



Republic of Uganda
Ministry of Health

OUTPATIENT CARE OF CHILDREN WITH ACUTE MALNUTRITION

TRAINERS' MANUAL

September 2007

Acknowledgement

The outpatient care (OTC) of children with acute malnutrition Intervention is being piloted in Uganda with support from partners, especially the Clinton Foundation. This training package has been developed with concerted effort from a number of partners and individuals.

The Ministry of Health extends special gratitude to the lead consultant; Dr Hanifa Bachou who prepared this document with support from Clinton Foundation, UNICEF, WFP, WHO and FANTA/RCQHC.

Special recognition is extended to the technical team that provided input throughout the development process of this training package. Sincere thanks go to the following technical team for their contributions: Dr Elizabeth Madraa, Dr Soul Onyango, Samalie Bananuka, Babugirana G. (STD/ACP, MOH), Ursula Wangwe, Barbara Tembo, Christine Orone-Kanya, Alex Mokori (Child Health, MOH), Palesa Melvin (Clinton Foundation), Yvonne (WFP), Brenda Kaijuka, Patrizia Fracassi (UNICEF), Dr G. Bisoborwa (WHO), Dr Elizabeth Kiboneka, Katherine Otim, Peter Tyaba Lwanga, Dr Jennifer Mugisha, Florence Nalubowa (Mwanamugimu Nutrition Unit, Mulago), Dr Robert Mwadime (FANTA/RCQHC), Hanifa Namusoke (Mild May International).

The Ministry further extends sincere appreciation to the staff of Mwanamugimu Nutrition Unit and those, whose names may not have been mentioned for their contribution to the process of development of this training package.

Thank you

TABLE OF CONTENTS

TABLE OF CONTENTS.....	2
COURSE INTRODUCTION	3
INTRODUCTION OF THE PILOT INTERVENTION.....	4
SESSION 1: BASICS OF ACUTE MALNUTRITION	6
Lecture Notes: Overview of Acute Malnutrition	7
Lecture Notes: Assessment for Acute Malnutrition.....	8
Lecture Notes: Classification of acute malnutrition, types of care and criteria for selection of care	18
Clinical Session: Clinical Signs Of Acute Malnutrition	24
Group Practical 1 – Taking Weight, Height, Length, MUAC	25
Drill Exercises.....	26
Case Study	28
SESSION 2: NUTRITION AND HIV.....	29
Lecture note: Nutrition and HIV infection.....	30
Plenary Exercise.....	33
SESSION 3: RUTF IN MANAGEMENT OF ACUTE MALNUTRITION.....	34
Lecture notes: The RUTF : Plumpy’Nut	35
Practical: Feeding Malnourished Children Plumpy’Nut.....	40
Case Study	41
SESSION 4: OUTPATIENT CARE OF ACUTE MALNUTRITION.....	43
Lecture notes: Setting up and Management of OTC	44
Site-Visit	52
Case Study	53
SESSION 5: REPORTING AND MONITORING OF OUTPATIENT THERAPEUTIC CARE.....	55
Lecture notes: Overview of Reporting & Monitoring	56
Lecture Note: Logistic & Supply of Outpatient Therapeutic Care	62
Practical: Logistics and supplies	64
ANNEXES.....	65
OTC CLIENT CARD	65
OTC RATION CARD	66
WFP STACK RECORD.....	67
PHYSICAL STOCK TAKING RECORD	68

COURSE INTRODUCTION

THE USE OF *READY TO USE THERAPEUTIC FOOD* (RUTF) IN MANAGEMENT OF ACUTE MALNUTRITION IN OTC PROGRAMS

COURSE OBJECTIVES

To enable service providers to develop skills needed to support care givers in the outpatient management of acute malnutrition in children & adolescents using RUTF.

SCOPE OF THE COURSE

- 3 Day course which covers 5 broad areas
 - Basic facts of Acute Malnutrition and Anthropometry
 - HIV and Nutrition
 - RUTF in Management of Acute Malnutrition
 - Outpatient Care of Acute Malnutrition
 - Reporting and monitoring of OTC

TEACHING METHODS

- Classroom sessions
- Clinical practice on wards
- Practicum on anthropometry and administering plumpy'nut
- Lectures
- Brainstorming
- Exercises
- Group discussion and plenary presentation
- Site visit to a supplementary feeding program

COURSE REQUIREMENTS

- Basic knowledge on malnutrition, assessment of nutritional status, HIV/AIDS.
- Attend all the sessions.
- Active participation.
- Demonstrate the ability to use all the knowledge and skills acquired.

ROLES OF IMPLEMENTORS

- Screen for malnutrition in children and adolescents.
- Identify children with acute malnutrition and refer them for appropriate type of care.
- Identify HIV exposed children and provide necessary support and care.
- Provide quality services in the Outpatient Care for children and adolescents with acute malnutrition.
- Share information on the status of the implementation of the OTC intervention on regular basis.

INTRODUCTION OF THE PILOT INTERVENTION

NUTRITION CARE AND SUPPORT FOR THE MALNOURISHED CHILDREN & ADOLESCENTS IN UGANDA

Malnutrition and HIV/AIDS are problems of public health importance. There is a strong link between HIV/AIDS and malnutrition. Over 30% of the malnourished children are HIV infected. More than 50% of HIV infected children at the initiation of ART have moderate malnutrition

Justification

Malnutrition remains a significant problem among the HIV children even among those on HAART. Inadequate food intake and infections, lack of appetite, high energy and nutrient needs not met by traditional meals. Poor nutritional status associated with reduced survival rates accelerated disease progression, diminished response to treatment, high susceptibility to opportunistic infections and poor quality of life. Supplementation using high energy and nutrient dense food (RUTF) has been proved to be effective in stabilizing and rehabilitating severely malnourished children in improving clinical response to ARVs and in improving quality of life.

Goal and objectives

Goal

To improve paediatric care through good nutrition

Objectives

- To provide optimal nutrition support to malnourished children and adolescents to facilitate quicker recovery using RUTF.
- To improve adherence and effectiveness of ART in children and adolescents.

Target

Malnourished children between 6 months to 18 years will be screened at various points of contact including: Health facility at children wards, paediatric social support groups, outpatient clinics, community dept, ART clinics, Nutrition units, Immunization points / YCC and counselling units. At all these points, screening for malnutrition will be done and children will be referred for further assessment and necessary action will be taken.

Children with severe malnutrition with no medical complications will be enrolled while those with complications will be treated in inpatient care according to the national protocol.

Nutrition treatment

RUTF (plumpy nut) energy dense mineral/vitamin enriched food designed to treat SAM with no complications. RUTF will be given according to the body weight.

Other Care

Children, who are enrolled for the intervention, will be referred or transferred to appropriate care after discharge for continued growth promotion monitoring. While, those who show no sign of improvement or deteriorate will be transferred to inpatient care (TFC).

During follow-up, caregivers and the enrolled children will receive comprehensive child health care including Nutrition education and counseling, immunization; HIV/AIDS care services and other available community support groups.

Pilot sites

A total of 6 sites have been selected for this intervention in four districts: JCRC Mengo, Nsambya Home Based Care, Mbuya Reach-out and Mwanamugimu Nutrition Unit in Kampala district; Kitovu Home Based Care in Masaka district; Mbale Hospital in Mbale district and Mild May Centre in Wakiso district.

Partnership

The pilot intervention is a joint effort of the MOH together with CHAI/UNTAID, WFP, WHO, UNICEF and Others....

Current status

A need assessment was conducted at the pilot sites and the RUTF (Plumpy'Nut) is already in the country. A training package on outpatient management of acute malnutrition using RUTF was developed and a consensus meeting was held to agree on the contents and pre-tested in a combined 5 days training of trainers and service providers.

SESSION 1: BASICS OF ACUTE MALNUTRITION

Learning Objectives: At the end of the session participants will be able to:

- Describe Acute Malnutrition
- Assess children for Acute malnutrition
- Classify acute malnutrition
- Explain the types of care and describe criteria for choice of care

Pre-requisite: Basic knowledge on Acute Malnutrition, assessment of nutritional status, and RUTF (Plumpy’Nut)

Estimated Time: 360 Min

Outline

Content	Methodology	Time
1) Overview of Acute malnutrition <ul style="list-style-type: none"> • What is acute malnutrition? • Screening for Acute malnutrition 	Interactive Lecture: PP/Overhead	30 min
2) Assessment for acute malnutrition <ul style="list-style-type: none"> • Clinical signs • Anthropometric Measurements: <ol style="list-style-type: none"> a) Taking MUAC, Weight, Length, Height. b) Anthropometric indicators of acute malnutrition 	Interactive lecture Show pictures of the clinical signs PP/Overhead Organize a clinical session Interactive lecture PP/Overhead Organize Group practical: Taking weight, height, length, MUAC Interactive plenary Drill Exercise 1 The use of W/H charts	30 min 60 min 30 min 90 min 30 min
3) Classification of acute malnutrition, types of care and criteria for selection of care (Diagram)	Show the Diagram and explain Continue with Drill exercise (Part 2): classification of malnutrition Plenary: Case study	30 min 30 min 30 min

Teaching materials:

- LCD or overhead projector
- Flip chart or board & Markers
- Weighing scales & Height/Length boards & MUAC tapes
- W/H wall charts
- Clinical cases

Lecture Notes: Overview of Acute Malnutrition

1. What is Acute malnutrition?

Acute malnutrition is a result of recent (short-term) deficiency of protein, energy together with minerals and vitamins leading to loss of body fats and muscle tissues. Acute malnutrition presents with **wasting** (low weight-for-height) and /or presence of pitting oedema of both feet of different forms.

2. Screening for Acute Malnutrition

This should be done at any contact points; children wards, immunization points, community out-reaches, ART sites, young child clinics, counseling units and psycho social groups.

Suspect Acute malnutrition in any of the following situations:

a) Child Health Card – Assessment:

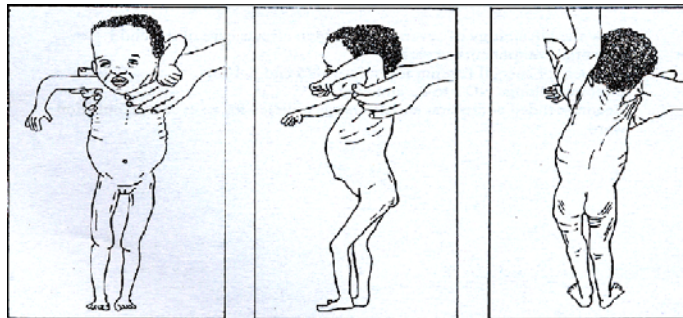
- 1) *A child below 2 years of age* with plotted weight below the ‘low weight for age’ curve.
- 2) *A child two years old and above* with plotted weight below the ‘very low weight for age’ curve

b) Nutrition Screening Using MUAC Tape:

A child with Mid-Upper Arm Circumference (MUAC) value less than 125 mm (red section of the tape).

c) Clinical assessment:

- A child with visible signs of wasting: prominent outline of ribs, loose skin of upper arm, presence of loose skinfolds or presence of ‘baggy pants’



- A child with presence of swelling of both feet



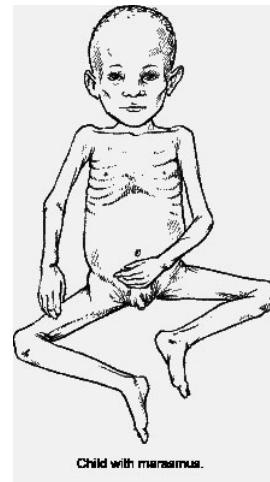
Lecture Notes: Assessment for Acute Malnutrition

1. Clinical Signs of Severe Acute Malnutrition (SAM)

How to examine for wasting

Check for:

- Prominent bones (ribs)
- Skinny limbs
- Loose skin (on lifting)
- Loose skin around the buttocks (buggy pants)



Check for:

- The presence of bilateral pitting oedema of the legs
- Hair changes (brownish, scanty ,straight)
- Skin changes (dermatosis)
- A large, protuberant belly.



A child can present with both features of wasting and presence of bilateral pedal odema (commonly referred to as marasmic-kwashiorkor).

It is important to look for signs of vitamin and mineral deficiencies as well. The common ones are Vitamin A deficiency (e.g., Dryness of eyes, Bitots spot, corneal ulceration), Vit B deficiencies (angular stomatitis, smooth tongue, mouth ulcers) and Anaemia (pallor of eyes and palms)



Bitot's spot

How to examine for presence of oedema:

Apply gentle thumb pressure to both feet for 3 seconds. If a shallow print or pit remains on both feet when the thumb is lifted, then the child has nutritional oedema. Nutritional oedema always starts from the feet and extends upwards to other parts of the body.



Bilateral Pitting Oedema in both Feet

How to classify oedema:

No odema: 0

Oedema below the ankles: +

Oedema in both feet and legs, below the knees: ++

Oedema on both feet, legs, arms and sacral pad and eye lids:+++

(Turn to page 21 for instruction for Clinical Session that follows)

2. Anthropometric Measurements:

A) Taking MUAC, Weight, Length and Height

Comprehensive anthropometric measurements need to be taken for every child screened for malnutrition using MUAC or clinical assessment.

