Government of Malawi
Ministry of Health

Guidelines for

COMMUNITY-BASED MANAGEMENT OF ACUTE MALNUTRITION

2nd Edition

DECEMBER 2016

Foreword

Despite past and on-going efforts, undernutrition remains a major contributing factor to child mortality worldwide. Globally, it is estimated that 3.1 million children die from malnutrition-related causes annually. The preliminary Malawi Demographic and Health Survey (DHS) 2015 reported a prevalence of acute malnutrition of 2.7 percent. Even though this is classified as *normal* according to the WHO classification of acute malnutrition, there are regional variations in Malawi. More recent nutrition surveys conducted in 2016 showed prominent disparities across the five livelihood zones of Malawi, with Lower Shire recording the highest Global Acute Malnutrition (GAM) prevalence of 6.6 percent which is classified as *poor*. The GAM prevalence in Shire Highlands was reported at 4.0 percent, Thyolo-Mulanje 3.4 percent, Lake Chirwa Phalombe Plain 3.1 percent, Rift Valley Escarpment 2.1 percent, Kasungu-Lilongwe 1.3 percent, and Central Karonga-Chitipa 1.1 percent.

A substantial proportion of children under 5 years of age diagnosed with acute malnutrition develop severe acute malnutrition (SAM) with medical complications due to delayed case detection, and underlying infections, including HIV/AIDS and TB. The Ministry of Health, therefore, adopted the Community-based Management of Acute Malnutrition (CMAM) approach to ensure maximum coverage, timeliness, access, and provision of appropriate care to those in need. CMAM is part of the Government of Malawi Essential Health Care Package, whose aim is to deliver basic health services to the population, especially those living in the rural areas.

The Ministry of Health developed the first edition of Malawi CMAM Guidelines in 2012 after the Community Therapeutic Care (CTC) Interim Guidelines of 2006. In 2013, the World Health Organisation (WHO) provided updates on the management of SAM in infants and children, which necessitated the Ministry to update its 2012 CMAM Guidelines. These guidelines have been updated considering global and local scientific evidence on the management of acute malnutrition, and contextual and policy issues within Malawi.

The guidelines provide optimal guidance on delivery of the four components of CMAM, including Community Outreach, Supplementary Feeding for Moderate Acute Malnutrition (MAM), Outpatient Care for SAM without medical complications, and Inpatient Care for SAM with medical complications. The guidelines also provide guidance to service providers on comprehensive management of acute malnutrition in the context of HIV.

The Ministry of Health is appealing to all service providers, academic institutions, development partners, and individuals involved in the management of acute malnutrition in the country to use these guidelines as first point of reference.

The Ministry of Health sincerely acknowledges the financial, material, and technical support of different partners, individuals, and institutions in the review and finalization of these guidelines.

The Ministry of Health remains the custodian of these guidelines and commits itself to continue providing necessary leadership and creating an enabling environment for a holistic management of malnutrition in Malawi.

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CHIEF OF HEALTH SERVICES

Acknowledgements

The Ministry of Health (MOH) led a rigorous process of reviewing and updating the Guidelines for Community-based Management of Acute Malnutrition (CMAM), which involved several working sessions, stakeholder consultations and review of latest available evidence. The MOH worked closely with local and international nutritionists and paediatricians to inform the process.

The review of these guidelines was done under the guidance of the Directorate of Clinical Services and Department of Nutrition HIV and AIDS (DNHA). In this regard, the MOH would like to acknowledge policy direction from Dr George Chithope Mwale, Director of Clinical Services–MOH, Mr Felix Pensulo Phiri, Director of Nutrition–DNHA, and Mrs Janet Guta, Deputy Director of Clinical Services -Nutrition.

The MOH is also indebted to Mr Sylvester Kathumba, Principal Nutritionist in the Ministry, Dr Jaden Bendabenda, Deputy Project Manager at Food and Nutrition Technical Assistance III Project (FANTA), Alice Nkoroi, Country Project Manager at FANTA, Violet Orchardson at USAID, and Senior Lecturers and Professors at the University of Malawi, College of Medicine: Dr Ajib Phiri, Dr John Phuka, Professor Kenneth Maleta and Emeritus Professor Geert Tom Heikens for their leadership and technical guidance during the process of drafting, field testing, and production of these guidelines.

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The Ministry of Health acknowledges the financial support received from different partners and donors throughout the review process and specifically USAID through FANTA/FHI 360 and UNICEF

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Abbreviations and Acronyms

ADC	Area Development Committee
AIDS	Acquired Immune Deficiency Syndrome
ANC	Antenatal Care
ANCC	Area Nutrition Coordination Committee
ART	Antiretroviral Treatment
ARV	Antiretroviral Drugs
AWD	Acute Watery Diarrhoea
BCG	Bacillus Calmette Guerin
BF	Breastfeeding
BMI	Body Mass Index
BMS	Breastmilk Substitute
CAG	Community Advisory Group
CBO	Community-based Organisation
CCFLS	Community Complementary Feeding and Livelihood Support
CCP	Critical Care Pathway
CHW	Community Health Worker
CLAN	Community Leaders for Action on Nutrition
CMAM	Community-based Management of Acute Malnutrition
CO	Clinical Officer
CPD	Continuous Professional Development
CSAS	Centric Systematic Area Sampling
CSB	Corn Soy Blend
CTC	Community Therapeutic Care
CMV	Combined Mineral and Vitamins
DBS	Dry Blood Spot
DHO	District Health Office
DHMT	District Health Management Team
DHS	Demographic and Health Survey
DNA	Deoxyribonucleic Acid
ENA	Essential Nutrition Actions
ETAT	Emergency Triage Assessment and Treatment
F-75	Formula 75 [Therapeutic Milk]
F-100	Formula 100 [Therapeutic Milk]
FBO	Faith-based Organisation
GAM	Global Acute Malnutrition
GMP	Growth Monitoring and Promotion
HAG	Health Advisory Group
Hb	Haemoglobin
HIV	Human Immunodeficiency Virus
HSA	Health Surveillance Assistant
HTS	HIV Testing Services
IGA	Income Generating Activity
IM	Intramuscular
IMCI	Integrated Management of Childhood Illnesses
ITN	Insecticide Treated Net

