding is satisfactory (e.g., infant is gaining 5 g/kg/day at least for 3 successive days).
- Infant has been checked for immunisations and other routine interventions.

It is recommended that the following elements be also considered at discharge from the hospital and transfer to outpatient care (or in case of no outpatient care, discharged from the hospital after the end of treatment). If a child or infant leaves before being stabilised, he or she is likely to get worse and have to return, or he or she may die.

- Health and nutrition counselling scheme should be started or completed
- Psychosocial support should be given to mother or carer
- Emotional and sensory stimulation should be given for child
- Immunisation schedule should be updated
- Adequate arrangements for linking the mother and child with the primary health care facility for continued treatment and follow up in outpatient care, and with the community health worker for home support should be done
- Appropriate linking for continued community-based IYCF and preventative community initiatives should be established
- Child should be eating the RUTF well (eating two full meals).
- The child should be clinically well and alert.

- The child should be gaining weight.
- The mother should be thoroughly trained on how to access the outpatient care site close to her home and is instructed to continue treatment at home, or, after full recovery, to feed the child with energy- and nutrient-dense complementary food at home.
- The mother is instructed to return to the health facility as soon as the child's condition deteriorates.

5.6.2 Discharge from Inpatient Care After Full Recovery

In special cases when a child cannot be transferred to the outpatient care, then it is recommended that a child stays in hospital until full recovery as follows.

The child 6–59 months is ready for discharge from inpatient care after full recovery when the following discharge criteria are met:

- No bilateral pitting oedema for 2 consecutive weeks, and
- MUAC \geq 12.5 cm or WFH \geq -2 z-score, and
- Clinically well and alert.

The child 5–15 years is ready for discharge from inpatient care after full recovery when the following discharge criteria are met:

- MUAC \geq 14.5 cm (5–9 years) or,
- MUAC \geq 18.5 cm (10–15 years) and
- No bilateral pitting oedema for 2 consecutive weeks, and
- Clinically well and alert

The non-breastfeeding infant less than 6 months is ready for discharge from inpatient care after full recovery when following discharge criteria are met:

- WFH/L z-score \geq -2 for 2 consecutive weeks
- No oedema for two consecutive weeks
- Clinically well and alert, with no medical problems

Other recommendations:

- Infants can switch to infant formula or other breast milk substitutes upon discharge, per the Malawi IYCF recommendations.
- Caregivers should be provided adequate counselling on care and feeding practices, danger signs and when to return to the health centre for follow-up.
- Children should be referred to the supplementary feeding programme (SFP) for routine monitoring.
- Caregivers should be referred to social welfare.
- Continuity of care and follow-up are important after discharge to monitor the child's recovery and progress and to educate the caregivers on the need to introduce complementary food at 6 months of age.
- Follow-up should be done every two weeks in the SFP until the child is 6 months of age.
- Non-breastfed children < 6 months should be referred to social welfare.
- Children over 6 months children whose criteria of admission was weight less than 3 kg should be discharged to the SFP and given CSB++.

Other criteria for leaving the hospital before the end of treatment include:

- **Died** while in treatment
- **Defaulted** absent for two consecutive days
- **Non-cured** – those who did not recover or did not meet the discharge criteria after 4 months in treatment; during treatment, these children would have shown signs of failure-to-respond-to-treatment and undergone a full assessment for detecting underlying infections or medical conditions, or been referred for medical investigation.

NOTE: It is unusual to classify SAM children as “non-cured” in the inpatient care. This is more applicable in outpatient care (OTP or SFP). Failure-to-respond-to-treatment (non-cured) is an indication for referral for further assessment at a higher level of hospital care. This may be due to, for example, undiagnosed TB, HIV infection (not started on ART) or other medical condition such as heart problems and other chronic conditions that require long term follow up in hospital.

5.7 Giving Advice on Transfer/Referral to Outpatient Care, Continued Treatment at Home and Follow-Up Visits

- NRU staff should not retain children who are ready for outpatient care (see discharge criteria).
- Complete the Outcome Chart of the Treatment Card, and the Referral Form.
- Inform the mother where to go for OTP, at the health facility closest to her community. Inform the mother the health surveillance assistant (HSA) or volunteer covering her community whom she can contact in case of a problem.
- Provide the mother with sufficient RUTF to last until the first visit to Outpatient Care (give a supply for 1 week).
- Give mothers key messages about the use of RUTF at home and basic hygiene.
- Inform the mother about what to do if the child’s condition deteriorates before the next visit to Outpatient Care. Signs to bring the child back for immediate care include:
 - Not being able to drink or breastfeed, loss of appetite, poor appetite
 - Vomits everything
 - Drowsy or sleepy, not waking up
 - Convulsions
 - Appearance of oedema: swelling in feet, legs, hands, or arms
 - High fever
 - Fast or difficult breathing
 - Diarrhoea for more than a day, or blood in stool
- Inform the mother when and where to go for child health visits and immunisation. Any currently needed immunisations should be given in the hospital before discharge from treatment.
- Inform the mother about vitamin A supplementation and deworming once every 6 months and about participation at child health days.

5.8 Referral Form or Discharge Summary (in the Health Passport)

The Referral Form is filled out when a child is ready for transfer to OTP or SFP.

The Referral Form includes information that will be used in OTP to continue treatment of the child. See **annex G** for the referral form.

At the end of treatment, a discharge summary should be documented in the health passport. Nutritional assessment, RUTF ration given and counselling provided should be documented.

A discharge summary can be useful in several ways:

- It provides instructions for home care.
- It reminds the mother when and where to go for follow-up care.
- It can serve as a letter of introduction for health care or nutrition support and linking with community health initiatives close to the child's home.
- It serves as a record of the child's health and nutrition status.

5.9 Supporting Infant and Young Child Feeding

Health and nutrition education messages may be used for individual and group counselling for improving and supporting IYCF practices.

IYCF support for mothers can target topics that:

- Prevent children from relapsing after being discharged from management of SAM
- Support exclusive breastfeeding for infants less than 6 months and continued breastfeeding in addition for up to 24 months, and introduction of nutritious complementary food.
- Prevent mothers defaulting from care upon transfer to the Outpatient Care.
- Link mothers with community-based IYCF support.

5.10 Linking with Community Initiatives for the Prevention of Undernutrition

Once children have been treated for SAM, link the mother and families with community-based social and economic support programmes that promote and support food security and food diversity and strengthen livelihoods and income-generating activities.



Exercise 5D

This exercise will discuss cases about children that are leaving inpatient care and providing instructions to the mother. Your facilitator may ask you to play the role of a home-craft worker or a mother, or you may be an observer. If you are an observer, be prepared to answer the questions below based on your observations, and give additional comments.

Case 1

This mother and child have been in hospital for 7 days. The child, who is 15 months, has a good appetite, has medical complications that are resolving, is well and alert and ate two full meals of RUTF. The child was admitted with severe oedema (+++); it is now mild (+). The mother has already been taught carefully on the RUTF key messages. The mother has been provided a 1-week ration of RUTF and provided instructions on when to report to the nearest health facility in her neighbourhood that provides outpatient care for follow-up. The mother and child are ready for transfer to outpatient care. It is now time for the home-craft worker to review instructions with the mother using a referral form. The home-craft worker will use the referral form in **Annex G** of the module.

Case 2

This mother and child have been in hospital for 18 days. The child, who is 2 years old, has reached the end of treatment criteria. The mother has already been taught carefully how to continue feeding at home with nutritious complementary food and how to play with her child. The mother and child are ready for discharge. It is now time for the home-craft worker to review instructions with the mother using a discharge card, in **Annex H**.

Case 3

This mother and infant have been in hospital for 28 days. The infant, who is 4 months old, is gaining weight well on exclusive breastfeeding and is ready for discharge. The mother has received good breastfeeding support but is still very insecure. It is now time for the home-craft worker to review instructions with the mother using a discharge card. The home-craft worker will use the sample discharge card given in **Annex H** of the module.

Observers please note:

1. Did the home-craft worker review all of the points of the transfer form or discharge card?
2. Did the home-craft worker speak clearly and simply so the mother could understand?
3. Did the home-craft worker ask appropriate questions to be sure that the mother understood the instructions?
4. Did the home-craft worker offer the mother a chance to ask questions?

Annex A: Weight-for-Length/Height Reference Tables

1. Weight-for-Length Reference Table for Children less than 24 Months. If a child is under 2 years (or if a child is less than 87 cm tall and his/her age is not known), measure length while the child is lying down (recumbent). Use the weight-for-length reference table.

