



Government of Malawi  
Ministry of Health

# NUTRITION CARE, SUPPORT, AND TREATMENT (NCST) FOR ADOLESCENTS AND ADULTS

Training for Facility-Based  
Service Providers

## **PARTICIPANT'S MANUAL** **Module 4: Nutrition** **Care Plans and Support**



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## ABBREVIATIONS AND ACRONYMS

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>	greater than
≥	greater than or equal to
<	less than
AIDS	Acquired Immunodeficiency Syndrome
ANC	antenatal care
ART	antiretroviral therapy
ARV	antiretroviral drug
BMI	body mass index
BUN	blood urea nitrogen
cm	centimetre(s)
CMV	combined mineral and vitamin mix
CNA	Critical Nutrition Actions
CMAM	community-based management of acute malnutrition
CSB	corn-soya blend
dL	decilitre(s)
ES/L/FS	economic strengthening/livelihood/food security
FANTA	Food and Nutrition Technical Assistance III Project
FAO	Food and Agriculture Organization of the United Nations
g	gram(s)
Hb	haemoglobin
HIV	human immunodeficiency virus
HTS	HIV Testing Services
IU	international unit(s)
kcal	kilocalorie(s)
kg	kilogram(s)
L	litre(s)
µg	microgram(s)
mL	microlitre(s)
mg	milligram(s)
ml	millilitre(s)
mm	millimetre(s)
MOH	Ministry of Health
MUAC	mid-upper arm circumference
NCST	nutrition care, support, and treatment
OPD	outpatient department
PDSA	plan-do-study-act
PLHIV	person or people living with HIV
PMTCT	prevention of mother-to-child transmission of HIV
QA	quality assurance
QI	quality improvement
RDA	recommended daily allowance
RUTF	ready-to-use therapeutic food
TB	tuberculosis

## MODULE 4

# Contents and Duration



The **Nutrition Care Plans and Support** module takes about **12 hours** to complete.

#	Description	Duration
4.0	<b>Introduction</b> <ul style="list-style-type: none"><li>• Module Objectives</li><li>• Review of Module 2</li></ul>	<b>1¼ hours</b>
4.1	<b>Nutrition Care Plans and Support for Adolescent and Adult Clients</b>	<b>8 hours</b>
4.2	<b>Summary of Therapeutic and Supplementary Food Products Available for Adolescents and Adults in Malawi</b>	<b>1½ hours</b>
4.3	<b>Referral from the Facility to Community Economic Strengthening, Livelihoods, and Food Security Support</b>	<b>1 hour</b>
4.4	<b>Discussion and Module Evaluation</b>	<b>15 minutes</b>

### Learning objectives

By the end of this module, participants will be able to:

1. Understand how to choose an appropriate nutrition care plan and support for a client based on his/her nutritional status
2. Describe therapeutic and supplementary food products available for adolescents and adults in Malawi and how to manage the supplies
3. Understand the process of referring clients from the facility to community ES/L/FS services

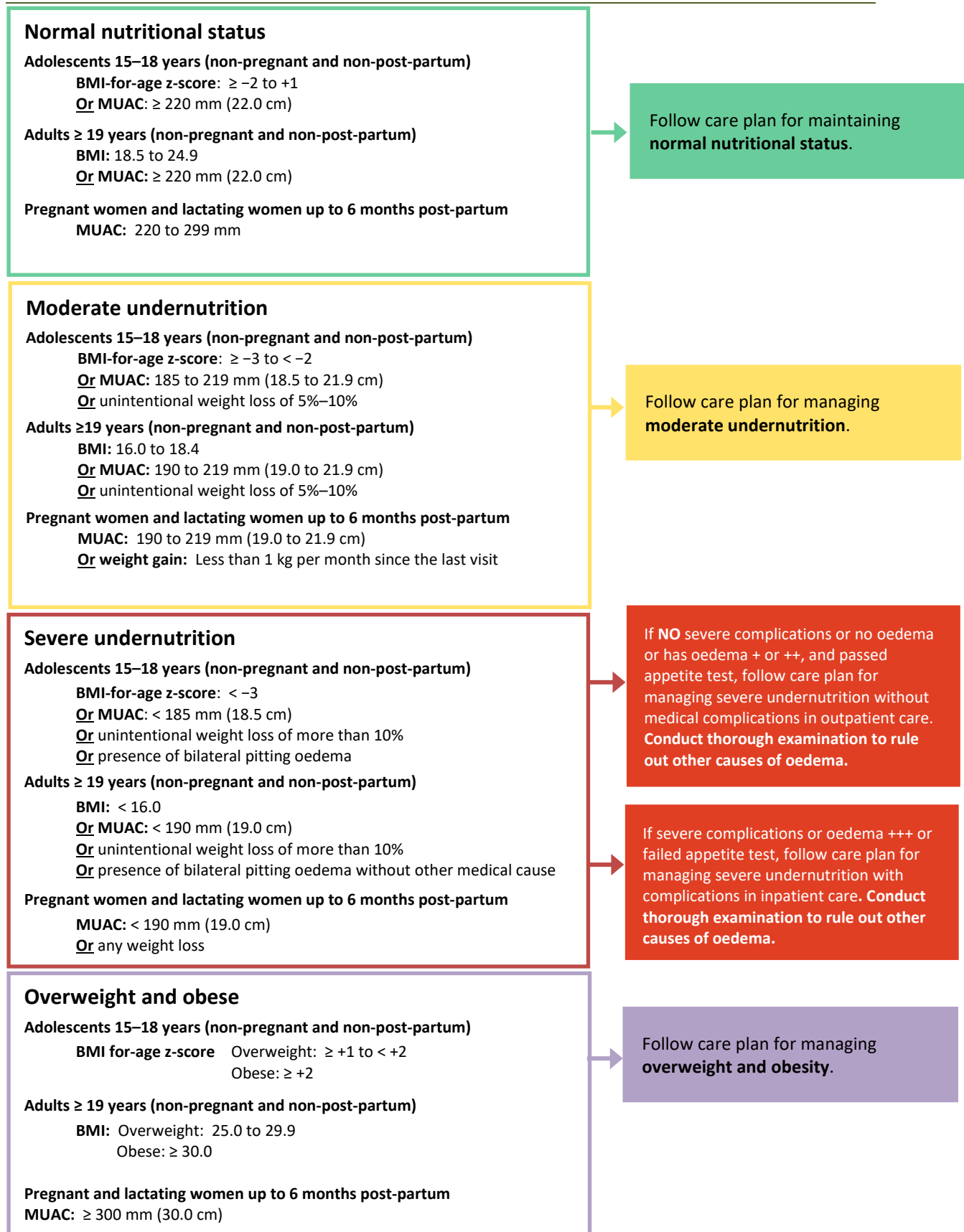
## Reference 4.0: NCST Competencies and Standards for Nutrition Care Plans