1) Age:

Record the child's birth date from official documentation [e.g. health card, immunization card, birth certificate] provided by the caregiver. If documentation is not available, use the following criteria:

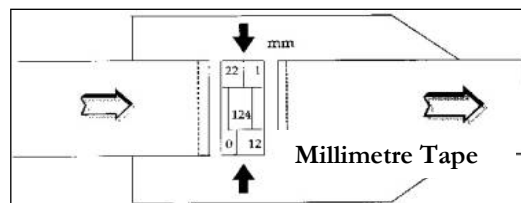
“If the child is under 110 cm or if is not able to touch the opposite ear with the opposite hand, she/he should be treated as less than 5 years.”

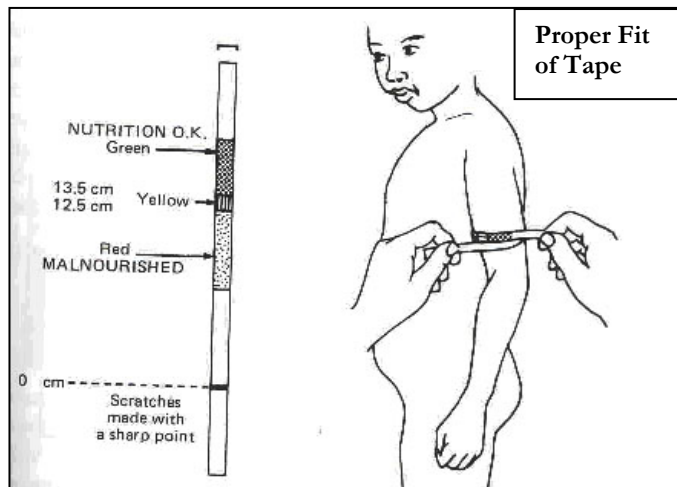
2) Mid-upper arm circumference (MUAC) for children 12-59 months:

MUAC measures the mid-upper arm circumference of a child. It is a quick way to determine whether or not a child is malnourished using a simple colored plastic strip. MUAC is suitable to use on children from the age of 12 months up to the age of 59 months.

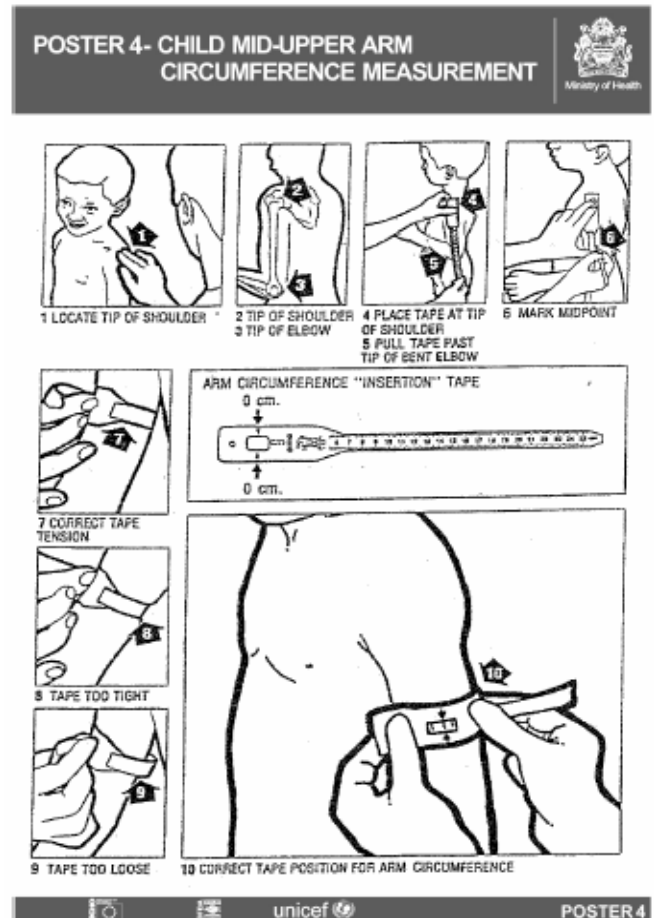
Steps for taking the MUAC measurement of a child:

- Determine the mid-point between the tip of the elbow and the tip of the shoulder (acromion and olecranon) as shown on the picture.
- Place the tape measure around the **LEFT** arm (the arm should be **relaxed** and hang down the side of the body).
- Measure the MUAC while ensuring that the tape neither pinches the arm nor is left loose.
- Read the measurement from the window of the tape or from the tape.
- Record the MUAC to the nearest 0.1 cm or 1mm.
- If using a colored millimeter tape: a measurement in the green zone means the child is properly nourished/a measurement in the yellow zone means that the child is at risk of malnutrition/a measurement in the orange zone means moderately malnourished/a measurement in the red zone means that the child is severely malnourished.
- Repeat the measurement to ensure an accurate measurement.





Taking Accurate MUAC measurements using different Types of MUAC tapes



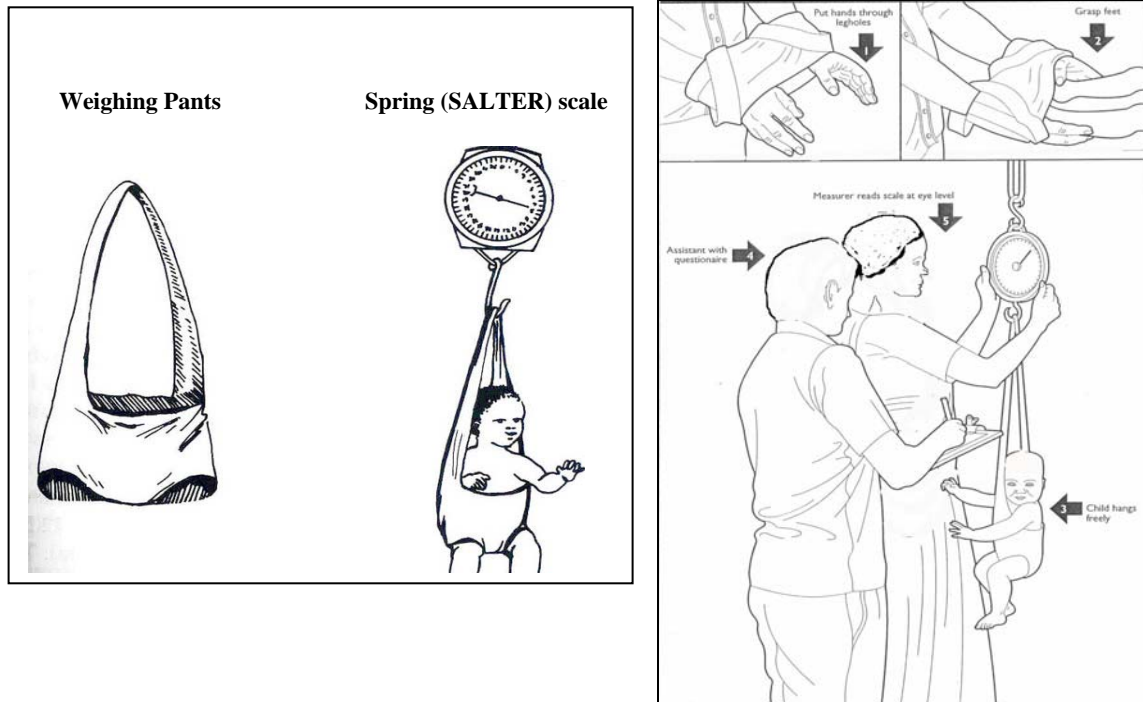
3) Weight:

There are many types of scales that can be used to take weight. The spring hanging scale (SALTER) is commonly used for taking weight of children under 9 years. This scale can weigh up to 25 kg and is graduated by 0.1kg (100g) increments.

Steps for taking the weight of a child using Salter Scale:

- Hook the scale to a tree with a rope, a tripod or a stick held horizontally by two people at eye level.
- Suspend the weighing pants from the lower hook of the scale, and readjust the scale to zero.
- Undress the child and place him/her in the weighing pants.
- Hook the pants to the scale
- Record to the nearest 100 g when the child is settled and the weight reading is stable. Make sure that nobody touches the pant or the scale during the weighing. Ensure that the child hangs freely without holding onto anything.
- Read and announce the value from the scale. The assistant should repeat the value for verification and record it immediately.

Tare the scale with a fixed weight (10 kg), regularly. If the measure does not match the weight, the scale should be sent back to the district for calibration.



Salter hanging scale

Electronic scales

- 1) The ordinary electronic scale
- 2) The automatic (mother/child) electronic scale

Steps for taking the weight of a child/adolescent using the **ordinary** electronic scale:

- Place the electronic scale on a flat level surface.
- Check and readjust the weight reading to zero.
- Undress the child.
- Make him/her stand on the middle of the scale's surface.
- Record to the nearest 100 g when the child is settled and the weight reading is stable. Make sure that nobody holds the child during the weighing and that the child stands freely without holding onto anything.
- Read and announce the value from the scale. The assistant should repeat the value for verification and record it immediately

Steps for taking the weight of a caregiver with child using the **ordinary** electronic scale:

- Place the electronic scale on a flat level surface.
- Check and readjust the weight reading to zero.
- Undress the child.
- Make the caregiver stand in the middle of the scale's surface, Read and announce the value from the scale. The assistant should repeat the value for verification and record

- it immediately. Record to the nearest 100 g when the caregiver is settled and the weight reading is stable.
- Hand the child to the caregiver and ask he/she to stand again on the middle of the scale's surface. Read and announce the value from the scale. The assistant should repeat the value for verification and record it immediately. Record to the nearest 100 g when the caregiver is settled and the weight reading is stable.
 - *To obtain the weight of the child:* subtract the recorded weight of the caregiver alone from the recorded weight of the caregiver+child (i.e. *weight of caregiver+child is 60Kg and weight of caregiver is 55Kg than the weight of the child alone is 60Kg-55Kg = 5Kg*).

Steps for taking the weight using the **Mother/Child electronic scale:**

- Place the electronic scale on a flat level surface.
- Check and readjust the weight reading to zero.
- Undress the child.
- Make the caregiver stand in the middle of the scale's surface, Weight for the scale to register the caregiver's weight then
- Pass your finger over the small window swiftly while the caregiver remains standing on the scale
- Wait for the reading to change to zero and a picture of a mother holding a child appears
- With the mother still standing in the same position on the scale, hand the undressed child to her to hold
- The scale will automatically register the child's weight to the nearest 100 g
- announce the value from the scale. The assistant should repeat the value for verification and record it immediately.

The same caregiver can remain standing and children can be handed to her, one at a time, provided the picture of the mother carrying a child remains on the scale.



Electronic scales

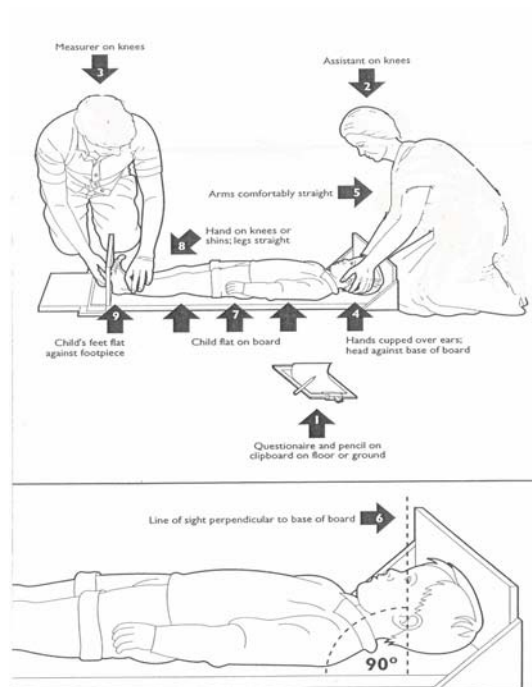


4) Length:

This measurement is taken for children below two years of age and/or for those who are less than 85 cm.

Steps for taking accurate length measurements:

- Place the measuring board horizontally on a flat level surface.
- Remove the child's shoes and any head covering.
- Place the child, lying down and face up on the middle of the board.
- Let the assistant hold the sides of the child's head and position the head until it is touching the head board.
- Let the measurer place his/her hands on the child and firmly hold the child's knees together while pressing down. The soles of the feet should be flat on the foot piece, toes pointing up at right angles.
- The measurer should immediately remove the child's feet from contact with the footboard with one hand while holding the footboard securely in place with the other hand.
- Read and record the measure as shown below.



If the child is more than 85 cm and is too sick or too weak to stand up, you have to measure the length lying down and remove 0.5 cm from the measurement.

