JOB AIDS AND SUPPORT MATERIALS

Training Course on Inpatient Management of Severe Acute Malnutrition

(Adapted from the 2002 WHO *Training course on the inpatient management of severe acute malnutrition*)

Children 6–59 Months with SAM and Medical Complications

March 2012

Contents

1. Admission Criteria for the Management of Severe Acute Malnutrition in Children under 5
2. Discharge Criteria for the Management of Severe Acute Malnutrition in Children under 5
3. Weight-for-Height/Length Reference Tables
4. Guidance Table to Identify Target Weight for Discharge from Management of Severe Acute Malnutrition for Children 6–59 Months
5. Danger Signs for the Management of Severe Acute Malnutrition in Children under 5 in Inpatient Care
6. Routine Medicine Protocols and Vaccines for Children under 5 with SAM in Inpatient Care
7. Antibiotics for Children with SAM in Inpatient Care
8. Specific Formulation and Body Weight Ranges for Antibiotics for SAM in Inpatient Care
9. Other Medicine Protocols and Vaccines for Children under 5 with SAM in Inpatient Care
10. F-75 Reference Tables
11. F-100 Reference Table
12. F-100-Diluted Reference Tables
13. RUTF Reference Table for Children 6–59 Months with SAM in Inpatient Care
14. RUTF Appetite Test
15. Entry and Exit Categories for Monitoring the Management of Severe Acute Malnutrition in Children 6–59 Months

This modified version of the 2002 World Health Organisation's *Training Course on Inpatient Management of Severe Acute Malnutrition (SAM)* is the practical application of the 2010 MOH/GHS *Interim National Guidelines for Community-Based Management of Severe Acute Malnutrition in Ghana.* The training course was modified by the MOH/GHS SAM Support Unit in collaboration with the MOH/GHS Regional SAM Support Teams. USAID/Ghana, FANTA-2 Bridge project, UNICEF/Ghana and WHO/Ghana provided technical and financial support to review and modify the training course. This revised training course is made possible by the generous support of the American people through the support of USAID/Ghana and the Office of Health, Infectious Diseases, and Nutrition, Bureau for Global Health, United States Agency for International Development (USAID), under terms of Cooperative Agreement No. AID-OAA-A-11-00014, through the FANTA-2 Bridge, managed by FHI 360.

1. Admission Criteria for the Management of Severe Acute Malnutrition in Children under 5

Management Approach Classification	**INPATIENT CARE** SAM **with** medical complications	**OUTPATIENT CARE** SAM **without** medical complications
Admission Criteria		
Anthropometric and Clinical Measures	**Children 6–59 months:** Bilateral pitting oedema (+++) **or** Any grade of bilateral pitting oedema with severe wasting (MUAC < 11.5 cm) **or** SAM with medical complications **Infants < 6 months:** Bilateral pitting oedema **or** Visible wasting	**Children 6–59 months:** Bilateral pitting oedema (++) or (+) **or** Severe wasting (MUAC < 11.5 cm)
Appetite Test	Failed	Passed
Clinical Status	SAM with any of the following medical complications: • Anorexia, no appetite • Intractable vomiting • Convulsions • Lethargy, not alert • Unconsciousness • Hypoglycaemia • High fever • Hypothermia • Severe dehydration • Lower respiratory tract infection • Severe anaemia • Skin lesion • Eye signs of vitamin A deficiency	Clinically well and alert
Caregiver Choice	Caregiver willing	Caregiver willing

2. Discharge Criteria for the Management of Severe Acute Malnutrition in Children under 5

Management Approach Classification	**INPATIENT CARE** SAM **with** medical complications	**OUTPATIENT CARE** SAM **without** medical complications
Referral/Discharge Criteria		
	Children 6–59 months: Referral to outpatient care if oedema reducing and/or medical complication resolving, and clinically well and alert **Infants < 6 months:** Discharge when successful re-lactation and appropriate weight gain (minimum 20 g weight gain per day on breastfeeding alone for 5 days) (see other guidance for non-breastfed children) **Special cases 6–59 months:** Discharge if 15% weight gain for 2 consecutive weeks **and/or** No oedema for 2 consecutive visits **and** Clinically well and alert	Discharge if 15% weight gain for 2 consecutive weeks **and/or** No oedema for 2 consecutive visits **and** Clinically well and alert

3. Weight-for-Height/Length Reference Tables

WHO Child Growth Standards

Weight-for-Height/Length Reference Table (*less than* 87 cm)