Boys				Length	Girls			
-3 Z	-2 Z	-1 Z	Median	cm	Median	-1 Z	-2 Z	-3 Z
1.9	2.0	2.2	2.4	45.0	2.5	2.3	2.1	1.9
1.9	2.1	2.3	2.5	45.5	2.5	2.3	2.1	2.0
2.0	2.2	2.4	2.6	46.0	2.6	2.4	2.2	2.0
2.1	2.3	2.5	2.7	46.5	2.7	2.5	2.3	2.1
2.1	2.3	2.5	2.8	47.0	2.8	2.6	2.4	2.2
2.2	2.4	2.6	2.9	47.5	2.9	2.6	2.4	2.2
2.3	2.5	2.7	2.9	48.0	3.0	2.7	2.5	2.3
2.3	2.6	2.8	3.0	48.5	3.1	2.8	2.6	2.4
2.4	2.6	2.9	3.1	49.0	3.2	2.9	2.6	2.4
2.5	2.7	3.0	3.2	49.5	3.3	3.0	2.7	2.5
2.6	2.8	3.0	3.3	50.0	3.4	3.1	2.8	2.6
2.7	2.9	3.1	3.4	50.5	3.5	3.2	2.9	2.7
2.7	3.0	3.2	3.5	51.0	3.6	3.3	3.0	2.8
2.8	3.1	3.3	3.6	51.5	3.7	3.4	3.1	2.8
2.9	3.2	3.5	3.8	52.0	3.8	3.5	3.2	2.9
3.0	3.3	3.6	3.9	52.5	3.9	3.6	3.3	3.0
3.1	3.4	3.7	4.0	53.0	4.0	3.7	3.4	3.1
3.2	3.5	3.8	4.1	53.5	4.2	3.8	3.5	3.2
3.3	3.6	3.9	4.3	54.0	4.3	3.9	3.6	3.3
3.4	3.7	4.0	4.4	54.5	4.4	4.0	3.7	3.4
3.6	3.8	4.2	4.5	55.0	4.6	4.2	3.8	3.5
3.7	4.0	4.3	4.7	55.5	4.7	4.3	3.9	3.6
3.8	4.1	4.4	4.8	56.0	4.8	4.4	4.0	3.7
3.9	4.2	4.6	5.0	56.5	5.0	4.5	4.2	3.8
4.0	4.3	4.7	5.1	57.0	5.1	4.6	4.3	3.9
4.1	4.5	4.9	5.3	57.5	5.2	4.8	4.4	4.0
4.3	4.6	5.0	5.4	58.0	5.4	4.9	4.5	4.1
4.4	4.7	5.1	5.6	58.5	5.5	5.0	4.6	4.2
4.5	4.8	5.3	5.7	59.0	5.6	5.1	4.7	4.3
4.6	5.0	5.4	5.9	59.5	5.7	5.3	4.8	4.4
4.7	5.1	5.5	6.0	60.0	5.9	5.4	4.9	4.5
4.8	5.2	5.6	6.1	60.5	6.0	5.5	5.0	4.6
4.9	5.3	5.8	6.3	61.0	6.1	5.6	5.1	4.7
5.0	5.4	5.9	6.4	61.5	6.3	5.7	5.2	4.8
5.1	5.6	6.0	6.5	62.0	6.4	5.8	5.3	4.9
5.2	5.7	6.1	6.7	62.5	6.5	5.9	5.4	5.0
5.3	5.8	6.2	6.8	63.0	6.6	6.0	5.5	5.1
5.4	5.9	6.4	6.9	63.5	6.7	6.2	5.6	5.2
5.5	6.0	6.5	7.0	64.0	6.9	6.3	5.7	5.3
5.6	6.1	6.6	7.1	64.5	7.0	6.4	5.8	5.4
5.7	6.2	6.7	7.3	65.0	7.1	6.5	5.9	5.5
5.8	6.3	6.8	7.4	65.5	7.2	6.6	6.0	5.5
5.9	6.4	6.9	7.5	66.0	7.3	6.7	6.1	5.6
6.0	6.5	7.0	7.6	66.5	7.4	6.8	6.2	5.7
6.1	6.6	7.1	7.7	67.0	7.5	6.9	6.3	5.8
6.2	6.7	7.2	7.9	67.5	7.6	7.0	6.4	5.9
6.3	6.8	7.3	8.0	68.0	7.7	7.1	6.5	6.0
6.4	6.9	7.5	8.1	68.5	7.9	7.2	6.6	6.1
6.5	7.0	7.6	8.2	69.0	8.0	7.3	6.7	6.1
6.6	7.1	7.7	8.3	69.5	8.1	7.4	6.8	6.2
6.6	7.2	7.8	8.4	70.0	8.2	7.5	6.9	6.3

Boys				Length	Girls			
-3 Z	-2 Z	-1 Z	Median	cm	Median	-1 Z	-2 Z	-3 Z
6.7	7.3	7.9	8.5	70.5	8.3	7.6	6.9	6.4
6.8	7.4	8.0	8.6	71.0	8.4	7.7	7.0	6.5
6.9	7.5	8.1	8.8	71.5	8.5	7.7	7.1	6.5
7.0	7.6	8.2	8.9	72.0	8.6	7.8	7.2	6.6
7.1	7.6	8.3	9.0	72.5	8.7	7.9	7.3	6.7
7.2	7.7	8.4	9.1	73.0	8.8	8.0	7.4	6.8
7.2	7.8	8.5	9.2	73.5	8.9	8.1	7.4	6.9
7.3	7.9	8.6	9.3	74.0	9.0	8.2	7.5	6.9
7.4	8.0	8.7	9.4	74.5	9.1	8.3	7.6	7.0
7.5	8.1	8.8	9.5	75.0	9.1	8.4	7.7	7.1
7.6	8.2	8.9	9.6	75.5	9.2	8.5	7.8	7.1
7.6	8.3	8.9	9.7	76.0	9.3	8.5	7.8	7.2
7.7	8.3	9.0	9.8	76.5	9.4	8.6	7.9	7.3
7.8	8.4	9.1	9.9	77.0	9.5	8.7	8.0	7.4
7.9	8.5	9.2	10.0	77.5	9.6	8.8	8.1	7.4
7.9	8.6	9.3	10.1	78.0	9.7	8.9	8.2	7.5
8.0	8.7	9.4	10.2	78.5	9.8	9.0	8.2	7.6
8.1	8.7	9.5	10.3	79.0	9.9	9.1	8.3	7.7
8.2	8.8	9.5	10.4	79.5	10.0	9.1	8.4	7.7
8.2	8.9	9.6	10.4	80.0	10.1	9.2	8.5	7.8
8.3	9.0	9.7	10.5	80.5	10.2	9.3	8.6	7.9
8.4	9.1	9.8	10.6	81.0	10.3	9.4	8.7	8.0
8.5	9.1	9.9	10.7	81.5	10.4	9.5	8.8	8.1
8.5	9.2	10.0	10.8	82.0	10.5	9.6	8.8	8.2
8.6	9.3	10.1	10.9	82.5	10.6	9.7	8.9	8.2
8.7	9.4	10.2	11.0	83.0	10.7	9.8	9.0	8.3
8.8	9.5	10.3	11.2	83.5	10.9	9.9	9.1	8.4
8.9	9.6	10.4	11.3	84.0	11.0	10.1	9.2	8.5
9.0	9.7	10.5	11.4	84.5	11.1	10.2	9.3	8.6
9.1	9.8	10.6	11.5	85.0	11.2	10.3	9.4	8.7
9.2	9.9	10.7	11.6	85.5	11.3	10.4	9.6	8.8
9.3	10.0	10.8	11.7	86.0	11.5	10.5	9.7	8.9
9.4	10.1	11.0	11.9	86.5	11.6	10.6	9.8	9.0
9.5	10.2	11.1	12.0	87.0	11.7	10.7	9.9	9.1
9.6	10.4	11.2	12.1	87.5	11.8	10.9	10.0	9.2
9.7	10.5	11.3	12.2	88.0	12.0	11.0	10.1	9.3
9.8	10.6	11.4	12.4	88.5	12.1	11.1	10.2	9.4
9.9	10.7	11.5	12.5	89.0	12.2	11.2	10.3	9.5
10.0	10.8	11.6	12.6	89.5	12.3	11.3	10.4	9.6
10.1	10.9	11.8	12.7	90.0	12.5	11.4	10.5	9.7
10.2	11.0	11.9	12.8	90.5	12.6	11.5	10.6	9.8
10.3	11.1	12.0	13.0	91.0	12.7	11.7	10.7	9.9
10.4	11.2	12.1	13.1	91.5	12.8	11.8	10.8	10.0
10.5	11.3	12.2	13.2	92.0	13.0	11.9	10.9	10.1
10.6	11.4	12.3	13.3	92.5	13.1	12.0	11.0	10.1
10.7	11.5	12.4	13.4	93.0	13.2	12.1	11.1	10.2
10.7	11.6	12.5	13.5	93.5	13.3	12.2	11.2	10.3
10.8	11.7	12.6	13.7	94.0	13.5	12.3	11.3	10.4
10.9	11.8	12.7	13.8	94.5	13.6	12.4	11.4	10.5
11.0	11.9	12.8	13.9	95.0	13.7	12.6	11.5	10.6
11.1	12.0	12.9	14.0	95.5	13.8	12.7	11.6	10.7
11.2	12.1	13.1	14.1	96.0	14.0	12.8	11.7	10.8
11.3	12.2	13.2	14.3	96.5	14.1	12.9	11.8	10.9
11.4	12.3	13.3	14.4	97.0	14.2	13.0	12.0	11.0
11.5	12.4	13.4	14.5	97.5	14.4	13.1	12.1	11.1
11.6	12.5	13.5	14.6	98.0	14.5	13.3	12.2	11.2
11.7	12.6	13.6	14.8	98.5	14.6	13.4	12.3	11.3
11.8	12.7	13.7	14.9	99.0	14.8	13.5	12.4	11.4

Boys				Length	Girls			
-3 Z	-2 Z	-1 Z	Median	cm	Median	-1 Z	-2 Z	-3 Z
11.9	12.8	13.9	15.0	99.5	14.9	13.6	12.5	11.5
12.0	12.9	14.0	15.2	100.0	15.0	13.7	12.6	11.6
12.1	13.0	14.1	15.3	100.5	15.2	13.9	12.7	11.7
12.2	13.2	14.2	15.4	101.0	15.3	14.0	12.8	11.8
12.3	13.3	14.4	15.6	101.5	15.5	14.1	13.0	11.9
12.4	13.4	14.5	15.7	102.0	15.6	14.3	13.1	12.0
12.5	13.5	14.6	15.9	102.5	15.8	14.4	13.2	12.1
12.6	13.6	14.8	16.0	103.0	15.9	14.5	13.3	12.3
12.7	13.7	14.9	16.2	103.5	16.1	14.7	13.5	12.4
12.8	13.9	15.0	16.3	104.0	16.2	14.8	13.6	12.5
12.9	14.0	15.2	16.5	104.5	16.4	15.0	13.7	12.6
13.0	14.1	15.3	16.6	105.0	16.5	15.1	13.8	12.7
13.2	14.2	15.4	16.8	105.5	16.7	15.3	14.0	12.8
13.3	14.4	15.6	16.9	106.0	16.9	15.4	14.1	13.0
13.4	14.5	15.7	17.1	106.5	17.1	15.6	14.3	13.1
13.5	14.6	15.9	17.3	107.0	17.2	15.7	14.4	13.2
13.6	14.7	16.0	17.4	107.5	17.4	15.9	14.5	13.3
13.7	14.9	16.2	17.6	108.0	17.6	16.0	14.7	13.5
13.8	15.0	16.3	17.8	108.5	17.8	16.2	14.8	13.6
14.0	15.1	16.5	17.9	109.0	18.0	16.4	15.0	13.7
14.1	15.3	16.6	18.1	109.5	18.1	16.5	15.1	13.9
14.2	15.4	16.8	18.3	110.0	18.3	16.7	15.3	14.0

2. Weight-for-Height Reference Table for Children 24–59 Months. If a child is 2 years or older (or if a child is at least 87 cm tall and his/her age is not known), measure standing height. If a child 2 years or older or at least 87 cm tall is unable to stand, measure length while the child is lying down (recumbent) and subtract 0.7 cm from the length to arrive at a comparable height and use the weight-for-height reference table.