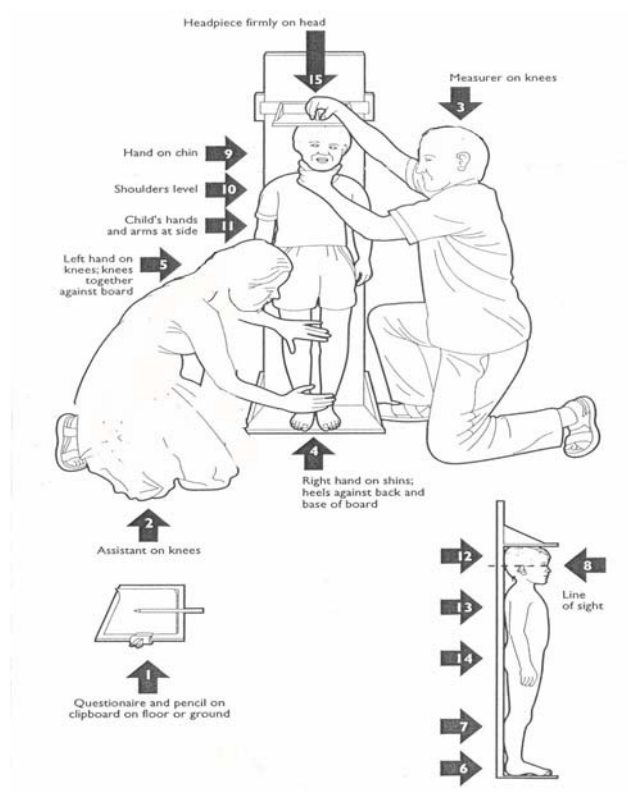
If the child has skeletal deformity, don't take this measurement. Persons with physical disabilities require specialized measures which are not covered in these guidelines.

5) Height:

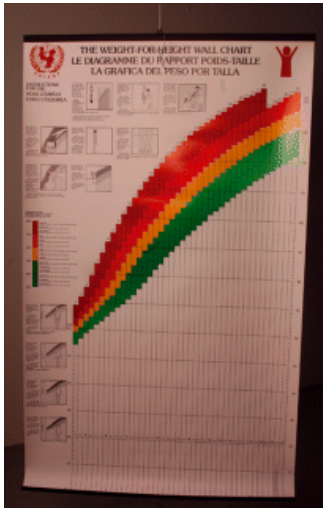
This measurement is taken for children two years and above and/or for those greater than 85 cm.

Steps for taking accurate height measurements:

- Set the measuring board vertically on a stable level surface.
- Remove the child's shoes and any head-covering.
- Place the child on the measuring board, standing upright in the middle of the board. The child's heels and knees should be firmly pressed against the board by the assistant while the measurer positions the head and the cursor. The child's head, shoulders, buttocks, knees and heels should be touching the board.
- Read the measure to the nearest 0.1 cm.
- Record and repeat the measurement to the measurer to make sure it has been correctly heard.



Weight-for-Height chart



Technical Specifications:

Vertical axis: Height, range 0 to 140 cm, graduation 5 cm / 2 inches

Horizontal axis: Weight, range 5 to 25 kg, graduation 0.5 kg / 1 lb

Printed on heavy duty laminated paper Approximate size 140 x 100 cm (approx. 55 x 39 inches). The paper is roller-stick mounted

Instructions for use are printed on chart itself. The chart is supplied with text and pictorial instructions for use and maintenance and heavy plastic tube for protection/durability. The child is placed against the appropriate weight column. The colour at the top of the head indicates the child's nutritional status.

How to use the Weight for height wall chart

(Follow the instructions and pictures printed on the chart)

- Fix the chart on an even wall with the bottom of the chart touching the floor
- Take the child's weight to the nearest 500 g and record.
- Locate the child's weight with your finger
- Ask the caregiver to put the child under your finger
- Make sure the child is upright and in the correct place
- Check that the middle of the child's head is under his weight on the chart
- Check that the child's shoulder and feet are against the chart
- Check that the child's heels are against his weight at the bottom of the chart
- Put the palm of your hand on the child's head, touch the chart with your finger
- check the colour band your finger touches and record
- Determine the W/H range

Colour Interpretation

- Weight-for-height curve is divided in 5 colour coded zones:
- **DARK RED** band indicates W/H range **60% - 70%** **(-4 to -3 SD)**
- **RED** band indicates a range **70% - 80%** **(-3 to -2 SD)**
- **YELLOW** band indicates a range **80% - 90%** **(-2 to -1 SD)**
- **UPPER GREEN** indicate a range **90% - 100%** **(-1 to 0 SD)**
- **GREEN** band indicates a range **100% - 110%** **(0 to 1 SD)**

(Turn to practical 1: Anthropometric measurements)

B) Anthropometric Indicators for Acute Malnutrition

1) MUAC Indicators:

- MUAC <110mm (11.0cm), RED COLOR, indicates that the child may have Severe Acute Malnutrition (SAM) and should be referred immediately for Weight and Height/Length measurement to determine nutritional status.
- MUAC of between 110mm (11.0cm) and 125mm (12.5cm), RED COLOR, indicates that the child may have Moderate Acute Malnutrition (MAM) and should be referred for Weight and Height/Length measurement to determine nutritional status.
-
- MUAC of between 125mm (12.5cm) and 135mm (13.5cm), Yellow COLOR, indicates that the child may be at risk for acute malnutrition, care should be counseled and child should be followed up closely.
- MUAC > 135mm (13.5cm), GREEN COLOR, indicates that the child is well nourished.

MUAC screening is the basis for detecting malnutrition and for referring the child immediately to have his/her weight for height measurement taken.

2) Weight-for-Height Indicators:

The standard deviation (S.D.) score or Z-score confirms whether or not a child is malnourished and if so, whether he/she is moderately malnourished or severely malnourished.

- Weight-for-Height/Length < 80% or < - 2 SD of the median reference population indicates that the child has Moderate Acute Malnutrition (MAM).
- Weight-for-Height (length) of less than 70 % or < - 3 SD (marasmus) of the median reference population indicates that the child has Severe Acute Malnutrition (SAM).

(Refer participants to the weight- for -height reference chart the users' manual and take let them use the measurements from the group practical to determine weight for height and compare with the W/H derived using the W/H wall chart)

(Conduct Drill exercises: page 23-24, part 1)

Lecture Notes: Classification of acute malnutrition, types of care and criteria for selection of care

Key diagnostic features for Moderate Acute Malnutrition (MAM):

- Weight-for-Height/Length $< 80\%$ or $< - 2$ SD of the median reference population (see table)
- No bilateral pitting oedema of feet
- Mid-Upper Arm Circumference (MUAC) of less than 125mm, RED COLOR. Weight and height/length should be taken to confirm the MAM.

Key diagnostic features for Severe Acute Malnutrition (SAM):

- Weight-for-Height (length) of less than 70 % or $< - 3$ SD (marasmus) of the median reference population (see table) AND/OR
- Bilateral pitting oedema of both feet
- MUAC of less than 110mm, RED COLOR. Weight and height/length should be taken to confirm the SAM.

A child with Severe Acute Malnutrition (SAM) can be treated as outpatient with RUTF (PLumpy'Nut) if there are no medical conditions that can complicate treatment.

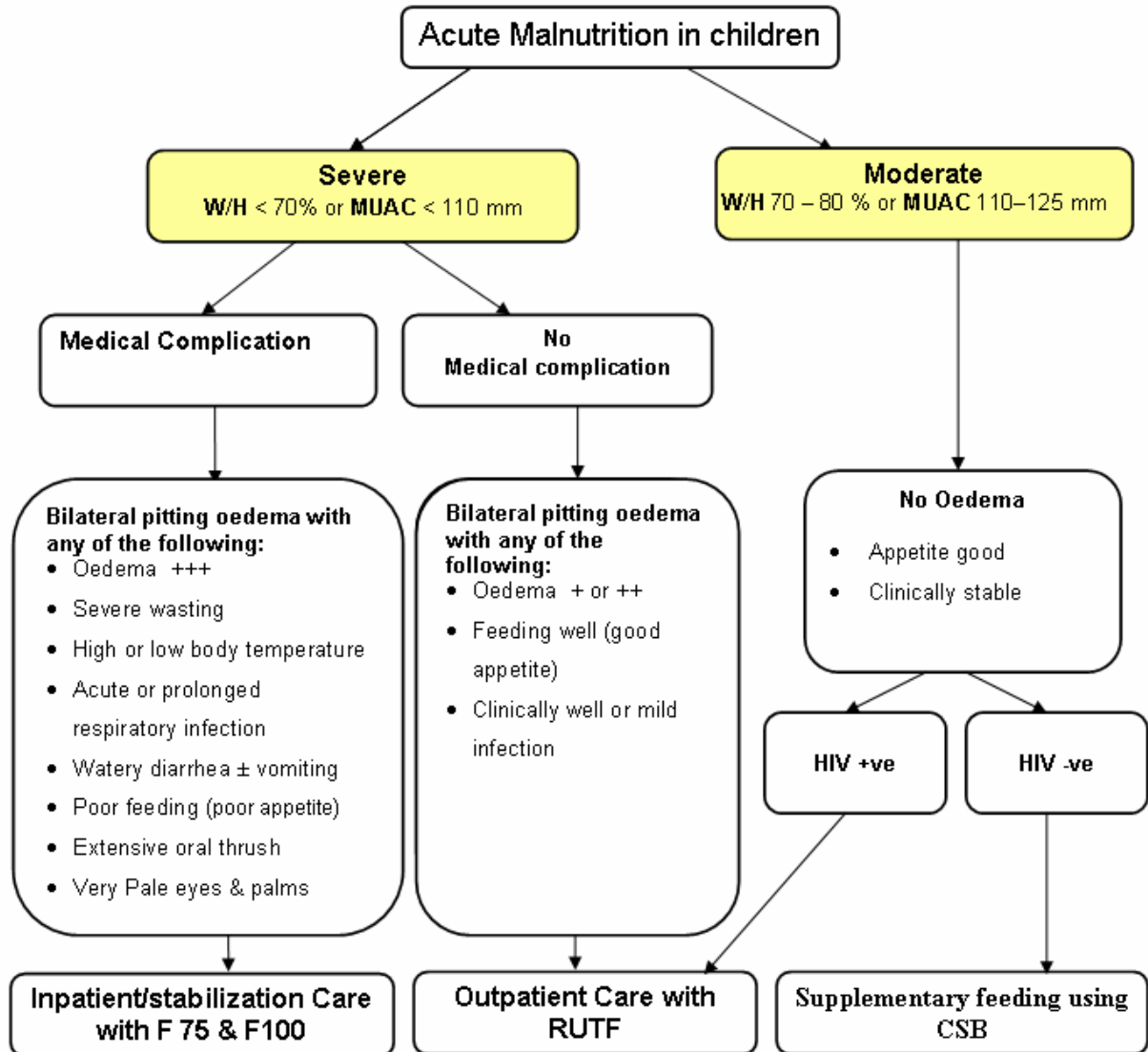
Medical conditions include:

- Gross Oedema (+++)
- High or low body temperature
- Acute or prolonged respiratory infection
- Watery diarrhea \pm vomiting
- Poor feeding (**poor appetite**)
- Extensive oral thrush
- Very pale eyes and palms (severe anaemia)
- Irritability or loss of consciousness

A child with Severe Acute Malnutrition (SAM) with any of the above medical conditions should be referred for Inpatient Care.

A child with Moderate Acute Malnutrition should be referred to Supplementary Feeding Program.

A child with Moderate Acute Malnutrition (MAM) and infected with HIV/AIDS with no complications can be treated as outpatient with RUTF (Plumpy'Nut).



(Conduct *Drill exercises: part 2*)

thereafter

(Conduct the *case study*)

NCHS normalized reference weight-for-length (49-84 cm) and weight- for-height (85-130 cm), by sex