IP	Infection Prevention
IPTP	Intermittent Preventive Treatment in Pregnancy
IV	Intravenous
IYCF	Infant and Young Child Feeding
LA	Lumefantrine/Artemether (combination drug)
LOS	Length of Stay
LQAS	Lot Quality Assurance Sampling
M2M	Mothers to Mothers
MAM	Moderate Acute Malnutrition
MCH	Maternal and Child Health
MCHN	Maternal and Child Health and Nutrition
MIP	Mother Infant Pair
MOH	Ministry of Health
mRDT	Malaria Rapid Diagnostic Test
MUAC	Mid-Upper Arm Circumference
NECS	Nutrition Education Strategy
NGO	Non-governmental Organisation
NG	Nasogastric
NGT	Nasogastric Tube
NRU	Nutrition Rehabilitation Unit
OPD	Outpatient Department
ORS	Oral Rehydration Solution
OTP	Outpatient Therapeutic Programme
OVC	Orphans and Vulnerable Children
PCR	Polymerase Chain Reaction
PD	Positive Deviance
PDSA	Plan Do Study Act
PITC	Provider Initiated Testing and Counselling
PLHIV	People Living with HIV
PMTCT	Prevention of Mother-to-Child Transmission
PSHD	Presumed Severe HIV Disease
QI	Quality Improvement
ReSoMal	Rehydration Solution for Malnourished Children
RUTF	Ready-to-Use Therapeutic Food
SAM	Severe Acute Malnutrition
SFP	Supplementary Feeding Programme
SLEAC	Simplified LQAS Evaluation of Access and Coverage
SQEAC	Semi-Quantitative Evaluation of Access and Coverage
TB	Tuberculosis
UTI	Urinary Tract Infection
VDC	Village Development Committee
VNCC	Village Nutrition Coordination Committee
WFH/L	Weight for Height/Length
WHO	World Health Organisation

Introduction

Malnutrition is an important public health issue, particularly among children under 5 years of age, who have a significantly higher risk of mortality and morbidity than older children. Maternal and child undernutrition is prevalent in low- and middle-income countries. Research shows that stunting in children younger than 5 years affected at least 165 million children globally in 2011, and wasting affected at least 52 million children in the same year. Vitamin A and zinc deficiencies can result in deaths; iodine and iron deficiencies together with stunting can contribute to children not reaching their developmental potential. Maternal undernutrition contributes to fetal growth restriction, which increases the risk of neonatal deaths and for survive, increases the risk of stunting. Suboptimum breastfeeding results in an increased risk for mortality in the first 2 years of life. Undernutrition in the aggregate—including fetal growth restriction, stunting, wasting, and deficiencies in vitamin A and zinc along with suboptimum breastfeeding—is a cause of 3.1 million child deaths annually or 45 percent of all child deaths (Black et al. 2013).

The Ministry of Health (MOH) adopted the Community-based Management of Acute Malnutrition (CMAM) approach to manage acute malnutrition in children following extensive evidence from pilot sites and experiences of non-governmental organisations (NGOs) in Malawi. CMAM is rooted in the public health principles of ensuring effective coverage and access to services. It is designed to achieve population-wide impact by focusing primarily on treating most acutely malnourished children as outpatients in their homes using existing community-based structures. Relatively few cases (about 10–20 percent) of children with severe acute malnutrition (SAM) develop medical complications and require treatment in 24-hour inpatient care facilities in the nutrition rehabilitation unit (NRU) (Collins and Sadler 2002).

The CMAM pilot projects led by various partners in Malawi used different models that were later consolidated by the MOH through a series of consultative and consensus-building processes. This prompted the MOH, in collaboration with technical experts and stakeholders to develop interim national CMAM guidelines released in 2007, and subsequently, the national guidelines for CMAM in 2012. The Ministry has updated its 2012 national CMAM guidelines to align with WHO recommendations of 2013, global emerging issues, practitioner experience, and new research findings. The updated guidelines also contain the latest recommendations on feeding infants and young children 0–24 months.

Purpose of the Guidelines

These guidelines are intended to standardise and improve the quality of CMAM service delivery in Malawi. The guidelines serve as a practical guide for field implementers and policymakers, since they provide clear protocols, steps, and procedures for CMAM implementation.

The guidelines also aim to address two basic objectives for the management of acute malnutrition:

1. Preventing acute malnutrition through early identification, referral, follow up, and linkage of cases to health and nutrition interventions.
2. Treating acute malnutrition to reduce associated morbidity and mortality.

Who Should Use the Guidelines

The guidelines should be used by facility and community-based service providers in the management of acute malnutrition through the CMAM approach. The guidelines can also be used by policymakers, programme coordinators, and managers to design, implement, monitor, and evaluate nutrition programmes.

How to Use the Guidelines

These guidelines contain all of the protocols and reporting guidance required to facilitate the development of training manuals, conduct trainings, monitor, and implement the four components of CMAM (community outreach, supplementary feeding, outpatient care, and inpatient care). They can also be used as a tool to guide policy development for CMAM services.

The guidelines should be used to manage children of 0–15 years, pregnant women and lactating women up to 6 months postpartum.

What is New in These Guidelines

Table 1 below provides a summary of updated guidance in this edition of the National CMAM guidelines (2016).