**Competence** can be defined as the ability to apply knowledge and skills to produce a required nutrition outcome.

**Competency standards** define the range of skills that are needed to achieve a desired nutrition outcome.

Competency	Minimum Standards
<b>1. Provide nutrition support to an adolescent or adult with normal nutritional status</b>	Identify normal nutritional status in adolescents, adults, and pregnant and lactating women (up to 6 months post-partum)
	Provide medical care and support to a client
	Provide nutrition care and support to a client
	Refer client to economic strengthening, livelihoods, and food security (ES/L/FS) support and follow up the client
<b>2. Provide nutrition support to an adolescent or adult with moderate undernutrition</b>	Identify moderate undernutrition in adolescents, adults, and pregnant and lactating women (up to 6 months post-partum)
	Provide medical care and support to a client
	Provide nutrition care and support to a client
	Refer client to ES/L/FS support and follow up the client
	Transition a client from the care plan for moderate undernutrition to a care plan for normal nutritional status
<b>3. Provide nutrition support to an adolescent or adult with severe undernutrition without medical complications</b>	Identify severe undernutrition without medical complications in adolescents, adults, and pregnant and lactating women (up to 6 months post-partum)
	Provide medical care and support to a client
	Provide nutrition care and support to a client
	Refer client to ES/L/FS support and follow up the client
	Transition a client from the care plan for severe undernutrition without medical complications to a care plan for moderate undernutrition
<b>4. Provide nutrition care and support to an adolescent or adult with severe undernutrition with medical complications</b>	Identify severe undernutrition with medical complications in adolescents, adults, and pregnant and lactating women (up to 6 months post-partum)
	Provide medical care and support to a client
	Provide nutrition care during the initial phase of inpatient care
	Transition a client from the initial phase to rehabilitation phase
	Refer and follow up a client from inpatient to outpatient care
<b>5. Provide nutrition support to an adolescent or adult who is overweight or obese</b>	Identify overweight and obesity in adolescents, adults, and pregnant and lactating women (up to 6 months post-partum)
	Provide medical care and support to a client
	Provide nutrition care and support to a client
	Refer client to ES/L/FS support and follow up the client

## Reference 4.1: Classifying Nutritional Status of Adolescents 15–18 Years and Adults ≥ 19 Years



## Exercise 4.1. Mpasa Clinic Register

The table below shows the Mpasa Clinic Register. The register contains information about eight adolescents and adults who were seen on a clinic day.

Classify the nutritional status of each client and write it in the 'Nutritional status' column.

ID	Sex	Age (years)	HIV status	Complications?	Bilateral pitting oedema	MUAC (cm or colour)	Height (cm)	Weight (kg)	Nutritional status
17	M	20	-	No	No	21.5	Too ill to stand	62	
18	M	14	+	No	No	15	Too ill to stand	54	
19	F	27	+	Yes	No	—	166	72	
20	M	46	+	No	No	—	160	80	
21	F	19	+	Yes	No	—	164	48	
22	F	31	+	No	No	—	162	49	
23	F	37	+	No	No	—	156	42	
24	M	26	+	Yes	No	—	178	84	



## Exercise 4.2: Case Study—Mr. Sambo, Chisomo, and Mrs. Sambo

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### Part 1

Mr. Sambo is 42 years of age and is HIV-positive. He looks thin because he has been losing weight for the past 3 months. Mr. Sambo is coughing a lot and has oral thrush, diarrhoea, and skin problems. He looks pale. He decides to go to a health facility for care and treatment. At the facility, he has several tests done and gets his diarrhoea and skin problems treated. He weighs 49 kg and is 168 cm tall. He is referred to a nearby ART clinic.

### Part 2

Mr. Sambo goes to the ART clinic with his son Chisomo, age 15 years. Mr. Sambo says Chisomo's mother had to stay home because she is pregnant and tired. He tells the health care provider that his son is not eating well, has lost weight in the past 2 months, and has had diarrhoea and a cough. Chisomo's MUAC is 15.5 cm. He looks thin (his ribs can be seen) and pale. He has oedema in both feet. No blood has been seen in his stool, but he has had fever for almost a week. He is not on any medications. His eyes are sunken, and there is a prolonged skin pinch. He is thirsty. He has generalised lymphadenopathy, finger clubbing, and parotid enlargement. His respiratory rate is 48 breaths per minute (rapid). Mr. Sambo says Chisomo was diagnosed with HIV during a hospital admission last year but is not yet on ART. The health care provider starts Chisomo on ART.

### Part 3

Mr. Sambo has been coming for his nutrition monitoring visits and is feeling much better. He is now on ART, has gained weight, and now weighs 53 kg. His cough and diarrhoea have disappeared, and even though he still has skin problems, his skin has greatly improved. At the ART clinic, Mr. Sambo is praised for the good work he has done and is encouraged to eat healthy meals to maintain his healthy weight. His worry is that some friends told him that once he is on ART, he will have to eat very well, but he does not know how he will buy enough good food. Drinking alcohol has always been part of his life, and now he is worried he will have to stop because he is on ART.

### Part 4

Mr. Sambo returns to the clinic after 2 months. He tells the service provider that he missed his appointment at 1 month because he had to attend an important family event. He says he has been eating a lot and feels good that his clothes are now becoming tight and that his friends are praising him for his weight gain. He now weighs 73 kg.