Boys Weight (kg)					Height/Length (cm)	Girls Weight (kg)				
−4 SD	−3 SD	−2 SD	−1 SD	Median		Median	−1 SD	−2 SD	−3 SD	−4 SD
1.7	1.9	2.0	2.2	2.4	**45**	2.5	2.3	2.1	1.9	1.7
1.8	2.0	2.2	2.4	2.6	**46**	2.6	2.4	2.2	2.0	1.9
2.0	2.1	2.3	2.5	2.8	**47**	2.8	2.6	2.4	2.2	2.0
2.1	2.3	2.5	2.7	2.9	**48**	3.0	2.7	2.5	2.3	2.1
2.2	2.4	2.6	2.9	3.1	**49**	3.2	2.9	2.6	2.4	2.2
2.4	2.6	2.8	3.0	3.3	**50**	3.4	3.1	2.8	2.6	2.4
2.5	2.7	3.0	3.2	3.5	**51**	3.6	3.3	3.0	2.8	2.5
2.7	2.9	3.2	3.5	3.8	**52**	3.8	3.5	3.2	2.9	2.7
2.9	3.1	3.4	3.7	4.0	**53**	4.0	3.7	3.4	3.1	2.8
3.1	3.3	3.6	3.9	4.3	**54**	4.3	3.9	3.6	3.3	3.0
3.3	3.6	3.8	4.2	4.5	**55**	4.5	4.2	3.8	3.5	3.2
3.5	3.8	4.1	4.4	4.8	**56**	4.8	4.4	4.0	3.7	3.4
3.7	4.0	4.3	4.7	5.1	**57**	5.1	4.6	4.3	3.9	3.6
3.9	4.3	4.6	5.0	5.4	**58**	5.4	4.9	4.5	4.1	3.8
4.1	4.5	4.8	5.3	5.7	**59**	5.6	5.1	4.7	4.3	3.9
4.3	4.7	5.1	5.5	6.0	**60**	5.9	5.4	4.9	4.5	4.1
4.5	4.9	5.3	5.8	6.3	**61**	6.1	5.6	5.1	4.7	4.3
4.7	5.1	5.6	6.0	6.5	**62**	6.4	5.8	5.3	4.9	4.5
4.9	5.3	5.8	6.2	6.8	**63**	6.6	6.0	5.5	5.1	4.7
5.1	5.5	6.0	6.5	7.0	**64**	6.9	6.3	5.7	5.3	4.8
5.3	5.7	6.2	6.7	7.3	**65**	7.1	6.5	5.9	5.5	5.0
5.5	5.9	6.4	6.9	7.5	**66**	7.3	6.7	6.1	5.6	5.1
5.6	6.1	6.6	7.1	7.7	**67**	7.5	6.9	6.3	5.8	5.3
5.8	6.3	6.8	7.3	8.0	**68**	7.7	7.1	6.5	6.0	5.5
6.0	6.5	7.0	7.6	8.2	**69**	8.0	7.3	6.7	6.1	5.6
6.1	6.6	7.2	7.8	8.4	**70**	8.2	7.5	6.9	6.3	5.8
6.3	6.8	7.4	8.0	8.6	**71**	8.4	7.7	7.0	6.5	5.9
6.4	7.0	7.6	8.2	8.9	**72**	8.6	7.8	7.2	6.6	6.0
6.6	7.2	7.7	8.4	9.1	**73**	8.8	8.0	7.4	6.8	6.2
6.7	7.3	7.9	8.6	9.3	**74**	9.0	8.2	7.5	6.9	6.3
6.9	7.5	8.1	8.8	9.5	**75**	9.1	8.4	7.7	7.1	6.5
7.0	7.6	8.3	8.9	9.7	**76**	9.3	8.5	7.8	7.2	6.6
7.2	7.8	8.4	9.1	9.9	**77**	9.5	8.7	8.0	7.4	6.7
7.3	7.9	8.6	9.3	10.1	**78**	9.7	8.9	8.2	7.5	6.9
7.4	8.1	8.7	9.5	10.3	**79**	9.9	9.1	8.3	7.7	7.0
7.6	8.2	8.9	9.6	10.4	**80**	10.1	9.2	8.5	7.8	7.1
7.7	8.4	9.1	9.8	10.6	**81**	10.3	9.4	8.7	8.0	7.3
7.9	8.5	9.2	10.0	10.8	**82**	10.5	9.6	8.8	8.1	7.5
8.0	8.7	9.4	10.2	11.0	**83**	10.7	9.8	9.0	8.3	7.6
8.2	8.9	9.6	10.4	11.3	**84**	11.0	10.1	9.2	8.5	7.8
8.4	9.1	9.8	10.6	11.5	**85**	11.2	10.3	9.4	8.7	8.0
8.6	9.3	10.0	10.8	11.7	**86**	11.5	10.5	9.7	8.9	8.1

WHO Child Growth Standards (continued)