Table 1. Summary of New Updated Guidance

1.	Admission Procedures	Page #
Old	Admission age of children up to 12 years into the CMAM programme	
New	Admission age of children 12–15 years of age into the CMAM programme.	2
Old	Children aged 5–12 years admitted using BMI for age Z-score or MUAC.	
New	Only use MUAC as admission criteria for children 5–15 years of age.	16
Other new guidance in the admission procedure:		
New	Emergency Triage Assessment and Treatment (ETAT) as first procedure on admission.	90
New	Infants 0–6 months: Any medical or social issue requiring detailed assessment or intensive support, e.g., disability, depression of the caregiver, or other adverse social circumstances, should be admitted to the inpatient care.	113
2.	**Micronutrient Supplementation**	
Old	If clinically indicated add zinc supplements daily for 10–14 days.	
New	If a child with SAM is admitted to inpatient care and treated with F-75 and subsequently with Ready-to-Use Therapeutic Foods (RUTF) or F-100, they should not receive oral zinc supplements in addition to F-75, RUTF, or F-100 as these therapeutic foods contain the recommended amounts of zinc for the management of diarrhoea.	74
Old	Give high dose vitamin A on days 1, 2, and 14 except in children with bilateral pitting oedema.	
New	Give low-dose (5,000 IU) vitamin A supplementation daily from the time of admission until discharge from treatment. The vitamin A intake of children who are fed therapeutic food (F-75, F-100, or RUTF that complies with WHO specifications exceeds the recommended nutrient intake for well-nourished children and is adequate for malnourished children. Therefore, no need to give additional vitamin A supplements routinely in children with severe acute malnutrition (SAM), unless the feeds do not meet WHO specifications.	74 & 99
New	Give a high dose (50,000 IU, 100,000 IU or 200,000 IU, depending on age) of vitamin A to children with SAM and **eye signs of vitamin A deficiency** in inpatient care on days 1, 2, and 14 (or at discharge to the outpatient care), irrespective of the type of therapeutic food they are receiving.	99
3.	**Feeding**	
Old	Infants 0–6 months with bilateral pitting oedema are fed with F-100-Diluted during the stabilisation phase as supplementary to breastfeeding.	
New	Infants 0–6 months with bilateral pitting oedema should be fed with F-75 during the stabilisation phase as supplementary to breastfeeding.	116 & 120

Other new guidance on feeding:		
New	Children with SAM should not be forced to eat by medical staff, mothers, or caregivers. If children do not eat therapeutic foods, they should be assessed for signs of sepsis or other clinical complications.	101
New	During transition and rehabilitation, it is important to monitor significant changes in pulse and respiration, which may indicate adverse physiological changes.	102
4.	**Management of Dehydration**	
Old	If a SAM child presenting with shock does not improve after a second bolus of intravenous fluids, transfuse.	
New	If a child with SAM presenting with shock does not improve after 1 hour of intravenous therapy, a blood transfusion (10 ml/kg slowly over at least 3 hours) should be given.	124
5.	**Management of HIV/AIDS**	
Old	All HIV-positive children under the age of 5 years should start on ARVs irrespective of staging and CD4 count. All HIV-infected children who are over 5 years of age should be started on lifelong antiretroviral drug treatment based on their CD4 count (≤500 cells/mm3). Examine all infants less than 12 months of age with confirmed HIV antibodies for clinical conditions that constitute presumed severe HIV disease (PSHD). All these need to start ART without delay. For details see the 3rd edition of the Malawi guidelines for clinical management of HIV in children and adults (2016).	
New	Updated the management protocols to align with 2016 Malawi Clinical HIV Guidelines as follows: All children with SAM should be tested for HIV to determine their need for antiretroviral therapy (ART). Children should be managed as follows: • HIV-positive children or exposed infants with presumed severe HIV disease (PSHD) qualify for ART and should be started on treatment soon after stabilisation of metabolic complications and sepsis (indicated by return of appetite and resolution of severe oedema). • HIV-infected SAM children should be given the same ART regimen, in the same doses, as children with HIV who do not have SAM. • Children should be closely monitored (inpatient and outpatient) in the first 6–8 weeks following initiation of ART to identify early metabolic complications and opportunistic infections. • HIV-infected children who have any one of the following symptoms—poor weight gain, fever, current cough or contact history with a tuberculosis (TB) case—should be evaluated for TB and other conditions. • Children with SAM who are HIV infected should be managed with the same therapeutic feeding approaches as children with SAM who are not HIV infected. • HIV-infected children with SAM with persistent diarrhoea that does not resolve with standard management, should be examined for infections, which may require different management, such as antibiotics, or modification of fluid and food intake. • Children living with HIV who have any one of the following symptoms—poor weight gain, fever, current cough, or contact history with a TB case—may have TB and should be evaluated for TB and other conditions. ***Refer to the latest Malawi Guidelines for Clinical Management of HIV in Children and Adults.***	99
6.	**Management of Infections and Other Medical Conditions**	
Old	Give benzyl penicillin for 48 hours then oral Amoxicillin for 5 days. If the child fails to improve within 48 hours add Gentamycin or Chloramphenicol.	
New	Give benzyl penicillin for 48 hours then oral amoxicillin for 5 days PLUS Gentamycin for 7 days. Use Ceftriaxone as second line treatment. Adapt the antibiotic regimen based on evidence of local resistance patterns. Removed Chloramphenicol from the guidelines.	97