### Part 5

Mrs. Sambo is HIV-positive and has been on ART treatment for some time. She is 7 months pregnant. The health care provider at the ART clinic measures her; she weighs 96 kg, is 167 cm tall, and has a MUAC of 32 cm.

## Part 6

Mrs. Sambo brings Chisomo back to the ART clinic on the agreed date (1 month after his second visit). He looks better, and his mother is happier. It has been 3 months since he was discharged from inpatient treatment for SAM. His MUAC is now 19.5 cm. Mrs. Sambo reports no diarrhoea or other illnesses and says Chisomo's weight did not change the last two times he was weighed. Three months ago, Chisomo started on first-line ARVs, which his mother has been collecting every month. The ART site team counselled his mother on treatment and adherence. Chisomo tested negative for TB.

## Part 7

It has been 7 months since Chisomo first arrived at the ART clinic. He is now doing very well. He has gained more weight, and his MUAC is 22.7 cm. He had one episode of diarrhoea (four loose stools) on Wednesday last week, but this was managed at home. He is also complaining that the ARV drugs sometimes make him lose his appetite. He seems to be adhering to the medication.

## Reference 4.2: Nutrition Care Plans for Clients with Normal Nutritional Status

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### **Adolescents 15–18 years (non-pregnant and non-post-partum):**

- BMI-for-age:  $\geq -2$  to  $+1$  OR
- MUAC:  $\geq 220$  mm (22.0 cm)

### **Adults $\geq 19$ years (non-pregnant/non-post-partum):**

- BMI: 18.5 to 24.9 OR
- MUAC:  $\geq 220$  mm (22.0 cm)

### **Pregnant women and lactating women up to 6 months post-partum:**

- MUAC: 220 to 299 mm (22.0 to 29.9 cm)

### **Step 1. Provide Medical Care and Support for Clients with Normal Nutritional Status**

1. Review the client's medical records and condition and provide or refer for treatment according to the national guidelines for clinical management of HIV in children and adults or for infection prevention and control of TB.
2. Treat any medical conditions that were identified during the assessment
3. If the client's HIV status is unknown, provide or refer for HIV Testing Services (HTS).
4. If the client tests positive for HIV but is not on ART, start treatment or refer for treatment according to the national guidelines for clinical management of HIV in children and adults.
5. If the client tests positive for TB but is not receiving TB treatment, ensure that treatment is initiated immediately according to the national TB guidelines.
6. Find out whether the client is experiencing symptoms that affect nutrition and counsel on how to manage the symptoms.
7. If the client is a pregnant or lactating woman up to 6 months post-partum:
  - If the woman is HIV-positive, ensure provision of ARVs for both the mother and infant according to the national guidelines for clinical management of HIV in children and adults.
  - Give iron/folic acid every day (lactating woman up to 6 months post-partum) and counsel the woman to take the supplements as directed and on how to manage possible side effects.
  - If the client is pregnant, provide malaria prophylaxis (sulfadoxine pyrimethamine) and deworming tablets (e.g., Albendazole) according to national malaria guidelines.

### **Step 2. Provide Nutrition Care and Support for Clients with Normal Nutritional Status**

1. Praise the client for good nutrition practices and explain the need to maintain those practices to avoid becoming undernourished or overnourished.

2. Review the client's nutrition records and address issues of concern.
3. Provide tailored counselling, explaining the need for adherence to medication; regular clinic visits; adequate diet; and water, sanitation, and hygiene (WASH) actions. **These topics are covered in the NCST counselling flipchart.**

### **Step 3. Refer and Plan to Follow Up a Client Who Has Normal Nutritional Status**

1. Make an appointment to review the client's progress in 3 months or during the next ART or TB review/drug collection appointment date. Tell the client to return to the health facility earlier if he or she experiences any health-related problems.
2. If the client is a pregnant woman or a lactating woman up to 6 months post-partum, make an appointment to review the client's progress during the next antenatal or post-natal visit.
3. Ask the client if his or her economic situation has changed in a way that could affect access to food. If so, refer the client for ES/L/FS assessment and support.

## Exercise 4.3: Nutrition Care Plan for Normal Nutritional Status

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1. What criteria determine whether an adolescent or adult is eligible for a nutrition care plan for normal nutritional status?
2. What nutrition care and support should be provided to a client with normal nutritional status?
3. How often should health workers follow up a client with normal nutritional status?
4. When should nutrition counselling be provided to clients with normal nutritional status?

### **Role Play: Nutrition Counselling for a Client with Normal Nutritional Status**

- Go to part 3 of the case study (Mr. Sambo) in **Exercise 4.2**.
- Observe the two volunteers, one who plays the health care provider and the other who plays the patient (Mr. Sambo).
- Provide feedback at the end of the role play.

## Reference 4.3: Nutrition Care Plan for Clients with Overweight and Obesity

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### **Adolescents 15–18 years (non-pregnant and non-post-partum):**

#### **BMI-for-age:**

- Overweight:  $\geq +1$  to  $< +2$
- Obese:  $\geq +2$

### **Adults $\geq 19$ years (non-pregnant and non-post-partum):**

#### **BMI:**

- Overweight: 25.0 to 29.9
- Obese:  $\geq 30.0$

### **Pregnant women and lactating women up to 6 months post-partum:**

#### **MUAC:**

- Overweight/obese:  $\geq 300$  mm (30.0 cm)

## Step 1. Provide Medical Care and Support for Clients Who Are Overweight or Obese

1. Review the client's medical records and condition and provide or refer for treatment according to the national guidelines for clinical management of HIV in children and adults or for infection prevention and control of TB.
2. Treat any medical conditions that were identified during the assessment.
3. Check the client for risk factors of non-communicable diseases:
  - Check the client's blood pressure. If blood pressure is above normal, manage according to the national guidelines for non-communicable diseases.
  - Check the client's fasting blood glucose levels to assess for diabetes or pre-diabetes. If fasting blood glucose is above normal, manage according to the national guidelines for non-communicable diseases.
  - If the facility is equipped for lab work, check cholesterol levels.
4. If the client's HIV status is unknown, provide or refer for HTS.
5. Find out whether the client is experiencing symptoms that affect nutrition and counsel on how to manage the symptoms.
6. If the client tests positive for HIV but is not on ART, start treatment or refer for treatment according to the national guidelines for clinical management of HIV in children and adults.
7. If the client tests positive for TB but is not receiving TB treatment, ensure that treatment is initiated immediately according to the national TB guidelines.
8. If the client is a pregnant or lactating woman up to 6 months post-partum:
  - If the woman is HIV-positive, ensure provision of ARVs for both the mother and infant according to the national guidelines for clinical management of HIV in children and adults.

