



Inpatient and Outpatient Management of Acute Malnutrition.



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Glossary

Bilateral Pitting	Oedema Bilateral pitting oedema, also known as nutritional oedema, kwashiorkor or oedematous malnutrition, is a sign of severe acute malnutrition (SAM). It is defined by bilateral pitting oedema of the feet, verified when thumb pressure applied on top of both feet for 3 seconds leaves a pit (indentation) in the foot after the thumb is lifted. It is an abnormal infiltration and excess accumulation of serous fluid in connective tissue or in a serous cavity.
Inpatient Care for the Management of SAM with Complications	Inpatient care is a CMAM service treating children with SAM with complications until their medical condition is stabilized and the complication is resolving (usually 4-7 days). Treatment then continues in outpatient care until weight recovery. Inpatient care for SAM with complications is provided in a hospital or health facility with 24-hour care capacity
Moderate Acute Malnutrition (MAM)	Moderate acute malnutrition (MAM) is defined by moderate wasting (WFH ≥ -3 z-score and < -2 z-score of the median of the NCHS references or WHO standards, or by a WFH $\geq 70\%$ and $< 80\%$ of the median (NCHS), or by a MUAC ≥ 110 mm and < 125 mm (cutoff being debated)). MAM can also be used as a population-level indicator defined by WFH ≥ -3 z-score and < -2 z score of the NCHS references or WHO standards. In this case, it excludes % WFH median and MUA
MUAC Indicator	Mid-Upper Arm Circumference (MUAC) is an indicator for wasting, to be used for a child of 6 months of age. MUAC < 110 mm indicates severe wasting. MUAC ≥ 110 mm and < 125 mm indicates moderate wasting (cutoff being debated). MUAC is a better indicator of mortality risk associated with acute malnutrition than WFH.
Blanket feeding	Feeding of all persons or households in an affected population without targeting specific individuals or sub groups.
Referral	A referral is a child who is moved to a different component of CMAM (e.g., from outpatient care to inpatient care for inpatient care for medical reasons) but has not left the program.
Severe Acute Malnutrition (SAM)	SAM is defined by severe wasting (WFH < -3 z-score of the NCHS reference or WHO standards or WFH $< 70\%$ of the median [NCHS], or MUAC < 110 mm) or the presence of bilateral pitting oedema. A child with SAM is highly vulnerable and has a high mortality risk
OTP	Outpatient therapeutic programme
Admission and discharge criteria	Set standards by which decisions may be made about admitting individuals onto a programme or discharging them from a programme

Introduction

This document introduces the concept and protocols used in outpatient and inpatient care for children with severe acute malnutrition (SAM) without medical complications as well as with medical complications. It provides an overview of admission and discharge processes and criteria, medical treatment and nutrition rehabilitation in outpatient care. Emphasis is placed on the use of an action protocol, which helps health care providers determine which children require referral to inpatient care and which children require follow-up at home.

The document complements the World Health Organization (WHO) protocols for the management of SAM and the WHO training modules for the inpatient management of SAM with medical complications.

Outpatient Care for the Management of SAM without medical complications.

1) Admission Criteria and Entry Categories for CMAM

<p style="text-align: center;">INPATIENT CARE for the Management of SAM with Medical Complications</p>	<p style="text-align: center;">OUTPATIENT CARE for the Management of SAM without Medical Complications</p>	<p style="text-align: center;"><i>SUPPLEMENTARY FEEDING</i> <i>for the Management of MAM</i></p>
<p style="text-align: center;">ADMISSION CRITERIA FOR CHILDREN 6 - 59 MONTHS*</p>		
<p>Bilateral pitting oedema +++</p> <p>OR</p> <p>Marasmic kwashiorkor:</p> <p>Any grade of bilateral pitting oedema with severe wasting</p> <p>(MUAC < 115 mm or WFH < -3 z-score</p> <p>[WHO]</p> <p>OR</p> <p>Bilateral pitting oedema + or ++ or</p> <p>MUAC < 115 mm or</p> <p>WFH < -3 z-score (WHO)</p> <p>with any of the following medical complications:</p> <ul style="list-style-type: none"> ••Anorexia, no appetite ••Intractable vomiting ••Convulsions ••Lethargy, not alert ••Unconsciousness ••Lower respiratory tract 	<p>Bilateral pitting oedema + and ++</p> <p>OR</p> <p>MUAC < 115 mm</p> <p>OR</p> <p>WFH < -3 z-score (WHO)</p> <p>AND</p> <ul style="list-style-type: none"> ••Appetite ••Clinically well ••Alert 	<p>MUAC ≥ 115 mm and < 125 mm</p> <p>OR</p> <p>WFH ≥ -3 z-score and < -2 z-score (WHO)</p> <p>AND</p> <ul style="list-style-type: none"> ••Appetite ••Clinically well ••Alert <p>ALSO:</p> <p>Children recovering from SAM, after discharge from outpatient care, regardless of their anthropometry</p> <p><i>Note: Children with MAM and medical complications are admitted to supplementary feeding (receive supplementary food ration) but are referred for medical treatment and return when medical complications are resolved</i></p>

<p>infection (LRTI)</p> <ul style="list-style-type: none"> ••High fever ••Severe dehydration ••Severe anaemia ••Hypoglycaemia ••Hypothermia <p>OR</p> <p>-Referred from outpatient care according to action protocol.</p> <p>-Other: e.g. infant ≤ 6 months and < 4 kg</p>		
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*Subject to adaptations according to national guidelines.

