Algorithm and Nutrition care Plans for the Management of Malnutrition in PLHIV—Children

ASSESS		CRITERIA	CLASSIFY	TREATMENT/ CARE PLAN
HISTORY	**LOOK AND FEEL**			
Refer to records (or if needed ask to determine the following): 1. Has the child lost weight in the past month or since the past visit 2. Does the child have: • Cough for more than 21 days? This may be due to HIV-related chronic disease (e.g., lymphocytic interstitial pneumonia [LIP]) or to PCP, TB, pneumonia, others • Active TB on treatment • Diarrhea for 14 days or more • Other chronic OI or malignancy • Poor appetite Ask all questions and complete all assessments with each child	1.Those under 6 months of age look for signs of severe visible wasting: e.g. • loss of muscle bulk • sagging skin/buttocks 2. Check the presence of oedema on both feet 3. Measure the weight (kg) and height (cm) • Compute weight-for-height, for children < 5 yrs. • Compute BMI for age for children 5 -14 yrs. 4. Measure the mid-upper-arm circumference (MUAC) I5. f wt/ht and MUAC are not possible, then measure weight-for-age • If weight-for-age is used, check the shape of the growth curve. • Or Estimate percentage change in weight since last visit. 6. Examine/observe for **danger signs** of: • Intractable vomiting • High fever >39°C/malaria • Hypothermia <35°C • Severe anemia (paleness, palm pallor) • Convulsion/fitting • Persistent diarrhea • Bilateral oedema +++ • Severe dehydration • Extensive skin lesion • Very week/lethargy • Pneumonia or active TB? Any chest in-drawing	Bilateral pitting **edema** (in both legs) **OR** **WHZ** below -3 or **WHM** < 70% of the WHO reference value **OR** **MUAC** Infants 6mo-11mo <110mm Children 12 mo-59 mo Children 5yr-9yr <135mm Children 10yr-14yr <160mm **OR** **Visible signs** of severe malnutrition for under six months of age **OR** **BMI for age**: 5-17 years <-3 Z-score	**Severe or moderate Malnutrition with medical complications** • If any of the danger signs **OR** • Infant < 6 months **OR** • Severe bilateral edema **OR** • Poor appetite **Severe Malnutrition without medical complications** • W/H or MUAC < cutoff for severe malnutrition **AND** • None of the danger signs **AND** • No severe bilateral edema **AND** • > 6 months of age	**Admit or refer for inpatient care.** **NUTRITION CARE PLAN A (RED)**
		WHZ below -2 or **WHM** 70-80% of the WHO reference value **OR** **MUAC** Infants 6mo-11mo <120mm Children 12 mo -59 mo <130mm Children 6yr-9yr <145mm Children 10yr-14yr <180mm **OR** **BMI for age**: 5-17 years z-score from -2 to -3	**MODERATE MALNUTRITION**	**NUTRITION CARE PLAN B (YELLOW)**
		Regardless of WFH, MUAC or BMI for age: Growth Curve Faltering Confirmed significant weight loss of > 5% since the last visit	**POOR WEIGHT GAIN**	
		Regardless of W/H, MUAC or BMI for age: • Chronic Lung disease • TB • Persistent diarrhea • Other Chronic OI or Malignancy	**Signs of SYMPTOMATIC DISEASE**	
		Child is gaining weight or maintaining a proper WFH **WHZ** > -2 or **WHM** > 80% of the WHO median reference value **OR** **BMI for age**: 5-17 years >-2 z-score In the absence of signs of symptomatic disease and significant weight loss	**GROWING WELL**	**NUTRITION CARE PLAN C (GREEN)**

NUTRITION CARE PLAN A

1. Assess if the child needs to be admitted to in-patient care. ***CHECK FOR GENERAL DANGER SIGNS***

- All severely malnourished infants under 6months should be treated as in-patients
- All children severely malnourished with complications should be admitted for in-patient care according to the National Protocol for SAM
- Assess if the child wants to eat (i.e. **conduct an appetite test)**. If the child does not eat at least the amount of RUTF shown in the table, refer to **Annex 3,** then admit and manage the client accordingly
- Assess if there are physical signs (e.g., intractable vomiting, high fever > 39^{o}C, malaria, hypothermia < 35^{o}C, severe anemia [paleness, severe palm pallor], pneumonia, active TB, any chest in-drawing, bilateral edema grade +++, excessive skin lesions, excessive weakness/lethargy, severe dehydration, convulsions or fitting)
- Assess if there have been any major changes in the child's circumstances (e.g., mother/caregiver died, breastfeeding has stopped, change of location)
- **Phase 1:** Give F75 only, amounts based strictly on weight (see National Protocol on Management of Severe Malnutrition).
- **Transition phase *and Phase 2:*** Replace F75 with F100 (70–80 ml per kg of body weight per day) and gradually introduce RUTF in small amounts until patient can take RUTF instead of F100.