Boys				Height	Girls			
-3 Z	-2 Z	-1 Z	Median	Cm	Median	-1 Z	-2 Z	-3 Z
5.9	6.3	6.9	7.4	65.0	7.2	6.6	6.1	5.6
6.0	6.4	7.0	7.6	65.5	7.4	6.7	6.2	5.7
6.1	6.5	7.1	7.7	66.0	7.5	6.8	6.3	5.8
6.1	6.6	7.2	7.8	66.5	7.6	6.9	6.4	5.8
6.2	6.7	7.3	7.9	67.0	7.7	7.0	6.4	5.9
6.3	6.8	7.4	8.0	67.5	7.8	7.1	6.5	6.0
6.4	6.9	7.5	8.1	68.0	7.9	7.2	6.6	6.1
6.5	7.0	7.6	8.2	68.5	8.0	7.3	6.7	6.2
6.6	7.1	7.7	8.4	69.0	8.1	7.4	6.8	6.3
6.7	7.2	7.8	8.5	69.5	8.2	7.5	6.9	6.3
6.8	7.3	7.9	8.6	70.0	8.3	7.6	7.0	6.4
6.9	7.4	8.0	8.7	70.5	8.4	7.7	7.1	6.5
6.9	7.5	8.1	8.8	71.0	8.5	7.8	7.1	6.6
7.0	7.6	8.2	8.9	71.5	8.6	7.9	7.2	6.7
7.1	7.7	8.3	9.0	72.0	8.7	8.0	7.3	6.7
7.2	7.8	8.4	9.1	72.5	8.8	8.1	7.4	6.8
7.3	7.9	8.5	9.2	73.0	8.9	8.1	7.5	6.9
7.4	8.0	8.6	9.3	73.5	9.0	8.2	7.6	7.0
7.4	8.0	8.7	9.4	74.0	9.1	8.3	7.6	7.0
7.5	8.1	8.8	9.5	74.5	9.2	8.4	7.7	7.1
7.6	8.2	8.9	9.6	75.0	9.3	8.5	7.8	7.2
7.7	8.3	9.0	9.7	75.5	9.4	8.6	7.9	7.2
7.7	8.4	9.1	9.8	76.0	9.5	8.7	8.0	7.3
7.8	8.5	9.2	9.9	76.5	9.6	8.7	8.0	7.4
7.9	8.5	9.2	10.0	77.0	9.6	8.8	8.1	7.5
8.0	8.6	9.3	10.1	77.5	9.7	8.9	8.2	7.5
8.0	8.7	9.4	10.2	78.0	9.8	9.0	8.3	7.6
8.1	8.8	9.5	10.3	78.5	9.9	9.1	8.4	7.7
8.2	8.8	9.6	10.4	79.0	10.0	9.2	8.4	7.8
8.3	8.9	9.7	10.5	79.5	10.1	9.3	8.5	7.8
8.3	9.0	9.7	10.6	80.0	10.2	9.4	8.6	7.9
8.4	9.1	9.8	10.7	80.5	10.3	9.5	8.7	8.0
8.5	9.2	9.9	10.8	81.0	10.4	9.6	8.8	8.1
8.6	9.3	10.0	10.9	81.5	10.6	9.7	8.9	8.2
8.7	9.4	10.1	11.0	82.0	10.7	9.8	9.0	8.3
8.7	9.4	10.2	11.1	82.5	10.8	9.9	9.1	8.4
8.8	9.5	10.3	11.2	83.0	10.9	10.0	9.2	8.5
8.9	9.6	10.4	11.3	83.5	11.0	10.1	9.3	8.6
9.0	9.7	10.5	11.4	84.0	11.1	10.2	9.4	8.6
9.1	9.9	10.7	11.5	84.5	11.3	10.3	9.5	8.7
9.2	10.0	10.8	11.7	85.0	11.4	10.4	9.6	8.8
9.3	10.1	10.9	11.8	85.5	11.5	10.6	9.7	8.9
9.4	10.2	11.0	11.9	86.0	11.6	10.7	9.8	9.0
9.5	10.3	11.1	12.0	86.5	11.8	10.8	9.9	9.1
9.6	10.4	11.2	12.2	87.0	11.9	10.9	10.0	9.2
9.7	10.5	11.3	12.3	87.5	12.0	11.0	10.1	9.3
9.8	10.6	11.5	12.4	88.0	12.1	11.1	10.2	9.4
9.9	10.7	11.6	12.5	88.5	12.3	11.2	10.3	9.5
10.0	10.8	11.7	12.7	89.0	12.4	11.4	10.4	9.6

Boys				Height	Girls			
-3 Z	-2 Z	-1 Z	Median	Cm	Median	-1 Z	-2 Z	-3 Z
10.1	10.9	11.8	12.8	89.5	12.5	11.5	10.5	9.7
10.2	11.0	11.9	12.9	90.0	12.6	11.6	10.6	9.8
10.3	11.1	12.0	13.0	90.5	12.8	11.7	10.7	9.9
10.4	11.2	12.1	13.1	91.0	12.9	11.8	10.9	10.0
10.5	11.3	12.2	13.2	91.5	13.0	11.9	11.0	10.1
10.6	11.4	12.3	13.4	92.0	13.1	12.0	11.1	10.2
10.7	11.5	12.4	13.5	92.5	13.3	12.1	11.2	10.3
10.8	11.6	12.6	13.6	93.0	13.4	12.3	11.3	10.4
10.9	11.7	12.7	13.7	93.5	13.5	12.4	11.4	10.5
11.0	11.8	12.8	13.8	94.0	13.6	12.5	11.5	10.6
11.1	11.9	12.9	13.9	94.5	13.8	12.6	11.6	10.7
11.1	12.0	13.0	14.1	95.0	13.9	12.7	11.7	10.8
11.2	12.1	13.1	14.2	95.5	14.0	12.8	11.8	10.8
11.3	12.2	13.2	14.3	96.0	14.1	12.9	11.9	10.9
11.4	12.3	13.3	14.4	96.5	14.3	13.1	12.0	11.0
11.5	12.4	13.4	14.6	97.0	14.4	13.2	12.1	11.1
11.6	12.5	13.6	14.7	97.5	14.5	13.3	12.2	11.2
11.7	12.6	13.7	14.8	98.0	14.7	13.4	12.3	11.3
11.8	12.8	13.8	14.9	98.5	14.8	13.5	12.4	11.4
11.9	12.9	13.9	15.1	99.0	14.9	13.7	12.5	11.5
12.0	13.0	14.0	15.2	99.5	15.1	13.8	12.7	11.6
12.1	13.1	14.2	15.4	100.0	15.2	13.9	12.8	11.7
12.2	13.2	14.3	15.5	100.5	15.4	14.1	12.9	11.9
12.3	13.3	14.4	15.6	101.0	15.5	14.2	13.0	12.0
12.4	13.4	14.5	15.8	101.5	15.7	14.3	13.1	12.1
12.5	13.6	14.7	15.9	102.0	15.8	14.5	13.3	12.2
12.6	13.7	14.8	16.1	102.5	16.0	14.6	13.4	12.3
12.8	13.8	14.9	16.2	103.0	16.1	14.7	13.5	12.4
12.9	13.9	15.1	16.4	103.5	16.3	14.9	13.6	12.5
13.0	14.0	15.2	16.5	104.0	16.4	15.0	13.8	12.7
13.1	14.2	15.4	16.7	104.5	16.6	15.2	13.9	12.8
13.2	14.3	15.5	16.8	105.0	16.8	15.3	14.0	12.9
13.3	14.4	15.6	17.0	105.5	17.0	15.5	14.2	13.0
13.4	14.5	15.8	17.2	106.0	17.1	15.6	14.3	13.1
13.5	14.7	15.9	17.3	106.5	17.3	15.8	14.5	13.3
13.7	14.8	16.1	17.5	107.0	17.5	15.9	14.6	13.4
13.8	14.9	16.2	17.7	107.5	17.7	16.1	14.7	13.5
13.9	15.1	16.4	17.8	108.0	17.8	16.3	14.9	13.7
14.0	15.2	16.5	18.0	108.5	18.0	16.4	15.0	13.8
14.1	15.3	16.7	18.2	109.0	18.2	16.6	15.2	13.9
14.3	15.5	16.8	18.3	109.5	18.4	16.8	15.4	14.1
14.4	15.6	17.0	18.5	110.0	18.6	17.0	15.5	14.2
14.5	15.8	17.1	18.7	110.5	18.8	17.1	15.7	14.4
14.6	15.9	17.3	18.9	111.0	19.0	17.3	15.8	14.5
14.8	16.0	17.5	19.1	111.5	19.2	17.5	16.0	14.7
14.9	16.2	17.6	19.2	112.0	19.4	17.7	16.2	14.8
15.0	16.3	17.8	19.4	112.5	19.6	17.9	16.3	15.0
15.2	16.5	18.0	19.6	113.0	19.8	18.0	16.5	15.1
15.3	16.6	18.1	19.8	113.5	20.0	18.2	16.7	15.3
15.4	16.8	18.3	20.0	114.0	20.2	18.4	16.8	15.4
15.6	16.9	18.5	20.2	114.5	20.5	18.6	17.0	15.6
15.7	17.1	18.6	20.4	115.0	20.7	18.8	17.2	15.7
15.8	17.2	18.8	20.6	115.5	20.9	19.0	17.3	15.9
16.0	17.4	19.0	20.8	116.0	21.1	19.2	17.5	16.0
16.1	17.5	19.2	21.0	116.5	21.3	19.4	17.7	16.2