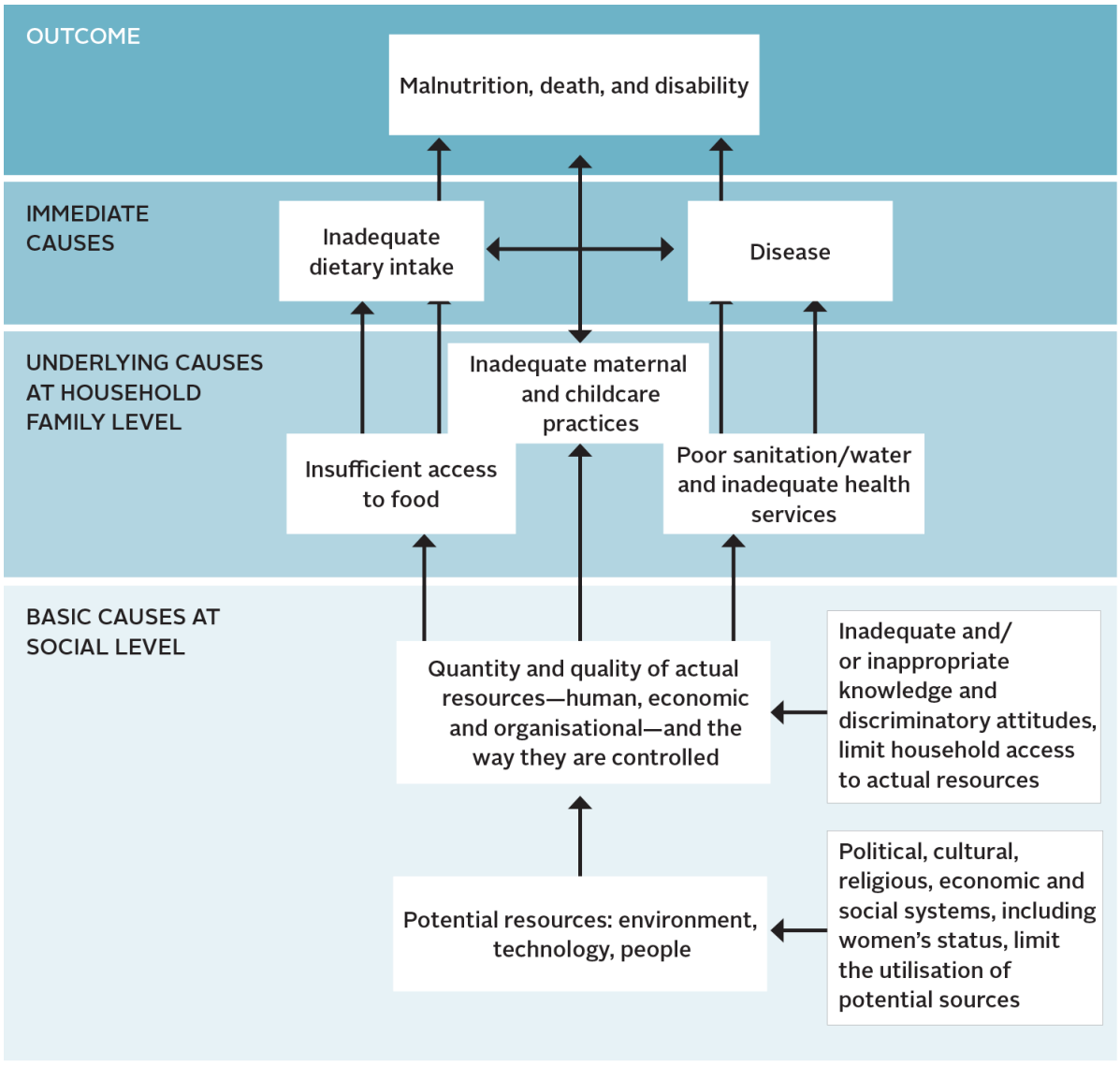
Other new guidance in the admission procedure:		
New	Artesunate to be given as second line treatment of malaria or for severe malaria.	98
New	Removed use of quinine for severe malaria in children with SAM.	98
New	Management of related medical conditions, including TB, skin conditions.	111, 112 & 113
New	Management of children with disability.	113
7.	**Monitoring and Reporting**	
New	Required competency standards for CMAM service delivery.	60, 80 & 123
New	Application of modern quality improvement methods in CMAM.	151
New	Roles and responsibilities of service providers in SFP, OTP and NRU.	168, 169 & 170
8.	**Job Aids**	
New	Management of emergencies in SAM	124
New	Inpatient care treatment chart (the critical care pathway)	126
New	Infection prevention procedures	143
New	How to insert nasogastric tube	144
New	Supervision checklist for inpatient care	175

1 Overview of Malnutrition

1.1 Causes of Malnutrition

Malnutrition is as much a social condition as it is a medical one. The UNICEF causal framework assists in understanding the interactions of the various contributors of malnutrition.

Figure 1. Conceptual Framework of Malnutrition



Adapted from UNICEF 1990

Immediate Causes

Lack of food intake refers to a lack in either the quality or quantity of food eaten by a child. A varied diet complete in macro and micronutrients is essential to health and normal growth. A lack of either may lead to malnutrition.

Disease or its symptoms (e.g., vomiting and diarrhoea) may cause reduced intake or malabsorption of food. Disease may also raise children's metabolic rate so that a previously sufficient diet is now inadequate.

Underlying Causes

If the amount or variety of available food in the household is insufficient to provide a varied, age-appropriate diet for its children, then food intake will be inadequate. Child care practices such as insufficient breastfeeding and complementary feeding may also contribute. The availability and quality of public health and nutrition services and the use of those services by caregivers contribute to the health of the country's children. Inadequate hygiene, health care, and maternal nutrition, immunisation, and micronutrient supplementation programmes may contribute to poor health and disease.

Basic Causes

Some factors beyond individual or community control can have profound effects on the capacity to access adequate food or make use of public health and hygiene facilities. Examples of such factors include political, economic, social, cultural, and technological limitations, such as poor infrastructure, education, and access to markets. These may be influenced by diverse factors, such as international trade agreements and currency fluctuations.

In combination, these complex factors have a direct effect on the health of the individual and may lead to underweight (low weight-for-age), stunting (low height-for-age), or wasting (low weight-for-height). In the worst cases, malnutrition leads to the death of the child. Statistics suggest that poor nutrition contributes to up to 45 percent of avoidable deaths (Black et al. 2013).