2. Check the client for treatable conditions and exclude OIs such as TB.

- Ensure **Cotrimoxazole prophylaxis** for HIV+ children as per national protocol
- Explain to caregiver how to give medicines at home (i.e. doses, schedule); the caregiver should give the first dose of medication in front of health worker
- Treat any illnesses (e.g., for candida give nystatin [1ml x 4 for 7d] and also check mother's breast for candida and treat if indicated)
- If HIV+, **refer** for assessment to possibly begin ART, if not already started

If on ART, refer for assessment of clinical and immunological response

3. Home management. This should be done only if the child has appetite (can eat RUTF), and the mother/caregiver's health and condition is conducive for appropriate care. Give RUTF to provide 50-100% additional energy according to the Table below.

Class of weight (kg)	RUTF Paste OR Plumpy'Nut			
	Grams per day	Grams per week	Sachet per day	Sachet per week
3.0 – 3.4	105	750	1 ¼	8
3.5 – 4.9	130	900	1 ½ 2	10
5.0 – 6.9	200	1400	2	15
7.0 – 9.9	260	1800	3	20
10.0 – 14.9	400	2800	4	30
15.0 – 19.9	450	3200	5	35
20.0 – 29.9	500	3500	6	40
30.0 – 39.9	650	4500	7	50

4. If using home management, ensure mother/caregiver understands the care plan and ask if s/he has any questions. You may need to demonstrate the use of the RUTF or other feeds to the mother/caregiver**.**

5. If managed at home, then follow up with the client in **1 week** to ensure weight gain of **at least 3-5 gm/kg/d**. Check the **mother's health (and if she needs ART)** and provide support/counseling so she can be able to care for other children in the home.

6. Upon discharge from inpatient care, ensure **Vitamin A supplements** and **deworming drugs** are given every 6 months if the child is under 12 months and has not been given these in the last 4 months (Vitamin A is delayed for children with edema until it subsides). Transfusion should be considered in severe anemia cases during **phase 1** and a folic acid tab (5 mg) should be given for clinical anemia.

7. Transition to Nutrition Care Plan B when **WFH >80% (or MUAC > 110 mm if MUAC was used)** AND **no edema was present for two consecutive weigh-ins** (children can usually tolerate this energy intake for **6-10 weeks**). Review and change to **plan A** if the child becomes severely malnourished again.

8. If the child is **not gaining weight, is losing weight, or edema is worsening**, assess for further investigation and treatment according to the national protocol.

NUTRITION CARE PLAN B

1. Check for treatable conditions. Refer child for treatment where indicated.

2. Ensure **Cotrimoxazole prophylaxis is started for HIV+ children** as per national protocol.

3. If HIV+ refer for ART assessment.

4. If on ART, refer for assessment of clinical and immunological response. Failure to take ART correctly or to adhere at all can result in: related side-effects (e.g., vomiting, abdominal pain, diarrhea, poor appetite, taste change); presence of an OI (e.g., TB, diarrhea); development of the immune reconstitution syndrome; late ART- related side effects (e.g., lactic acidosis [with signs like abdominal pain, vomiting or fast breathing], lipodystrophy; inadequate food intake due to food access problems; possible early signs of treatment failure if on ART and over 6 mo of age. Refer if indicated.

5. Check the mother's health (+need for ART), and how she cares for the sick child and other children

6. Nutrition counseling. Counsel on the Critical Nutrition Practices. Ask the questions: What does the child eat and drink? Who gives the child their food and how does the child eat? Is food available at home?

7. Meet age-specific needs and additional 20-30% food (energy) based on actual weight. If possible, energy and nutrient needs should be met through a food-based approach. Nutrition supplements may be provided by the service/programs where available**.**

Additional energy needs of symptomatic HIV+ children		
Age group	**20-30% Additional energy (kcal) per day**	**Food-based approach: Give as addition to meals and other snacks**
6–11 months	180 kcal/day (in addition to 730 kcal/day)	2 large coffee cups of wheat flour porridge with oil/butter, milk and iodized salt
12–23 months	300 kcal/day (in addition to 1,250 kcal/day)	3 large coffee cups of enjera fetfet with shiro with oil/butter sauce
24–59 months	325 kcal/day (in addition to 1,500 kcal/day)	1 medium cup of besso drink and 1 average size banana
5–9 years	450 kcal/day (in addition to 1,800 kcal/day)	1 medium coffee cup of besso drink and one average size banana
10–14 years	575 kcal/day (in addition to 2,360 kcal/day)	2 large coffee cups of enjera fetfet with meat sauce