Boys				Height	Girls				
-3 Z	-2 Z	-1 Z	Median	Cm	Median	-1 Z	-2 Z	-3 Z	
16.2	17.7	19.3	21.2	117.0	21.5	19.6	17.8	16.3	
16.4	17.9	19.5	21.4	117.5	21.7	19.8	18.0	16.5	
16.5	18.0	19.7	21.6	118.0	22.0	20.0	18.2	16.6	
16.7	18.2	19.9	21.8	118.5	22.2	20.1	18.4	16.8	
16.8	18.3	20.0	22.0	119.0	22.4	20.3	18.5	16.9	
16.9	18.5	20.2	22.2	119.5	22.6	20.5	18.7	17.1	
17.1	18.6	20.4	22.4	120.0	22.8	20.7	18.9	17.3	

Annex B: Therapeutic Milk Preparation and Recipes

Recipes for F-75 and F-100 are given in the table below. The top three recipes given for F-75 include cereal flour and require cooking. The bottom three recipes for F-75 can be used if there is no cereal flour or no cooking facilities.

Therapeutic Milk Recipes

If you have cereal flour and cooking facilities, use one of the top three recipes for F-75.			
Alternatives	Ingredients	Amount for F-75	
If you have dried skimmed milk	Dried skimmed milk Sugar Cereal flour Vegetable oil Combined mineral and vitamin mix (CMV)* <i>Water to make 1,000 ml</i>	25 g 70 g 35 g 30 g ½ level scoop <i>1,000 ml**</i>	
If you have dried whole milk	Dried whole milk Sugar Cereal flour Vegetable oil CMV* <i>Water to make 1,000 ml</i>	35 g 70 g 35 g 20 g ½ level scoop <i>1,000 ml**</i>	
If you have fresh cow's milk or full-cream (whole) long-life milk	Fresh cow's milk or full-cream (whole) long-life milk Sugar Cereal flour Vegetable oil CMV* <i>Water to make 1,000 ml</i>	300 ml 70 g 35 g 20 g ½ level scoop <i>1,000 ml**</i>	
If you do not have cereal flour or there are no cooking facilities, use one of the following recipes for F-75,			No cooking is required for F-100,
Alternatives	Ingredients	Amount for F-75	Amount for F-100
If you have dried skimmed milk	Dried skimmed milk Sugar Vegetable oil CMV* <i>Water to make 1,000 ml</i>	25 g 100 g 30 g ½ level scoop <i>1,000 ml**</i>	80 g 50 g 60 g ½ level scoop <i>1,000 ml**</i>
If you have dried whole milk	Dried whole milk Sugar Vegetable oil CMV* <i>Water to make 1,000 ml</i>	35 g 100 g 20 g ½ level scoop <i>1,000 ml**</i>	110 g 50 g 30 g ½ level scoop <i>1,000 ml**</i>
If you have fresh cow's milk or full-cream (whole) long-life milk	Fresh cow's milk or full-cream (whole) long-life milk Sugar Vegetable oil CMV*	300 ml 100 g 20 g ½ level scoop	880 ml 75 g 20 g ½ level scoop

	<i>Water to make 1,000 ml</i>	<i>1,000 ml**</i>	<i>1,000 ml**</i>
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* The contents of CMV are listed below

** Important note about adding water: Add just the amount of water needed to make 1,000 ml of formula. (This amount will vary from recipe to recipe, depending on the other ingredients.) If you have cereal flour and cooking facilities, use one of the top three recipes for F-75.

Combined Mineral and Vitamin Mix Composition

Nutritional Value of Commercial CMV (Per 6.35 g or 1 Level Scoop)

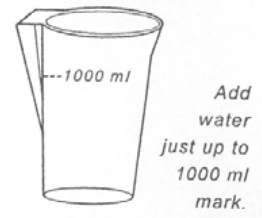
Vitamins		Minerals	
Biotin	0.2 mg	Copper	5.7 mg
Folic acid	700 µg	Iodine	154 µg
Niacin	20 mg	Iron	0 mg
Pantothenic acid	6 mg	Magnesium	146 mg
	3,000 µg	Potassium	2,340 mg
Vitamin A	1.4 mg	Selenium	94 µg
Vitamin B1	2 µg	Zinc	40 mg
Vitamin B12	4 mg		
Vitamin B2	1.4 mg		
Vitamin B6	200 mg		
Vitamin C	60 µg		
Vitamin D	44 mg		
Vitamin E	80 µg		
Vitamin K			

Tips for correct preparation (all recipes)

- If possible, use a dietary scale that is accurate to at least 5 g. A scale made with its own bowl is convenient. If yours has only a flat platform, choose a suitable container for weighing the ingredients. Weigh the empty container first, and account for this when weighing the ingredients.
- Small plastic bags can be used as containers for dry ingredients. They are so light that their weight can be ignored.
- For measuring oil, choose a small container to reduce the surface to which the oil can stick. Let the oil drain out well when transferring it to the blender or jug. Then rinse the container with a little of the boiled water you will use for the milk preparation and add the rinsing to the blender or jug.
- Be sure that the scale is set at 0 before weighing.
- Wash hands before measuring ingredients.
- If using scoops for measurement, level ingredients with a knife to ensure consistent measurement. Be aware that equal weights of milk powder and sugar do not occupy the same volume; milk powder is a bigger volume. Therefore, one must either weigh these ingredients or know the corresponding volume for each.
- Mix oil well so that it does not separate out. Oil is a vital source of energy; if oil floats to the top of the mixture, there is a risk that some children will get too much and others too little. If possible, use

an electric blender to thoroughly mix the oil. Otherwise, use a strong rotary whisk or balloon whisk. Use a long whisk so that your hands do not dip into the formula while whisking.

- If there is a change in the type of milk supplied, change to a recipe appropriate for the type of milk available.
- If using CMV read the label carefully to ensure that you use the correct amount for your recipe. For example, if the scoop provided with the CMV is for making 2 litres, use ½ scoop to make 1 litre. Carefully measure to determine the exact amount in ½ scoop.
- Be careful to add the correct amount of water to make 1,000 ml of formula. If 1,000 ml of water is mistakenly added, the resulting formula will be about 15 percent too diluted.



Directions for making cooked F-75 with cereal flour (top recipes)

You will need a 1-litre electric blender or a hand whisk (rotary whisk or balloon whisk), a 1-litre measuring jug, a cooking pot and a stove or hot plate. Amounts of ingredients are listed in the table on page 67. Cereal flour may be maize meal, rice flour or whatever is the staple cereal in the area.

It is important to use cooled, boiled water even for recipes that involve cooking. The cooking is only 4 minutes of gentle boiling, and this may not be enough to kill all pathogens in the water. The water should be cooled because adding boiling water to the powdered ingredients may create lumps.

If using a hand whisk/spoon

1. Mix the flour, milk or milk powder, sugar, oil, and mineral mix in a 1-litre measuring jug. (If using milk powder, this will be a paste.)
2. Slowly add cooled, boiled water up to 1,000 ml.
3. Transfer to cooking pot and whisk the mixture vigorously.
4. Boil gently for 4 minutes, stirring continuously.
5. Some water will evaporate while cooking, so transfer the mixture back to measuring jug after cooking and add enough boiled water to make 1,000 ml. Whisk again.

Directions for no-cooking recipes (bottom recipes)

If using a hand whisk/spoon:

1. Mix the required amounts of milk powder and sugar in a 1-litre measuring jug; then add the oil and stir well to make a paste. (If you use liquid milk, mix the sugar and oil, and then add the milk.)
2. Add mineral mix, and slowly add boiled, cooled water up to 1,000 ml, stirring all the time.
3. Whisk vigorously.

Note: Whether using a blender or a whisk, it is important to measure up to the 1,000 ml mark before blending/whisking. Otherwise, the mixture becomes too frothy to judge where the liquid line is.

Annex C: Therapeutic Food Reference Tables

Stabilisation Phase Reference Tables for F-75 for Children with Severe Wasting (Marasmus)

Weight of child (kg)	Volume of F-75 per feed (ml) ^a			Daily total (130 ml/kg)	80% of daily total ^a (minimum)
	Every 2 hours ^b (12 feeds)	Every 3 hours ^c (8 feeds)	Every 4 hours (6 feeds)		
2.0	20	35	45	260	210
2.2	25	35	50	286	230
2.4	25	40	50	312	250
2.6	30	40	55	338	270
2.8	30	45	60	364	290
3.0	35	50	65	390	310
3.2	35	50	70	416	335
3.4	35	55	75	442	355
3.6	40	60	80	468	375
3.8	40	60	80	494	395
4.0	45	65	85	520	415
4.2	45	70	90	546	435
4.4	50	70	95	572	460
4.6	50	75	100	598	480
4.8	50	80	105	624	500
5.0	55	80	110	650	520
5.2	55	85	115	676	540
5.4	60	90	115	702	560
5.6	60	90	120	728	580
5.8	65	95	125	754	605
6.0	65	100	130	780	625
6.2	65	100	135	806	645
6.4	70	105	140	832	665
6.6	70	105	145	858	685
6.8	75	110	145	884	705
7.0	75	115	150	910	730
7.2	80	115	155	936	750
7.4	80	120	160	962	770
7.6	80	125	165	988	790
7.8	85	125	170	1014	810
8.0	85	130	175	1040	830
8.2	90	135	180	1066	855
8.4	90	135	180	1092	875
8.6	95	140	185	1118	895
8.8	95	145	190	1144	915
9.0	100	145	195	1170	935
9.2	100	150	200	1196	955
9.4	100	155	205	1222	980
9.6	105	155	210	1248	1000
9.8	105	160	210	1274	1020
10.0	110	165	215	1300	1040
10.2	110	165	220	1326	1060
10.4	115	170	225	1352	1080
10.6	115	170	230	1378	1100
10.8	115	175	235	1404	1125
11.0	120	180	240	1430	1145
11.2	120	180	245	1456	1165
11.4	125	185	245	1482	1185
11.6	125	190	250	1508	1205
11.8	130	190	255	1534	1225