ADMISSION CRITERIA FOR INFANTS < 6		
<p>Infants < 6 months with bilateral pitting oedema or visible wasting (or e.g., insufficient breastfeeding in vulnerable environment)</p>		
ADMISSION CRITERIA FOR PREGNANT AND LACTATING WOMEN		
		<p>Pregnant women</p> <p>In second and third trimester With MUAC < 230 mm</p> <p>Lactating Women</p> <p>MUAC < 230 mm with infants < 6 months</p>

Entry Categories for CMAM

INPATIENT CARE for the Management of SAM with Medical Complications	OUTPATIENT CARE for the Management of SAM without Medical Complications	SUPPLEMENTARY FEEDING for the Management of MAM
ENTRY CATEGORY: NEW ADMISSIONS OF CHILDREN 6-59 MONTHS		
New SAM cases of children 6-59 months meet admission criteria -including relapse after cure	New SAM cases of children 6-59 months meet admission criteria -including relapse after cure	New MAM cases of children 6-59 months meet admission criteria - including relapse after cure and referral from outpatient care
ENTRY CATEGORY: OTHER NEW ADMISSIONS		
New SAM cases of infants, children, adolescents or adults (< 6 months or ≥ 5 years) need treatment of SAM in inpatient care	New SAM cases not meeting pre-set admission criteria need treatment of SAM in outpatient care	New MAM cases not meeting pre-set admission criteria need treatment of MAM
ENTRY CATEGORY: OLD CASES: REFERRAL FROM OUTPATIENT CARE AND INPATIENT CARE		
<p><i>Referral from outpatient care:</i></p> <p>Child's health condition deteriorated in outpatient care (according to action protocol) and child needs inpatient care</p> <p>Returned after defaulting</p> <p>Moved in from other outpatient care site</p>	<p><i>Referral from inpatient care:</i></p> <p>Child's health condition improved in inpatient care and child continues treatment in outpatient care</p> <p>OR</p> <p>Returned after defaulting, or Moved in from other outpatient care site</p>	<p><i>Referral from outpatient care:</i></p> <p>Returned after defaulting, or Moved in from other supplementary feeding site</p>

Note: MUAC is the preferred indicator for admission to CMAM. MUAC is used for children age 6-59 months. MUAC admission criteria for PLW is under discussion and ranges <230 mm

2) Outpatient Care: Admission Process

A. Overview of Outpatient Care Admission Process

Admission Process for Child with SAM Referred to or Presented at the Health Facility with Outpatient Care

(Outpatient Care Follow-On Sessions: Steps 1-15 [except 6] are repeated)

1. Sugar water given
2. Bilateral pitting oedema checked
3. Anthropometry checked:
 - MUAC measured
 - Weight measured
 - Length or height measured; WFH verified*
4. Nutritional status recorded
5. DECISION whether child IS ADMITTED FOR SAM or REFERRED FOR MAM OR OTHER (In **outpatient care follow-on sessions**: progress of nutritional status monitored)
6. Registration number provided
7. Medical assessment:
Medical history taken and physical examination conducted, all recorded on outpatient care treatment card
8. Appetite tested
- 9.
10. Decision WHETHER CHILD IS admitted to outpatient care or referred to inpatient care (based on admission criteria) (In **outpatient care follow-on sessions**: decision whether child continues treatment in outpatient care, is referred to inpatient care or tertiary care [based on outpatient care action protocol], needs a follow-up home visit, or is ready for discharge [based on discharge criteria])



Child Receives Treatment in Outpatient Care

Routine medication given upon admission (In **outpatient care**

10. follow-on sessions:

medication following treatment protocol given)

11. Weekly supply of RUTF given

12. RUTF ration card filled out and RUTF given

(Soap provided if available)

13. Counseling on how to give RUTF (key messages) and antibiotics given upon admission (In OPT care follow-on sessions: counseling on



Child is Referred to

Inpatient Care

10. First-dose antibiotic given

11. Referral slip provided

(Arrange transportation where possible)

*Note: In countries where bilateral pitting oedema and mid-upper arm circumference

progress, and health and nutrition education given)

14. Explanation of outpatient care schedule and when to return for outpatient care follow-on sessions, and linkage with outreach worker (e.g. CHW, volunteer) given

15. Links with other services, programmes and initiatives made

(MUAC) are used for admission, adjust chart and remove length or height measurement and WFH information.

