

ALGORITHM FOR MANAGING MALNUTRITION IN ADULTS

ASSESS		CRITERIA	CLASSIFICATION	TREATMENT/CARE
HISTORY	LOOK AND FEEL			
<p>Ask the client or refer to records:</p> <ol style="list-style-type: none"> Has the client lost weight in the past month/since the last visit? Has the client had: <ul style="list-style-type: none"> Active TB (on treatment)? Another chronic opportunistic infection (OI) or malignancy (e.g., oesophageal infections)? Mouth sores/oral thrush? Has the client's body composition/fat distribution changed noticeably? <ul style="list-style-type: none"> Thinning of limbs and face? Fat distribution on limbs, breasts, stomach, back? Has the client had: <ul style="list-style-type: none"> Nausea and vomiting? Persistent fatigue? Poor appetite? 	<ol style="list-style-type: none"> If the client has oedema on both legs or base of the spine: <ul style="list-style-type: none"> Rule out pre-eclampsia, kidney problems, elephantiasis, heart failure, and wet beriberi (vitamin B1 deficiency with oedema). Measure the client's weight (kg) and height (cm). Compute body mass index (BMI). Measure mid-upper arm circumference (MUAC) for all pregnant women, all women up to 6 months post-partum, and adults who cannot stand straight. Examine the client for conditions that cause secondary malnutrition (e.g., injuries, burns, surgical procedures, pregnancy, diarrhoea, or disease of the gastrointestinal tract, thyroid, kidney, liver, or pancreas). Look for medical complications and danger signs (e.g., anaemia, severe dehydration, active TB, severe bilateral oedema). If the client has no medical complications, give an appetite test using ready-to-use therapeutic food (RUTF). 	<p>Adults (non-pregnant and non-post-partum) BMI < 16 kg/m² (If can't measure BMI, MUAC < 19 cm) OR Bilateral pitting oedema (both feet or legs are swollen, and the skin remains indented when pressed with a finger)</p> <p>Pregnant women and women up to 6 months post-partum MUAC < 19 cm</p>	<p>Severe acute malnutrition (SAM) with complication (fever, hypothermia, severe anaemia or dehydration, vomiting, bilateral oedema +++) or no appetite</p>	<p>Inpatient treatment Follow Nutrition Care Plan C1 (red).</p>
		<p>SAM with appetite and no complication</p>	<p>Outpatient treatment Follow Nutrition Care Plan C2 (red).</p>	
		<p>Adults (non-pregnant and non-post-partum) BMI ≥ 16.0–< 18.5 kg/m² (If can't measure BMI, MUAC ≥ 19–< 22 cm)</p> <p>Pregnant women and women up to 6 months post-partum Weight loss or no weight gain MUAC ≥ 19–< 22 cm</p>	<p>Moderate/mild malnutrition</p>	<p>Follow Nutrition Care Plan B (yellow).</p>
		<p>Significant weight loss</p>		
		<p>Severe lung disease Active TB (first 3 months of treatment) Chronic diarrhoea Difficulty swallowing</p>	<p>Signs of symptomatic disease</p>	
		<p>Adults (non-pregnant and non-post-partum) BMI ≥ 18.5 kg/m² (If can't measure BMI, MUAC ≥ 22 cm)</p> <p>Pregnant and post-partum women MUAC ≥ 23 cm</p>	<p>Normal</p>	<p>Follow Nutrition Care Plan A (green).</p>

Nutrition Care Plan C1: Inpatient Care of Adults with SAM and Complications or No Appetite

1. Admit

- Treat all medical complications following national guidelines.
- Give 200,000 IU of vitamin A if NO oedema (otherwise wait until the oedema subsides).
- If client is not on ART, provide **Cotrimoxazole prophylaxis** following MOHSS protocol for HIV-positive clients with CD4 < 350 or at WHO stage 3 or 4 regardless of CD4 level.

2. Stabilisation (1–2 days)

- Give client 70–80 ml/kg/day of F-75 or F-100), especially if client has **bilateral pitting oedema +++**.
- If client has confirmed lactose intolerance, give high-energy porridge or alternative F-75 recipes made of fermented milk. *Expect slower recovery but no increase in mortality.*
- Demonstrate sip feeding for patients who are too ill to eat by themselves.
- If client has appetite, give hospital diet plus three high-energy nutritious snacks a day.