1.2 Nutrition Essentials

Nutrition, health, and hygiene messages should be disseminated in a way that brings about positive behaviour change in individuals and families and improves nutrition and health. Group education should be conducted at health facilities and in communities before screening or assessing the nutritional status of children. See *Annex 1-1 Guiding Principles on Infant and Young Child Feeding and Annex 1-3 Health Education Topics*.

After screening, one-to-one counselling is conducted for caregivers whose children are diagnosed with malnutrition. Topics such as breastfeeding, complementary feeding, nutritional care of sick children, hygiene and sanitation, family planning, and other relevant topics are discussed. Additional information is available in the *National Nutrition Education Strategy (NECS) Resource Kit, Essential Nutrition Actions (ENA)* document, and in other reference materials.

Caregivers often need additional support and counselling to identify the reasons for malnutrition and prevent relapse. Take time to negotiate with mothers and caregivers about the child's feeding practices and health, and provide support and guidance as appropriate (see Figure 2 below for nutrition counselling technique).

Figure 2. Nutrition Counselling Technique

Listening and Learning Skills

- Use helpful non-verbal communication
  - Keep your head level with mother/father/caregiver.
  - Pay attention (eye contact)
  - Remove barriers (tables and notes).
  - Take time.
  - Use appropriate touch.
- Ask questions that allow mother/father/caregiver to give detailed information.
- Use responses and gestures that show interest.
- Listen to mother's/father's/caregiver's concerns.
- Reflect back what the mother/father/caregiver says.
- Avoid using judging words.

Building Confidence and Giving Support skills

- Accept what a mother/father/caregiver thinks and feels (to establish confidence, let the mother/father/caregiver talk through her/his concerns before correcting information).
- Recognise and praise what a mother/father/caregiver and baby are doing correctly.
- Give practical help.
- Give a little, relevant information.
- Use simple language.
- Use appropriate counselling card or cards.
- Make one or two suggestions, not commands.

Source: Infant and Young Child Feeding Counselling: An Integrated Course. (WHO/ UNICEF, 2006)

1.3 Infant and Young Child Nutrition

Most children admitted to CMAM are under 2 years of age. Promoting optimal breastfeeding practices and educating caregivers on age-appropriate complementary feeding practices can assist in the prevention of growth failure, stunting, and acute malnutrition. A guide to appropriate counselling is provided in *Annex 1-1*.

Counselling alone is not sufficient to ensure adequate nutrition. The child must also be linked with appropriate health and nutrition services. Every child should be provided with HIV testing and counselling (HTC) by the local health centre if his/her status is unknown.

1.4 Growth Monitoring and Promotion (GMP)

Growth monitoring targets children 0–59 months of age. It aims to periodically measure the weight and height/length of a child relative to age to assess growth. Currently, growth monitoring is done every month at designated growth monitoring clinics. Growth monitoring also provides a valuable interface with the community to improve participation in health and nutrition programmes. Growth monitoring motivates caregivers, families, and communities to practice behaviours that support adequate growth in young children. More importantly, growth monitoring and early intervention prevent children from becoming malnourished. Sample growth charts for girls and boys can be found in *Annex 1-11* and *Annex 1-12*.

1.5 Critical Nutrition Actions for People Living with HIV/AIDS

HIV/AIDS and tuberculosis (TB) are strongly associated with malnutrition. Both of these diseases lead to an increase in nutrient and energy requirements above those required by unaffected individuals.

To prevent acute malnutrition, patients should be provided with additional interventions and the following nutrition advice:

- Have periodic nutritional status assessments and get weighed regularly. Symptomatic clients should be weighed and assessed at least every month and asymptomatic clients should be weighed and assessed every 3 months.
- Eat a variety of foods and increase intake of nutritious foods. Patients with moderate and severe acute malnutrition (MAM and SAM) should be provided with therapeutic care in an outpatient therapeutic programme (OTP) or nutrition rehabilitation unit (NRU), depending on their medical condition. Patients with no AIDS symptoms (asymptomatic) require 10 percent more energy (one snack) per day than HIV-negative individuals of the same age and gender.
- Maintain good water, sanitation, and hygiene practices; drink plenty of boiled and treated water.
- Seek early treatment of infections and advice on managing symptoms.
- Take medicines, including therapeutic and supplementary foods, as prescribed by the doctor.

1.6 CMAM Overview

Comprehensive implementation of CMAM consists of the following four components:

Community Outreach

Improves understanding and stimulates community engagement and participation in malnutrition prevention, identification, and treatment.

Supplementary Feeding Programme (SFP)

Treats MAM in children 6 months–15 years and pregnant or lactating women with dry, take-home food rations. Children attend an SFP site every 2 weeks for medical check-ups and re-supply of food rations.

Outpatient Therapeutic Programme (OTP)

Treats SAM in children 6 months–15 years who present with appetite and without medical complications. Routine medications and Ready-to-Use Therapeutic Food (RUTF) are given to such children as outpatients. Children attend an OTP site weekly for medical check-ups and re-supply of RUTF.

Inpatient Care Management at Nutrition Rehabilitation Unit (NRU)

Provides inpatient care management for children 0–15 years with SAM who present with poor appetite and/or medical complications until their condition has stabilised and they are able to continue with SAM treatment in the OTP.

1.7 CMAM in the Context of HIV

HIV testing services (HTS) should be the standard of care in all SFPs, OTPs, and NRUs in Malawi. HIV testing enables prompt identification and referral of HIV-infected and exposed children to antiretroviral therapy (ART) clinics. Timely initiation of ART in HIV-infected malnourished children can improve outcomes. SFPs, OTPs, and NRUs are excellent entry points for identification and appropriate management of HIV-infected and exposed children.