3) Routine Medicines for SAM in Outpatient Care

Source: *Community-based Therapeutic Care (CTC)*:

Name of Product	When	Age/Weight	Prescription	Dose
	At discharge	< 6 months	50,000 IU	Single dose on discharge
		6 months to 12 months	100,000 IU	
		> 12 months	200,000 IU	
		DO NOT USE WITH BILATERAL PITTING OEDEMA ON ADMISSION*		
AMOXICILLIN	At admission	All beneficiaries	See protocol	3 times a day for 7 days
<i>(follow national protocol)</i>	<i>malarial areas</i>	<i>and > 2 kg</i>	<i>See protocol</i>	<i>Follow national treat only confirmed/ positive cases [malaria test.]</i>
MEBENDAZOLE**	Second session	< 12 months	DO NOT GIVE	None
		12--23 months	250 mg	Single dose
		≥ 24 months	500 mg	on second session
MEASLES	On week 4	From 6 months	Standard	Once on week 4

* VITAMIN A: Do not give if the child has already received Vitamin A in the 4 months (unless they have recently had measles). Do not give to children with bilateral pitting oedema until discharge from OUTPATIENT CARE, unless there are signs of Vitamin A deficiency (e.g., night blindness, Bitot's spots, corneal xerosis), if there is currently a measles outbreak or if there is a high prevalence of Vitamin A deficiency in the area.

** MEBENDAZOLE: Give mebendazole or other antihelminth according to national guidelines (e.g., albendazole 12-23 months 200 mg or ≥ 24 months 400 mg [both can be given again after 3 months if signs of reinfection appear]).

*** MEASLES vaccination at 6 months; a second dose should be given around 9 months. Most importantly Vaccination status should be checked and if not verifiable the child should be vaccinated during the program. Iron and folic acid should not to be given routinely. Where anaemia is identified according to Integrated

Management of Childhood Illness (IMCI) guidelines, treatment should begin ONLY after 14 days in the CMAM service and given according to national and World Health Organization (WHO) guidelines (INACG 1998). For severe anaemia, refer to inpatient care.

Always consult the national treatment protocols and adapt (e.g., IMCI, other relevant protocols).

AMOXICILLIN DOSAGES

- Systematic treatment for all beneficiaries EXCEPT for children under 2 kg
- Give 3 times a day for 7 days (or 10 days if needed)

SYRUP – 125 mg/5 ml	
Weight of Child (kg)	Dose
≤ 9.9	125 mg (5 ml) 3 times per day
10.0 - 30.0	250 mg (10 ml) 3 times per day
> 30.0	Give tablets
SYRUP – 250 mg / 5 ml	
Weight of Child (kg)	Dose
≤ 9.9	125 mg (2.5 ml) 3 times per day
10.0 - 30.0	250 mg (5 ml) 3 times per day
> 30.0	Give tablets
TABLETS – 250 mg	
Weight of Child (kg)	Dose
≤ 9.9	125 mg (½ tablet) 3 times per day
10.0 - 30.0	250 mg (1 tablet) 3 times per day
> 30.0	500 mg (2 tablets) 3 times per day

NOTE: Always check label on bottles for dosages and dilution of syrups, as different manufacturers might use different levels.

ARTESUNATE AND FANSIDAR DOSAGES (for Artemisinin-Based Combination Therapy [ACT])

- Give Artesunate 3 days + Fansidar single dose on day 1
- Artesunate tablet = 50 mg
- Fansidar tablet = 525 mg

Note: Only for confirmed cases of malaria

DOSE		
Weight of Child (kg)	Artesunate Days 1-3	Fansidar Day 1 Tablets
< 5	1/4	1/4
5 – 7	1/2	1/2
7.1 – 12	1	1/2
12.1 – 20	2	3/4
20.1 – 30	2	1
30.1 – 40	3	1 1/2
40.1 – 50	4	2
50.1 – 60	4	2 1/2
> 60	5	3

NOTE: Always check label on bottles for dosages and dilution of syrups, as different manufacturers might use different levels.

4) Common Supplementary Medicines for SAM in Outpatient Care*

Source: *Community-based Therapeutic Care (CTC)*:

Name of Product	When to Give	Prescription	Special Instructions
CHLORAMPHENICOL	To be given as second-line antibiotic for children not responding to amoxicillin, e.g. with continued fever that is not due to malaria	See separate protocol	Continue for 7 days
TETRACYCLINE EYE OINTMENT	For treatment of eye infection	Apply 3 times a day, morning, afternoon and at night before sleep	Wash hands before and after use; Wash eyes before application; Continue for 2 days after infection is gone
NYSTATIN	For treatment of candida albicans	100,000 units (1 ml) 4 times a day after food (use dropper and show mother/caregiver how to use it)	Continue for 7 days
PARACETAMOL	For children with fever over 39°C	See separate protocol	Single dose only—DO NOT give to take home
BENZYL BENZOATE	For treatment of scabies	Apply over whole body; Repeat without bathing on following day; Wash off 24 hours later	Avoid eye contact; Do not use on broken or secondary infected skin
WHITFIELDS	For treatment of ringworm or other fungal infections of the skin	Apply twice a day	Continue treatment until condition has completely resolved
GENTIAN VIOLET	For treatment of minor abrasions or fungal infections of the skin	Apply on lesion	Can be repeated at next session and continued until condition resolved
<i>QUININE</i>	<i>Second-line antimalarial treatment for children who have not responded to Fansidar</i>	<i>See separate protocol</i>	