Weight-for-Height/Length Reference Table (*greater than* 87 cm)										
Boys Weight (kg)					Height/Length (cm)	Girls Weight (kg)				
−4 SD	−3 SD	−2 SD	−1 SD	Median		Median	−1 SD	−2 SD	−3 SD	−4 SD
8.9	9.6	10.4	11.2	12.2	**87**	11.9	10.9	10.0	9.2	8.4
9.1	9.8	10.6	11.5	12.4	**88**	12.1	11.1	10.2	9.4	8.6
9.3	10.0	10.8	11.7	12.6	**89**	12.4	11.4	10.4	9.6	8.8
9.4	10.2	11.0	11.9	12.9	**90**	12.6	11.6	10.6	9.8	9.0
9.6	10.4	11.2	12.1	13.1	**91**	12.9	11.8	10.9	10.0	9.1
9.8	10.6	11.4	12.3	13.4	**92**	13.1	12.0	11.1	10.2	9.3
9.9	10.8	11.6	12.6	13.6	**93**	13.4	12.3	11.3	10.4	9.5
10.1	11.0	11.8	12.8	13.8	**94**	13.6	12.5	11.5	10.6	9.7
10.3	11.1	12.0	13.0	14.1	**95**	13.9	12.7	11.7	10.8	9.8
10.4	11.3	12.2	13.2	14.3	**96**	14.1	12.9	11.9	10.9	10.0
10.6	11.5	12.4	13.4	14.6	**97**	14.4	13.2	12.1	11.1	10.2
10.8	11.7	12.6	13.7	14.8	**98**	14.7	13.4	12.3	11.3	10.4
11.0	11.9	12.9	13.9	15.1	**99**	14.9	13.7	12.5	11.5	10.5
11.2	12.1	13.1	14.2	15.4	**100**	15.2	13.9	12.8	11.7	10.7
11.3	12.3	13.3	14.4	15.6	**101**	15.5	14.2	13.0	12.0	10.9
11.5	12.5	13.6	14.7	15.9	**102**	15.8	14.5	13.3	12.2	11.1
11.7	12.8	13.8	14.9	16.2	**103**	16.1	14.7	13.5	12.4	11.3
11.9	13.0	14.0	15.2	16.5	**104**	16.4	15.0	13.8	12.6	11.5
12.1	13.2	14.3	15.5	16.8	**105**	16.8	15.3	14.0	12.9	11.8
12.3	13.4	14.5	15.8	17.2	**106**	17.1	15.6	14.3	13.1	12.0
12.5	13.7	14.8	16.1	17.5	**107**	17.5	15.9	14.6	13.4	12.2
12.7	13.9	15.1	16.4	17.8	**108**	17.8	16.3	14.9	13.7	12.4
12.9	14.1	15.3	16.7	18.2	**109**	18.2	16.6	15.2	13.9	12.7
13.2	14.4	15.6	17.0	18.5	**110**	18.6	17.0	15.5	14.2	12.9
13.4	14.6	15.9	17.3	18.9	**111**	19.0	17.3	15.8	14.5	13.2
13.6	14.9	16.2	17.6	19.2	**112**	19.4	17.7	16.2	14.8	13.5
13.8	15.2	16.5	18.0	19.6	**113**	19.8	18.0	16.5	15.1	13.7
14.1	15.4	16.8	18.3	20.0	**114**	20.2	18.4	16.8	15.4	14.0
14.3	15.7	17.1	18.6	20.4	**115**	20.7	18.8	17.2	15.7	14.3
14.6	16.0	17.4	19.0	20.8	**116**	21.1	19.2	17.5	16.0	14.5
14.8	16.2	17.7	19.3	21.2	**117**	21.5	19.6	17.8	16.3	14.8
15.0	16.5	18.0	19.7	21.6	**118**	22.0	19.9	18.2	16.6	15.1
15.3	16.8	18.3	20.0	22.0	**119**	22.4	20.3	18.5	16.9	15.4
15.5	17.1	18.6	20.4	22.4	**120**	22.8	20.7	18.9	17.3	15.6

4. Guidance Table to Identify Target Weight for Discharge from Management of Severe Acute Malnutrition for Children 6–59 Months

Weight on admission* (kg)	Target weight: 15% weight gain	Weight on admission* (kg)	Target weight: 15% weight gain
4.1	4.7	8.1	9.3
4.2	4.8	8.2	9.4
4.3	4.9	8.3	9.5
4.4	5.1	8.4	9.7
4.5	5.2	8.5	9.8
4.6	5.3	8.6	9.9
4.7	5.4	8.7	10.0
4.8	5.5	8.8	10.1
4.9	5.6	8.9	10.2
5.0	5.8	9.0	10.4
5.1	5.9	9.1	10.5
5.2	6.0	9.2	10.6
5.3	6.1	9.3	10.7
5.4	6.2	9.4	10.8
5.5	6.3	9.5	10.9
5.6	6.4	9.6	11.0
5.7	6.6	9.7	11.2
5.8	6.7	9.8	11.3
5.9	6.8	9.9	11.4
6.0	6.9	10.0	11.5
6.1	7.0	10.1	11.6
6.2	7.1	10.2	11.7
6.3	7.2	10.3	11.8
6.4	7.4	10.4	12.0
6.5	7.5	10.5	12.1
6.6	7.6	10.6	12.2
6.7	7.7	10.7	12.3
6.8	7.8	10.8	12.4
6.9	7.9	10.9	12.5
7.0	8.0	11.0	12.7
7.1	8.2	11.1	12.8
7.2	8.3	11.2	12.9
7.3	8.4	11.3	13.0
7.4	8.5	11.4	13.1
7.5	8.6	11.5	13.2
7.6	8.7	11.6	13.3
7.7	8.9	11.7	13.5
7.8	9.0	11.8	13.6
7.9	9.1	11.9	13.7
8.0	9.2	12.0	13.8