Boy's Weight (Kg)				Height (cm)	Girls Weight (Kg)			
Malnourishment					Malnourishment			
-4 S.D.	-3 S.D.	-2 S.D.	-1 S.D.		-1 S.D.	-2 S.D.	-3 S.D.	-4 S.D.
60%	70%	80%	85%		85%	80%	70%	60%
1.8	2.1	2.5	2.8	49	2.9	2.6	2.2	1.8
1.8	2.2	2.5	2.9	50	3	2.6	2.3	1.9
1.8	2.2	2.6	3.1	51	3.1	2.7	2.3	1.9
1.9	2.3	2.8	3.2	52	3.3	2.8	2.4	2
1.9	2.4	2.9	3.4	53	3.4	3	2.5	2.1
2	2.6	3.1	3.6	54	3.6	3.1	2.7	2.2
2.2	2.7	3.3	3.8	55	3.8	3.3	2.8	2.3
2.3	2.9	3.5	4	56	4	3.5	3	2.4
2.5	3.1	3.7	4.3	57	4.2	3.7	3.1	2.6
2.7	3.3	3.9	4.5	58	4.4	3.9	3.3	2.7
2.9	3.5	4.1	4.8	59	4.7	4.1	3.5	2.9
3.1	3.7	4.4	5	60	4.9	4.3	3.7	3.1
3.3	4	4.6	5.3	61	5.2	4.6	3.9	3.3
3.5	4.2	4.9	5.6	62	5.4	4.8	4.1	3.5
3.8	4.5	5.2	5.8	63	5.7	5	4.4	3.7
4	4.7	5.4	6.1	64	6	5.3	4.6	3.9
4.3	5	5.7	6.4	65	6.3	5.5	4.8	4.1
4.5	5.3	6	6.7	66	6.5	5.8	5.1	4.3
4.8	5.5	6.2	7	67	6.8	6	5.3	4.5
5.1	5.8	6.5	7.3	68	7.1	6.3	5.5	4.8
5.3	6	6.8	7.5	69	7.3	6.5	5.8	5
5.5	6.3	7	7.8	70	7.6	6.8	6	5.2
5.8	6.5	7.3	8.1	71	7.8	7	6.2	5.4
6	6.8	7.5	8.3	72	8.1	7.2	6.4	5.6
6.2	7	7.8	8.6	73	8.3	7.5	6.6	5.8
6.4	7.2	8	8.8	74	8.5	7.7	6.8	6
6.6	7.4	8.2	9	75	8.7	7.9	7	6.2
6.8	7.6	8.4	9.2	76	8.9	8.1	7.2	6.4
7	7.8	8.6	9.4	77	9.1	8.3	7.4	6.6
7.1	8	8.8	9.7	78	9.3	8.5	7.6	6.7
7.3	8.2	9	9.9	79	9.5	8.7	7.8	6.9
7.5	8.3	9.2	10.1	80	9.7	8.8	8	7.1
7.6	8.5	9.4	10.2	81	9.9	9	8.1	7.2
7.8	8.7	9.6	10.4	82	10.1	9.2	8.3	7.4
7.9	8.8	9.7	10.6	83	10.3	9.4	8.5	7.6
8.1	9	9.9	10.8	84	10.5	9.6	8.7	7.7
7.8	8.9	9.9	11	85	10.8	9.7	8.6	7.6
7.9	9	10.1	11.2	86	11	9.9	8.8	7.7
8.1	9.2	10.3	11.5	87	11.2	10.1	9	7.9
8.3	9.4	10.5	11.7	88	11.4	10.3	9.2	8.1
8.4	9.6	10.7	11.9	89	11.6	10.5	9.3	8.2
8.6	9.8	10.9	12.1	90	11.8	10.7	9.5	8.4
8.8	9.9	11.1	12.3	91	12	10.8	9.7	8.5
8.9	10.1	11.3	12.5	92	12.2	11	9.9	8.7
9.1	10.3	11.5	12.8	93	12.4	11.2	10	8.8
9.2	10.5	11.7	13	94	12.6	11.4	10.2	9
9.4	10.7	11.9	13.2	95	12.9	11.6	10.4	9.1
9.6	10.9	12.1	13.4	96	13.1	11.8	10.6	9.3
9.7	11	12.4	13.7	97	13.3	12	10.7	9.5
9.9	11.2	12.6	13.9	98	13.5	12.2	10.9	9.6
10.1	11.4	12.8	14.1	99	13.8	12.4	11.1	9.8
10.3	11.6	13	14.4	100	14	12.7	11.3	9.9
10.4	11.8	13.2	14.6	101	14.3	12.9	11.5	10.1
10.6	12	13.4	14.9	102	14.5	13.1	11.7	10.3

10.8	12.2	13.7	15.1	103	14.7	13.3	11.9	10.5
11	12.4	13.9	15.4	104	15	13.5	12.1	10.6
11.2	12.7	14.2	15.6	105	15.3	13.8	12.3	10.8
11.4	12.9	14.4	15.9	106	15.5	14	12.5	11
11.6	13.1	14.7	16.2	107	15.8	14.3	12.7	11.2
11.8	13.4	14.9	16.5	108	16.1	14.5	13	11.4
12	13.6	15.2	16.8	109	16.4	14.8	13.2	11.6
12.2	13.8	15.4	17.1	110	16.6	15	13.4	11.9
	12.9	14.9	15.8	110.5	15.8	14.9	12.9	
11.3	13	15	16	111	16	15	13	11.3
	13.1	15.1	16.1	111.5	16.1	15.1	13.1	
11.5	13.3	15.3	16.2	112	16.2	15.3	13.3	11.5
	13.4	15.4	16.4	112.5	16.4	15.4	13.4	
11.6	13.6	15.5	16.5	113	16.5	15.5	13.6	11.6
	13.7	15.7	16.7	113.5	16.7	15.7	13.7	
11.9	13.8	15.8	16.8	114	16.8	15.8	13.8	11.9
	14	16	16.9	114.5	16.9	16	14	
12.1	14.1	16.1	17.1	115	17.1	16.1	14.1	12.1
	14.2	16.2	17.3	115.5	17.3	16.2	14.2	
12.3	14.3	16.4	17.4	116	17.4	16.4	14.3	12.3
	14.5	16.5	17.6	116.5	17.6	16.5	14.5	
12.5	14.6	16.7	17.7	117	17.7	16.7	14.6	12.5
	14.7	16.8	17.9	117.5	17.9	16.8	14.7	
12.7	14.9	17	18	118	18	17	14.9	12.7
	15	17.1	18.2	118.5	18.2	17.1	15	
13	15.1	17.3	18.4	119	18.4	17.3	15.1	13
	15.3	17.4	18.5	119.5	18.5	17.4	15.3	
13.2	15.4	17.6	18.7	120	18.7	17.6	15.4	13.2
	15.5	17.8	18.9	120.5	18.9	17.8	15.5	
	15.7	17.9	19.1	121	19.1	17.9	15.7	
	15.8	18.1	19.2	121.5	19.2	18.1	15.8	
	16	18.3	19.4	122	19.4	18.3	16	
	16.1	18.4	19.6	122.5	19.6	18.4	16.1	
	16.3	18.6	19.8	123	19.8	18.6	16.3	
	16.5	18.8	20	123.5	20	18.8	16.5	
	16.6	19	20.2	124	20.2	19	16.6	
	16.8	19.2	20.4	124.5	20.4	19.2	16.8	
	16.9	19.4	20.6	125	20.6	19.4	16.9	
	17.1	19.6	20.8	125.5	20.8	19.6	17.1	
	17.3	19.7	21	126	21	19.7	17.3	
	17.5	19.9	21.2	126.5	21.2	19.9	17.5	
	17.6	20.1	21.4	127	21.4	20.1	17.6	
	17.8	20.4	21.6	127.5	21.6	20.4	17.8	
	18	20.8	22.1	128.5	22.1	20.8	18	
	18.4	21	22.3	129	22.3	21	18.4	
	18.6	21.2	22.5	129.5	22.5	21.2	18.6	
	18.7	21.4	22.8	130	22.8	21.4	18.7	

*WHO/NCHS normalized reference weight- for-height for adolescents
(130.5-163.5 cm girls and 130.5-174.5, boys)*

Boy's Weight (Kg)				Height (cm)	Girls Weight (Kg)			
Malnourishment					Malnourishment			
-4 S.D.	-3 S.D.	-2 S.D.	-1 S.D.		-1 S.D.	-2 S.D.	-3 S.D.	-4 S.D.
60%	70%	80%	85%	85%	80%	70%	60%	
16.3	19	21.8	23.1	130.5	23.3	21.9	19.2	16.4
16.5	19.3	22	23.4	131	23.5	22.2	19.4	16.6
16.7	19.5	22.2	23.6	131.5	23.8	22.4	19.6	16.8
16.8	19.6	22.4	23.8	132	24.1	22.6	19.8	17
17	19.8	22.6	24.1	132.5	24.3	22.9	20	17.2
17.2	20	22.9	24.3	133	24.7	23.2	20.3	17.4
17.3	20.2	23.1	24.6	133.5	24.9	23.4	20.5	17.6
17.5	20.4	23.4	24.8	134	25.2	23.7	20.7	17.8
17.7	20.7	23.6	25.1	134.5	25.5	24	21	18
17.9	20.9	23.9	25.4	135	25.8	24.2	21.2	18.2
18.1	21.1	24.2	25.7	135.5	26	24.5	21.4	18.4
18.3	21.4	24.4	25.9	136	26.4	24.8	21.7	18.6
18.5	21.6	24.6	26.2	136.5	26.6	25	21.9	18.8
18.7	21.8	24.9	26.4	137	26.9	25.4	22.2	19
18.8	22	25.1	26.7	137.5	27.2	25.6	22.4	19.2
19.1	22.3	25.4	27	138	27.5	25.9	22.7	19.4
19.3	22.5	25.7	27.3	138.5	27.8	26.2	22.9	19.6
19.4	22.7	25.9	27.5	139	28.1	26.4	23.1	19.8
19.6	22.9	26.2	27.8	139.5	28.4	26.7	23.4	20
19.9	23.2	26.5	28.1	140	28.6	27	23.6	20.2
20	23.4	26.7	28.4	140.5	29	27.3	23.9	20.5
20.3	23.7	27	28.7	141	29.2	27.5	24.1	20.6
20.5	23.9	27.3	29	141.5	29.5	27.8	24.3	20.8
20.6	24.1	27.5	29.2	142	29.8	28.1	24.6	21.1
20.9	24.4	27.8	29.6	142.5	30.1	28.3	24.8	21.2
21.1	24.6	28.1	29.8	143	30.4	28.6	25.1	21.5
21.3	24.9	28.4	30.2	143.5	30.7	28.9	25.3	21.7
21.5	25.1	28.6	30.4	144	30.9	29.1	25.5	21.8
21.7	25.3	28.9	30.7	144.5	31.3	29.4	25.8	22.1
21.9	25.6	29.2	31	145	31.5	29.7	26	22.3
22.1	25.8	29.5	31.4	145.5	31.8	29.9	26.2	22.4
22.3	26	29.8	31.6	146	32.1	30.2	26.5	22.7
22.6	26.3	30.1	32	146.5	32.4	30.5	26.7	22.9
22.7	26.5	30.3	32.2	147	32.6	30.7	26.9	23
23	26.8	30.6	32.6	147.5	33	31	27.2	23.3
23.2	27	30.9	32.8	148	33.2	31.3	27.4	23.5
23.4	27.3	31.2	33.2	148.5	33.6	31.6	27.7	23.7
23.6	27.5	31.4	33.4	149	33.8	31.8	27.9	23.9
23.8	27.8	31.8	33.7	149.5	34.1	32.1	28.1	24.1
24	28	32	34	150	34.4	32.4	28.4	24.3
24.2	28.3	32.3	34.3	150.5	34.7	32.6	28.6	24.5
24.5	28.6	32.6	34.7	151	35	33	28.8	24.7
24.7	28.8	32.9	34.9	151.5	35.3	33.2	29.1	24.9
24.9	29.1	33.2	35.3	152	35.6	33.5	29.3	25.1
25.1	29.3	33.5	35.6	152.5	36	33.8	29.6	25.4
25.4	29.6	33.8	36	153	36.2	34.1	29.8	25.6
25.6	29.8	34.1	36.2	153.5	36.6	34.4	30.1	25.8
25.8	30.1	34.4	36.6	154	36.9	34.7	30.4	26
26	30.4	34.7	36.9	154.5	37.2	35	30.7	26.3
26.3	30.7	35	37.2	155	37.6	35.4	30.9	26.5
26.5	30.9	35.4	37.6	155.5	37.9	35.7	31.2	26.8

26.8	31.2	35.7	37.9	156	38.3	36.1	31.6	27.1
27	31.5	36	38.3	156.5	38.7	36.4	31.9	27.3
27.2	31.8	36.3	38.6	157	39.1	36.8	32.2	27.6
27.5	32.1	36.6	38.9	157.5	39.5	37.2	32.6	27.9
27.7	32.3	37	39.3	158	40	37.6	32.9	28.2
28	32.7	37.4	39.7	158.5	40.5	38.1	33.3	28.6
28.3	33	37.7	40	159	41	38.6	33.7	28.9
28.5	33.3	38	40.4	159.5	41.6	39.1	34.2	29.3
28.8	33.6	38.4	40.8	160	42.2	39.8	34.8	29.8
29	33.9	38.7	41.1	160.5	42.9	40.4	35.4	30.3
29.3	34.2	39	41.5	161	43.9	41.3	36.1	31
29.6	34.5	39.4	41.9	161.5	44.9	42.2	37	31.7
29.9	34.9	39.8	42.3	162	46.3	43.6	38.2	32.7
30.1	35.1	40.2	42.7	162.5	47.7	44.9	39.3	33.7
30.4	35.5	40.6	43.1	163	47.9	45.1	39.5	33.8
30.7	35.8	41	43.5	163.5	48.2	45.4	39.7	34
31	36.1	41.3	43.9	164				
31.3	36.5	41.7	44.3	164.5				
31.6	36.8	42.1	44.7	165				
31.9	37.2	42.5	45.1	165.5				
32.2	37.5	42.9	45.6	166				
32.5	37.9	43.3	46	166.5				
32.8	38.2	43.7	46.4	167				
33.1	38.6	44.1	46.8	167.5				
33.4	38.9	44.5	47.3	168				
33.7	39.3	45	47.8	168.5				
34	39.7	45.4	48.2	169				
34.4	40.1	45.8	48.7	169.5				
34.7	40.5	46.2	49.1	170				
35	40.9	46.7	49.6	170.5				
35.4	41.3	47.2	50.2	171				
35.8	41.7	47.7	50.7	171.5				
36.1	42.1	48.2	51.2	172				
36.5	42.6	48.6	51.7	172.5				
36.8	43	49.1	52.2	173				
37.3	43.5	49.7	52.8	173.5				
37.6	43.9	50.2	53.3	174				
38	44.4	50.7	53.9	174.5				

Clinical Session: Clinical Signs Of Acute Malnutrition

Instruction:

- Prepare a clinical session in a ward, NRU, OTC, SFP or anywhere children with visible signs of malnutrition can be found.
- Identify 5 children with various clinical signs of acute malnutrition
- Divide the participants in groups of 5.
- Assign each group one of the 5 children
- Let each group identify and record signs of acute malnutrition they see in the child
- Let each group examine all the 5 children (Allocate 10 minutes per child per group)

- Give them 10 minutes to prepare presentation
- Organise a plenary presentation (30 min)
- Each group should present one of the five cases (5 min)
- At the end of each presentation, allow a brief discussion (2 min)

Summarise the session by emphasizing the important signs to look for when examining a child for malnutrition

Group Practical 1 – Taking Weight, Height, Length, MUAC

Instruction

- Organise 2 sets of children/adolescents of different ages (5 children per set) for Anthropometric measurements.