FERROUS SULPHATE/ FOLATE	Treatment of anaemia identified according to Integrated Management of Childhood Illness (IMCI) guidelines	According to World Health Organization (WHO) protocols (INACG 1998 and Donnen et al. 1998)	To be given ONLY after 14 days in CMAM service
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*These are recommendations based on international protocols, but all drugs and dosing must be linked to national protocols and essential drug lists where available for treatment of acute malnutrition

CHLORAMPHENICOL DOSAGES

- Use for second-line antibiotic treatment for children who have not responded to amoxicillin, e.g., with continued fever that is not due to malaria. Review need for inpatient care if not responding to firstline antibiotic treatment.
- Give 3 times a day for 7 days

Syrup - 125 mg / 5 ml	
Weight of Child (kg)	Dose
2.0- 5.9	62.5 mg (2.5 ml) 3 times per day
6.0- 9.9	125 mg (5 ml) 3 times per day
10.0- 30.0	250 mg (10 ml) 3 times per day
Capsules – 250 mg	
Weight of Child (kg)	Dose
2.0- 5.9	Give syrup
6.0- 9.9	125 mg ($\frac{1}{2}$ capsule) 3 times per day
10.0- 30.0	250 mg (1 capsule) 3 times per day

NOTE: Always check label on bottles for dosages and dilution of syrups, as different manufacturers might use different levels.

PARACETAMOL DOSAGES

For severely malnourished children, use for symptomatic treatment of fever but with extreme caution. Give one-time treatment only and start an antibiotic or antimalarial immediately. Monitor the child; if the fever is 39° C or greater, refer him/her to inpatient

care where possible. If inpatient care is not available, give a single dose of paracetamol and sponge the child with tepid water until the fever subsides. Have the mother/caregiver return to outpatient care if the high fever continues at home.

SYRUP – 125 MG / 5 ML	
Weight of Child (kg)	Dose
< 4.0	25 mg (1 ml) single dose
4.0 - 7.9	60 mg (2.5 ml) single dose
8.0 - 14.9	120 mg (5 ml) single dose
> 15.0	240 mg (10 ml) single dose
TABLETS – 100 MG	
Weight of Child (kg)	Dose
< 4.0	25 mg (1/4 tablet) single dose
4.0 - 7.9	50 mg (1/2 tablet) single dose
8.0 - 14.9	100 mg (1 tablet) single dose
> 15.0	200 mg (2 tablets) single dose

NOTE: Always check label on bottles for dosages and dilution of syrups, as different manufacturers might use different levels. Remember to give ONE DOSE only and start antibiotic or antimalarial. Source: *Community-based Therapeutic Care (CTC): A Field Manual*

5) Outpatient Care Action Protocol

Source: *Community-based Therapeutic Care (CTC):*

Sign	Referral to Inpatient Care	Follow-Up Home Visit
BILATERAL PITTING OEDEMA	Grade +++ Marasmic kwashiorkor Increase in, or development of, bilateral pitting oedema	Bilateral pitting oedema not reducing by week 3
APPETITE / ANOREXIA	No appetite or unable to eat	Eats < 75% of the RUTF a week by third session
VOMITING	Intractable	
TEMPERATURE	Fever: > 39C	
	Hypothermia: < 35 C	

RESPIRATION RATE (rr)	≥ 60 respirations/minute for under 2 months	
	≥ 50 respirations/minute from 2 to 12 months	
	≥ 40 respirations/minute from 1 year to 5 years	
	≥ 30 respirations/minute for over 5 years	
ANAEMIA	Very pale (severe palmer pallor), difficulty breathing	
SUPERFICIAL INFECTION	Extensive infection requiring intermuscular treatment	
ALERTNESS	Very weak, apathetic, unconscious	
	Fitting/convulsions	
HYDRATION STATUS	Severe dehydration based primarily on recent history of diarrhoea, vomiting, fever or sweating and on recent appearance of clinical signs of dehydration as reported by the mother/caregiver	
WEIGHT CHANGES		Below admission weight on week 3
	Weight loss for 3 consecutive weighings	Weight loss for 2 consecutive weeks
	Static weight for 5 consecutive weighings	Static weight for 3 consecutive weeks
GENERAL	Mother/caregiver requests inpatient care	Returned from inpatient care (first 2 weeks) Refused referral to inpatient care
NOT RECOVERING	Child that is not recovering is referred to hospital for investigation.	