Weight of child (kg)	Volume of F-75 per feed (ml) ^a			Daily total (130 ml/kg)	80% of daily total ^a (minimum)
	Every 2 hours ^b (12 feeds)	Every 3 hours ^c (8 feeds)	Every 4 hours (6 feeds)		
12.0	130	195	260	1560	1250
12.2	130	200	265	1586	1270
12.4	135	200	270	1612	1290
12.6	135	205	275	1638	1310
12.8	140	210	275	1664	1330
13.0	140	210	280	1690	1350
13.2	145	215	285	1716	1375
13.4	145	220	290	1742	1395
13.6	145	220	295	1768	1415
13.8	150	225	300	1794	1435
14.0	150	230	305	1820	1455
14.2	155	230	310	1846	1475
14.4	155	235	310	1872	1500
14.6	160	235	315	1898	1520
14.8	160	240	320	1924	1540
15.0	165	245	325	1950	1560
15.2	165	245	330	1976	1580
15.4	165	250	335	2002	1600
15.6	170	255	340	2028	1620
15.8	170	255	340	2054	1645
16.0	175	260	345	2080	1665
16.2	175	265	350	2106	1685
16.4	180	265	355	2132	1705
16.6	180	270	360	2158	1725
16.8	180	275	365	2184	1745
17.0	185	275	370	2210	1770
17.2	185	280	375	2236	1790
17.4	190	285	375	2262	1810
17.6	190	285	380	2288	1830
17.8	195	290	385	2314	1850
18.0	195	295	390	2340	1870
18.2	195	295	395	2366	1895
18.4	200	300	400	2392	1915
18.6	200	300	405	2418	1935
18.8	205	305	405	2444	1955
19.0	205	310	410	2470	1975
19.2	210	310	415	2496	1995
19.4	210	315	420	2522	2020
19.6	210	320	425	2548	2040
19.8	215	320	430	2574	2060
20.0	215	325	435	2600	2080

^a Volumes in these columns are rounded to the nearest 5 ml.

^b Give 2-hourly feeds for at least the first day. When there is little or no vomiting, moderate diarrhoea (< 5 watery stools per day), and the child finishes most feeds, change to 3-hourly feeds.

^c After a day on 3-hourly feeds, if there is no vomiting, less diarrhoea, and the child finishes most feeds, change to 4-hourly feeds.

Stabilisation Phase Reference Tables for F-75 for Children with Severe Bilateral Pitting Oedema (Kwashiorkor) (+++)

Weight with +++ oedema (kg)	Volume of F-75 per feed (ml) ^a			Daily total (100 ml/kg)	80% of daily total (minimum)
	Every 2 hours ^b (12 feeds)	Every 3 hours ^c (8 feeds)	Every 4 hours (6 feeds)		
3.0	25	40	50	300	240
3.2	25	40	55	320	255
3.4	30	45	55	340	270
3.6	30	45	60	360	290
3.8	30	50	65	380	305
4.0	35	50	65	400	320
4.2	35	55	70	420	335
4.4	35	55	75	440	350
4.6	40	60	75	460	370
4.8	40	60	80	480	385
5.0	40	65	85	500	400
5.2	45	65	85	520	415
5.4	45	70	90	540	430
5.6	45	70	95	560	450
5.8	50	75	95	580	465
6.0	50	75	100	600	480
6.2	50	80	105	620	495
6.4	55	80	105	640	510
6.6	55	85	110	660	530
6.8	55	85	115	680	545
7.0	60	90	115	700	560
7.2	60	90	120	720	575
7.4	60	95	125	740	590
7.6	65	95	125	760	610
7.8	65	100	130	780	625
8.0	65	100	135	800	640
8.2	70	105	135	820	655
8.4	70	105	140	840	670
8.6	70	110	145	860	690
8.8	75	110	145	880	705
9.0	75	115	150	900	720
9.2	75	115	155	920	735
9.4	80	120	155	940	750
9.6	80	120	160	960	770
9.8	80	125	165	980	785
10.0	85	125	165	1000	800
10.2	85	130	170	1020	815
10.4	85	130	175	1040	830
10.6	90	135	175	1060	850
10.8	90	135	180	1080	865
11.0	90	140	185	1100	880
11.2	95	140	185	1120	895
11.4	95	145	190	1140	910
11.6	95	145	195	1160	930
11.8	100	150	195	1180	945
12.0	100	150	200	1200	960
12.2	100	155	205	1220	975
12.4	105	155	205	1240	990
12.6	105	160	210	1260	1010
12.8	105	160	215	1280	1025
13.0	110	165	215	1300	1040
13.2	110	165	220	1320	1055
13.4	110	170	225	1340	1070
13.6	115	170	225	1360	1090

Weight with +++ oedema (kg)	Volume of F-75 per feed (ml) ^a			Daily total (100 ml/kg)	80% of daily total (minimum)
	Every 2 hours ^b (12 feeds)	Every 3 hours ^c (8 feeds)	Every 4 hours (6 feeds)		
13.8	115	175	230	1380	1105
14.0	115	175	235	1400	1120
14.2	120	180	235	1420	1135
14.4	120	180	240	1440	1150
14.6	120	185	245	1460	1170
14.8	125	185	245	1480	1185
15.0	125	190	250	1500	1200
15.2	125	190	255	1520	1215
15.4	130	195	255	1540	1230
15.6	130	195	260	1560	1250
15.8	130	200	265	1580	1265
16.0	135	200	265	1600	1280
16.2	135	205	270	1620	1295
16.4	135	205	275	1640	1310
16.6	140	210	275	1660	1330
16.8	140	210	280	1680	1345
17.0	140	215	285	1700	1360
17.2	145	215	285	1720	1375
17.4	145	215	290	1740	1390
17.6	145	220	295	1760	1410
17.8	150	225	295	1780	1425
18.0	150	225	300	1800	1440
18.2	150	230	305	1820	1455
18.4	155	230	305	1840	1470
18.6	155	235	310	1860	1490
18.8	155	235	315	1880	1505
19.0	160	240	315	1900	1520
19.2	160	240	320	1920	1535
19.4	160	240	325	1940	1550
19.6	165	245	325	1960	1570
19.8	165	250	330	1980	1585
20.0	165	250	335	2000	1600

^a Volumes in these columns are rounded to the nearest 5 ml.

^b Give 2-hourly feeds for at least the first day. When there is little or no vomiting, moderate diarrhoea (< 5 watery stools per day), and the child finishes most feeds, change to 3-hourly feeds.

^c After a day on 3-hourly feeds, if there is no vomiting, less diarrhoea, and the child finishes most feeds, change to 4-hourly feeds.

Reference Table for Quantity of F-100 to Give to an Individual Child per Feed

Weight of child (kg)	Range of volumes per 3-hourly feed of F-100 (8 feeds daily) *		Range of volumes per 4-hourly feed of F-100 (6 feeds daily) *		Range of daily volumes of F-100	
	Minimum ml	Maximum ml	Minimum ml	Maximum ml	Minimum (150 ml/kg/day)	Maximum (220 ml/kg/day)
2.0	40	55	50	75	300	440
2.2	40	60	55	80	330	484
2.4	45	65	60	90	360	528
2.6	50	70	65	95	390	572
2.8	55	75	70	105	420	616
3.0	55	85	75	110	450	660
3.2	60	90	80	115	480	704
3.4	65	95	85	125	510	748
3.6	70	100	90	130	540	792
3.8	70	105	95	140	570	836
4.0	75	110	100	145	600	880
4.2	80	115	105	155	630	924
4.4	85	120	110	160	660	968
4.6	85	125	115	170	690	1012
4.8	90	130	120	175	720	1056
5.0	95	140	125	185	750	1100
5.2	100	145	130	190	780	1144
5.4	100	150	135	200	810	1188
5.6	105	155	140	205	840	1232
5.8	110	160	145	215	870	1276
6.0	115	165	150	220	900	1320
6.2	115	170	155	225	930	1364
6.4	120	175	160	235	960	1408
6.6	125	180	165	240	990	1452
6.8	130	185	170	250	1020	1496
7.0	130	195	175	255	1050	1540
7.2	135	200	180	265	1080	1584
7.4	140	205	185	270	1110	1628
7.6	145	210	190	280	1140	1672
7.8	145	215	195	285	1170	1716
8.0	150	220	200	295	1200	1760
8.2	155	225	205	300	1230	1804
8.4	160	230	210	310	1260	1848
8.6	160	235	215	315	1290	1892
8.8	165	240	220	325	1320	1936
9.0	170	250	225	330	1350	1980
9.2	175	255	230	335	1380	2024
9.4	175	260	235	345	1410	2068
9.6	180	265	240	350	1440	2112
9.8	185	270	245	360	1470	2156
10.0	190	275	250	365	1500	2200
10.2	190	280	255	375	1530	2244
10.4	195	285	260	380	1560	2288
10.6	200	290	265	390	1590	2332
10.8	205	295	270	395	1620	2376
11.0	205	305	275	405	1650	2420
11.2	210	310	280	410	1680	2464
11.4	215	315	285	420	1710	2508