- Give iron/folic acid every day (lactating woman up to 6 months post-partum) and counsel the woman to take the supplements as directed and on how to manage possible side effects.
- If the client is pregnant, provide malaria prophylaxis (sulfadoxine pyrimethamine) and deworming tablets (e.g., Albendazole) according to national malaria guidelines.

## Step 2. Provide Nutrition Care and Support for Clients Who Are Overweight or Obese

1. Review the client's nutrition records and provide tailored counselling, explaining the need for adherence to medication, regular clinic visits, adequate diet, and WASH actions. **These topics are covered in the NCST counselling flipchart.**
2. Be sure to counsel the client on making changes to diet and physical activity to attain a healthy weight range within BMI of 18.5 to 25.0. This can be achieved by:
  - Reducing the intake of highly processed food, fatty food, junk foods, sweet drinks, and sugary foods
  - Increasing the consumption of fresh fruits and vegetables
  - Doing at least 30 minutes of physical exercise every day, such as walking, jogging, and doing household chores
  - Reducing portion sizes
3. If the client is pregnant, do not encourage weight loss, but set appropriate weight gain targets for pregnancy and encourage healthy eating habits.

## Step 3. Refer and Plan to Follow Up a Client Who Is Overweight or Obese

1. Make an appointment to review the client's progress in 1 month or during the next ART or TB review/drug collection appointment date. Tell the client to return to the health facility earlier if he or she experiences any health-related problems.
2. If the client is a pregnant or lactating woman up to 6 months post-partum, make an appointment to review the client's progress during the next antenatal or post-natal visit.
3. Ask the client if his or her economic situation has changed in a way that could affect access to food. If so, refer the client for ES/L/FS assessment and support.

## Exercise 4.4: Nutrition Care Plan for Overweight and Obesity

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1. What criteria determine whether an adolescent or adult is eligible for a nutrition care plan for overweight and obesity?
2. What nutrition care and support should be provided to a client who is overweight or obese?
3. How often should health workers follow up a client who is overweight or obese?
4. What should nutrition counselling of clients who are overweight and obese focus on?

### **Role Play: Nutrition Counselling for a Client with Overweight and Obesity**

- Refer to part 4 of the case study on Mr. Sambo in **Exercise 4.2**.
- Observe and provide feedback at the end of each role play.
- Refer to part 5 of the case study on Mrs. Sambo in **Exercise 4.2**.
- Observe and provide feedback at the end of each role play.



## Reference 4.4: Nutrition Care Plan for Clients with Moderate Undernutrition

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### **Adolescents 15–18 years (non-pregnant and non-post-partum):**

- **BMI for-age:**  $\geq -3$  to  $< -2$  OR
- **MUAC:** 185 mm to 219 mm (18.5 to 21.9 cm) OR
- **Unintentional weight loss of 5%–10%**

### **Adults $\geq 19$ years (non-pregnant and non-post-partum):**

- **BMI:** 16.0 to 18.4 OR
- **MUAC:** 190 mm to 219 mm (19.0 to 21.9 cm) OR
- **Unintentional weight loss of 5%–10%**

### **Pregnant women and lactating women up to 6 months post-partum:**

- **MUAC:** 190 mm to 219 mm (19.0 to 21.9 cm) OR
- **Weight gain:** Less than 1 kg per month since the last visit

## Step 1. Provide Medical Care and Support for Clients with Moderate Undernutrition

1. Review the client's medical records and condition and provide or refer for treatment according to the national guidelines for clinical management of HIV in children and adults or for infection prevention and control of TB.
2. Treat any medical problems that were identified during the assessment.
3. If the client's HIV status is unknown, provide or refer for HTS.
4. If the client is HIV-positive but is not on ART, start treatment or refer for treatment according to the national guidelines for clinical management of HIV in children and adults.
5. If client is HIV-positive, on ART, and losing weight, provide further clinical and dietary assessment to find the cause of weight loss.
6. If the client tests positive for TB but is not receiving TB treatment, ensure that treatment is initiated immediately according to the national TB guidelines.
7. If the client has TB, is receiving TB treatment, but is losing weight, refer for further medical assessment.
8. Find out whether the client is experiencing symptoms that affect nutrition and counsel on how to manage the symptoms.
9. If the client is anaemic, provide or refer for treatment according to the national guidelines.
10. If the client is a pregnant or lactating woman up to 6 months post-partum:
  - If the woman is HIV-positive, ensure provision of ARVs for both the mother and infant according to the national guidelines for clinical management of HIV in children and adults.
  - Give iron/folic acid every day (lactating woman up to 6 months post-partum) and counsel the woman to take the supplements as directed and on how to manage possible side effects.

- If the woman is pregnant, provide malaria prophylaxis (sulfadoxine pyrimethamine) and deworming tablets (e.g., Albendazole) according to national malaria guidelines.

## Step 2. Provide Nutrition Care and Support for Clients with Moderate Undernutrition

1. Review the client’s nutrition records and address issues of concern.
2. Provide tailored counselling, explaining the need for adherence to medication, regular clinic visits, adequate diet, and WASH actions. **These topics are covered in the NCST counselling flipchart.**
3. Provide counselling and support on how the client can consume 20% more energy, using locally available nutritious foods. If the client is an adolescent, more additional energy may be required to gain and maintain weight.
4. Provide the client with supplementary food, such as fortified corn-soya blend (CSB+) (*likuni phala*) or Vitameal. The table below shows the supplementary food ration sizes to be provided to an adolescent or adult client.