6) Discharge Criteria and Exit Categories for CMAM

DISCHARGE CRITERIA FOR CMAM

INPATIENT CARE for the Management of SAM with Medical Complications	OUTPATIENT CARE for the Management of SAM without Medical Complications	SUPPLEMENTARY FEEDING for the Management of MAM
DISCHARGE CRITERIA* FOR CHILDREN 6 - 59 MONTHS		
<p>Discharged to outpatient care:</p> <p>Appetite returned (passed appetite test)</p> <p>AND</p> <p>medical complication resolving</p> <p>AND</p> <p>bilateral pitting oedema decreasing</p> <p>AND</p> <p>clinically well and alert (If marasmic kwashiorkor admission: bilateral pitting oedema resolved)</p>	<p>Discharged cured:</p> <ul style="list-style-type: none"> ••No bilateral pitting oedema for 2 consecutive weeks ••15% weight gain (from admission weight when free of oedema) ••Child clinically well and alert with sustained weight gain ••Minimum 2 months in treatment <p><i>Children are discharged to supplementary feeding if available</i></p>	<p>Discharged cured:</p> <p>If MUAC admission (under discussion):</p> <ul style="list-style-type: none"> ••Minimum 2 months in treatment ••MUAC \geq 125 mm for 2 consecutive wks <p>If WFH admission:</p> <ul style="list-style-type: none"> •• <i>Minimum 2 months in treatment</i> ••WFH \geq -2 z-score (WHO) for 2 consecutive weeks <p>Discharged after recovering from SAM:</p> <ul style="list-style-type: none"> ••Minimum 2 months in treatment ••MUAC \geq 125 mm
DISCHARGE CRITERIA FOR INFANTS < 6 MONTHS		
<p>Discharged cured if successful re-lactation and appropriate weight gain (minimum 20 grams weight gain per day on breastfeeding alone for 5 days) and clinically well and</p>		

alert (if no access to breastfeeding, alternative method of replacement feeding based on national guidelines is required).		
DISCHARGE CRITERIA FOR PREGNANT AND LACTATING WOMEN		
		Pregnant and lactating women MUAC \geq 230 mm or infant \geq 6 months of age

EXIT CATEGORIES FOR CMAM

INPATIENT CARE for the Management of SAM with Medical Complications	OUTPATIENT CARE for the Management of SAM without Medical Complications	SUPPLEMENTARY FEEDING for the Management of MAM
EXIT CATEGORY: CURED		
Child 6-59 months meets outpatient care discharge criteria Infant < 6 months meets inpatient care discharge criteria	Child 6-59 months meets discharge criteria	Child 6-59 months meets discharge criteria
EXIT CATEGORY: DIED		
Child dies while in inpatient care	Child dies while in outpatient care	Child dies while in supplementary feeding
EXIT CATEGORY: DEFAULTED		
Child is absent for 2 days	Child is absent for 3 consecutive sessions (e.g., 3 weeks)	Child is absent for 3 consecutive sessions (e.g., 6 weeks)
EXIT CATEGORY: NON-RECOVERED		

Child does not reach discharge criteria after 4 months in treatment (medical investigation previously done)	Child does not reach discharge criteria after 4 months in treatment (medical investigation previously done)	Child does not reach discharge criteria after 4 months in treatment (medical investigation previously done)
EXIT CATEGORY: REFERRED TO OUTPATIENT OR INPATIENT CARE		
<p><i>Referred to Outpatient Care:</i></p> <p>Child's health condition is improving and child is referred to outpatient care to continue treatment</p>	<p><i>Referred to Inpatient Care:</i></p> <p>Child's health condition is deteriorating (action protocol)</p>	<p><i>Referred to Outpatient or Inpatient Care</i></p> <p>Child's health condition is deteriorated and child meets outpatient or inpatient care admission criteria (action protocol)</p>

Inpatient Care for the Management of SAM with Medical Complications.

1) Medical Treatment and Nutrition Rehabilitation of SAM With Medical Complications

Medical treatment and nutrition rehabilitation of children with severe acute malnutrition (SAM) and medical complications in inpatient care follow the World Health Organization (WHO) protocols for the treatment of SAM (WHO 1999). When the medical condition is stabilised and the medical complication is resolving, the child is referred to outpatient care to continue the nutrition rehabilitation.

Treatment

- The WHO manual (WHO 1999) and guidelines (WHO 2003) provide detailed information on the treatment of children with SAM and do not account for early discharge to outpatient care after the medical condition is stabilised and the medical complication is resolving.
- It usually takes four to seven days of treatment for the medical complication to start resolving.