(Take prior anthropometric measurements of these children for later comparison with that of the groups)

- Have all the anthropometric equipment set ready for the practical
- Divide the participants in groups of five (4 to 5 groups)
- Let each group member should take turn in taking anthropometric measurements: weight, height/Length, and MUAC.
- At anyone time a group should assign members as follows: 2 observers, 2 measurers and 1 recorder.
- Each set of children should be measured by two groups.

Give them one hour for the exercise

Plenary (20 min)

- Let each group display information collected on flip chart
- Let them compare their findings for same children and discuss :
- - possible reasons for variations in measurements
 - implication to classification of nutrition status
 - how to improve on accurate measurements.

Let each group use the measurements to determine the nutrition status of the children they

have measured using W/H reference charts and MUAC cut-off

Drill Exercises

Instruction:

Before the participants do the drill on the use of the reference chart,

- Demonstrate the use of the Weight-for-Height reference card
- Show the participants that the left side of the chart is for boys (Left) and side side of the chart is for girls (Right)
- Be sure the participants understand the meaning of the different colours (Green, Yellow, Red)
- Show them the two cards, for children and for adolescents
- Be sure the participants understand the use of the percentage of median (%) and Standard deviation scores (SD).
- Give them examples like the ones below:

Example 1

How to read the scores

Girl 73 cm, 7.7 Kg, what is the % W/H, SD?..... Answer: 80%, -2 SD

Boy 94 cm, 10.5 Kg what is the % W/H, SD?..... Answer: 70%, - 3 SD

Boy 75 cm, 7.6 Kg what is the % W/H, SD?..... Answer: < 70%, < -3 SD

Girl 81 cm, 7.9 Kg what is the % W/H, SD?..... Answer: < 70%, < -3 SD

Example 2

How to read the weight

Identify boy height 70 cm, and scores 85%, W/H (-1 SD) follow the column and find the weight of the child (Answer: 7.8 Kg)

Identify boy height 70 cm, and scores 80% W/H (- 2 SD) follow the column and find weight of this boy (answer: 8.4 Kg)

Example 3

How to score for weights which are in between

Identify boy height 73cm, follow the row and find weight of 7.6 Kg (between 8.2, -2 SD and 7.4 Kg, -3 SD). This weight is > 7.4 but < 8.2 Kg, so the score is written as < - 2SD or < 80%)

Summarize that a child with a W/H < 70 % is similar to SD < - 3 SD and is severely malnourished.

The Drill

Instruction:

- Call out information and ask participants in turn to use the reference charts and tell the W/H %, SD score
- Then call on another participant, give the additional information and ask him/her to classify the malnutrition (Moderate or Severe) and Classify the type of malnutrition

	Drill part 1			Drill Part 2	
	Sex, Height, Weight	? % W/H	? SD	Additional Information	? Classify malnutrition
1	Girl, 82 cm, 7.8 Kg			Oedema 0	
2	Boy, 74 cm, 7.9 Kg			Oedema 0	
3	Girl, 55.5 cm, 3.9 Kg			Oedema 0	
4	Girl, 67.1 cm, 4.9 Kg			Oedema ++	
5	Girl, 90 cm, 10.8 Kg			Oedema ++	
6	Boy, 79.3 cm, 9.4 Kg			Oedema 0	
7	Boy, 67 cm, 6.1 Kg			Oedema 0	
8	Boy 99 cm, 11.2 Kg			Oedema ++	
9	Boy, 150 cm, 25 Kg			Oedema 0	
10	Girl, 129 cm, 20 Kg			Oedema +	
11	Girl, 110 cm, 10 kg			Oedema 0	

Case Study

Instruction:

- **Conduct a plenary session, allow participants to discuss each case and agree on the answers**

Case Study 1

A 6 year old comes to the pediatric ward and he is very skinny. After the child's anthropometric measurements are taken, it is determined that the child is -2 S.D. W/H and weighs 8 kg. The child has an unknown HIV status. What should you do?

Case Study 2

A 12 year old child comes into the pediatric ward and exhibits -3 S.D. W/H. She has an unknown HIV status. What should you do?

Case Study 3

A 10 year old boy comes to the pediatric ward and is between -2 and -3 S.D. W/H. He has severe anemia, is dehydrated and is hypothermic. The child has already been tested and is HIV-. Where should he be referred? What should you tell the caregiver?

Case Study 4

An 8 year old girl comes to the pediatric ward. The girl is exactly -2 S.D. W/H and has no complications. This child has already been tested and is HIV+ and is not receiving ARV treatment. Where should this girl be referred? What should you tell the caregiver?

SESSION 2: NUTRITION AND HIV

Learning Objectives: At the end of the session participants will be able to:

- Describe the relationship between nutrition and infection in the context of HIV
- Describe the benefits of adequate nutrition for HIV infected children

Prerequisite: Basic knowledge on Malnutrition and infection cycle, HIV/AIDS staging and Nutrition care of HIV infected children

Estimated Time: 60 Minutes

Outline

Content	Methodology	Time
1) Nutrition and HIV infection <ul style="list-style-type: none">• The cycle of malnutrition and HIV/AIDS	1) Introductory lecture 2) A plenary session (refer to plenary session 2)	5 min 10 min
2) Similarity between Malnutrition and HIV/AIDS 3) Benefits of adequate nutrition to HIV children infected children 4) Addressing acute nutrition in HIV infected	Interactive Lecture: PP/Overhead	45 min

Teaching materials

- LCD or overhead projector
- Flip chart or board
- Markers
- Paper Cards (Diferent colours)

Lecture note: Nutrition and HIV infection

1. Introduction

The prevalence of HIV infection per category (national sero-survey report 2006):

- National 6.4%.
- Among pregnant women is 6.5%.
- Among children less than 18 months is 1%.
- Among children between 18 and 59 months is 0.5%.

Children born to HIV positive mothers are at high risk of morbidity and mortality whether infected or not as they have special needs requiring adequate care and follow-up. Early diagnosis and link to care is very important for their survival.

More than 50% of positive children at the initiation of ARV treatment will have at least moderate malnutrition. HIV+ children are at high risk of suffering from acute malnutrition.

2. The Cycle of malnutrition and HIV/AIDS

Malnutrition is one of the major complications of HIV/AIDS infections and a significant factor in advance disease

A combination of HIV infection and malnutrition further reduces a child's ability to remain healthy.

Malnutrition and HIV infection negatively affect each other

(CONDUCT *PLENARY EXERCISE*)

HIV infection can compromise nutrition through: insufficient intake, malabsorption, altered metabolism resulting in:

- Weight loss
- Loss of muscles and fat tissue
- Vitamin and mineral deficiencies
- Reduced immune function and competence
- Increased susceptibility to secondary infections
- Increased nutritional needs because of reduced food intake, increased loss leading to rapid progression to AIDS.

3. Effects of HIV/AIDS on Nutrition

HIV affects nutrition by:

1) Causing symptoms that reduce amount of food consumed such as:

- Painful mouth and throat sores, loss of appetite, depression, changes in mental state.

- Intestinal infections leading to damage of the gut
 - Opportunistic infections leading to diarrhea (common cause of diarrhea)
- 2) Interferes with the digestion and absorption of nutrients especially of fats and fat soluble vitamin
- 3) Changes the way the body transports, uses, stores and gets rid of nutrients (Metabolism)

Similarity between Malnutrition and HIV

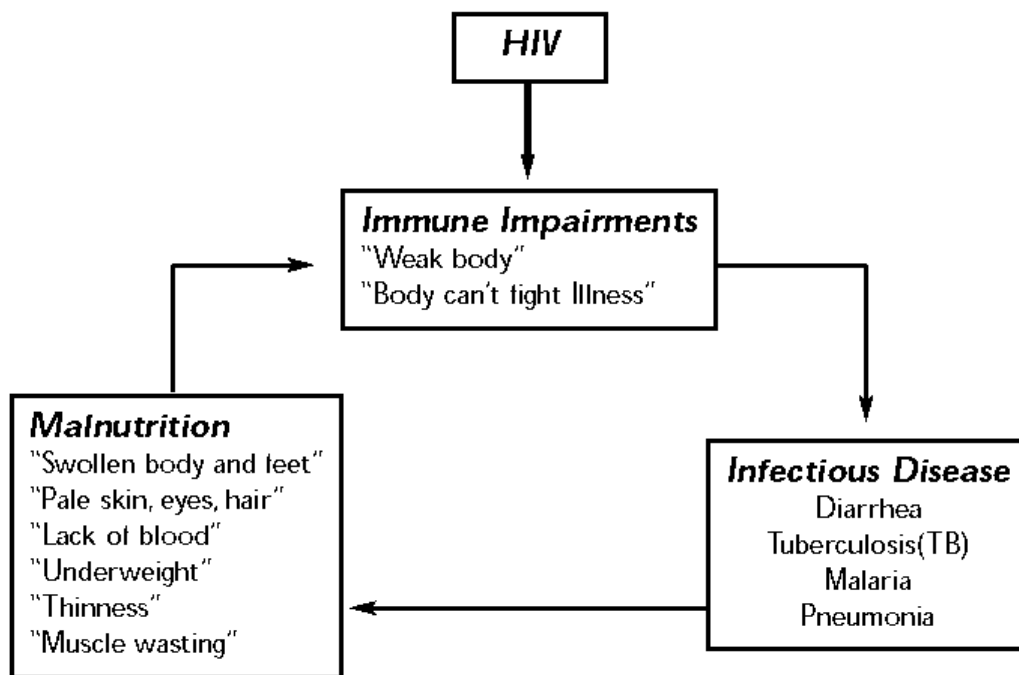
Both Malnutrition and HIV infection reduce body immune system to fight infection by reducing:

- CD4 T-lymphocytes
- CD8 T-lymphocytes
- CD4/CD8 ratio
- serological response after immunization
- bacteria killing action
- Delayed skin hypersensitivity (e.g. Mantoux-test)

HIV/AIDS associated wasting syndrome

Is a progressive depletion of body cell mass in the late stage of the disease causes includes:

- Reduced energy intake
- GIT disorders such as diarrhea and malabsorption
- Metabolic causes



Relationship Between HIV and Malnutrition. Source – HIV/AIDS: A Guide for Nutrition Care and Support, 2001

Benefits of adequate Nutrition to HIV infected children

Introduction

- A well nourished child has a stronger body for coping with HIV in fighting illness
- Adequate energy, protein, mineral and vitamin intake increases resistance to infection and disease and improved general health.
- .

Addressing Acute Malnutrition in HIV infected children

- Provides an opportunity to increase HIV case finding, improve treatment outcomes, and save costs.
- Additionally, ARV treatment is markedly improved in HIV+ children who are properly nourished.
- Malnutrition treatment programs are important in HIV case-finding.
- Children with acute malnutrition present with “AIDS-like” symptoms: anemia, anorexia, weight loss, immuno-compromised statuses.
- Ready-to-use Therapeutic Food (RUTF) has been shown to be effective in the nutrition rehabilitation of HIV+ children.
- RUTF may improve the overall treatment outcome when used in combination with ART in HIV+ children

Session 2 - Summary key points:

- HIV affects nutrition by decreasing food consumption, absorption and causing changes in metabolism and HIV associated wasting.
- Nutritional status also affects HIV disease progression and death
- Improving and maintaining good nutrition may prolong health and delay HIV disease progression. This need to start early in the course of the HIV infection, before other symptoms are observed
- Interventions to prevent and treat malnutrition can have great impact if started early in the course of the disease.