* Or weight free of oedema

5. Danger Signs for the Management of Severe Acute Malnutrition in Children under 5 in Inpatient Care

Danger Signs Related to Pulse, Respirations, and Temperature. Alert a physician if these occur.		
	Danger sign:	**Suggests:**
Pulse and respirations	Confirmed increase in pulse rate of 25 or more beats per minute **along with** Confirmed increase in respiratory rate of 5 or more breaths per minute	Infection or Heart failure (possibly from over-hydration due to feeding or rehydrating too fast)
Respirations only	Fast breathing: • 50 breaths/minute or more in children 2–11 months* • 40 breaths/minute or more in children 1–5 years	Pneumonia
Temperature	Any sudden increase or decrease Rectal temperature below 35.5°C (95.9°F)	Infection Hypothermia (possibly due to infection, a missed feed, or child being uncovered)

* Infants under 12 months will normally breathe fast without having pneumonia. However, unless the infant's normal respiratory rate is known to be high, he/she should be assumed to have either over-hydration or pneumonia. Careful evaluation, taking into account prior fluid administration, will help differentiate the two conditions and plan appropriate treatment.

In addition to watching for increasing pulse or respirations and changes in temperature, watch for other danger signs, such as:

- Anorexia (loss of appetite)
- Change in mental state (e.g., becomes lethargic)
- Jaundice (yellowish skin or eyes)
- Cyanosis (tongue/lips turning blue from lack of oxygen)
- Difficult breathing
- Difficulty feeding or waking (drowsy)
- Abdominal distension
- New oedema
- Large weight changes
- Increased vomiting
- Petechiae (bruising)

Normal Ranges of Pulse and Respiratory Rates

Age	Normal ranges (per minute):	
	Pulse	**Respirations**
2–11 months	80 up to 160	20 up to 60*

* Infants under 12 months will normally breathe fast without having pneumonia. However, unless the infant's normal respiratory rate is known to be high, he/she should be assumed to have either over-hydration or pneumonia. Careful evaluation, taking into account prior fluid administration, will help differentiate the two conditions and plan appropriate treatment.

6. Routine Medicine Protocols and Vaccines for Children under 5 with SAM in Inpatient Care

NAME OF MEDICATION	WHEN TO GIVE	AGE	PRESCRIPTION	DOSE
AMOXICILLIN	On admission if **no** medical complication	6–59 months	Amoxicillin 15 mg/kg	3 times per day, for 5 days
ALBENDAZOLE or MEBENDAZOLE	After 1 week, for presumptive treatment for ONLY children > 24 months Immediate, for treatment in case of severe infestation	> 24 months	> 2 years: Albendazole 400 mg Mebendazole 600 mg	Albendazole: > 2 years: 400 mg single dose Mebendazole: > 2 years: 100 mg, 2 times per day, for 3 days
VITAMIN A	On admission **if eye signs** of vitamin A deficiency	All ages	< 6 months: 50,000 IU 6–11 months: 100,000 IU ≥ 12 months: 200,000 IU	1 dose on admission, day 2, and day 15
	On week 4 or discharge (and oedema free) **if no eye signs** of vitamin A deficiency	6–59 months	6–11 months: 100,000 IU ≥ 12 months: 200,000 IU	Delayed single dose

Folic acid and iron:

- **5 mg of folic acid in 1 single dose** is given on admission.
- **3 mg/kg/day of iron (ferrous sulphate) is given after 2 days on F-100**, when gaining weight.
- Iron and folic acid should never be provided together with a malaria treatment. Malaria is treated first.
- The child on an RUTF diet receives neither folic acid nor iron, as the daily dose of RUTF contains sufficient iron (10 mg/100 g or 500 kcal) and folic acid (210 μg/100 g or 500 kcal).

Zinc: Zinc is not given in case of diarrhoea as the daily doses of F-75, F-100, and RUTF contains sufficient zinc (daily dose provides 30–45 mg of elemental zinc).

Antimalarial drugs: Refer to the national guidelines for first-, second-, and third-line treatment and for when to give or not give presumptive malaria treatment.

Vaccination:

- Give measles vaccine upon admission if the child is over 6 months of age and has not yet received the measles vaccine.
- Update all vaccines.

7. Antibiotics for Children with SAM in Inpatient Care

Summary

IF:	**GIVE:**	
NO MEDICAL COMPLICATIONS	**Amoxicillin*** oral (15 mg/kg) every 8 hours for 5 days	
MEDICAL COMPLICATIONS (shock, hypoglycaemia, hypothermia, dermatosis with raw skin/fissures, respiratory or urinary tract infections, or lethargic/sickly appearance)	**Gentamicin**** IV or IM (7.5 mg/kg) once daily for 7 days, **plus:**	
	Ampicillin IV or IM (50 mg/kg) every 6 hours for 2 days	Followed by: **Amoxicillin*** oral (15 mg/kg) every 8 hours for 5 days
Resistance to amoxicillin and ampicillin, and presence of medical complications	In the case of **sepsis or septic shock**, give: IV/IM **cefotaxime** (children or infants over 1 month of age (50 mg/kg every 8–12 hours) + oral/IV **ciprofloxacin** (5–15 mg/kg 2 times per day)	
	If **suspected staphylococcal infections**, add: IV/IM **cloxacillin** (12.5–50.0 mg/kg/dose four times a day, depending on the severity of the infection)	
Specific infection requires an additional antibiotic	Add **specific antibiotic** as per standard treatment guidelines for Ghana	
Child is HIV-positive or exposed	**Cotrimoxazole** oral (25 mg sulfamethoxazole + 5 mg trimethoprim/kg) according to the standard treatment guidelines for Ghana	

* If amoxicillin is not available, give ampicillin, 50 mg/kg orally every 6 hours for 5 days.