### Supplementary Food Ration Sizes for Adolescents and Adults

Group	Daily Ration			Monthly Ration		
	CSB+ ( <i>likuni phala</i> ) and oil		Vitameal	CSB+ ( <i>likuni phala</i> ) and oil		Vitameal
Adolescents and adults (including pregnant and lactating women up to 6 months post-partum)	300 g	33.33 ml	300 g	9.0 kg	1 L	4.5 kg

5. Counsel the client to eat the supplementary food as an additional snack, not to replace normal meals, and not to share it with other household members. Explain that the product is medicine to help improve his or her nutritional status.
6. Show the client how to prepare the supplementary food at home. Explain to the client how much of the *likuni phala* or Vitameal he or she should eat each day.

## Step 3. Refer and Plan to Follow Up a Client with Moderate Undernutrition

1. Make an appointment to review the client’s progress after 1 month. Tell the client to return earlier if he or she experiences any health-related problems before the next appointment.
2. At follow-up visits, refer the client for further medical examination or nutrition assessment if he or she is losing weight.
3. Ask the client if his or her economic or livelihood situation has changed in a way that impairs access to food. If so, refer the client for ES/L/FS assessment and support.
4. Transition the client to the nutrition care plan for normal nutritional status when:
  - Opportunistic infections have been cured.
  - The client has steady weight gain and reached the BMI, BMI-for-age, or MUAC cutoffs in the table below for two consecutive visits.

### Cutoffs for Transitioning from Moderate Undernutrition to Normal Nutritional Status

Group	BMI	BMI-for-age	MUAC	Weight gain
15–18 years		≥ -2	≥ 220 mm (22.0 cm)	At least 10% of body weight
≥ 19 years	≥ 18.5		≥ 225 mm (22.5 cm)	
Pregnant women and lactating women up to 6 months post-partum			≥ 225 mm (22.5 cm)	At least 2 kg per month

- If a client was admitted for treatment of moderate undernutrition due to unintentional weight loss, the client should be transitioned to the nutrition care plan for normal nutritional status if he or she:
  - Gains at least 10% of the body weight.
  - Has a steady weight gain and meets the BMI, BMI-for-age, or MUAC cutoffs in the table above for two consecutive visits.

## Exercise 4.5: Nutrition Care Plan for Moderate Undernutrition

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1. What criteria determine whether an adolescent or adult is eligible for a nutrition care plan for moderate undernutrition?
2. What specialised foods are given to clients under the nutrition care plan for moderate undernutrition?
3. What quantities of specialised foods per day do you give to adolescents and adults under the nutrition care plan for moderate undernutrition?
4. What messages should health care providers focus on when giving nutrition counselling and education to adolescents and adults with HIV and/or TB who have moderate undernutrition?
5. How often should health care providers follow up clients with moderate undernutrition?

### **Role Play: Nutrition Care Plan for Moderate Undernutrition**

- Refer to part 6 of the case study on Chisomo in **Exercise 4.2**.
- Observe and provide feedback after the role play.

## Reference 4.5: Nutrition Care Plan for Clients with Severe Undernutrition without Medical Complications

### Adolescents 15–18 years (non-pregnant and non-post-partum):

- BMI-for-age: < -3 OR
- MUAC: 15–18 years: < 185 mm (18.5 cm) OR
- Unintentional weight loss of more than 10% OR
- Presence of bilateral pitting oedema + or ++ AND
- Passed appetite test

### Adults ≥ 19 years (non-pregnant/non-post-partum):

- BMI: < 16.0 OR
- MUAC: < 190 mm (19.0 cm) OR
- Unintentional weight loss of more than 10%
- Presence of bilateral pitting oedema + or ++ AND
- Passed appetite test

### Pregnant women and lactating women up to 6 months post-partum:

- MUAC: < 190 mm (19.0 cm) OR
- Any weight loss

## Step 1. Provide Medical Care and Support for Clients with Severe Undernutrition without Medical Complications

1. Review the client's medical records and condition and provide or refer for treatment according to the national guidelines for clinical management of HIV in children and adults or for infection prevention and control of TB.
2. Treat any medical conditions that were identified during the assessment.
3. If the client's HIV status is unknown, provide or refer for HTS.
4. If the client is HIV-positive but is not on ART, start treatment or refer for treatment according to the national guidelines for clinical management of HIV in children and adults.
5. If the client tests positive for TB but is not receiving TB treatment, ensure that treatment is initiated immediately according to the national TB guidelines.
6. If the client has HIV or TB, is receiving ART or TB treatment but is losing weight, conduct further clinical and dietary assessment to find the cause of weight loss.
7. Find out whether the client is experiencing symptoms that affect nutrition and counsel on how to manage the symptoms.
8. Assess the client for anaemia:
  - If the client has severe anaemia (Hb < 7.0 g/dL), refer the client for further assessment and treatment in inpatient care.
  - If the client has mild or moderate anaemia (male: Hb 7.0–13.7 g/dL, female: Hb 7.0–12.0 g/dL), DO NOT give iron/folic acid; ready-to-use therapeutic food (RUTF) contains iron/folic acid. As the client's nutritional status improves, it is expected that Hb levels will improve.

## Step 2. Provide Nutrition Care and Support for Clients with Severe Undernutrition without Medical Complications

1. Conduct an appetite test by offering the client one sachet of RUTF. The client should eat at least half of the sachet in about 30 minutes. If the client has no appetite, try giving smaller amounts of RUTF every 10–15 minutes. If the client still does not eat the RUTF, refer the client to inpatient care.
2. If the client has a good appetite (passes the appetite test), is willing to manage severe undernutrition at home, and has someone at home to support him or her, provide three sachets of RUTF and 300 grams of *likuni phala* or Vitameal per day.
3. Explain to the client the following key messages:
  - RUTF and *likuni phala* are food-based medicines to treat your current poor nutritional status. They should not be shared.
  - If you are having trouble eating, eat small frequent meals of RUTF and *likuni phala*. Finish all the RUTF and *likuni phala* allocated for each day.
  - In addition to RUTF and *likuni phala*, eat meals with your family and snacks between meals.
  - When suffering from diarrhoea, do not stop eating. Continue to eat the RUTF, *likuni phala*, and other nutritious foods, and drink plenty of fluids.
4. RUTF and *likuni phala* provide needed micronutrients; therefore, do not give an additional micronutrient supplement.
5. Provide tailored counselling, explaining the need for adherence to medication, regular clinic visits, adequate diet, and WASH actions. **These topics are covered in the NCST counselling flipchart.**

**NOTE:** Severely undernourished pregnant and lactating women up to 6 months postpartum **SHOULD NOT** be treated with RUTF. Provide the client with only *likuni phala* or other supplementary food that meets recommended standards. RUTF contains high doses of vitamin A, above the recommended 10,000 IU per day. High doses of vitamin A can cause teratogenic effects in early pregnancy. Encourage pregnant and lactating women to meet their additional energy requirements by eating other home-prepared nutritious foods.