11.6	220	320	290	425	1740	2552
11.8	220	325	295	435	1770	2596
12.0	225	330	300	440	1800	2640
12.2	230	335	305	445	1830	2684
12.4	235	340	310	455	1860	2728
12.6	235	345	315	460	1890	2772
12.8	240	350	320	470	1920	2816
13.0	245	360	325	475	1950	2860
13.2	250	365	330	485	1980	2904
13.4	250	370	335	490	2010	2948
13.6	255	375	340	500	2040	2992
13.8	260	380	345	505	2070	3036
14.0	265	385	350	515	2100	3080
14.2	265	390	355	520	2130	3124
14.4	270	395	360	530	2160	3168
14.6	275	400	365	535	2190	3212
14.8	280	405	370	545	2220	3256
15.0	280	415	375	550	2250	3300
15.2	285	420	380	555	2280	3344
15.4	290	425	385	565	2310	3388
15.6	295	430	390	570	2340	3432
15.8	295	435	395	580	2370	3476
16.0	300	440	400	585	2400	3520
16.2	305	445	405	595	2430	3564
16.4	310	450	410	600	2460	3608
16.6	310	455	415	610	2490	3652
16.8	315	460	420	615	2520	3696
17.0	320	470	425	625	2550	3740
17.2	325	475	430	630	2580	3784
17.4	325	480	435	640	2610	3828
17.6	330	485	440	645	2640	3872
17.8	335	490	445	655	2670	3916
18.0	340	495	450	660	2700	3960
18.2	340	500	455	665	2730	4004
18.4	345	505	460	675	2760	4048
18.6	350	510	465	680	2790	4092
18.8	355	515	470	690	2820	4136
19.0	355	525	475	695	2850	4180
19.2	360	530	480	705	2880	4224
19.4	365	535	485	710	2910	4268
19.6	370	540	490	720	2940	4312
19.8	370	545	495	725	2970	4356
20.0	375	550	500	735	3000	4400

* Volumes per feed are rounded to the nearest 5 ml.

Reference Table for Amounts of RUTF to Give Children per Day or Week, Based on 92 g Packets Containing 500 Kcal

Weight of Child (kg)	Packets per Day	Packets per Week
3.5–3.9	1.5	10
4.0–4.4	1.5	11
4.5–4.9	1.75	12
5.0–5.9	2	14
6.0–6.9	2.5	17
7.0–7.9	3	20
8.0–8.9	3.25	23
9.0–9.9	3.75	26
10.0–11.9	4	28
≥ 12.0	5	35

RUTF Key Messages

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

Annex D: Reference Tables for Infants < 6 Months

Reference Table for Maintenance Amounts of F-100 Diluted to Give to an Individual Infant per Feed

Body weight (kg)	F-100 Diluted per feed (assumes 8 feeds per day, given 3-hourly)
≥ 1.2	25 ml per feed
1.3–1.5	30
1.6–1.7	35
1.8–2.1	40
2.2–2.4	45
2.5–2.7	50
2.8–2.9	55
3.0–3.4	60
3.5–3.9	65
4.0–4.4	70

Reference Table for Amounts of F-100 Diluted (Wasting) or F-75 (Bilateral Pitting Oedema) to Give to Non-breastfed Infants in the Stabilisation Phase

Body weight (kg)	F-100 Diluted or F-75 (ml per feed), 8 feeds per day, no breastfeeding (3-hourly feeds)
≤ 1.5	30
1.6–1.8	35
1.9–2.1	40
2.2–2.4	45
2.5–2.7	50
2.8–2.9	55
3.0–3.4	60
3.5–3.9	65
4.0–4.4	70

Reference Table for Amounts of F-100 Diluted to Give to Non-breastfed Infants 0–6 Months or Older Infants Weighing Less Than 3.0 Kg in the Transition Phase

Body weight (kg)	F-100 Diluted (ml per feed), 8 feeds per day, no breastfeeding (3-hourly feeds)
≤ 1.5	45
1.6–1.8	53
1.9–2.1	60
2.2–2.4	68
2.5–2.7	75
2.8–2.9	83
3.0–3.4	90
3.5–3.9	96
4.0–4.4	105

Reference Table for Amounts of F-100 Diluted to Give to Non-breastfed Infants 0–6 Months or Older Infants Weighing Less Than 3.0 Kg in the Rehabilitation Phase

Body weight (kg)	F-100 Diluted (ml per feed), 6 to 8 feeds per day, no breastfeeding
≤ 1.5	60
1.6–1.8	70
1.9–2.1	80
2.2–2.4	90
2.5–2.7	100
2.8–2.9	110
3.0–3.4	120
3.5–3.9	130
4.0–4.4	140

Preparation of F-100 Diluted

Red scoop of F-100	Water (ml)	
1	24	
2	28	
3	72	
4	96	
5	120	
6	144	
7	168	
8	192	
9	216	
10	240	
Sachets of F-100	Water (ml)	Volume of F-100 Diluted
1 sachet	670	700
2 sachets	1,350	1,500

Annex E: Monitoring Danger Signs in Inpatient Management of SAM

Vital signs*	Normal Ranges	Danger Signs	Danger sign could suggest:
Appetite	Good appetite is eating well, asking for more, passing observed RUTF appetite test	Anorexia, appetite loss, no re-gain of appetite after stabilisation treatment	Failure to respond to treatment Infection
Blood glucose	≥ 3 mmol/L or ≥ 54 mg/dl	< 3 mmol/L or < 54 mg/dl; sleeping with eyelids open	Hypoglycaemia
Cold extremities	None	Cold hands (check with back of the hand) with capillary refill longer than 3 seconds and/or weak and fast pulse	Shock
Haemoglobin (Hb)	≥ 4 g/dl or ≥ 6 g/dl with respiratory distress	Severe pallor; Hg < 4 g/dl or < 6 g/dl with respiratory distress	Severe anaemia Anaemic heart failure
Mental state	Clinically well and alert	Change in mental state, drowsy, lethargic, unconscious	Shock, failure to respond to treatment, severe infection
Oedema	None	New oedema, eyelid oedema (puffy eyes), increasing oedema	Fluid overload No response to treatment
Pulse rate	0–2 months: Pulse 80–160 beats/minute 2–12 months: Pulse 80–160 beats/minute 12–60 months: Pulse 80–140 beats/minute	Increase in pulse rate of ≥ 25 beats/minute	Many reasons, including crying and fear
Respiratory rate	0–2 months: < 60 breaths/minute** 2–12 months: < 50 breaths/minute** 12–59 months: < 40 breaths/minute	Fast breathing (0–2 months ≥ 60 breaths/minute; 2–12 months: ≥ 50 breaths/minute; 12–59 months: ≥ 40 breaths/minute), difficult laboured breathing	Fast breathing: pneumonia
Pulse AND respiratory rate	See above	Increase in pulse rate of ≥ 25 beats/minute along with increase in respiratory rate of ≥ 5 breaths/minute (Other signs: enlarged liver, distension of jugular veins, eyelid oedema, gallop rhythm, fine crackles in the lungs)	Congestive heart failure (possibly from over-hydration due to feeding or rehydrating too fast) Infection
Stool	Normal stool (< 3 loose stools per day)	Fluid loss by 3 or more loose stools per day, and recent sunken eyes, watery, mucoid or bloody diarrhoea; persistent diarrhoea (for > 14 days)	Dehydration Infection Osmotic or lactase diarrhoea
Temperature	Axillary temperature ≥ 35.0°C and < 37.5°C (Rectal temp. readings are 0.5°C higher)	Any sudden increase or decrease in temperature, very low < 35.0°C or very high ≥ 38.5°C temperature	Infection; hypothermia (child being uncovered, missed feed)
Urine	Normal	Increased frequency of passing urine, pain on passing urine, no passing urine, positive dipstick	Urinary tract infection
Vomiting	None	Fluid loss by severe vomiting, and recent sunken eyes	Dehydration
Weight and weight gain	See WHO growth and weight velocity charts	Weight loss (in the absence of oedema), weight gain during stabilisation (in the absence of rehydration), static weight during rehabilitation, large weight changes	Failure to respond to treatment

* Other danger signs to watch for, e.g., cyanosis, convulsions, petechiae (bruising) or purpura, abdominal distension, jaundice.

** Infants < 12 months will normally breath fast without having pneumonia. Unless the infant's normal respiratory rate is known to be high, assume either overhydration or pneumonia. Careful evaluation and taking into account prior fluid administration will help differentiate the two conditions and plan appropriate treatment. Infants < 2 months may have normal periods of apnoea.

Annex F: Example Outline of a Teaching Session

Below is an outline of a teaching session that could be used with mothers of children with SAM. The purpose of the training session is to teach mothers how to prepare a nutritious food at home.

This home-based food, *phala* with whole maize flour, groundnut flour and pumpkin leaves, would be appropriate for children of ages 6–24 months when they have recovered and are eating at home. The recipe given makes 589 g of cooked food (cooked soft). The recipe provides 115 kcal and 2.9 g protein per 100 g.

The outline contains information, examples, visual aids and practice. It also includes opportunities for mothers to ask questions and contribute ideas.

Although local foods in your area are likely to be different, a similar teaching outline could be used.

Teaching Session: Preparing *phala* with whole maize flour, groundnut flour and pumpkin leaves (home-based food)⁴

Preparation: Before the teaching session, prepare a display tray with ingredients for whole maize flour porridge with groundnut flour and pumpkin leaves. Also begin preparing a recipe for whole maize flour porridge with groundnut flour and pumpkin leaves (see below). Boil the vegetables and put aside as the session begins. During the teaching session you will finish the recipe.

1. What is *Phala*?

- A. **Information.** *Phala* made from whole maize flour (*mgaiwa*), groundnut flour and chopped pumpkin leaves (*nkhwani*) is a nutritious home-based food for children. It will help children continue to recover at home. This food should be given in addition to breast milk or breast milk substitute. While this food should definitely be given to the child, the rest of the family may like this food too; if so, prepare enough for the whole family.
- B. **Example.** Display the following ingredients on a tray. Call attention to the amount of each.