** If the child is not passing urine, gentamicin may accumulate in the body and cause deafness. Do not give the second dose until the child is passing urine.

8. Specific Formulations and Body Weight Ranges for Antibiotics for SAM Children in Inpatient Care

ANTIBIOTIC	ROUTE/DOSE/FREQUENCY/ DURATION	FORMULATION	DOSE ACCORDING TO CHILD'S WEIGHT		
			3 up to 6 kg	6 up to 8 kg	8 up to 10 kg
AMOXICILLIN	Oral: 15 mg/kg body weight every 8 hours for 5 days	Syrup, 125 mg/5 ml	2.5 ml	5.0 ml	5.0 ml
		Syrup, 250 mg/5 ml	1.5 ml	2.0 ml	2.5 ml
AMPICILLIN	Oral: 50 mg/kg body weight every 6 hours for 5 days	Tablet, 250 mg	1 tablet	1½ tablet	2 tablets
	IV/IM: 50 mg/kg body weight every 6 hours for 2 days	Vial of 500 mg mixed with 2.1 ml sterile water to give 500 mg/2.5 ml	1.0 ml	1.75 ml	2.25 ml
METRONIDAZOLE	Oral/IV: 7.5 mg/kg body weight every 8 hours for 7 days	Suspension, 200 mg/5 ml	1.0 ml	1.25 ml	1.5 ml
BENZYLPENICILLIN	IV or IM: 50,000 units/kg body weight every 6 hours for 5 days	IV: vial of 600 mg mixed with 9.6 ml sterile water to give, 1,000,000 units/10 ml	2.0 ml	3.5 ml	4.5 ml
		IM: vial of 600 mg mixed with 1.6 ml sterile water to give, 1,000,000 units/2 ml	0.4 ml	0.7 ml	0.9 ml

ANTIBIOTIC	ROUTE/DOSE FREQUENCY/ DURATION	FORMULATION	DOSES FOR SPECIFIC BODY WEIGHTS *(Use closest weight)*									
			3 kg	4 kg	5 kg	6 kg	7 kg	8 kg	9 kg	10 kg	11 kg	12 kg
GENTAMICIN	IV or IM: 7.5 mg/kg once daily for 7 days	IV/IM: vial containing 20 mg (2 ml at 10 mg/ml), undiluted	2.25 ml	3.00 ml	3.75 ml	4.50 ml	5.25 ml	6.00 ml	6.75 ml	7.50 ml	8.25 ml	9.00 ml
		IV/IM: vial containing 80 mg (2 ml at 40 mg/ml) mixed with 6 ml sterile water to give 80 mg/8 ml	2.25 ml	3.00 ml	3.75 ml	4.50 ml	5.25 ml	6.00 ml	6.75 ml	7.50 ml	8.25 ml	9.00 ml
		IV/IM: vial containing 80 mg (2 ml at 40 mg/ml), undiluted	0.50 ml	0.75 ml	0.90 ml	1.10 ml	1.30 ml	1.50 ml	1.70 ml	1.90 ml	2.00 ml	2.25 ml

9. Other Medicine Protocols and Vaccines for Children under 5 with SAM in Inpatient Care*

NAME OF MEDICATION	WHEN TO GIVE	PRESCRIPTION	SPECIAL INSTRUCTIONS
AMOXICILLIN-CLAVULANIC ACID	**IF** SAM with medical complication (severe infection) (first-line antibiotic)	15–30 mg/kg, orally, 2 times per day, for 5–10 days	Give in combination with gentamicin
GENTAMICIN		7.5 mg/kg, IV or IM, 1 time per day, for 5–10 days	Give in combination with amoxicillin-clavulanic acid
CHLORAMPHENICOL	**IF** no improvement with first-line antibiotic within 48 hours (second-line antibiotic)	25 mg/kg, IV or IM, 3 times per day, for 5–10 days (4 times per day if meningitis is suspected)	Add to first-line treatment Do not give to a child < 2 months
CEFTRIAXONE (Third generation cephalosporin)	**IF** no improvement with second-line antibiotic after 48 hours (third-line antibiotic)	100 mg/kg, IV or IM, 1 time per day, for 5–10 days	Give as a single daily dose
CEFOTAXIME	In case of sepsis or septic shock	50 mg/kg, IV or IM 2–3 times per day, for 5–10 days	Do not give infants < 1 month of age
CIPROFLOXACIN	In case of sepsis or septic shock	5–15 mg/kg, oral or IV 2 times per day, for 5–10 days	
CLOXACILLIN	For suspected staphylococcal infection	12.5–50.0 mg/kg, oral, IV, or IM 4 times a day, for 5–10 days	Depends on the severity of the infection
TETRACYCLINE EYE OINTMENT *or* CHLORAMPHENICOL EYE DROPS	For treatment of eye infection	Apply 2 times per day 1 drop, 4 times per day	Wash hands before and after use; wash eyes before application; continue for 2 days after disappearance of signs of infection
1% ATROPINE EYE DROPS	As part of treatment of corneal ulceration	1 drop, 3 times per day: morning, afternoon, and at night before sleep	May be used to relieve pain as pupil dilatation stops ciliary muscle spasms
NYSTATIN (Oral suspension)	For treatment of candidiasis	100,000 IU (1 ml) 4 times per day after food, for 7 days	Use dropper and show caregiver how to use it
PARACETAMOL	For treatment of fever over 38.5° C	10 mg/kg, oral 3 times a day, for 3 days	Give upon admission to all children with high fever
BENZYL BENZOATE (12.5%)	For treatment of scabies	Apply over whole body; repeat without bathing on following day; wash off 24 hours later; repeat for 2 consecutive days	Avoid eye contact; do not use on broken or secondary infected skin
WHITFIELDS	For treatment of ringworm, taenia, or fungal infections of the skin	Apply 2 times per 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; continue until condition has resolved