Delays in linking HIV-infected children with acute malnutrition to HIV care and treatment can adversely affect clinical outcomes. Therefore, it is critical to ensure that all children admitted to SFP, OTP, and NRUs receive HIV testing and that children who are HIV positive are fast-tracked for HIV treatment and care. Referrals should not be delayed until the children are discharged from the NRU, OTP, or SFP. The current Malawi Clinical HIV guidelines should be used to assess the need for and initiate HIV treatment and care for affected children and pregnant and lactating women.

HTS in Children under 12 Months

For children under 12 months, HIV antibody tests cannot reliably diagnose HIV infection. Such children may test positive for HIV antibodies due to the presence of maternal antibodies, even if they are not infected. After 12 months, the test provides a more reliable indication of the child's HIV status. Therefore, children under 12 months should be tested using DNA polymerase chain reaction equipment (DNA-PCR), if possible. When DNA-PCR is not available, children under 12 months who tested positive for HIV antibodies should be retested when they reach 12 months of age, in accordance with national guidelines for clinical management of HIV in children and adults. Regardless of age, children with a positive HIV antibody test should be admitted into OTP if they meet OTP eligibility criteria. If a retest at 12 months returns a negative result, they should be treated the same as an HIV-negative child in OTP or SFP, according to the severity of malnutrition. Children may be discharged home if they no longer meet OTP criteria and SFP is not available. Appropriate nutrition advice should be given to the caregiver in such cases.

A child who is HIV positive and has SAM is at a much greater risk of death than an HIV-negative child with SAM. For this reason, children with HIV are treated at an earlier stage of acute malnutrition using therapeutic care. Children identified as having MAM are treated in OTP rather than SFP.

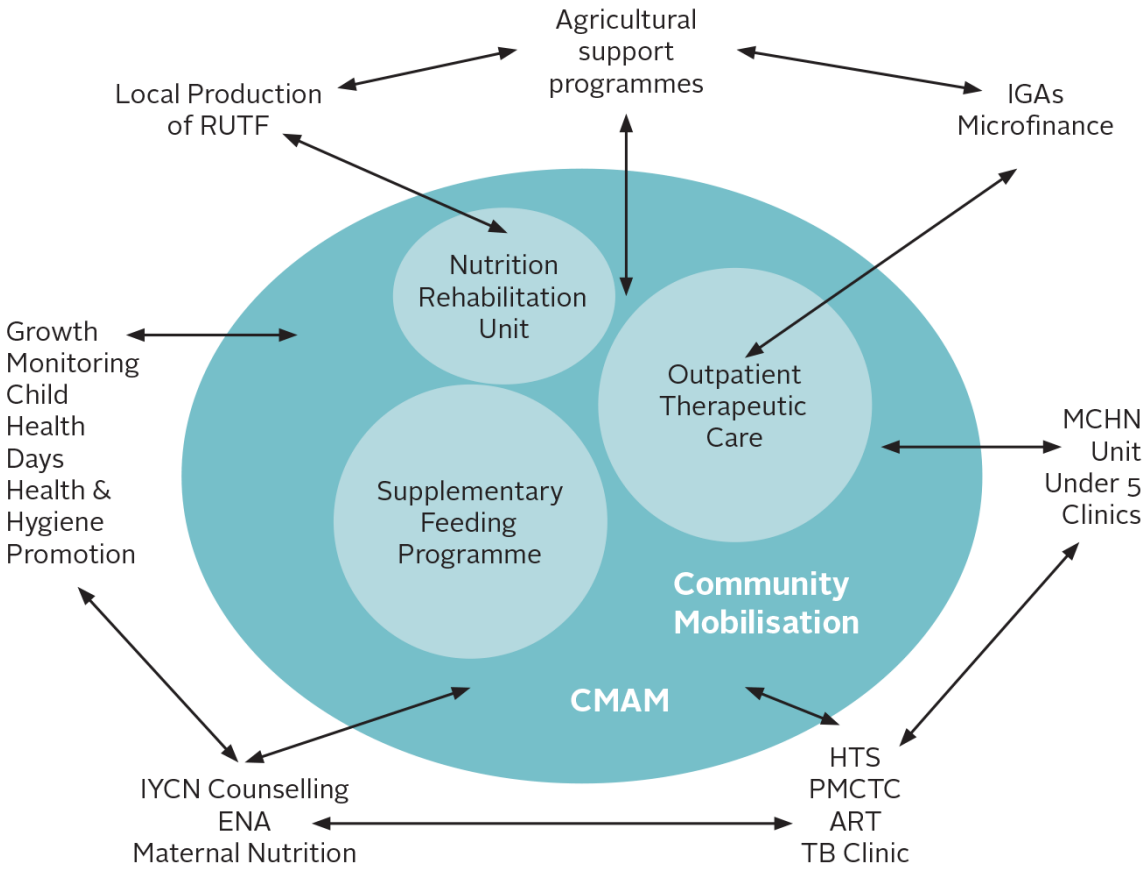
The treatment protocol for children with HIV in OTP is identical to that for HIV-negative children, as are the discharge criteria. Extra care must be taken to assess appetite and recurrent illness. A child on ART treatment may require specific counselling and encouragement due to reduced appetite from the medications. ART medication absorption and effectiveness may be profoundly affected by poor liver and gut function. It is, therefore, imperative that the child is assessed for appetite at every visit.

Families with an HIV-positive child should be referred to programmes and organisations that support people living with HIV (PLHIV) for example: prevention of mother-to-child transmission (PMTCT) programmes, Mothers to Mothers (M2M), Mayi Khanda, Mother Infant Pair (MIP) and GMP.)

Children with HIV or with growth faltering who are underweight or stunted are at risk of becoming acutely malnourished. They also face a significantly greater (4–20 times) risk of death than a normally nourished child with the same medical conditions.

Programme Linkages

CMAM is not a 'standalone' programme. It must be linked with other practices at the health facility and in the community. See figure below for some of the existing programmes linked to CMAM in Malawi.