<i>Mgaiwa</i>	handful	125 g
Groundnut flour	fistful	50 g
Pumpkin leaves	fistful	75 g
Water		500 ml
Sugar	2 teaspoons	10 g

(If preparing for children with SAM who are still recovering, do not add salt, since sodium should be limited.)

⁴ SUN 1000 Special Days. Community counselling package. Section 2.2.2 complementary feeding from 6-9 months. pp 26-27.

- C. **Discussion.** Ask the mothers why they think these ingredients are good for children and all family members. In discussion, explain that:
- Whole maize flour, rice (or other staple, such as potatoes) are needed to give energy
 - Groundnuts are needed to build and grow the body
 - Leafy green vegetables are needed to give strength and good health and also to prevent blindness.

2. How to make *phala* with whole maize flour, groundnut flour and pumpkin leaves

- A. **Information and example.** Describe the recipe, pointing to each ingredient on the tray as you talk. If the mothers can read, the recipe may be given to them in writing. If not, a picture recipe may be used. Tell mothers what you have already done to begin the cooking.
- Wash hands before preparing food.
 - Put water in pot and let it warm up then add whole maize flour little by little and stir until a thick paste is formed.
 - Keep pot covered during cooking.
 - Five minutes before the porridge is cooked, add the groundnut flour and let it boil for another five minutes then add the already cooked vegetables then serve.
- B. **Practice.** When it is time to prepare the vegetables, have a mother do so. Have a mother clean and chop the leaves and boil them then add to the porridge.

3. Amount to serve

- A. **Information and example.** Children should be fed five times per day. Explain that the amount in the pot is enough for two meals for a 1-year-old child. Cook it twice daily to make four meals. Increase amounts if the whole family will eat it.
- Remind mothers to wash their hands before serving food and keep food covered. Do not store for too long or the food may spoil.
- Focus on giving this food to the discharged child until he or she is better. Then the child can shift to other nutritious family foods.
- B. **Practice.** Ask a mother to wash her hands and serve two portions of food from the pot. Show mothers that this is the correct serving size for a 1-year-old. Show and describe the portion in relation to the size of the bowl or plate. Let mothers (and children, if present) taste the porridge.

4. Discussion and review

- A. **Discussion.** Ask mothers questions about how they can prepare whole maize flour porridge with groundnut flour and pumpkin leaves at home. Encourage them to ask questions as well. Include in the discussion:

- How much do you think the porridge costs? The price for this recipe is about K 350, including firewood.
- Who goes shopping for food in your family? Will they be willing to buy ingredients for the porridge?

B. Review

- What are the reasons to serve whole maize flour porridge with groundnut flour and pumpkin leaves? To prevent and treat malnutrition, to prevent blindness, to ensure strong and good health.
- How often should you feed your child whole maize flour porridge with groundnut flour and pumpkin leaves? ___ times per day.
- How much will you give at each meal? Show serving size.
- How will you prepare whole maize flour porridge with groundnut flour and pumpkin leaves? Review the ingredients and recipe.

Annex G: Referral Form

Name of child		Registration #	
Date of referral		Time	
Initial treatment facility name		OTP (<i>tick as appropriate</i>): <input type="checkbox"/>	NRU (<i>tick as appropriate</i>): <input type="checkbox"/>
Referral treatment facility name		OTP (<i>tick as appropriate</i>): <input type="checkbox"/>	NRU (<i>tick as appropriate</i>): <input type="checkbox"/>
Age	Oedema	MUAC	WFH/L Temperature
Reason for referral			
Treatment given before referral			
Name of person referring child			
Position			
Signature			

Annex H: Information in the Child Health Passport

This sample discharge information⁵ is contained in the girl/boy child health passport and used to counsel the caregiver during discharge.

IMMUNISATION RECORD					
Protected at Birth (PAB) Yes <input type="checkbox"/> No <input type="checkbox"/>					
AGE	VACCINE	DATE GIVEN (DD/MM/YYYY)	BATCH NUMBER	INITIALS	DATE OF NEXT VISIT
At birth	BCG				Scar seen Yes <input type="checkbox"/> No <input type="checkbox"/>
If no scar seen after 12 weeks, repeat dose Date dose repeat given / /					
0 - 14 days	OPV 0				
At 6 weeks	OPV 1				
	Rota 1				
	DPT - HepB-Hib 1				
	PCV 1				
1 month after 1 st dose	OPV 2				
	Rota 2				
	DPT - HepB-Hib 2				
1 month after 2 nd dose	PCV 2				
	OPV 3				
At 14 weeks	DPT - HepB-Hib 3				
	PCV 3				
At 14 weeks	IPV				
9 - 11 months	Measles 1				
15 - 23 months	Measles 2				

Check mother's HIV status. If HIV positive, has child tested for HIV

VITAMIN A SUPPLEMENTATION

Give Vitamin A every 6 months from 6 months of age until 5 years. Dosage: 100,000 IU below 12 months and 200,000 IU from 12 months.

Age range (months)	Date given	Age range (months)	Date given
6 - 11		36 - 41	
12 - 17		42 - 47	
18 - 23		48 - 53	
24 - 29		54 - 59	
30 - 35			

DE-WORMING SCHEDULE

Give de-worming tablets every 6 months from 12 months of age. Dosage:

Albendazole, (200 mg) for children aged 12-23 months.

Albendazole, (400 mg) for children aged 24-59 months OR

Mebendazole, (500 mg) for children aged 12-59 months

Age range	Date given	Age range	Date given
12 - 17		36 - 41	
18 - 23		42 - 47	
24 - 29		48 - 53	
30 - 35		54 - 59	

LLIN for Malaria

Date given / /

1

⁵ All pages are adapted from the Malawi Ministry of Health (MOH) Health Passport, Girl and Boy Child Health Profile – Revised December 2014

Uthenga ofunika wa m'mene tingadyetsere mwana wa chaka chimodzi (12) mpaka atakula kufika zaka ziwiri (miyezi 24) kapena kupitilira apo

1. Yambani kumudyetsa chakudya choonjezera kawiri kapena katatu pa tsiku ndipo pitirizani kuyamwitsa mwana wanu pafupipafupi usiku ndi usana ndi cholinga choti mwanayu apitilire kukula ndi mphamvu komanso thanzi
2. Mdyetseni mwana wanu zakudya zimene anthu ena onse amadya pa banjapo kosachepera katatu kapena kasanu pa tsiku monga: mazira, nsomba, nyama, mafuta, zipatso, chinangwa, mbatata, tomato, mabilinganya, kaloti, masamba wobiliwira monga chisoso, nkhwani, molinga, bonongwe ndi kholowa.
3. Mpateninso mwanayu zakudya zina zochotsa njala kosachepera kawiri patsiku kuti mwana akule bwino komanso moyenera.
4. Pamene mwana akudwala, mudzimuyamwitsa pafupipafupi komanso kumudyetsa zakudya zina zopatsa thanzi kuti achire msanga
5. Onetsetsani kuti mwanayo mwamupatsa chakudya mu mbale ya yekha ndiponso kuti wamaliza chakudya chake.



NJIRA ZABWINO ZOSAMALIRA UMOYO WA MWANA WANU

1. Sambani m'manja ndi sopo musanayambe kudyetsa mwana. Onetsetsaninso kuti mwamusambitsa mwanayo m'manja ndi sopo asanayambe kudya.
2. Sambani m'manja mwanu ndi sopo komanso madzi aukhondo mukachoka ku chimbudzi, mukasintha thewera kapena kuchotsa chimbudzi cha mwana.
3. Mwana akawanitsa miyezi isanu ndi umodzi alandire Vitamini A owonjezera ndipo apitirize kulandira Vitamini A ameneyu pamiyezi isanu ndi umodzi uliwonse mpaka atakwana zaka zisanu (5) zakubadwa.
4. Mwana wanu alandire mankhwala a njoka za m'mimba pamiyezi isanu ndi umodzi uliwonse ngati mwanayo wakwanitsa chaka chimodzi chakubadwa.



15

KADYETSEDWE NDI KASAMALIDWE KOYENERA KWA MWANA

Mwana ongobadwa kumene kufikira miyezi isanu ndi umodzi (6)

1. Yamwitsani mwana wanu wongobadwa kumene mkaka wa m'mawere wokha mwakathithi kwa miyezi isanu ndi umodzi ndipo musampatse madzi kapena zakumwa ndi zakudya zina zilizonse.
2. Yamwitsani mwana wanu mwakathithi kosachepera kasanu ndi katatu usana ndi usiku kuti mawere aziha kupanga ndi kutulutsa mkaka okwanira nthawi zonse kuti mwana azikhuta ndiponso akhale wa thanzi.
3. Yamwitsani mwana wanu mkaka wa bere limodzi kufikira mkaka uthereu musanampatse bere linalo kuti mwana athe kuyamwa mkaka umene umatuluka koyambirira komanso omwe umatuluka kumapeto ngati mwana wayamwa nthawi yayitali.
4. Ikani mwana wanu ku bere moyenerera kuti ayamwe bwino, komanso kuti mkaka utuluke wambiri ndi kuti mawere anu asachite zironda kapena kutupa.
5. Ngati mayi kapena mwana wadwala, mayi apitilize kuyamwitsabe mwana wake pafupipafupi chifukwa mkaka wa m'mawere umateleza mwana ku matenda.