* For medicine protocols for treating other infections, such as TB and HIV, refer to the Ghana Standard Treatment Guidelines.

10. F-75 Reference Tables

Reference Tables for Volume of F-75 for Persons with Severe Wasting ("Marasmus") and/or Oedema + and ++ of Different Weights

Weight of child (kg)	Volume of F-75 per feed (ml)[a]			Daily total (130 ml/kg)	80% of daily total[a] (minimum)
	Every 2 hours[b] (12 feeds)	Every 3 hours[c] (8 feeds)	Every 4 hours (6 feeds)		
2.0	20	30	45	260	210
2.2	25	35	50	286	230
2.4	25	40	55	312	250
2.6	30	45	55	338	265
2.8	30	45	60	364	290
3.0	35	50	65	390	310
3.2	35	55	70	416	335
3.4	35	55	75	442	355
3.6	40	60	80	468	375
3.8	40	60	85	494	395
4.0	45	65	90	520	415
4.2	45	70	90	546	435
4.4	50	70	95	572	460
4.6	50	75	100	598	480
4.8	55	80	105	624	500
5.0	55	80	110	650	520
5.2	55	85	115	676	540
5.4	60	90	120	702	560
5.6	60	90	125	728	580
5.8	65	95	130	754	605
6.0	65	100	130	780	625
6.2	70	100	135	806	645
6.4	70	105	140	832	665
6.6	75	110	145	858	685
6.8	75	110	150	884	705
7.0	75	115	155	910	730
7.2	80	120	160	936	750
7.4	80	120	160	962	770
7.6	85	125	165	988	790
7.8	85	130	170	1,014	810
8.0	90	130	175	1,040	830
8.2	90	135	180	1,066	855
8.4	90	140	185	1,092	875
8.6	95	140	190	1,118	895
8.8	95	145	195	1,144	915
9.0	100	145	200	1,170	935
9.2	100	150	200	1,196	960
9.4	105	155	205	1,222	980
9.6	105	155	210	1,248	1,000
9.8	110	160	215	1,274	1,020
10.0	110	160	220	1,300	1,040

[a] Volumes in these columns are rounded to the nearest 5 ml.
[b] Give 2-hourly feeds for at least the first day. When there is little or no vomiting, diarrhoea is modest (< 5 watery stools per day) and the child is finishing most feeds, change to 3-hourly feeds.
[c] After a day on 3-hourly feeds, if there is no vomiting, less diarrhoea and the child is finishing most feeds, change to 4-hourly feeds.

Reference Tables for Volume of F-75 for Persons with Severe Bilateral Pitting Oedema ("Kwashiorkor") (+++)

Weight with +++ oedema (kg)	Volume of F-75 per feed (ml)[a]			Daily total (100 ml/kg)	80% of daily total[a] (minimum)
	Every 2 hours[b] (12 feeds)	Every 3 hours[c] (8 feeds)	Every 4 hours (6 feeds)		
3.0	25	40	50	300	240
3.2	25	40	55	320	255
3.4	30	45	60	340	270
3.6	30	45	60	360	290
3.8	30	50	65	380	305
4.0	35	50	65	400	320
4.2	35	55	70	420	335
4.4	35	55	75	440	350
4.6	40	60	75	460	370
4.8	40	60	80	480	385
5.0	40	65	85	500	400
5.2	45	65	85	520	415
5.4	45	70	90	540	430
5.6	45	70	95	560	450
5.8	50	75	95	580	465
6.0	50	75	100	600	480
6.2	50	80	105	620	495
6.4	55	80	105	640	510
6.6	55	85	110	660	530
6.8	55	85	115	680	545
7.0	60	90	115	700	560
7.2	60	90	120	720	575
7.4	60	95	125	740	590
7.6	65	95	125	760	610
7.8	65	100	130	780	625
8.0	65	100	135	800	640
8.2	70	105	135	820	655
8.4	70	105	140	840	670
8.6	70	110	145	860	690
8.8	75	110	145	880	705
9.0	75	115	150	900	720
9.2	75	115	155	920	735
9.4	80	120	155	940	750
9.6	80	120	160	960	770
9.8	80	125	165	980	785
10.0	85	125	165	1,000	800
10.2	85	130	170	1,020	815
10.4	85	130	175	1,040	830
10.6	90	135	175	1,060	850
10.8	90	135	180	1,080	865
11.0	90	140	185	1,100	880
11.2	95	140	185	1,120	895
11.4	95	145	190	1,140	910
11.6	95	145	195	1,160	930
11.8	100	150	195	1,180	945
12.0	100	150	200	1,200	960