Plenary Exercise

Instruction

- **Ask participants to explain how HIV affects nutrition status:**
- **Write their contributions on the board or flip chart or you can give them cards to write and pin under the relevant topic**
- **Group their responses in sections:**
- **Summarise by showing them the Nutrition infection cycle slide**

1) Causes that reduced food consumption

- Mouth and throat sores
- Loss of appetite and fatigue
- Depressions and changes in mental state
- Side effect of medication
- Abdominal pain
- House hold food insecurity

2) HIV impairs nutrient absorption

- HIV virus affects the GIT
- Malabsorption of the fats and carbohydrates at all stages
- Frequent diarrhea and vomiting
- Opportunistic infections
- Poor absorption of fats affecting use of fat soluble vitamins (ADEK)

3) HIV changes body metabolism

- Increased energy need above normal requirement (by 10-15%)
- Increased protein need by 50% or more above normal requirement
- Increased use of antioxidants due to frequent infections (Vit E, C, β -carotene, zinc, selenium, iron)
- **Ask participants to explain how malnutrition affects HIV/AIDS**
- **write their contributions on the board or flip chart**
- **Group their responses may include:**
 - Weight loss, most common and disturbing symptom of HIV
 - Loss of muscle tissues and body fat
 - Minerals and vitamins deficiencies (especially the antioxidants) leads to increased HIV replication and high viral load
 - Reduced immune functions and body competence
 - Increased susceptibility to secondary infections
 - Increased nutrient needs due to reduced intake

SESSION 3: RUTF IN MANAGEMENT OF ACUTE MALNUTRITION

Learning Objectives: At the end of the session participants will be able to:

- Describe RUTF (Plumpy’Nut)
- Explain the use of RUTF in management of acute malnutrition
- Describe the dose of RUTF in children (Plumpy’Nut)

Prerequisite: Basic knowledge on RUTF (Plumpy’Nut)

Estimated Time: 90 Minutes

Outline

Content	Methodology	Time
1) The RUTF: Plumpy’Nut Introduction Benefits and composition Management	Interactive Lecture: PP/Overhead	60 min
	Show sachets of Plumpy’Nut	5 min
	Case studies on targeting, use and dosage of RUTF	25 min

Teaching materials:

- LCD or overhead projector
- Flip chart or board
- Markers
- Case studies
- Sachets of Plumpy’Nut
- Plumpy’Nut dosing charts

Lecture notes: The RUTF : Plumpy’Nut

A Ready-to-Use-Therapeutic-Food (RUTF) is an energy-dense lipid paste medicine.

What is Plumpy’Nut ?

Plumpy’Nut is the “original” RUTF product and contains peanut butter, milk powder, oil, sugar, and a mineral/vitamin and protein mix.

Plumpynut is a solid pre-packed RUTF specifically designed to treat acute malnutrition without complications and has the following characteristics:

- It is nutritionally equivalent to F-100 (therapeutic milk used for in-patient care in Phase2),
- One sachet has energy value of 500Kcal.
- One sachet has a weight of 92 g.

Benefits and composition of RUTF

- The quantity distributed to each child is easy to calculate based on the weight.
- One simply needs to open the sachet by cutting one corner and eat the paste.
- No preparation or cooking is necessary.
- Does not need to be diluted with water. This eliminates risk of contamination.
- Can be used at home with supervision from the health centre.
- Reduces on length of stay in hospital or Therapeutic Feeding Centre
- Reduces on number of staff necessary for preparation and distribution of therapeutic food.
- Has a faster recovery rate and higher acceptability than F100.
- Can be stored at room temperature for long periods of time.
- Has a long shelf life, even without refrigeration (24 months).

Nutrients and Energy Composition of Plumpy’Nut

NUTRIENT	Per sachet of 92 g	NUTRIENT	Per sachet of 92 g
Energy	500 kcal	Vitamin A	840 mcg
Proteins	12.5 g	Vitamin D	15 mcg
Lipids	32.86 g	Vitamin E	18.4 mg
Calcium	276 mg	Vitamin C	49 mg
Phosphorus	276 mg	Vitamin B1	0.55 mg
Potassium	1 022 mg	Vitamin B2	1.66 mg
Magnesium	84.6 mg	Vitamin B6	0.55 mg
Zinc	12.9 mg	Vitamin B12	1.7 mcg
Copper	1.6 mg	Vitamin K	19.3 mcg
Iron	10.6 mg	Biotin	60 mcg
Iodine	92 mcg	Folic acid	193 mcg
Selenium	27.6 mcg	Pantothenic acid	2.85 mg
Sodium	< 267 mg	Niacin	4.88 mg

RUTF (Plumpy’Nut) management

Who should receive Plumpy’Nut?

A child over six months and/or an adolescent according to the following criteria:

- Severely malnourished without medical complication, have passed the appetite test, and have been enrolled in outpatient care.
- HIV positive, moderately malnourished without medical complication, have passed the appetite test, and have been enrolled in outpatient care.
- Can drink liquids.
- Are not allergic to milk or nuts.



What should be the dosing of Plumpy’Nut?

The number of packets per day to be given to a child/adolescent depends on the weight of the child. The table below provides the accurate dosing based on the weight range of the child/adolescent:

<i>Weight (kg)</i>	<i>Packets / d</i>	<i>Packets / w</i>
<i>3.5 – 3.9</i>	<i>1.5</i>	<i>11</i>
<i>4.0 – 5.4</i>	<i>2</i>	<i>14</i>
<i>5.5 – 6.9</i>	<i>2.5</i>	<i>18</i>
<i>7.0 – 8.4</i>	<i>3</i>	<i>21</i>
<i>8.5 – 9.4</i>	<i>3.5</i>	<i>25</i>
<i>9.5 – 10.4</i>	<i>4</i>	<i>28</i>
<i>10.5 – 11.9</i>	<i>4.5</i>	<i>32</i>
<i>12.0-13.5</i>	<i>5</i>	<i>35</i>
<i>>13.5</i>	<i>200kcal/kg/day</i>	<i>200kcal/kg/day</i>

How should be the Plumpy’Nut administered?

- The Plumpy’Nut should be given to the child in small amounts and frequently (e.g. ½ sachet * 8 times per day) provided that the daily amount is according to prescription.
- Always have safe drinking water nearby whenever the child is eating Plumpy’Nut.
- Make sure that the child consumes and finishes the Plumpy’Nut before eating the porridge.
- A family food meal can gradually be introduced as the child’s health improves.
- Children should be supervised while they consume their Plumpy’Nut and meals.

Allergic Reaction to Plumpy’Nut:

Although it is unlikely, there is a small chance of a child having an allergic reaction to the peanut butter in Plumpy’nut. It is important to ask for history of allergy to the plumpynut ingredients.

The allergy may cause reactions in the form of:

- Skin changes: hives, Rashes infections
- Body swelling,
- Shortness of breath,
- Anaphylactic shock.

If the child develops any of these symptoms, discontinue administering Plumpy’nut. The child should be treated for allergic reaction in the nearest health facility immediately.

Important information on plumpy’Nut

(Let participants take turn to read each point)

Plumpy’Nut

- is for the malnourished child and should not be shared with other members of the family or community who are hungry.
- be kept in a secure place and out of reach of children in the house.
- should be given to the child in small amounts and frequently.
- remaining in the sachet after eating should be kept for the next feed, the top of the sachet should be rolled down for safety.
- may cause choking, therefore, a generous amounts of clean water must always be given to the child, at least 1 cup (100ml) of clean water for each dose of Plumpy’nut
- may cause a choke, therefore, water should be provided immediately. if choking persists, the child should be taken to the nearest health facility.
- will not spoil in the two weeks between OTC visits and does not need to be refrigerated. However, it should be kept out of the sun to preserve nutrients.
- should be given soon after a breastfeed, if the child breastfeeds.
- should always be given before any other family food.
- feed may not satisfy a hungry hence a balanced, nutritious meal can be given after the correct amount of Plumpy’nut.
- may cause complications such as diarrhea, vomiting, fevers, swelling, rashes, hives, skin infections, and shortness of breath or shock. If these symptoms are present, the caregiver must stop giving the Plumpy’nut and bring child to the OTC or to the nearest health facility.
- empty sachets should be kept can presented at each bi-weekly visit.

(Emphasize to participants)

KEY MESSAGE: *Plumpy’nut is a treatment for the malnourished child. Only the malnourished child for whom it is given should eat it.*

Practical: Feeding Malnourished Children Plumpy'Nut

Instructions

- Identify and prepare malnourished children Moderate or severe with good appetite and no clinical complication from the wards, NRU, OTC SFP or other points
- Introduce the practical to the class (Write on the board/flip chart) and remind to:

1-take the weights and heights/lengths of the children and determine their nutrition status

2-Decide whether they are fit for RUTF: (Type of malnutrition, free from medical complication, no history of allergy, good appetite)

3-Calculate the dose of plumpy'Nut to give.

4-Provide safe drinking water

5-Inform and involve the caregiver during the feeding

6-Show the caregiver how to store the remainder of plumpy'Nut

7-Document your observations: acceptability, palatability, appetite, caregiver's perception)

- At the end of the practical, facilitate a plenary session, let each group leader present observation and discuss.

Case Study

Case Study 1

Assuming the child is eligible to receive Plumpy'Nut, how many packets a day should he/she receive if he/she weighs 4.1 kg? How many packets should he/she receive for a 2-week supply?

Case Study 2

A child weighs 5.7 kg, is 75% W/H, and has a MUAC of 118mm. The child has an appetite, is alert, and is clinically well. Should the child be given Plumpy'Nut? How many packets a day should you tell the caregiver to feed the child? How many packets are in the 2-week supply?

Case Study 3

A child weighs 11.1 kg and is 106 cm tall. The child has an appetite, is alert, and is clinically well. Should this child be given Plumpy'Nut? If so, how many packets per day should the caregiver feed him/her? How many packets should be given for a 2-week supply?

Case Study 4

A child weighs 7.2 kg and is 75 cm long. The child has an appetite, is alert, and is clinically well. Should the child be given Plumpy'Nut? If so, how many packets should he/she be given per day? How many packets are in his/her 2-week supply?

Case Study 5

A child weighs 13.7 kg and is 109 cm tall. The child is alert, has an appetite, and is clinically well. Should this child be given Plumpy'Nut? If so, how many packets should he/she be given per day. How many packets should be in his/her 2-week supply?

Case Study 6

An adolescent weighs 35.4 kg and is 155 cm tall. The adolescent has an appetite, is clinically well, and is alert. Should she be given Plumpy'Nut? If so, how many packets should she eat per day? How many packets should be in her 2-week supply?

Case Study 7

An adolescent weighs 41.3 kg and is 171 cm tall. He is alert, has an appetite and is clinically well. Should he be given Plumpy'Nut? If so, how many packets should he consume per day? How many packets should be in his 2-week supply?

SESSION 4: OUTPATIENT CARE OF ACUTE MALNUTRITION

Learning Objectives: At the end of the session participants will be able to:

- Understand how OTC is designed and managed
- Understand the logistic of OTC

Pre-requisite: Basic knowledge on OTC and acquaintance with organization set-up and management of OTC

Estimated Time: 390 min

Outline

Content	Methodology	Time
1) Setting up and management of OTC	Interactive lecture PP-presentation	60 min
<ul style="list-style-type: none">• Admission (standard criteria)• Management protocol• Discharge (standard criteria)		
	Site visit	180 min
	Group presentation of findings in plenary session	60 min
	Case studies	30 min

Teaching Materials:

- Flip charts & Markers
- LCD
- Identified site to visit

Lecture notes: Setting up and Management of OTC

Introduction

OTC provides home-based treatment and rehabilitation for children who are severely, acutely malnourished but have appetite and are free of medical complications. This session will describe issues including criteria for entry and exit, activities in the OTC, link with other Care and planning and setting up OTC.

Children can come to outpatient therapeutic care OTC from different places: Referral from community

- Referral from home-based care teams
- Referral from child clinics, pediatric wards, counseling units and immunization points
- Referral from in-patient feeding programs or supplementary feeding programs if conditions improve or deteriorate.
- Referral from field partners (NGOs, faith based organizations, CBOs, orphanages).

A) Admission criteria for entry into Outpatient Therapeutic Care (OTC) (Handout)

	HIV –ve or unknown status	HIV +ve
New Admissions Children 6 months – 18 years	<ul style="list-style-type: none"> • Less than 70% W/H with no complications • MUAC <110mm OR: • Bilateral pitting oedema + or + + AND: • A good appetite • Are alert • Are clinically well 	<ul style="list-style-type: none"> • Less than 80% W/H with no complications • MUAC < 125mm OR: • Bilateral pitting oedema + or + + AND: • Has an appetite • Is alert • Has no medical complications
	Note: If caregiver refuses inpatient care despite advice treat the child as new admission	
Readmission	Relapse: Previously discharged as “cured”, but again fulfils OTC criteria (child keeps their previous registration number but a new OTC client card is filled).	
	Returned: 1. Previously discharged as “defaulter”, but returned and fulfils OTC criteria (child keeps their previous registration number but a new OTC client card is filled) 2. Previously discharged as “transferred”, but returned and fulfils OTC criteria (child keeps their previous registration number but a new OTC client card is filled)	

B) Management protocol

New admissions:

1. Health and Nutrition education at the waiting area:

On arrival, caregivers should be directed to the waiting area where the healthcare worker will provide health and nutrition education on how to prepare cheap, balanced and nutritious meals for the child. Care givers should also be counseled on HIV testing. Sick children should be sent for medical check immediately.

2. Anthropometric measurements:

Weight and Height and oedema checking should be taken during all visits. Based on the nutrition classification the child will be referred for enrollment or counseled.

3. Appetite test:

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

The child MUST be observed eating Plumpy'Nut before the child can be accepted for outpatient care.

4. Clinical assessment:

Sick children should be sent for medical assessment before appetite test to decide whether they should be enrolled in OTC or referred for in-patient care.

5. Registration in OTC:

When a child fulfills the eligibility criteria, the register should:

- **Explain what this means to the child and the caregiver** (i.e. reasons for admission, type of treatment, rules to be followed, etc.).
- Fill out an OTC client card: allocate registration number, fill information on the client and caregiver and fill all required individual data.
- Fill out the OTC ration card to be given to the caregiver.
- Keep all OTC cards in the patient file which stays at the OTC site.