Figure : WHO 10-Step Treatment of Children With SAM

STEP	STABILISATION PHASE		REHABILITATION PHASE
	Days 1-2	Days 3-7	Weeks 2-6
1. Hypoglycaemia			
2. Hypothermia	→		
3. Dehydration	→		
4. Electrolytes	→		
5. Infection	→		
6. Micronutrients	no iron →		with iron
7. Cautious feeding	→		
8. Catch-up growth	→		
9. Sensory stimulation	→		
10. Prepare for follow-up	→		

Nutrition Rehabilitation

- Children receive F75 (100 kcal/kg/day) every two to three hours and are given routine or specific medication according to the medical complication and the WHO treatment protocol (Steps 1-7). When appetite has returned (child drinks F75 voluntarily), ready-to-use therapeutic food (RUTF) is gradually introduced (Step 8).
- Once the child can eat at least 75 percent of the RUTF ration at each meal (150 kcal/kg/day), nutrition support can continue with RUTF (200 kcal/kg/day, according to the RUTF protocol) and, if the medical complication is resolving, the child can be discharged to outpatient care.
- Children with SAM and medical complications in inpatient care can be given RUTF immediately if they have appetite and can eat the RUTF.

- Children who have been referred to inpatient care from outpatient care because of static weight for five consecutive weigh-ins or weight loss for more than three consecutive weeks also can be given RUTF if they have appetite.

Nutrition Rehabilitation of Infants Under 6 Months with SAM

Health care providers need special training in the management of SAM in infants under 6 months receiving inpatient care. Treatment can be very labor-intensive. Management of SAM in infants generally requires:

- If the mother is present:
 - Nutrition rehabilitation with intensive breastfeeding counseling and support to the mother, and the supplemental suckling technique (SST) with diluted F100, along with medical treatment according to the WHO protocol; the aim is to restore exclusive breastfeeding (EBF) with appropriate weight gain of 20g per day for 5 days on breast milk alone
 - Nutrition, medical and psychological care for breastfeeding mothers
 - Promotion and support for breastfeeding in all instances
- If the mother is not breastfeeding or is absent:
 - Nutrition rehabilitation with diluted F100, medical treatment according to the WHO protocol; alternatives for continued feeding with local available complementary foods should be considered

Note: Infants under 6 months are never given RUTF, as they have not sufficiently developed the swallowing reflex for solid foods.

See WHO's *Guidelines for the Inpatient Treatment of Severely Malnourished Children* (WHO 2003) for more information on inpatient care

2) Medical Management of SAM

Adapted from UN SCN Harmonized Training Package, 2011.

Giving medications to children with SAM and medical complications

The use of IV lines is strictly avoided except in case of septic shock or septicemia. Special care with intramuscular injections is taken as children with SAM have reduced muscle mass and the risk of nerve damage is high.

Before prescribing/administering any drug it is important to:

- Check standard dosages with national (WHO) guidelines for SAM
- Check labels on bottles for dosages and dilution of syrups as this can change between different manufacturers

Routine medicines for inpatient care

On admission, routine medicines should be given to the child as per national protocols where available.

Medication	When
Amoxicillin	At admission
Mebendazole or Albendazole	When the child progresses from transition to rehabilitation phase
Iron	During transition and rehabilitation phases WHEN THE CHILD IS NOT CONSUMING RUTF: One crushed tablet of Ferrous Sulphate 200 mg to each 2 litres of F100
Vitamin A	Single dose at discharge
Measles vaccination	During admission

Note: Children who have been transferred from outpatient care should not receive routine medications that have already been administered before

Antibiotics

Routine antibiotics are given upon admission (stabilisation) and continued for between 7 to 10 days depending on the child's clinical condition. **Amoxicillin** is generally used but if the child has a severe infection or continues to present symptoms a second line antibiotic should be added (usually **Chloramphenicol** or **Gentamycin + Ampicillin**) (see summary in table 17 below).

Table: Summary of antibiotics for inpatient management of SAM¹⁹

IF:	GIVE:	
NO COMPLICATIONS	Amoxicillin oral (15 mg/kg dose) every 8 hours for 7 days	
COMPLICATIONS (shock, hypoglycemia, hypothermia, dermatitis with raw skin/fissures, respiratory or urinary tract infections, or lethargic/sickly appearance)	Gentamicin IV or IM (7.5mg/kg) once daily, PLUS:	
	Ampicillin IV or IM (50mg/kg) every 6 hours for 2 days	Followed by Amoxicillin oral (15mg/kg) every 8 hours for 5 days
If child fails to improve within 48 hours, ADD:	Chloramphenicol IV or IM (25mg/kg) every 8 hours for 5 days (give every 6 hours if meningitis is suspected)	
If a specific infection requires additional antibiotic	Refer to the WHO manual (1999) <i>Management of Severe Malnutrition</i>	

De-worming

Give a single dose of **Mebendazole** (or **Albendazole**) when the child progresses from transition to rehabilitation phase. If the child is referred earlier to outpatient care, de-worming drugs should be given on arrival.

Iron

Only for children that DO NOT receive RUTF during the transition and rehabilitation phases. Iron needs to be added to the F100 milk (1 crushed tablet of **Ferrous Sulphate 200 mg** to each 2 litres of F100).

Vitamin A

Because of its toxicity and the considerable amount available in RUTF, routine vitamin A is only given in a single dose on the day of discharge from the full therapeutic treatment. This usually happens in outpatient care, thus in inpatient care only children completing their full rehabilitation in inpatient care should receive **vitamin A** (unless treatment is indicated due to clinical signs of deficiency). Vitamin A should not be given if the child has already received a dose within the previous 4 months, except in case of recent measles.