3. Transition and rehabilitation

- Gradually introduce RUTF in small amounts until client can eat 3 sachets per day, plus enough fortified blended flour (FBF) to provide 2,850 kcal/day as tolerated, plus hospital diet.
- On discharge, provide 3 sachets of RUTF and 300 g of FBF per day to last for 2 weeks (total of 42 sachets of RUTF and 4,500 g of FBF).
- Make an appointment for review after 2 weeks.

4. Transition to Nutrition Care Plan C2 when client

- Has had no oedema +++ for 2 consecutive days
- Has appetite for RUTF
- Can return for review and supplementary food after 14 days

Nutrition Care Plan C2: Outpatient Care of Adults with SAM, Appetite, and No Complications

1. First visit

- Treat all medical complications following national and WHO guidelines.
- **If client is on ART and losing weight**, refer as needed for counselling on ART adherence, management of ART-related side-effects, opportunistic infections, immune reconstitution syndrome, treatment failure if on ART for more than 6 months (check CD4).
- Do an appetite test by offering one sachet of RUTF. The client should eat at least half of the sachet.
- **If client has appetite and health and social conditions allow home management**, give 3 sachets of RUTF and 300 g of FBF per day to last for 2 weeks (total of 42 sachets of RUTF and 4,500 g of FBF).
- Explain how to prepare and use the specialised foods. Encourage client to eat home foods after finishing the daily ration of RUTF. If client has appetite for RUTF but not for other foods, counsel on how to modify home foods to improve appetite. If client has no appetite, try giving smaller amounts of family food more frequently or sip feeding. If this is not successful, admit the client for INPATIENT management of SAM.
- Counsel on 1) weight monitoring at least once a month, 2) increasing energy density of home foods, 3) managing HIV-related symptoms through diet, 4) managing medicine-food interactions, 5) sanitation and hygiene, especially safe drinking water, and 6) exercise.
- Make an appointment for review after 2 weeks.

2. FOLLOW-UP management

- If client is not on ART, refer for **Cotrimoxazole prophylaxis** following MOHSS protocol and ART assessment.
- Give 3 sachets of RUTF and 300 g of FBF per day to last for 2 weeks (total of 42 sachets of RUTF and 4,500 g of FBF).
- Give ferrous sulphate tablets if client has clinical signs of anaemia (generalised pallor, fatigue, lower blood haemoglobin, decreased iron).
- Weigh after 2 weeks to monitor weight gain.
- If client is not gaining weight or has lost weight for 3 months or has worsening oedema, refer to a medical or clinical officer immediately.

3. Transition to Nutrition Care Plan B when client

- Has been treated for SAM for at least 2 months **AND** has BMI $\geq 16 \text{ kg/m}^2$ OR MUAC > 19 for pregnant women **AND** appetite **AND** some mobility **AND** can eat home foods

Nutrition Care Plan B for Adults with MAM

1. First visit

- Check for medical conditions and refer client for treatment when indicated.
- **If client is not on ART**, refer for Cotrimoxazole prophylaxis following MOHSS protocol and for ART assessment.
- **If client is on ART and losing weight**, refer as needed for counselling on ART adherence, ART-related side effects, opportunistic infections, immune reconstitution syndrome, treatment failure if on ART for more than > 6 months (check CD4), and lipodystrophy.
- Assess client for **anaemia**. If client is anaemic, provide iron supplementation according to national guidelines on anaemia.
- Assess food intake, energy density of the food, and food access and provide appropriate support if client has problems.
- Counsel client to consume 20%–30% more energy from home foods, based on current weight (see table below).

Age (years)	Energy (kcal) needed per day + 20–30% because of HIV	Food equivalent (give as snacks in addition to meals and other snacks)
15–17	2,800 + 700 because of HIV	2 mugs (250 ml) porridge 5 medium sweet potatoes 2 large coffee cups of boiled milk 5 small serving spoons of boiled pumpkin or 4 medium potatoes 3 small serving spoons of meat sauce + 1 small ladle of vegetables
18+	2,170–2,430 + 525–600 because of HIV	2 mugs (250 ml) of porridge 4 medium sweet potatoes 5–6 large coffee cups of boiled milk 4 small serving spoons of boiled pumpkin or 4 medium potatoes 2 small serving spoons of meat sauce + 1 small ladle of vegetables 4 eggs
Pregnant and post-partum women	2,455–2,670 + 525–600 because of HIV	2 mugs (250 ml) of porridge 4 medium sweet potatoes 5–6 large coffee cups of boiled milk 4 small serving spoon of boiled pumpkin or 4 medium potatoes 2 small serving spoons of meat sauce + 1 small serving spoon of vegetables 4 eggs

- Give client 300 g of FBF per day to last until the next visit to collect medication (e.g., 9,000 g to last for 1 month). If client is pregnant, give 300 of FBF per day to last until the next antenatal visit.
- Make an appointment for review after 1 month (or at next visit to collect medication).