## Step 3. Refer and Plan to Follow Up with a Client with Severe Undernutrition without Medical Complications

1. Make an appointment to review the client's progress after 2 weeks in the first month of treatment. When the client's condition improves, review progress once a month. Tell the client to return to the health facility earlier if he or she experiences any health-related problems before the next appointment.
2. Refer the client for further medical assessment if the client develops bilateral pitting oedema OR is not gaining weight OR has lost weight for two consecutive visits.
3. Ask the client if his or her economic or livelihood situation has changed in a way that impairs access to food. If so, refer the client for ES/L/FS assessment and support.
4. Transition the client to the nutrition care plan for moderate undernutrition when:

- Opportunistic infections have been managed
- The client has a steady weight gain and reached the BMI, BMI-for-age, or MUAC cutoffs listed in the table below for two consecutive visits.

### Cutoffs for Transitioning from Severe Undernutrition without Medical Complications to Moderate Undernutrition

Group	BMI	BMI-for-age	MUAC	Weight gain
15–18 years		≥ -3	≥ 185 mm (18.5 cm)	10% or more of body weight
≥ 19 years	≥ 16.0		≥ 190 mm (19.0 cm)	
Pregnant women and lactating women up to 6 months post-partum			≥ 190 mm (19.0 cm)	At least 2.0 kg per month

- If a client was admitted for treatment of severe undernutrition due to unintentional weight loss, the client should be transitioned to the nutrition care plan for moderate undernutrition if he or she:
  - Gains 10% or more of his/her body weight
  - Has a steady weight gain and meets the BMI, BMI-for-age, or MUAC cutoffs in the table above for two consecutive visits

## Reference 4.6: How to Conduct RUTF Appetite Test

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All adults and adolescents with HIV and/or TB who are classified as having severe undernutrition should take a ready-to-use therapeutic food (RUTF) appetite test to determine the next step for treatment. If an adult or adolescent with severe undernutrition has no appetite and cannot eat enough of the RUTF, he or she should be referred for treatment in inpatient care.

Steps for conducting an appetite test:

1. Conduct the appetite test in a quiet, separate area.
2. Explain to the adolescent/adult or caregiver the purpose of the appetite test and outline the procedures involved.
3. Wash hands before giving the RUTF, and have the client wash his/her hands before eating the RUTF.
4. Offer the client plenty of clean water in a cup to drink while eating the RUTF.
5. Observe the adolescent/adult eating the RUTF and determine if he/she passes or fails the appetite test within 30 minutes.

**\*\*Adult clients should finish at least one sachet of RUTF to pass the appetite test.**



## Exercise 4.6: Nutrition Care Plan for Severe Undernutrition Without Medical Complications

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1. What criteria determine whether an adolescent or adult is eligible for a nutrition care plan for severe undernutrition without medical complications?
2. What specialised food products are given to clients under the Nutrition Care Plan for severe undernutrition without medical complications?
3. What quantities of specialized food products should be given per day to adolescents or adults with severe undernutrition without medical complications?
4. What key messages should be given to adolescents and adults with severe undernutrition without medical complications?
5. What other interventions/services are given to adolescents and adults with severe undernutrition without medical complications?
6. How often should adolescents and adults with severe undernutrition without medical complications be followed up?

## Reference 4.7: Nutrition Care Plan for Clients with Severe Undernutrition with Medical Complications

Most adolescents and adults with severe undernutrition will present with other health problems. Some medical conditions can be treated at home, but some clients may have medical complications that require inpatient treatment. The following complications indicate that a patient requires inpatient management of severe undernutrition:

- Severe bilateral pitting oedema (Grade +++)
- Failed appetite test
- Infection that requires intravenous antibiotics
- Inability to care for oneself and lack of caretakers at home
- Severe infection that requires hospitalisation according to the national guidelines for clinical management of HIV in children and adults or for TB control

- **Bilateral pitting oedema +++**
- **Any of the following anthropometric measurement criteria for severe undernutrition:**
  - Adolescents 15–18 years (non-pregnant and non-post-partum):
    - BMI-for-age: < -3 OR
    - MUAC: < 185 mm (18.5 cm) OR
    - Unintentional weight loss of more than 10%
  - Adults ≥ 19 years (non-pregnant/non-post-partum):
    - BMI: < 16.0 OR
    - MUAC: < 190 mm (19.0 cm) OR
    - Unintentional weight loss of more than 10%
  - Pregnant women and lactating women up to 6 months post-partum:
    - MUAC: < 190 mm (19.0 cm) OR
    - Any weight loss
- **WITH any of the following medical conditions**
  - Failed appetite test
  - Severe infections or medical conditions that require hospitalisation according to the national guidelines for clinical management of HIV in children and adults or for TB control

### Step 1. Provide Medical Care and Support for Clients with Severe Undernutrition with Medical Complications

1. Treat clients with severe undernutrition with medical complications (no appetite, oedema +++, and severe infections or medical conditions that require hospitalisation) in inpatient care.
2. Review the client's medical records and condition and treat severe infections and other medical conditions, such as severe anaemia, chronic diarrhoea, and severe dehydration, according to the national guidelines for clinical management of HIV in children and adults or for infection prevention and control of TB.
3. If the client's HIV status is unknown, provide or refer for HTS.