Immunizations

Check immunization status of the child upon admission according to the standard immunization schedule, especially immunization for measles.

Medical Management of Infants Under 6 Months in Stabilization Center

Antibiotics

Unlike for children 6-59m, do not give antibiotics routinely. Only give where there are signs of infections.

First line: Amoxycillin (from 2kg): 30mg/kg two (2) times a day (60mg/day).

Second line if required: Add Gentamicin for severe infections or prescribe the appropriate combination for the diagnosed infection (do not use Chloramphenicol on infants under two months of age).

Vitamin A

Do not give vitamin A unless eye examinations show signs of vitamin A deficiency or if there has been a recent measles episode. In that case give 50,000IU single dose on admission (or at exit if oedema present).

Folic Acid

Give 2.5 mg ($\frac{1}{2}$ tablet) in a single dose on admission.

Ferrous Sulphate

When the child suckles well and starts to gain weight add iron to the *therapeutic milk*. The easiest way is to add iron to normal F100, as per instructions for older children, and then dilute it with $\frac{1}{3}$ water to obtain the correct dilution. Alternatively, provide daily doses of iron syrup orally.

Nutrition management and follow up in breastfed infants

Infants who are malnourished are weak and do not suckle strongly enough to stimulate adequate production of breast milk. The mother often thinks that she herself has insufficient milk and is apprehensive about her ability to adequately feed her child. The objective of treatment of these infants is to return them to full exclusive breastfeeding. This is achieved through the *Supplementary Suckling Technique* (SST)

The child receives 130 ml/kg/day, distributed in 8 meals:

- For marasmic children: diluted F100²⁵
- Infants presenting oedema: F75, changing to diluted F100 when oedema has disappeared.

Supplementary Feeding to Manage MAM in Emergencies

A. Purpose of Supplementary Feeding Programmes (SFPs)

Supplementary feeding implemented in an emergency context is known as an SFP. Its purpose is to treat moderate acute malnutrition (MAM) in children 6-59 months and other vulnerable groups, such as malnourished pregnant women and lactating women with infants under 6 months of age.

Children under 6 months are never admitted to SFPs. However, the mother receives counseling on adequate breastfeeding and, if malnourished, will be admitted to the SFP herself. If the infant shows signs of severe acute malnutrition (SAM, i.e. bilateral pitting oedema, visible wasting), the infant will then be referred to inpatient care for specialized care.

There are two types of supplementary feeding interventions in emergencies:

Blanket supplementary feeding: A supplementary ration is provided for everyone in an identified vulnerable group for a defined period. This might be all children under 3 or 5 years old and/or all pregnant and lactating women, regardless of their nutritional status. Anthropometric criteria are not used for admission. Blanket feeding is used when the prevalence of acute malnutrition is high, numbers of vulnerable people are very large and general food distributions are inadequate. It can also be used during certain peak seasons or shocks.

Targeted supplementary feeding: A supplementary ration is targeted to individuals with MAM in specific vulnerable groups. The vulnerable groups usually include children age 6 to 59 months and malnourished pregnant women and lactating women with infants under 6 months of age. Groups also might include individuals with special needs such as people living with HIV (PLHIV), people with tuberculosis (TB) and the elderly. Specific anthropometric criteria for entry and discharge are usually used.

The supplementary feeding discussed in this module as part of CMAM is a **targeted SFP**.

B. SFPs in the Context of CMAM

- In emergencies where the population depends on external food assistance, a general ration for the whole population is a priority to reach the maximum number of children. Normally, SFPs should not be set up before a general ration is in place. Also in an emergency, SFPs (to manage MAM in children) should be prioritized over CMAM outpatient care and inpatient care (to manage SAM in children).
- An SFP is implemented through a large number of decentralized treatment sites. These are located at or near the sites chosen for outpatient care and should be within a day's walk (round-trip) for the beneficiaries, which helps facilitate referrals between outpatient care and supplementary feeding.
- When SFP and outpatient cares are provided at the same site, this can lead to very large crowds. Good organization is necessary to ensure that the crowds do not interfere with outpatient care and other ongoing health facility activities. It is preferable to place the SFP nearby rather than in the health facility, with strong established links for referral.

C. Objectives of an SFP and When to Start and Close an SFP

- The objectives of an SFP intervention should be measurable and, in most cases, achieved in a defined period. The precise objectives will depend on the context and resources available. The objectives might include:
 - Reducing mortality among children under 5
 - Treating and preventing deterioration in the nutritional status of children with MAM
 - Preventing deterioration in the nutritional status of pregnant and lactating women
- The decision to start supplementary feeding in an emergency context is often based on a high prevalence of MAM and/or the presence of aggravating factors, such as a crude death rate above 1 in 10,000 per day, an epidemic of measles, high prevalence of respiratory or diarrheal disease, poor sanitation environment, inadequacy in the relief food basket and/or an unreliable food distribution system.
- Decision charts can be used as guidelines for when to open and close an SFP. They should be used only as a guide and when appropriate for the SFP's context, precise objectives and timeframe.
- The decision to close an SFP will depend on the SFP's objectives. The decision to close ideally should be made after a nutrition survey has clearly shown a decrease in global acute malnutrition (GAM) in the population to below emergency levels and the end of aggravating factors.