2. FOLLOW-UP management

- Monitor weight and changes in eating patterns on each visit.
- Counsel client to **increase energy intake** (eat more food more often, including snacks between meals; add groundnut paste, eggs, or milk to enrich food and spices or lemon juice to improve flavour) to meet extra food requirements.
- Give client a **daily micronutrient supplement** that provides 1 RDA of a wide range of vitamins and minerals, unless FBF provides sufficient micronutrients.
- **Counsel client on** 1) the need for monthly weighing, 2) increasing energy density of the diet at home, 3) managing HIV-related symptoms through diet, 4) medicine-food interactions, 5) maintaining good sanitation and hygiene, especially safe drinking water, and 6) exercising to strengthen muscles and improve appetite.
- **If client has not gained weight for 4 months**, refer for medical examination or nutrition assessment.

3. Transition to Nutrition Care Plan A when client has BMI ≥ 18.5 kg/m² or MUAC ≥ 21 cm for two consecutive weighings, no weight loss, and no clinical signs of symptomatic disease. For pregnant or post-partum women, transition to Nutrition Care Plan A when client is 6 months post-partum.

Nutrition Care Plan A for Adults with Normal Nutritional Status

- **If client is on ART**, find out whether (s)he is adhering to treatment and managing diet-related symptoms. If not, **counsel** client as needed.
- **If client is HIV positive but not on ART**, give **Cotrimoxazole prophylaxis** following MOHSS protocol for HIV-positive clients with CD4 < 350 or at WHO stage 3 or 4 regardless of CD4 level.
- Counsel client to eat enough food to meet the 10% increase in energy and nutrient needs caused by HIV (see table below).

Age (years)	Energy (kcal) needed per day + 10% because of HIV	Food equivalent for <u>extra</u> energy (give as snacks in addition to meals and other snacks)
15–17	2,800 + 280 because of HIV	1 mug (250 ml) porridge 2 medium sweet potatoes 4 large coffee cups of boiled milk 3 coffee cups of spinach cooked in oil 1½ small serving spoon of boiled pumpkin or potatoes 1½ small serving spoon of meat sauce + ½ small serving spoon of vegetables 1½ eggs 4 ripe mangos 1 baobab fruit ½ an adult handful of <i>oofukwa</i>
18+	2,170–2,430 + 225 because of HIV	1 mug (250 ml) of porridge 1½ medium sweet potatoes 3½ large coffee cups of milk 1 small serving spoon of boiled pumpkin or potatoes 1 small serving spoon of meat sauce + ½ small ladle of vegetables 200 g of fish 3 ripe mangos ¾ of a baobab fruit 1 adult handful of mopani worms

Age (years)	Energy (kcal) needed per day + 10% because of HIV	Food equivalent for <u>extra</u> energy (give as snacks in addition to meals and other snacks)
Pregnant and post-partum women	2,455–2,670 + 225 because of HIV	1–2 mugs (250 ml) of porridge 1 small serving spoon of boiled pumpkin or potatoes 1 small serving spoon of meat sauce + ½ small ladle of vegetables 200 g. fish 3 ripe mangos ¾ of a baobab fruit 1 adult handful of mopani worms

- **Counsel client to eat a variety of foods.** If this is not possible, give a daily micronutrient supplement that provides 1 RDA of a wide range of vitamins and minerals. Anaemic clients may need iron supplementation.
- Advise client and caregiver of the need for periodic weighing.
- Counsel on 1) periodic weight monitoring, 2) increasing the energy density of the diet at home, 3) managing HIV-related symptoms (e.g., nausea, vomiting, poor appetite, diarrhoea, mouth sores/thrush) through diet, 4) managing possible drug-food interactions, 5) maintaining good sanitation and hygiene, especially safe drinking water, and 6) exercising to strengthen muscles and improve appetite.
- Link client to programs that provide food security or livelihood support.
- **Review client’s progress** in 2–3 months (or earlier if problems arise).