For more options refer to **Annex 5. Table 2 (snacks).*

8. If child is moderately malnourished and supplementary food is available, provide supplementary food according to Table 3. Children should graduate from food supplementation when they have received at least 2 months supplementation and WHZ > -2 for children under 5, BMI-for-age for children 5-17 years > -2 Z scores, or WHM > 80% or MUAC is greater than the cut-off for moderate malnutrition for their age group (i.e. 6mo-12mo > 120 mm, 12mo-59 > 130mm, 5-9 years > 145 mm, 10-14 years > 180 mm).

Supplementary food rations for HIV+ children		
Age group	**RUTF**	**FBF**
6–11 months	one 92 g. sachet of RUTF	0 g.
12–23 months	one 92 g. sachet of RUTF	50 g.
24–59 months	one 92 g. sachet of RUTF	100 g.
5–9 years	one 92 g. sachet of RUTF	200 g.
10–14 years	one 92 g. sachet of RUTF	200 g.

9. Ensure the mother/caregiver understands the nutrition care plan and ask if s/he has any questions. Counsel her on managing dietary related symptoms.

10. Ensure adequate micronutrient intake. Counsel to ensure diet is balanced and contains a variety of animal sourced foods, fruits and vegetables. If this is not possible, give a daily micronutrient supplement that provides 1 RDA of a wide range of vitamins and minerals. Anemic children may need supplementation. Children with diarrhea should be given **Zinc for 14 days**.

11. Vitamin A supplements should be given every 6 months according to IMCI schedule**. Deworm** every 6 months if child is over 1 year of age.

12. Review 1st visit in 2 wks. If the child is responding to treatment, meet every **1-2 months depending** on the response. Change to **Nutrition Care Plan C** when WHZ > -2 OR WHM > 80% for children under 5 OR BMI-for-age > -2 for children over age 5-17 OR MUAC is greater than the cut-off for moderate malnutrition (see No. 9 above) AND the child has been in Plan B for at least 2 months AND there has been no weight loss in the past month AND there are no signs of symptomatic disease.

NUTRITION CARE PLAN C

1. Ask about general condition and if child is on any treatment including ART and TB medicine. If the child is on ART, check that adherence counsel on management of diet related symptoms if indicated.

2. Check the mothers health (+need for ART) and care of other children

3. Nutrition counseling. Counsel on the Critical Nutrition Practices.

- Encourage mother/caregiver that the child is growing well,
- If breastfeeding, counsel on optimal breastfeeding practices. If on replacement feeding emphasis on proper feeding, safety and to avoid mixed feeding.
- If a child is in complementary feeding age, promote optimum complementary feeding practice. i.e. FADUA – Frequency, Adequacy, Density, safety and hygiene, active feeding and variety.

4. Counsel to ensure child's **age-specific energy/nutrient needs** are met and that additional 10 percent energy based on age of the child.

Age group	Additional energy (kcal) per day	Food-based approach Give as addition to meals and other snacks
6–11 months	75 kcal/day (in addition to 730 kcal/day)	1 large coffee cup of potato porridge with milk and Butter/oil
12–23 months	125 kcal/day (in addition to 1,250 kcal/day)	1 large coffee cup of bulla porridge with milk and butter/oil
24–59 months	150 kcal/day (in addition to 1,500 kcal/day)	1 average-size mashed sweet potato
5–9 years	180 kcal/day (in addition to 1,800 kcal/day)	1 medium coffee cup of kolo
10–14 years	240 kcal/day (in addition to 2360 kcal daily need)	1 medium coffee cup of Kinche

For more information, refer to **Annex 5. Table 2 (snacks).*

5. Ensure adequate micronutrient intake. Counsel to ensure diet is varied and contains animal-source foods, fruits and vegetables. If this is not possible, give a daily micronutrient supplement that provides 1 RDA of a wide range of vitamins and minerals. Anemic children may need supplementation. Children with diarrhea should be given zinc for 14 days.

6. Give **Vitamin A supplements** every 6 months according to the IMCI schedule. **Deworm** every 6 months if the child is over 1 year of age.

7. Ensure **Cotrimoxazole prophylaxis** is provided as per national protocol.

8. Ensure the mother/caregiver understands the nutrition care plan and ask if s/he has any questions.

9. Advise the mother/caregiver of the need for periodic follow-up.

10. Review the child's case in 2-3 months, however tell the mother/caregiver to return earlier if problems arise.