D. Where There Is No SFP

In some situations, no SFP is available. This is likely to be the case when outpatient care is part of routine health care in non-emergency situations or in a food-secure environment. In non-emergency situations, some form of supplementary feeding for the management of MAM might be part of child survival interventions or a national programme. For example, in Ethiopia, distribution of supplementary foods part of the country's Enhanced Outreach Strategy for Child Survival. It also might be the case after an emergency when resources are no longer available for SFPs and/or where the prevalence of acute malnutrition has been significantly reduced.

Below are some options that should be considered to ensure that children recovering from SAM can continue gaining weight and avoid readmission:

1. In cases where there is high GAM and efforts to set up an SFP have failed, adapt the outpatient care admission and discharge criteria.
 - a. Discharge Criteria: Extend length of stay from two to three months or increase WFH as a percentage of the median to > 85%.
2. In an emergency response, advocate for a general food distribution for families of vulnerable or malnourished children or, when there is access to fortified blended food (FBF), provide a family food ration in outpatient care.
 - a. A ration of FBF can be provided to the mother/caregiver of a child admitted to outpatient care every two weeks (usually 2.5 kg of FBF every two weeks). This is given as a family food ration to prevent sharing of the ready-to-use therapeutic food (RUTF). The ration will likely be provided by the World Food Programme (WFP) or government agencies. This should be a standard part of emergency outpatient care.
3. Provide a food ration on discharge from outpatient care.
 - a. If access to supplementary foods is secured/allowed, a food ration can be provided upon discharge from outpatient care (equivalent to two months of supplementary rations) to help avoid readmission.

4. Link to prevention programmes.
 - Once children have been treated for SAM or MAM and have started to recover, they and their mothers/caregivers should be linked with prevention programmes to help prevent them from becoming malnourished again. Many cases of under nutrition could be prevented through other interventions that promote child growth (e.g., community-based programmes such as Infant and Young Child Feeding Programs, Positive Deviance/Hearth [PD/Hearth], community-based growth monitoring and promotion (GMP), community-based care groups). These programmes offer nutrition and health counseling, education communication interventions and support for mothers/caregivers.

Medical Treatment Protocols for the Management of MAM in Supplementary Feeding.

Routine Medicines for Moderate Acute Malnutrition (MAM)

Vitamin A

Children 6-59 months:

- Routine supplementation should be given on admission except where Vitamin A has been given in the past 4 months or health campaigns have ensured good coverage.
- Children referred from outpatient care, inpatient care or other health facility where Vitamin A has already been given should not be given Vitamin A.
- Children showing clinical signs of Vitamin A deficiency should be referred for treatment according to World Health Organization (WHO) guidelines.

Pregnant and lactating women: Pregnant women should NOT be given Vitamin A. Vitamin A is given postpartum, within six weeks after delivery only.

Antihelminths

To ensure adequate weight gain, **all children 12-59 months** must be routinely treated (every six months) for worm infections with mebendazole or albendazole (or other appropriate anti helminth).

Iron and folic acid

Children 6-59 months: Children with anaemia should be treated according to WHO and Integrated Management of Childhood Illness (IMCI) guidelines; this should include malaria testing and treatment in endemic areas. Children with severe anaemia should be referred to a health facility for treatment.

Pregnant and lactating women: Supplementation should be given according to WHO and national guidelines.

Other treatments

Other medical treatments, including vaccination for measles and expanded programme of immunization (EPI) update, should be assessed and provided according to national guidelines.

SFP Criteria for Pregnant and Lactating Women.

Table: Admission and Discharge Criteria for Targeted SFPs

	Admission Criteria	Discharge Criteria
Pregnant and Lactating Women	<p>Suggested cut off points for risk vary by country and range from 210 to 230 mm. UNHCR/WFP recommend either 230 mm or 210 mm as the cut off, but do not detail the specific rationale under which circumstances one is more applicable than the other. Sphere recommends 210 mm as an appropriate cut off for selection of women at risk during emergencies.</p> <p><i>Pregnant women</i> MUAC less than 210mm (or 230mm) and second or third trimester</p> <p><i>Lactating women with infant < 6 months</i> MUAC less than 210mm (or 230mm) and/or If they have breastfeeding problems or if the infant is not gaining weight adequately</p>	<p>For pregnant women, MUAC of greater than or equal to 210mm (or 230mm) is recommended.</p> <p>For postpartum lactating women, MUAC of greater than or equal to 210mm (or 230mm) or when their baby reaches 6 months of age is recommended.</p> <p>When the infant reaches 6 months of age, they should be assessed for MAM and SAM and Referred as appropriate.</p>