[a] Volumes in these columns are rounded to the nearest 5 ml.
[b] Give 2-hourly for at least the first day. When there is little or no vomiting, diarrhoea is modest (< 5 watery stools per day) and the child is finishing most feeds, change to 3-hourly feeds.
[c] After a day on 3-hourly feeds, if there is no vomiting, less diarrhoea and the child is finishing most feeds, change to 4-hourly feeds.

11. F-100 Reference Table

F-100 Reference Table for Quantity of F-100 to Give to per Feed

Weight of child (kg)	Range of volumes per 3-hourly feed of F-100 (8 feeds daily)*		Range of volumes per 4-hourly feed of F-100 (6 feeds daily)*		Range of daily volumes of F-100	
	Minimum ml	Maximum ml	Minimum ml	Maximum ml	Minimum (150 ml/kg/day)	Maximum ml (220 ml/kg/day)
2.0	40	55	50	75	300	440
2.2	40	60	55	80	330	484
2.4	45	65	60	90	360	528
2.6	50	70	65	95	390	572
2.8	55	75	70	105	420	616
3.0	55	85	75	110	450	660
3.2	60	90	80	115	480	704
3.4	65	95	85	125	510	748
3.6	70	100	90	130	540	792
3.8	70	105	95	140	570	836
4.0	75	110	100	145	600	880
4.2	80	115	105	155	630	924
4.4	85	120	110	160	660	968
4.6	85	125	115	170	690	1,012
4.8	90	130	120	175	720	1,056
5.0	95	140	125	185	750	1,100
5.2	100	145	130	190	780	1,144
5.4	100	150	135	200	810	1,188
5.6	105	155	140	205	840	1,232
5.8	110	160	145	215	870	1,276
6.0	115	165	150	220	900	1,320
6.2	115	170	155	230	930	1,364
6.4	120	175	160	235	960	1,408
6.6	125	180	165	240	990	1,452
6.8	130	180	170	250	1,020	1,496
7.0	130	195	175	255	1,050	1,540
7.2	135	200	180	265	1,080	1,588
7.4	140	205	185	270	1,110	1,628
7.6	145	210	190	280	1,140	1,672
7.8	145	215	195	285	1,170	1,716
8.0	150	220	200	295	1,200	1,760
8.2	155	225	205	300	1,230	1,804
8.4	158	230	210	310	1,260	1,848
8.6	160	235	215	315	1,290	1,892
8.8	165	240	220	325	1,320	1,936
9.0	170	250	225	330	1,350	1,980
9.2	175	255	230	335	1,380	2,024
9.4	175	260	235	345	1,410	2,068
9.6	145	265	240	350	1,140	2,112
9.8	185	270	245	360	1,470	2,156
10.0	190	275	250	365	1,500	2,200

* Volumes per feed are rounded to the nearest 5 ml.

12. F-100-Diluted Reference Tables

Maintenance Amounts of F-100-Diluted to Give to BREASTFED INFANTS under 6 months per Feed

Bodyweight (kg)	F-100-Diluted per feed if 8 feeds per day
≥ 1.2	25 ml per feed
1.3 – 1.5	30
1.6 – 1.7	35
1.8 – 2.1	40
2.2 – 2.4	45
2.5 – 2.7	50
2.8 – 2.9	55
3.0 – 3.4	60
3.5 – 3.9	65
4.0 – 4.4	70

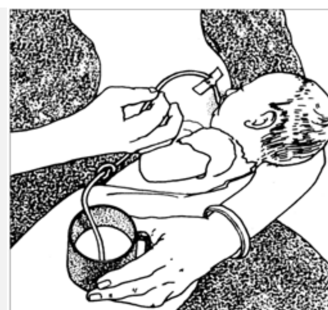
Amounts of F-100-Diluted to Give to NON-BREASTFED INFANTS under 6 Months in TRANSITION

Bodyweight (kg)	F-100-Diluted (ml per feed), 8 feeds per day, no breastfeeding
≤ 1.5	45
1.6 – 1.8	53
1.9 – 2.1	60
2.2 – 2.4	68
2.5 – 2.7	75
2.8 – 2.9	83
3.0 – 3.4	90
3.5 – 3.9	96
4.0 – 4.4	105

Amounts of F-100-Diluted to Give to NON-BREASTFED INFANTS under 6 Months in REHABILITATION

Bodyweight (kg)	F-100-Diluted (ml per feed), 6 to 8 feeds per day, no breastfeeding
≤ 1.5	60
1.6 – 1.8	70
1.9 – 2.1	80
2.2 – 2.4	90
2.5 – 2.7	100
2.8 – 2.9	110
3.0 – 3.4	120
3.5 – 3.9	130
4.0 – 4.4	140

Supplemental Suckling Technique



After feeding is completed the tube is flushed through with clean water using a syringe. It is then spun (twirled) rapidly to remove the water in the lumen of the tube by centrifugal force. If convenient the tube is then left exposed to direct sunlight.