6. Counseling on RUTF administration:

During the initial visit, the service provider should counsel on:

- How RUTF should only be used as medicine to treat the malnourished child.
- How to administer the doses of Plumpy'Nut

The service provider should show the caregiver how the sachet should be cut at one corner and that the child eats the paste from the packet or on a spoon.

Specific Information on the Plumpy'nut

Service provider should explain to the caregiver that Plumpy'nut:

- is for the malnourished child and should not be shared with other members of the family or community who are hungry.
- be kept in a secure place and out of reach of children in the house.
- should be given to the child in small amounts and frequently.
- remaining in the sachet after eating should be kept for the next feed, the top of the sachet should be rolled down for safety.
- may cause choking, therefore, a generous amounts of clean water must always be given to the child, at least 1 cup (100ml) of clean water for each dose of Plumpy'nut
- may cause a choke, therefore, water should be provided immediately. if choking persists, the child should be taken to the nearest health facility.
- will not spoil in the two weeks between OTC visits and does not need to be refrigerated. However, it should be kept out of the sun to preserve nutrients.
- should be given soon after a breastfeed, if the child breastfeeds.
- should always be given before any other family food.
- feed may not satisfy a hungry hence a balanced, nutritious meal can be given after the correct amount of Plumpy'nut.
- may cause complications such as diarrhea, vomiting, fevers, swelling, rashes, hives, skin infections, and shortness of breath or shock. If these symptoms are present, the caregiver must **stop giving** the Plumpy'nut and bring child to the OTC or to the nearest health facility.
- empty sachets should be kept can presented at each bi-weekly visit.

KEY MESSAGE: *Plumpy'nut is a treatment for the malnourished child. Only the malnourished child for whom it is given should eat it.*

7. Systematic treatment:

Measles: All children aged 9 months to 59 months admitted in an OTC should be vaccinated against measles unless patient shows proof of vaccination record.

Vitamin A: Most malnourished patients have low stores of vitamin A; therefore, a preventive dose of Vitamin A should be given routinely on admission for all patients except for those:

- Discharged from a TFC (where they have already received therapeutic vitamin A dose)
- Re-admitted within a period of one month (where they have already received vitamin A)

Deworming: Many malnourished individuals are infested with intestinal parasites. Routine deworming treatment should be given to all patients above 1 year (8kg) on admission to a OTC.

Ferrous and Folic Acid

Patients recovering from malnutrition require more nutrients for activity and growth. Supplementation of iron and folic acid should be routinely administered. Iron supplementation should be given on admission, and administered weekly.

Malaria

Malaria is a leading cause of morbidity and mortality in children. The following actions should be taken for malaria management:

- Patients should be either systematically tested on admission, or on clinical examination.
- Give treatment when necessary
- Complicated and severe malaria should be immediately referred to medical personnel.

These services should be available at the OTC site and drugs should be provided at the dispensing point.

8. RUTF distribution:

Caretakers will receive a two week ration of Plumpy’Nut according to the prescription based on the child’s weight. All clients should leave the centre once their ration is received (exit).

Follow-up of clients already enrolled in OTC:

Healthcare workers should monitor the progress of children by requiring visits to the OTC site **every two weeks**.

At each OTC visit, the healthcare worker should:

- Take the anthropometric measurements of the child and adjust the ration if needed.
- Assess the clinical and nutritional status of the child and take decisions if to continue with treatment, discharge or transfer.
- Update the OTC client card and the OTC ration card. The caregiver should be instructed to bring the OTC ration card at every visit.
- Provide feeding counseling and instruct the caregiver on balanced, nutritious food preparation to sustain the child’s nutritional health after the Plumpy’nut regimen has been completed.

For sites which have community volunteers:

Community volunteers should make weekly visits to the home of the registered children. During these visits, the community volunteer should check on the child’s progress, his/her adherence to the Plumpy’Nut regimen, and the child’s overall health status.

Duties of the community volunteers include:

- Provide counseling on proper nutrition and feeding practices.
- Follow-up defaulters and encourage them to return to OTC
- **Refer the child to an inpatient facility immediately** if any of the following symptoms are noticed:

- An indentation remaining after pressing for three seconds on both child's feet and releasing (three seconds is the approximate time it takes to say one thousand one, one thousand two, one thousand three)
- Severely reduced appetite
- Coughing
- High fever
- Diarrhea
- Anemia or pallor
- The child is limp or weak or has convulsed
- If the child is abnormally cold when you touch his/her extremities
- Lack of alertness

For sites which do not have community volunteers:

At each OTC visit, emphasis must be placed on the importance of attending clinic visits throughout the child's treatment duration. Caregivers should take note of complications mentioned above and report at each visit

C) Discharge from Outpatient Therapeutic Care

1. Discharged as "cured":

The child should be discharged from OTC as "cured" based on the following criteria:

- The child has spent a minimum of four weeks in the program – a minimum of three referral to OTC sites, including the initial visit.
- The child's Weight for Height is greater than 90% for two consecutive OTC visits.
- The child's MUAC is greater than 135mm (green colour).
- The child is free of oedema for two consecutive OTC visits.
- The child is clinically well – no complications.

The final OTC session for all children discharged from the program as "cured", should include:

- Provision of **one week supply** of Plumpy'Nut.
- Transfer to a Supplementary Feeding Program, if available.
- Counseling on good nutrition and feeding practices including food demonstration and preparation of cheap, balanced and nutritious meals.

2. Discharged as "death"

If the child dies while still enrolled in OTC. The file should be completed and closed.

3. Discharged as "defaulter"

The child should be considered a "defaulter" if he/she is absent for **two consecutive OTC visits**. The child may re-enter the OTC program if he/she meets the entrance criteria, but the healthcare worker should fill out a new OTC card with the same registration number.

4. Discharged as "non respondent"

A child should be discharged from the OTC program if he/she has not reached the "discharged cured" criteria **after three months with regular OTC visits**.

For children who **are not responding to the Plumpy’Nut treatment within the third visit** and **whose HIV status is unknown**:

- Refer to the nearest HCT services for HIV testing and counseling
- If the child is less than 18 months old, refer to clinic for PCR testing

If the child’s mother’s status is known and she is HIV+, refer the child using the above criteria.

For children who **are not responding to the Plumpy’Nut treatment within the third visit** and **whose HIV status is known** assess on a case-by-case basis and take action accordingly

5. Discharged as “medical transfer”

The child should be discharged as “medical transfer” if his/her condition deteriorates needing medical attention.

6. Discharged as “transfer to in-patient care”

The child should be discharged as “transfer to in-patient care” if child is admitted in in-patient care (i.e. Nutrition Rehabilitation Unit/Therapeutic Feeding Centre).

Summary OTC Discharge Criteria

Cured	<ul style="list-style-type: none"> ▪ Minimum stay of two months in OTC ▪ Weight for Height is greater than 90% for two consecutive OTC visits ▪ MUAC > 135 mm ▪ No oedema for 2 consecutive OTC visits ▪ Clinically well 	<p>Action taken Label file as “Cured”.</p> <p>For follow-up in GPM. Children who are HIV positive should continue accessing HIV/AIDS care</p>
Died	Died during time registered in OTC	Complete file and card
Non-respondent	Has not reached discharge criteria after three months	<p><i>If HIV status is unknown:</i> Already within the third visit refer to HCT.</p> <p><i>If HIV status is known:</i> Already within the third visit assess on a case-by-case basis and take action accordingly</p>
Defaulted	Absent for two consecutive OTC visits	<p>May re-enter the OTC program if he/she meets the entrance criteria</p> <p>A new OTC card should be fill out but the same registration number should be retained</p> <p>Home visits necessary, if available</p>
Transferred to inpatient	Condition has deteriorated and required inpatient Care (NRU/TFC)	Transferred to NRU/TFC Label file as ‘transferred

**SCREENING AT ALL CONTACT POINTS
USING MUAC TAPE**



**DIAGNOSE ACUTE MALNUTRITION
W/H and OEDEMA**



**NO MEDICAL COMPLICATIONS
GOOD APPETITE**

ENROLL IN OTC

- Routine medicine
- 2 week supply of RUTF
- Explanation on dosing and admin. of RUTF
- Health education
- Counseling on nutrition and feeding practices
- Fill OTC client card and OTC ration card
- Explanation of OTC/RUTF schedule

**MEDICAL COMPLICATONS;
REFUSES RUTF;**

**REFER TO INPATIENT CARE OR
HOSPITAL**

Referral slip to Inpatient care

Site-Visit

- Organise a visit to OTC or SFP (2 hours)
- Request for an introduction (overview of the program) by the in-charge of the Program
- Divide the participants in groups according to the lay out of the **program**
- Let each group rotate at the various **activity point** and make notes on their observations.

The activity points include:

- The waiting area
 - Anthropometric measurement point
 - Registration point
 - Medical checks
 - Pharmacy points
 - Distribution point
- At the end of the visit, each group should summarize their findings and present in plenary:
 - Facilitate a plenary session and discussion (*What was in place , what was missing, how can the activity point be improved*), (30 min)

To save on time, each group can choose to present findings on one or two activity points.

- Summarise by emphasizing on the importance of efficient planning and organization of an OTC

Case Study

Case study 1

A 7 year old child has been enrolled in outpatient care for severe malnutrition. The child has been to all scheduled clinic visits. When the home-based care team visits the child's home in the week between clinic visits, he/she notices that the child has a high fever, that he is coughing a lot, and that he appears pale and lethargic. What should happen? If the child needs to be referred, to where should he be referred? Should he continue to eat Plumpy'Nut?

Case study 2

A 9 year old child in inpatient care has been transitioned to Phase 2 of the program. The child refuses to eat Plumpy'Nut even after she has been moved to a comfortable environment. Should you assume that the child has no appetite? What else, if anything, should be done?

Case study 3

A 15 year old adolescent has been in outpatient care for 12 weeks. His W/H has reached 90%. Does he meet the criteria for discharge or should he continue in the programme?

Case study 4

A 6 year old child has completed a treatment regimen of Plumpy'Nut. Three months after she was discharged, she returned to the outpatient care facility from which she was discharged. Her anthropometric measurements were taken. She has a WHM of 65% and a MUAC of 105mm. The child has an appetite, is clinically well, and is alert. Should the child be referred? If so, to where? Should the child be registered using the same OTC card she was registered on before?

Case study 5

A 9 year old child comes to an outpatient therapeutic care center. You take the child's anthropometric measurements. The child is 90cm tall and weighs 7.7 kg. You perform an appetite test and the child refuses to eat. The child has trouble breathing, has a rapid pulse, has a high fever, and rarely opens his eyes. What should you do? Should the child be given Plumpy'Nut?

SESSION 5: REPORTING AND MONITORING OF OUTPATIENT THERAPEUTIC CARE

Learning Objectives: At the end of the session participants will be able to:

- Adequately provide information for reporting and monitoring children in the programme
- Understand the flow of reporting
- Understand the different roles and responsibilities in the process

Pre-requisite: Basic knowledge on monitoring and evaluation of OTC

Estimated Time: 320 min

Outline

Content	Methodology	Time
1) Overview of Reporting and Monitoring	Interactive Lecture with Practical on filling the cards	60 min
2) Monitoring individual treatment		
3) Logistic and Supplies of OTC The patient card The ration card The weekly card The monthly card	Practicals : How to fill the forms: Stock Card How to forecast (call forward) How to calculate amounts to be ordered	130 min
Storekeeping <ul style="list-style-type: none"> • Filling in stock cards • Forecasting (call-forward) • Calculations of amounts to be ordered 		30 min

Teaching Materials

Flip Chart
Markers
Tally sheets
Patient cards
Registers
OTC Client Cards & OTC Ration Cards
Weekly reporting forms
Monthly reporting forms
Calculator

Lecture notes: Overview of Reporting & Monitoring

Reporting and Monitoring a program is the only way to know whether the objectives of the programme are met or not.

Reporting the activities of the programme as they happen is a necessary action because it ensures **accountability**. All partners involved in the programme are accountable to someone else. For this reason, it is essential that accurate reports be kept at all levels – from the healthcare workers in the programme sites, to the funders, to the donors.

By systematically monitoring progress and impact during the course of a programme, strengths and weaknesses can be identified, informed judgments made, and timely adjustments carried out. To track this programme's success, quantitative data should be collected in Outpatient Therapeutic Care (OTC) Programmes.

Monitoring Individual Treatment

Over the course of malnourishment management, children are transferred between different types of care (e.g. OTC, In-patient sites, SFC) as their condition improves or deteriorates. It is crucial to be able to track children between the different types of care and programme sites. Therefore, these links must be well managed. Key elements include:

- A clear numbering system.
- The routine collection of medical, nutritional, and follow-up data, clearly documented on cards and maintain in an efficient filing system.
- The effective exchange of information on individual children both **between** the programme's components and **among** the programme's components.

Clear Numbering System:

A unique registration number must be given to each child when the child is first admitted into the OTC programme. To ensure that children can be tracked, the full number allocated when the child enters the programme is retained until the child is discharged. The registration number should be recorded on all records concerning the child. Healthcare workers must ensure that the registration number appears on transfer slips that accompany the child.

Returning **defaulters** and readmissions after **relapse** should retain the **same registration number**. Note that their treatment continues on a **new OTC client card**.