1.8 Selection Criteria for CMAM and Triage

Admission to CMAM is determined by the nutritional status of the child, as established by measuring the mid-upper arm circumference (MUAC), checking for the presence of bilateral pitting oedema, and measuring weight and height/length to determine weight-for-height/length (WFH/L) z-scores.

Selecting the proper component of care for the child also rests on an assessment of his/her clinical status. Clinicians must examine the child on admission for signs of severe illness and for typical integrated management of childhood illnesses (IMCI) danger signs. The child's appetite is also tested on admission and at every visit. This step should never be skipped. The appetite test is not a 'taste test'; it is a sensitive indicator for determining whether the child should be treated as an outpatient, or admitted to the NRU for intensive inpatient therapy.

Early identification and treatment of acute malnutrition is essential to reduce the risk of death; both should start in the community.

1.9 Steps in the Identification of Acute Malnutrition

Screening for acute malnutrition may be conducted both in the community and at the health facility. Acute malnutrition may occur in chronically malnourished (or stunted) children. MUAC, bilateral pitting oedema, and weight-for-height measurements should be conducted during GMP if a child is not growing normally.

The type of screening that is conducted should be appropriate for each venue. In the community, screening is achieved through measuring MUAC and checking for bilateral pitting oedema. In addition to measuring MUAC and assessing for oedema, health facilities should also assess weight, length/height and WFH/L. These assessments should be done during routine activities and clinical visits.

Active Screening in the Community

- Children whose growth is faltering in growth monitoring programmes
- Children noted to be thin (wasted) or have swollen feet during visits for routine health/hygiene activities
- Actively searching for malnourished children during community mobilisation activities
- Active household surveillance
- Systematic screening during child health weeks
- Opportunistic screening at any time, not related to specific activities

Passive Screening at the Health Centre or Village Clinic

- Children during routine clinic visits
- Patients at maternal and child health (MCH)/under-5 clinics, ART clinics, and mother–infant pair clinics
- All sick children should be screened for acute malnutrition

Active Screening at HTS, ART, and TB Clinics

HIV and TB are diseases that are particularly associated with acute malnutrition. It is essential to establish close links between ART/TB clinics and the CMAM programme, in particular. Some signs and symptoms of acute malnutrition are similar to those associated with various clinical stages of HIV infection:

- Fungal nail or oral infections
- Parotid enlargement
- Recurrent respiratory or urinary infections
- Earache
- Persistent diarrhoea
- Persistent unexplained fever
- Unexplained severe wasting
- Pneumonia

Screening children with HIV or TB for malnutrition should be a routine activity in HTS, ART, and TB clinics. Children with HIV who are identified as having acute malnutrition (moderate or severe) should be treated in OTP, since they are at higher risk of death than malnourished, HIV-negative children.

Table 2. Assessing and Identifying Malnutrition

ASK:	Has the patient lost weight in the previous month?
	Does the patient have an appetite?
	Does the patient have any medical condition that impairs nutritional status (e.g., HIV or TB)?
	(If breastfeeding) How is the child feeding?
LOOK AND FEEL FOR:	Visible signs of wasting
CHECK:	MUAC (Annex 1-4)
	Oedema (Annex 1-5)
	Weight (Annex 1-6)
	Length/Height (Annex 1-7)
DETERMINE:	Severity of malnutrition using MUAC, oedema, or WFH/L reference charts (see Annexes 1-8, 1-9, 1-10)
LOOK AT SHAPE OF GROWTH CURVE:	Has the child lost weight?
	Is the growth curve flattening? (Annexes 1-11, 1-12)

1.10 Interpreting Anthropometric Measurements

Through anthropometry, malnutrition may be identified in different forms:

1. Underweight: the child is less than normal weight-for-age; it is described in z-scores. The growth of the child is plotted month to month on a growth chart. Action is taken when the 'growth trajectory' of the child is abnormal or if the child is below a certain level (usually < -2 or < -3 z-scores)
2. Stunting: the child is less than normal height-for-age due to chronic nutrient deficiency; it is described in z-scores. The child may also be underweight-for-age (because of the abnormally low height), but have a normal body shape (i.e., is not wasted).
3. Wasting: the child has a low MUAC or weight-for-height/length; it is described in z-scores. A low MUAC is associated with a higher risk of death. Wasted children require special treatment in the SFP, OTP, or NRU.

One or more forms of malnutrition may exist together. For this reason, it is essential to conduct a proper nutritional assessment using various anthropometric indicators: bilateral pitting oedema, MUAC, and weight and height/length. Stunting is a form of chronic malnutrition, while wasting is a form of acute, life-threatening malnutrition. Underweight may be due to stunting, wasting, or a combination of both.

Table 3. Interpreting Growth Problems: Wasting, Underweight, and Stunting

Z-score	Growth Indicators			
	Length/height-for-age	Weight-for-age	Weight-for-length/height	BMI-for-age
Above 3	See note 1	See note 2	Obese	Obese
Above 2	-		Overweight	Overweight
Above 1	-		Possible risk of overweight (See note 3	Possible risk of overweight (See note 3
0 (median)	-	-	-	-
Below -1	-	-	-	-
Below -2	Stunted (See note 4)	Underweight	Wasted	Wasted
Below -3	Severely stunted (See note 4)	Severely underweight (See note 5)	Severely wasted	Severely wasted

Source: WHO Growth Standards Training Manual

Table 3 NOTES

1. A child in this range is very tall. Tallness is rarely a problem, unless it is so excessive that you suspect an endocrine disorder such as a growth-hormone-producing tumour. Refer a child in this range for assessment if you suspect an endocrine disorder (e.g., if parents of normal height have a child who is excessively tall for his or her age).
2. A child whose weight-for-age falls in this range may have a growth problem, but this is better assessed from weight-for-length/height.
3. A plotted point above 1 shows possible risk. A trend towards the 2 z-score line shows definite risk.
4. It is possible for a stunted or severely stunted child to become overweight.
5. This is referred to as very low weight in IMCI training modules. (WHO. 1997. Integrated Management of Childhood Illness, In-Service Training. Geneva: WHO.)