4. If the client is HIV-positive but is not on ART, start treatment or refer for treatment according to the national guidelines for clinical management of HIV in children and adults.
5. If the client tests positive for TB but is not receiving TB treatment, ensure that treatment is initiated immediately according to the national TB guidelines.
6. If client is HIV-positive, is receiving ART, but is losing weight, conduct further clinical and dietary assessment to find the cause of weight loss.
7. If the client has TB, is receiving TB treatment, but is losing weight, conduct further clinical and dietary assessment to find the cause of weight loss.
8. If the client is an HIV-positive pregnant or lactating woman, ensure provision of ARVs for both the mother and infant according to the national guidelines for clinical management of HIV in children and adults.

## Step 2. Provide Nutrition Care and Support for Clients with Severe Undernutrition with Medical Complications

1. After the client is admitted to inpatient care, give him or her F-75 therapeutic milk as an initial feed for the first 1–2 days based on weight (130 ml/kg/day). If the client has severe (+++) oedema, his or her weight will not be a true weight; the weight may be as much as 30% higher due to excess fluid. To compensate for the excess weight, give the client only 100 ml/kg/day of F-75.

The table below shows daily amounts of F-75 feeds for adolescents and adults who are severely underweight or have bilateral pitting oedema + or ++, and admitted to inpatient care.

Weight of patient (kg)	Amount of each feed (ml) (8 feeds per day)
15.0–19.9	260
20.0–24.9	290
25.0–29.9	300
30.0–39.9	320
40.0–60.0	350

The table below shows daily amounts of F-75 feeds for adolescents and adults with severe bilateral pitting oedema (+++).

Weight of patient (kg)	Amount of each feed (ml) (8 feeds per day)
15.0–19.9	210
20.0–24.9	230
25.0–29.9	240
30.0–39.9	255
40.0–60.0	280

- **How to prepare F-75:** When using commercial prepackaged F-75, mix one packet of F-75 (102.5 g) with 500 ml of cooled boiled water.

2. It will take about 2–3 days for a client to transition from F-75 to a more energy-dense therapeutic food, such as RUTF or F-100 therapeutic milk. Transition a client when the following criteria are met:
  - The client has good appetite (easily finishes the F-75 feeds).
  - Bilateral pitting oedema is subsiding, e.g., severe oedema (+++) has reduced to moderate (++) .
  - No serious medical problems or complications that require intravenous treatment exist.
3. When the condition is improving and the client is ready to transition, gradually introduce RUTF. Test the acceptability of RUTF by offering it to the client every meal time. Ask the client to first eat RUTF before providing F-75 feeds. If the client does not finish at least two sachets of RUTF for the day, ‘top up’ with F-75 milk feeds. The amount of F-75 to top up with will be determined by the number of RUTF sachets consumed. If less than one sachet of RUTF is consumed, the top-up amount of F-75 is equal to the daily ration size of F-75. If one to two sachets are consumed, then top up with 50% of the daily ration size of F-75.
4. When the client is able to consume at least two sachets of RUTF, stop giving the F-75 milk feeds. Encourage the client to drink water freely.
5. Monitor intake of RUTF for the next 1–2 days, ensuring that the client can consume the recommended daily ration of three sachets of RUTF. During this period, encourage the client to consume *likuni phala* when he or she has completed the daily RUTF ration.
6. If the client develops complications during the transition period, return him or her to the initial phase using F-75 feeds and provide appropriate medical care. If the client tolerates RUTF and complications have stabilised during this period, discharge to continue treatment in outpatient care.
7. If the client has difficulty eating RUTF due to mouth sores or severe oral thrush, use F-100 therapeutic milk instead of RUTF during the transition period.

The table below shows daily amounts of F-100 feeds to give adolescents and adults during the transition period.

Weight of patient (kg)	Amount of each feed (ml) (6 feeds per day)	Amount of each feed (ml) (5 feeds per day)
15.0–19.9	300	400
20.0–24.9	320	450
25.0–29.9	350	450
30.0–39.9	370	500
40.0–60.0	400	500

- **How to prepare F-100:** When using prepackaged F-100, mix one packet of F-100 (114 g) with 500 ml of cooled boiled water.

**NOTE:** Severely undernourished pregnant and lactating women **SHOULD NOT** be treated with RUTF or F-100 during transition or rehabilitation. Provide the client only with *likuni phala* or another supplementary food that meets recommended standards. RUTF and F-100 contain high doses of vitamin A, above the recommended 10,000 IU per day. High doses of vitamin A can cause teratogenic effects in early pregnancy. Encourage pregnant and lactating women to meet their additional energy requirements by eating other home-prepared nutritious foods.

8. When the client successfully transitions to F-100 feeds (i.e., easily finishes daily amount of F-100 feeds and medical condition has stabilised), increase the amount of F-100 gradually by 10–20 ml during each feed. Ensure that the F-100 feeds do not exceed the amounts in the table below during the rehabilitation period.

Weight of patient (kg)	Amount of each feed (ml) (6 feeds per day)	Amount of each feed (ml) (5 feeds per day)
15.0–19.9	550	650
20.0–24.9	650	780
25.0–29.9	750	900
30.0–39.9	850	1,000
40.0–60.0 kg	1,000	1,200

If the client is in the rehabilitation phase and taking F-100, add one crushed tablet of ferrous sulphate (200 mg) to each 2–2.4 L of F-100. If smaller amounts of F-100 are needed, ferrous sulphate must first be diluted. For 1,000 to 1,200 ml of F-100, dilute one tablet of ferrous sulphate (200 mg) in 4 ml water and add 2 ml of the solution. For 500–600 ml of F-100, add 1 ml of the solution.