Each registration number is made up of two parts, for example:

MNU/1234

MNU refers to the name of the programme site where RUTF is received. Note that this is the site code. (e.g. MNU stands for Mwanamugimu Nutrition Unit)

1234 is the number allocated to the child (this number runs in sequence from the previous child registered at that site). Note that this is the patient's number.

These numbers will be pre-printed/pre-written on the Client Cards. There will also be cards without registration numbers printed/written on them. These cards should **only be used** for those children who are **returning defaulters** and who are **readmitted relapsers**.

Routine Collection of Data:

Children should be monitored using OTC Client cards, Weekly Reports, Monthly Reports and Ration Cards.

CLINICAL CARDS

OTC Client Card: These cards should be kept by the healthcare workers at the site where the child is being treated.

Key steps for filling out client card:

- At admission the health care worker should fill all patient and caregiver information.
- Note that the initial visit is number zero.
- The W/H % needs to be recorded on admission and discharge.
- The HIV status of the child needs to be recorded at admission and adjusted accordingly if test takes place after admission.
- All information requested in the tables need to be filled out at each visit.
- When a child exits the programme, the category in which he/she fall should be recorded (e.g. cured, not responding, transfer, etc).

The number of cards in the file represents the number of children currently in the programme. At the end of the week, this can be checked against the weekly standard report format sheets to ensure that reporting is accurate.

For recording purposes, all exit cards need to be labeled and stored in folders according to the different categories.

Cured

The cards of children who have recovered are usually kept separately because there are so many. It is useful to have these at the site to check any relapses.

Not-cured

This applies to children who are not responding to the treatment at three months. How much weight gain etc. so that we can talk about responding/not responding to treatment? If the child is readmitted, monitoring continues on a new client card, but he/she keeps the same registration number.

Transfers

Ensures that transfers are not overlooked and that follow-up takes place if they do not return. If the child returns, monitoring continues on a new client card, but he/she keeps the same registration number.

Defaulter cards awaiting return.

On return, monitoring can continue on the same card. If the child returns, monitoring continues on a new client card, but he/she keeps the same registration number.

Deaths

Complete and file card.

Activities for the Closure of the Day

The registrar should take the register **and record** the following information:

1. Record the children who did not show up for their scheduled visits (absentees and defaulters)
2. Register the number and types of admissions (return from transfer or defaulting, new cases), number and types of discharges (cured, defaulter, death, transfer, non-respondent)
3. Count and record the total number of patients enrolled in the programme
4. Record the number of rations served.

The registrar should then identify children who have defaulted and organize outreach visits.

****PRACTICE FILLING OTC CLIENT CARD – CASE SCENARIO****

Weekly Standard Report Format:

Information on the children treated with RUTF should be compiled in weekly standard report format sheets. The weekly standard report format sheets are important to ensure accurate reporting and to ease monthly compilation.

Information for most of the children is recorded by age groups (i.e. 6-59 months, 5-10 years, 11-17 years, and 18 years). Please note that you should treat children and adolescents aged 6 months to 18 years. Adolescents who are 18 years old should be included in the row labeled “Adults 18 years.”

On the form, you will also need to record information that is not age specific. This information is located in separate boxes below the main data collection box (on the same sheet). While this information is not age specific, the totals should be equal to the total admissions [column (B)].

For example, there is a box labeled “Children receiving family rations.” Under this title there are two options: Yes and No. When you add the number in the box labeled ‘yes’ and the number in the box labeled ‘no,’ the sum should be the same as the total number of admissions. For the other non-age specific boxes, the total number should also be the same as the total number of admissions.

****PRACTICE FILLING OUT WEEKLY SHEETS****

Monthly Standard Report Format:

All the data collected on a weekly basis will have to be summed up in the monthly report to provide the total numbers for the month.

The monthly report will also include the number that are continuing the programme from the previous month and the number of children who will be continuing the programme in the following month.

For the purpose of establishing the food request for the following month, the monthly report will include the initial stock of RUTF and the RUTF stock at the end of the month. (see section 4, Call Forward)

****PRACTICE FILLING OUT MONTHLY SHEETS ****

THE RATION CARD- TAKE-HOME CARD

OTC Ration Cards: What is the rationale for not talking about the ration card together with the client card?

Healthcare workers should give caretakers a ration card to take home at the child's initial visit. These cards contain key information about the child in addition to basic information on their progress (i.e. weight, height/length, Plumpy'Nut ration received - sachets, MUAC color, grade of oedema, date of next visit, and types of other food received). These cards are the caregiver's record of the child's progress in the programme. These cards should be presented at each clinic visit as they are required to collect the child's next ration.

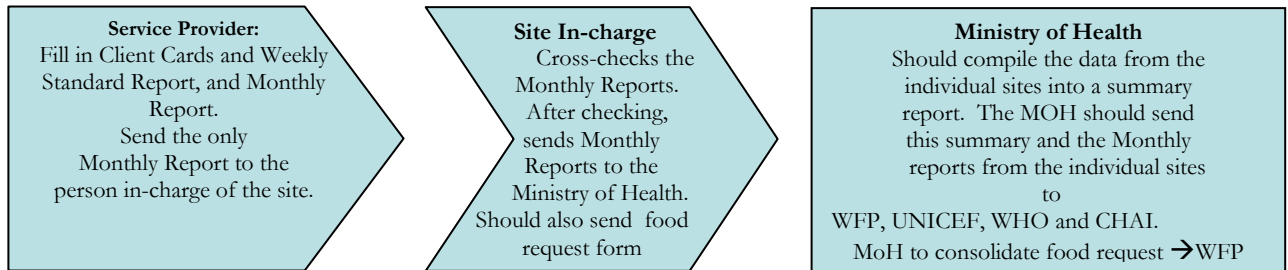
These cards should be stapled to the child health card for children under 5 years. For children older than 5 years of age, these cards should still be issued although the child no longer has a child health card.

Effective Exchange of Information:

Contact between the components of the types of care should be established to ensure that children are admitted and transferred with adequate information and to ensure correct medical and nutritional treatment. A list of contact information for the relevant people at each component of the programme should be maintained and kept at each site. This list should also include the contact information of relevant people at sites to which the children will be referred. For example, the name of the head nurse at the nearest VCT site should be included in this list. Maintaining a current and accurate version of this list will make it easier for healthcare workers to follow-up on patients who have been transferred to different components of the programme.

Reporting System

Now that the steps of monitoring and evaluation have been covered, it is important that each person know his/her role in the process. The flow chart below describes the reporting system of the data for this programme:



Lecture Note: Logistic & Supply of Outpatient Therapeutic Care

1. Appropriate environment:

- **Presence of a water source:** the water must be **drinkable and chlorinated/water guard**. An OTC site must have a water source nearby – for hand washing, cleaning equipment, drinking water for the children and their caregivers etc.
- **Presence of shelter from rain and sun**
- **Presence of proper sanitation facilities:** latrines with a water source nearby for hand washing waste water drains, refuse disposals.

2. Adequate equipment in each management point:

- **Waiting area:** mats/benches.
- **Anthropometric measurement area:** weight scale, height board, MUAC tapes, recording stationary and forms, benches/chairs and table.
- **Registration point:** benches/chairs and table, registration forms (OTC client cards and OTC ration cards), calculator, Plumpy’Nut sachets for appetite test, scissors, drinking water.
- **Medical check up point:** basic medical equipment (thermometer, stethoscope)
- **Drug dispensing point:** essential drugs for systematic treatment.
- **RUTF distribution point:** Plumpy-Nut sachets and stationary for recording.

3. Appropriate storage facility:

Storage facility should be chosen based on the following criteria:

- Solid structure in cement breeze-blocks or planks,
- Protected from damp, well-ventilated, roof in a good state, mosquito netting at the windows, floor in cement, walls coated with lime to avoid the proliferation of insects, protected from rodents. The storage capacity has to be suitable for the quantity to be stored (1 ton of foodstuff = around 2m³)
- Closed with a lock and key,
- Easily accessible to trucks in all seasons.

4. Management of Plumpy’Nut stock at different points:

The Plumpy’Nut Dispenser:

- Checks the amount of Plumpy-Nut sachets used against number of enrolled beneficiaries.

The store Supervisor:

- Completes **stock cards**, delivery dates
- Records quantities received
- Writes a note on the quality.

- Verifies and signs the indicated quantity checked and amount used by the dispenser on a regular basis.

The store keeper:

- ***Checks regularly*** (around once or twice a week) if the balance (=difference between goods in and goods out) corresponds to the ***actual stock***.
- Ensures that actual stock is enough for the centre to function until the next delivery. In the case of error on the last delivery, of theft or error in calculation an additional supply should be arranged before the scheduled date
- Performs a ***physical inventory*** of the stock regularly.
- Ensures storage security through a permanent stock in the Plumpy’Nut distribution point or by taking enough amount of Plummy-Nut sachets for the expected number of beneficiaries on the day of distribution.

5. Forecasting of supply:

This will depend on:

- The plumpy’Nut cartons given
- The number of enrolled beneficiaries
- The storage capacity in the centre
- The distance between the central warehouse and the OTC site
- The availability of vehicles, fuel and drivers
- The type of vehicle (truck, pick-up)
- The security conditions

Estimation of amount of plumpy’Nut to be requested

This will depend on the number of children accessing OTC services on monthly basis. On average, In order to estimate monthly requirements, we use the daily consumption of 3.5 sachets/day (average for the different weight groups).

Example:

If an OTC registers 50 children/month.

The monthly plumpy’Nut requirement for the OTC will be

50 children X 3.5 sachets X 30 days = 5250 sachets/month.

One carton = 150 sachets of plumpy’Nut.

To get the number of cartons /month, divide 5250 by 150 = 35 cartons/month.

- Depending on the storage capacity, and distance, orders for plumpy’Nut can be made according to consumption. However, care should be taken not to wait until the goods are out of stock. Give an allowance for delivery period of about two weeks.
- The number of children who are discharged from OTC can give a rough estimate of the additional number to be enrolled.
- For this program, an estimate of expected monthly enrollment per site has already been forecasted and should not be exceeded

Practical: Logistics and supplies

Instruction

- **Make sure you have enough copies of all the different forms (cards) and calculators for the participants:**
 - The client card
 - The ration card
 - The weekly card
 - The monthly card
 - The stack card
- Introduce the session
- Distribute one type of card at a time and go through the information required and how to fill
- If data is available, it will be a good practice to use actual data from a OTC or SFP books in this exercise.
- Take them through forecasting and calculating amount of RUTF to order. Where possible, **An expert from WFP can be invited for this part (storekeeping)**

ANNEXES

OTC CLIENT CARD

Registration No: _____

<u>PATIENT'S INFORMATION</u>	<u>CAREGIVER'S INFORMATION</u>
Name: _____	Name: _____
Age (if under 5 yrs, record in months, over 5yrs., in years): _____	Age: _____
Date of Birth: _____	Date of Birth: _____
Sex: _____	Sex: _____
W/H: _____ %	Education Level (circle one): No formal Edu./Primary School/Secondary School /Higher Institution
Target Weight: _____ kg	Occupation (circle one): Education/Agriculture/Medicine/ Un-employed/Government/Business/Other
Admission Status (please tick one): From In-patient: _____	Relation to Child (circle one): Mother/Father/Aunt/Uncle/Brother/Sister/ Grandmother/Grandfather/Other
Returned after default: _____ From SFC: _____ From other OTC site: _____ Self-referral/Or referral from other type of health facility : _____	ADDRESS
HIV Status at admission: Positive: _____ Negative: _____ Unknown: _____	District: _____ Tel #: _____
Tested after admission: <u>yes</u> / <u>no</u>	Sub-County/Gombolola: _____ Village (L.C.I.): _____

Visit No.	Date of Visit	Height/Length (cm)	MUAC (mm)	Grade of Oedema (0, +,++)	No. of sachets of RUTF given	CLINICAL NOTES	OTHER FOODS RECEIVED
0							
1							
2							
3							
4							
5							
6							

Summary on Discharge/Exit: Weight on Discharge: _____ kg Height: _____ cm W/H: _____ %
 MUAC: **Exits** (circle one): Cured/Death/Not Responding/Defaulter/Transfer _____ Date of Discharge: _____

OTC RATION CARD

OTC	Registration Number					
	Distribution Site			Village/ L.C.I		
	Name of Child			Age		
	Name of Caregiver					
Date	Date of Next Visit	Weight (kg)	Height/Length (cm) <small>taken at admission, monthly and at discharge</small>	MUAC color*	Grade of Oedema <small>0, +, ++</small>	No. of Sachets of RUTF

***Note:** A MUAC color of red means that the child is acutely malnourished; A MUAC color of yellow means that the child is at risk for acute malnutrition; A MUAC color of green means that the child is properly nourished,

Note: A child receiving Plumpy’Nut **should NOT RECEIVE PRE-MIX CSB.** They can still receive a UNIMIX dry ration of CSB.

PHYSICAL STOCK TAKING RECORD

PHYSICAL STOCK TAKING RECORD								
NO.	DATE	THEORETICAL STOCK		PHYSICAL STOCK		DIFFERENCE	STOREKEEPER	LOGISTICS OFFICER / WAREHOUSE MANAGER
		UNITS	MT	UNITS	MT	THEORETICAL		
						PHYSICAL		
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								