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Uthenga ofunika wa m'mene tingadyetsere mwana wa miyezi isanu ndi umodzi (6) mpaka atakula kufika chaka chimodzi (12)

1. Yambani kumudyetsa mwana wanu zakudya zina zopatsa thanzi kawiri kapena katatu kuwonjezera pa mkaka wa m'mawere.
2. Pitirizani kumuyamwitsa mwana wanu mkaka wa m'mawere kosachepera kasanu ndi katatu usiku ndi usana mpaka atakwana zaka ziwiri.
3. Ana opyola miyezi isanu ndi umodzi ayenera kudya chakudya cha kasinthasintha chochokela ku magulu asanu ndi limodzi monga phala lothiramo nsinjiro, peyala, masamba, nsomba, mafuta ophikira kapena dzira kuti akule ndi thanzi.
4. Mpateni mwana chakudya chowonjezera chochotsa njala (snack) kawiri pa tsiku monga nthochi, chikondamoyo, mango akupsya, papaya, peyala ndi zipatso zina, komanso zakudya zina monga chitumbuwa, mandazi, masikono, mbatata ngati wafika miyezi isanu ndi umodzi (6) mpaka chaka chimodzi.
5. Khalani odekha ndipo limbikitsani mwana wanu pamene akudya chakudya. Onetsetsani kuti mwanayo mwamupatsa chakudya mu mbale ya yekha.
6. Pamene mwana wanu akudwala, mudzimuyamwitsa pafupipafupi komanso kumudyetsa zakudya zina zopatsa thanzi kuti achire msanga.



KUFUNIKA KOLEMBETSA MWANA MU KAUNDULA WAKUBADWA

1. Kulembetsa mwana wanu akabadwa ndikofunika chifukwa zimapereka umboni kapena chitsimikizo kuboma kuti mwanayu alipo ndipo ndi mbadwa ya dziko lino, zomwe zimathandiza boma kupereka chitetezo choyenera kwa mwanayu ku nkhazi zosiyanasiyana pamene akukula
2. Kulembetsa mwana wanu mukaundula wa ana wobadwa kumene ndikwaulere komanso mwana aliyense akuyenera kulembetsedwa. Ngati kabokosi kali pamwamba patsamba loyamba la chiphasochi yosonyeza kubadwa kwa mwana wanu (birth certificate) ndi kosalembedwa funsani azachipatala kuti akuthandizeni.
3. Onetsetsani kuti bokosi lili pamusipa mwalembamo zinthu zonse zofunikira pa kalemba wa mwana wanu ndicholinga choti azachipatala akupatseni thandizo loyenera.



Dzina la Mwana	
Dzina la mayi wa mwana	
Dzina la bambo wa mwana	
Tsiku lobadwa	/ /
Malo obadwira	
Mudzi, Mfumu yayikulu ndi Boma	

Birth Certificate Number

16

UTHENGA WOTETEZA ANA NDIKUSAMALIRA KUKULA BWINO KWAWO

1. Musamusiye mwana payekha popanda womuyang'anira. Ana ang'ono amafunika kuyang'aniridwa nthawi zonse. Muonetsetse kuti mukumuyang'anira mwana wanu, kapena musiyire munthu wodalirika. Ngozi zoopsa zitha kuchitika ngati ana sakuyang'aniridwa bwino. Onetsetsani kuti mwana wanu asayandikire zinthu zoopsa monga mpeni, sizasi, kapena madzi owira zomwe zingamuvulaze mwana wanu.
2. Mwana wanu akhoza kukhumudwa kapena kusangalala. Nthawi zonse mulankhureni mwana wanu modekha, musamukalipire mokweza mawu ngakhale mutakwiya chotani. Kulera mwana motere kwamwonetsa chikondi kwa mwana, ndipo amakula osadzikaikira.
3. Ana ang'ono amakhala ogwira gwira komanso achidwi. Zaka ziwiri zoyambirira m'moyo wa mwana ndi zofunikira kwambiri kuti bongo ukhale wokhwima bwino. Yankhulani ndi kumuyimbira nyimbo mwana wanu kawiri kawiri ndipo muwonetsereni chikondi nthawi zonse. Izi zimathandiza kumanga maziko akukula msinkhu, nzeru ndi kukhwima m'maganizo kwa mwana wanu. Mukambireni nthano za ana ndi kumuyimbira nyimbo zachikhalidwe cha makolo.



Annex I: Summary of Discharge Criteria

NRU	OTP	SFP
<p>STABILISED AND REFERRED TO OUTPATIENT CARE</p> <p>Appetite returned (passed appetite test for RUTF; the child is eating more than 75% of daily prescription of RUTF) and start of weight gain</p> <p>AND Medical complications resolving</p> <p>AND If bilateral pitting oedema on admission, bilateral pitting oedema decreasing</p> <p>AND If marasmic kwashiorkor on admission, bilateral pitting oedema resolved</p> <p>AND Clinically well and alert</p> <p>FULL RECOVERY IN INPATIENT CARE</p> <p><u>Children 6–59 months</u></p> <ul style="list-style-type: none"> • MUAC \geq 12.5 cm • WFH/L z-score \geq -2 • No bilateral pitting oedema for two consecutive weeks • Clinically well and alert <p><u>Children 5–15 Years</u></p> <ul style="list-style-type: none"> • MUAC \geq 14.5 cm (5–9 years) • MUAC \geq 18.5 cm (10–15 years) <p>AND</p> <ul style="list-style-type: none"> • No bilateral pitting oedema for 2 consecutive weeks • Clinically well and alert <p><u>Infants < 6 months (Breastfeeding)</u></p> <ul style="list-style-type: none"> • Successful re-lactation with effective suckling • Good appetite, clinically well and alert • Weight gain with exclusive breastfeeding is satisfactory <p><u>Infants < 6 months (Not Breastfeeding)</u></p> <ul style="list-style-type: none"> • WFL z-score \geq -2 for 2 consecutive weeks • No oedema for 2 consecutive weeks • Clinically well and alert, no medical problems 	<p><u>Children 6–59 Months</u></p> <p>MUAC \geq 12.5 cm</p> <p>AND WFH/L z-score \geq -3</p> <p>AND No bilateral pitting oedema for 2 consecutive weeks</p> <p>AND Clinically well and alert</p> <p><u>Children 5–15 Years</u></p> <p>MUAC \geq 14.5 cm (5–9 years)</p> <p>MUAC \geq 18.5 cm (10–15 years)</p> <p>AND No bilateral pitting oedema for 2 consecutive weeks</p> <p>AND Clinically well and alert</p>	<p><u>Children 6–59 Months</u></p> <p>MUAC \geq 12.5 cm</p> <p>AND WFH/L z-score \geq -2</p> <p>AND No bilateral pitting oedema</p> <p>AND Clinically well and alert for two consecutive visits</p> <p>NOTE: Children referred to the SFP from the OTP or NRU should be discharged after 1 month of follow-up in the SFP</p> <p><u>Children 5–15 Years</u></p> <p>MUAC: 5–9 years: \geq 14.5 cm</p> <p>10–15 years: \geq 18.5 cm</p> <p>AND No bilateral pitting oedema</p> <p>AND Clinically well and alert for two consecutive visits</p> <p><u>Pregnant and lactating women</u></p> <p>MUAC \geq 22.5 cm for 2 consecutive visits</p> <p>OR</p> <p>Child reaches 6 months of age</p>

Annex J: Answers to Exercises

Section 1: Principles of care

Answers to Short Exercise, page 29

Fill in the blanks:

1. Two conditions that are related and must be treated immediately in a child with SAM are hypoglycaemia and hypothermia.
2. If a child with SAM has diarrhoea, a special rehydration solution called ReSoMal should be given. This solution has less sodium and more potassium than standard low-osmolarity ORS. Note: ReSoMal also has more sugar than low-osmolarity ORS.
3. True
4. True
5. True
6. False

Section 2: Feeding

Answers to short answer exercise, page 39

Child 1: 110 ml F-75

Child 2: 90 ml F-75 (*When the weight is not on the feeding table, use the next lower weight. Use the regular feeding table for a child with mild oedema.*)

Child 3: 45 ml F-75 (*Use feeding table for children with severe oedema.*)

Child 4: 15 ml F-75 every half hour (*Divide 2-hourly amount for severely oedematous child by 4.*)

Child 5: 210 ml F-75 (*Use regular table since child has only moderate oedema.*)

Answers to short answer exercise, page 46

1. Mateyu's feeding day began at 8:00 and ended at 6:00 the next morning.
2. 12 times.
3. Mateyu was offered 45 ml each time.
4. No, 30 ml is only about 66% of 45 ml.
5. No.
6. He refused most of the feed and vomited the small amount that he took.
7. He was fed by NG tube. The staff realised that he had not taken enough by mouth for three successive feeds. (*Note: They could have started the NG tube after 2 poor feeds.*)
8. He was fed as much as he would take orally; then he was given the rest by NG tube.

9. Yes, he took about 88%.
10. 455 ml (320 ml taken orally + 145 ml taken by NG tube – 10 ml vomited).
11. No, the NG tube should not be removed. Mateyu took almost all of the last two feeds by mouth, but he is still leaving a little bit (more than 20%). When he takes two consecutive feeds completely by mouth, or eats 80% of the feed, the tube should be removed.

Answers to short answer exercise, page 84

1. Answers B, C and D should be checked.
2. Answers A, B, C and E should be checked.
3. Answer B should be checked. Answers A and D may be appropriate in certain circumstances. If the mother is extremely tired, it may be best to let her sleep and feed the child yourself. If several mothers can be trusted to take turns feeding and sleeping, then answer D may be appropriate.
Answer c would make the mother feel guilty and afraid, and would never be appropriate

Answers to short answer exercise, page 93

1. 36.4°C 30 breaths/minute 92 beats/minute
2. Answer b should be checked.
3. There has been no significant change in the child's pulse rate.
4. Yes, the respiratory rate increased from 35 to 40 beats per minute between 10:00 and 14:00 on day 4.
5. A temperature of 38°C, a pulse rate of 100 beats/minute and a respiratory rate of 45 breaths/minute should be entered on the Monitoring Chart.
6. Yes, there is a danger sign. There is a sudden increase in temperature. Also, the respiratory rate has again increased by 5 breaths/minute and is at 45, which is considered fast breathing for a 2-year-old. The physician should be called.

Answers to short answer exercise, page 105

1. See below.
2. 4.7 kg on days 6 and 7.
3. Yes, the child has made progress in two ways. First, she lost her oedema, and her weight fell to her true weight of 4.7 kg. Then she put on new tissue and her weight increased to 5.3 kg.