9. For clients with oral thrush or mouth sores, conduct an RUTF appetite test. If the client passes the test, monitor the RUTF intake for 1 day and discontinue the F-100 feeds. When the client is eating RUTF, stop giving iron/folic acid because RUTF contains adequate amounts of iron/folic acid.
10. After the client is able to eat the RUTF, give the client three sachets of RUTF and 300 g of *likuni phala*. Explain to the client the following key messages:
  - RUTF and *likuni phala* are food-based medicines to treat your current poor nutritional status. They should not be shared.
  - If you are having trouble eating, eat small, frequent meals of RUTF and *likuni phala*. Finish all the RUTF and *likuni phala* allocated for each day.
  - In addition to RUTF and *likuni phala*, eat meals with your family and have snacks between meals.
  - When suffering from diarrhoea, do not stop eating. Continue to eat the RUTF, *likuni phala*, and other nutritious foods, and drink plenty of fluids.

### Step 3. Refer and Plan to Follow Up a Client with Severe Undernutrition with Medical Complications

1. Refer the client for management of severe undernutrition without complications in outpatient care when:
  - The client has good appetite (can consume the full day's ration of RUTF and *likuni phala*).
  - Medical conditions have resolved or chronic conditions have stabilised.
  - Bilateral pitting oedema is subsiding (if applicable).
  - Provide the client with 42 sachets (three per day for 14 days) of RUTF and 4.5 kg of *likuni phala* (300 g per day for 14 days). Refer the client for monitoring and weighing after 2 weeks at a health facility near his or her home.

- Encourage the client to eat nutritious home-cooked meals after finishing the daily ration of RUTF and *likuni phala* to meet additional nutritional needs.
- Follow up to ensure that the client is examined at the referral health facility after 2 weeks.

**Role Play: Nutrition Care Plan for Severe Undernutrition with Medical Complications**

- Refer to part 2 of the case study on **Exercise 4.2** (Chisomo).
- Conduct the role play in groups of three. One person acts as Chisomo’s father, the second as Chisomo, and the third as the service provider.
- When finished, discuss the following question in your group:
  - What challenges do you anticipate facing when providing nutrition care and support to clients who are severely malnourished with medical complications?

## Exercise 4.7: Understanding Therapeutic and Supplementary Food Products for NCST in Malawi

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Question	RUTF	CSB
1. Name of the food		
2. Number of grams in the sachet		
3. Total calories per sachet		
4. Level of Recommended Dietary Allowance (RDA) of most of the micronutrients		
5. Is water needed for preparation?		
6. Is water needed for consumption?		
7. Taste, consistency, and texture		
8. Expiry date		

## Reference 4.8: Protocol for Storing and Handling Therapeutic and Supplementary Food Products at the Facility Level

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1. Store food products in a dry, well-lit, and well-ventilated storeroom—out of direct sunlight.
2. Protect the storeroom from water penetration. There should be adequate drainage, no stagnant water, and no leaks in the walls or roof.
3. Clean and disinfect the storeroom regularly; it should be cleaned daily or at least every other day. Take precautions to prevent harmful insects and rodents from entering the storage area. The storeroom should be fumigated regularly to control pests.
4. Store food products away from insecticides, chemicals, flammable products, hazardous materials, old files, office supplies, and equipment; always take appropriate safety precautions.
5. Keep fire safety equipment available, accessible, and functional, and train employees to use it.
6. Limit storage area access to authorised personnel and lock up controlled substances.
7. When possible, stack cartons at least 10 cm (4 in.) off the floor, 30 cm (1 ft.) away from the walls and other stacks, and no more than 2.5 m (8 ft.) high.
8. Arrange cartons with arrows pointing up (↑) and with identification labels, expiry dates, and manufacturing dates clearly visible.
9. Store food products to facilitate ‘first-to-expire, first-out’ (FEFO) procedures and stock management when the commodities have different expiry dates. If the commodities have the same expiry date, use the ‘first in, first out’ (FIFO) approach.
10. Immediately remove damaged and expired food products and dispose of them using established procedures.
11. Staff designated to store and handle food products should be trained in the required specifications for those foods and in food storage, handling, hygiene, and sanitation.
12. Staff designated to store and handle food products should fill out the stock card each day.
13. The RUTF is packed in plastic bags. The RUTF sachets are not biodegradable and can pollute the soil and water if they are burned or thrown in the garbage. Clients should return the empty bags and sachets to the health facility, and staff should dispose of them appropriately in a landfill.



## Reference 4.9: Suggested Strategy for Establishing Facility to Community Referral System

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The District Assembly-based Nutrition Coordinating Committees, working in close collaboration with the District Health Office Nutritionists, should champion referrals between health facilities and community-based ES/L/FS services. Referral systems can be either paper-based or electronic (using mobile phones or electronic tablets). To establish a facility-to-community referral system, follow the suggested steps below.

### Step 1. Make a Paper-Based or Electronic Service Directory

A paper-based directory would have, for example, a separate sheet of paper for each community-based ES/L/FS service and programme. Each sheet would list information about the community service (e.g., name of catchment area, what support services are offered and when, name of service provider, project details, and eligibility criteria). A separate sheet would show the names of clients referred to each community service.

### Step 2. Conduct Community Mapping

Knowing all the resources in a community will help you make the best referrals.

1. Identify and map all the ES/L/FS services and programmes in each catchment area.
2. Obtain all relevant information about each service and programme needed to fill out the service directory (type of service, contact information, eligibility requirements, etc.). Note existing collaborations, relationships, and current referral mechanisms.
3. Enter the information from the mapping exercise into your service directory.

### Step 3. Hold Stakeholder Meetings to Validate the Service Directory

Hold a meeting with government and non-governmental stakeholders in each catchment area to share and validate the community mapping results. Work with stakeholders to develop and agree on priorities for improving linkages between NCST services at the health facility and ES/L/FS services in the community. Distribute the service directory to the stakeholders for review and finalisation. Update the service directory based on stakeholders' feedback.

### Step 4. Establish and Manage the Referral System

The District Health Office Nutritionist should work closely with the District Assembly and stakeholders to:

1. Lead the implementation, maintenance, and monitoring of the referral system.
2. Share relevant and appropriate referral data and information with partners.
3. Help ensure follow-up of referred clients.
4. Coordinate stakeholder meetings among service providers.
5. Work with stakeholders to update the service directory annually, address gaps and inefficiencies in the system, track referral outcomes, and ensure the quality of the system.