13. RUTF Reference Table for Children 6–59 Months with SAM in Inpatient Care and Key Messages

Amounts of RUTF to Give to a Child per Day Based on 92 g Packets Containing 500 kcal

Weight of the Child (kg)	**Packets per day** (200 kcal/kg bodyweight/day)	**75% of daily prescribed amount** (150 kcal/kg bodyweight/day)
3.5 – 3.9	**1½**	**1¼**
4.0 – 4.9	**2**	**1½**
5.0 – 6.9	**2½**	**2¼**
7.0 – 8.4	**3**	**2½**
8.5 – 9.4	**3½**	**2¾**
9.5 – 10.4	**4**	**3¼**
10.5 – 11.9	**4½**	**3½**
≥ 12	**5**	**4**

RUTF KEY MESSAGES

1. RUTF is a food and medicine for very thin children only. It should not be shared.
2. Sick children often do not like to eat. Give small regular meals of RUTF and encourage the child to eat often (if possible eight meals a day). Your child should have packets a day.
3. RUTF is the only food sick/thin children need to recover during their time in outpatient care (however, breastfeeding should continue).
4. For young children, continue to breastfeed regularly.
5. Always offer the child plenty of clean water to drink or breast milk while he or she is eating RUTF.
6. Wash children's hands and face with soap before feeding if possible. The caregiver should also wash his/her hands.
7. Keep food clean and covered.
8. Sick children get cold quickly. Always keep the child covered and warm.
9. When a child has diarrhoea, never stop feeding. Continue to feed RUTF and (if applicable) breast milk.

14. RUTF Appetite Test

Points to Consider when Conducting an Appetite Test

- Conduct the appetite test in a quiet separate area
- Provide an explanation to caregiver regarding the purpose of the test and outline the procedures involved
- Observe the child eating the RUTF and decide if the child passes or fails the test.
- Advice the caregiver:
    - wash hands before giving the RUTF
    - sit with child in his/her lap and gently offer the RUTF
    - encourage the child to eat the RUTF without force feeding
    - offer plenty of clean water, to drink from a cup, when child is eating the RUTF

Appetite Test

Pass Appetite Test	Fail Appetite Test
The child eats at least one-third of a packet of RUTF (92 g) within 30 minutes.	The child does not eat one-third of a packet of RUTF (92 g) within 30 minutes.

Note: *Many children will eat the RUTF enthusiastically straight away; others may initially refuse. These children need to sit quietly with their caregiver in a secluded place and be given time to become accustomed to the RUTF.*

15. Entry and Exit Categories for Monitoring the Management of Severe Acute Malnutrition in Children 6–59 Months

Entry Categories

INPATIENT CARE	OUTPATIENT CARE
1. New admission: New cases of children 6–59 months meet admission criteria -including ***relapse*** after cure	***1. New admission:*** New cases of children 6–59 months meet admission criteria -including ***relapse*** after cure
2. Other new admissions: New cases of infants, children, adolescents, or adults (< 6 months or ≥ 5 years) need treatment of SAM in Inpatient Care	***2. Other new admissions:*** New cases not meeting preset admission criteria need treatment of SAM in Outpatient Care
3. Referral from Outpatient Care: Child's condition deteriorated in Outpatient Care (according to action protocol) and child needs Inpatient Care	***3. Referral from Inpatient Care:*** Cases discharged from Inpatient Care continue treatment in Outpatient Care ***Or*** ***Returned*** after defaulting, or ***Moved in*** from other Outpatient Care site

Exit Categories

INPATIENT CARE	OUTPATIENT CARE
1. Discharged cured: [Child 6–59 months meets discharge criteria, i.e., special cases that were not referred to Outpatient Care earlier] Infant < 6 months meets discharge criteria Child 5 years and older meets discharge criteria	***1. Discharged cured:*** Child 6–59 months meets discharge criteria
2. Died: Child dies while in inpatient care	***2. Died:*** Child dies while in outpatient care
3. Defaulted: Child is absent on the third consecutive day	***3. Defaulted:*** Child is absent on the third consecutive visit
4. Non-recovered: Child that remained in inpatient care does not reach discharge criteria after 4 months in treatment (medical investigation previously done)	***4. Non-recovered:*** Child does not reach discharge criteria after 4 months in treatment (medical investigation previously done)
5. Referred to Outpatient Care: Child's condition stabilised and child is referred to Outpatient Care to continue treatment ***Note:*** *Performance indicators for Inpatient Care facilities are only calculated for those who remain in Inpatient Care until full recovery.*	**5. *Referred to inpatient care:*** Child's condition deteriorated (action protocol)