Table 4. MUAC Cut-offs

Age	MUAC Measurement	Interpretation
6–59 months	< 11.5 cm (z-scores of -3)	Severe wasting
	≥ 11.5 cm–12.5 cm (z-scores of -2)	Moderate wasting
	≥12.5 cm	No wasting
5–9 years	< 13.0 cm	Severe wasting
	≥ 13–14.5 cm	Moderate wasting
	≥ 14.5 cm	No wasting
10–15 years	< 16 cm	Severe wasting
	≥ 16.0–18.5 cm	Moderate wasting
	≥ 18.5 cm	No wasting

In CMAM it is important to realise that oedema, MUAC, and weight-for-length/height are all *independent criteria for admission.* If the child satisfies any one of the admission criteria, then the child may be admitted for treatment according to the most severe classification.

Example 1: A child < 5 years of age is measured and has the following measurements:

MUAC 11.2 cm	**Indicates severe acute malnutrition**
Oedema absent	Indicates no severe acute malnutrition (normal)
Weight-for-height z-score < -2 – ≥ -3	Indicates moderate acute malnutrition

The child in example 1 is severely acutely malnourished by MUAC and must be treated in OTP.

Example 2: A child < 5 years of age is measured and has the following measurements:

MUAC 14 cm	**Indicates no acute malnutrition (normal)**
Oedema present +2	Indicates severe acute malnutrition
Weight-for-height z-score > -2	Indicates no acute malnutrition (normal)

The child in example 2 is severely acutely malnourished by oedema and must be treated in OTP.

Table 5 below summarizes the admission criteria for CMAM.

Table 5. Summary of CMAM Admission Criteria

NRU

A. Children > 6 Months

Bilateral pitting oedema +++

OR Marasmic kwashiorkor defined as any grade of bilaterial pitting oedema and severe wasting:

- MUAC < 11.5 cm (6–59 months)
- MUAC < 13.0 cm (5–9 years)
- MUAC < 16.0 cm (10–15 years) or
- WFH/L z-score < -3

OR Bilateral oedema + or ++ or severe wasting:

- MUAC < 11.5 cm (6–59 months)
- MUAC < 13.0 cm (5–9 years)
- MUAC < 16.0 cm (10–15 years) or
- WFH/L z-score < -3

WITH Any of the following danger signs:

- Anorexia (no appetite)
- Intractable vomiting
- Convulsions
- Lethargy, not alert
- Unconsciousness
- Inability to drink or breastfeed
- High fever (> 39° C rectal or > 38.5° C axillary)

OR WITH Any of the following medical complications:

- Hypoglycaemia
- Hypothermia (< 35° C axillary or < 35.5° C rectal)
- Infections
- Severe dehydration
- Shock
- Very severe anaemia
- Cardiac failure
- Severe dermatosis
- Signs of vitamin A deficiency
- Diarrhoea
- Malaria

OR Referrals from the OTP due to:

- Deterioration in the child's medical condition, based on the Outpatient Care Action Protocol
- Increase in bilateral pitting oedema
- Weight loss for 3 consecutive weeks or static weight for 5 weeks
- Not responding to treatment after 3 months in the OTP programme

B. Infants < 6 Months

WFL z-score < -3 (if > 45 cm)

OR Bilateral pitting oedema +, ++, or +++

OR Visible severe wasting (if infant is < 6 months and < 45 cm in length)

OR If infant is > 6 months and weighs < 3.0 kg

OR Too weak to suckle effectively (independent of weight-for-length)

OR Failure to gain weight*

* Children < 6 months whose growth is faltering or are below -3 z-scores on the weight-for-age growth curve must be referred to a clinician for further assessment. Children who do not gain weight following breastfeeding counselling and/or treatment of underlying medical conditions should be referred to the NRU.

OTP

Children 6–59 Months

MUAC < 11.5 cm

OR WFH/L z-score < -3

OR Bilateral pitting oedema + or ++

AND RUTF appetite test passed
No medical complications
Clinically well and alert

If child is HIV-positive , admit to OTP if:

MUAC < 12.5cm

OR WFH/L z-score -3 to -2

AND RUTF appetite test passed
No medical complications
Clinically well and alert

Children 5–15 years

MUAC: 5–9 years < 13.0 cm

10–15 years < 16.0 cm

OR Bilateral pitting oedema + or ++

If child is HIV positive, admit to the OTP with:

MUAC: 5–9 years: 13.0–14.5 cm
10–15 years: 16.0–18.5 cm

AND
RUTF appetite test passed
No medical complications
Clinically well and alert

SFP

Children 6–59 Months

MUAC 11.5–12.5 cm

OR WFH/L z-score -3 to -2

OR Discharged from SAM treatment in OTP or NRU

NB: Admit HIV+ children with MAM to OTP

Children 5–15 Years

MUAC: 5–9 years: 13.0–14.5cm

10–15 years: 16.0–18.5 cm

OR Discharged from SAM treatment in OTP or NRU

NB: Admit HIV+ children with MAM to OTP

Pregnant and lactating women

MUAC < 22.0 cm

OR Mothers of infants < 6 months old who are discharged from inpatient care

Annex 1-1: Guiding Principles on Infant and Young Child Feeding

Feeding a Sick Baby < 6 Months of Age

During illness, children are more likely to have problems with feeding due to loss of appetite and vomiting. Special care is needed, therefore, when feeding them.

Key Messages

- Mothers should breastfeed more frequently when the baby is ill, even when he/she has diarrhoea, to prevent weight loss and speed up recovery.
- Mothers and caregivers should immediately take a sick baby to the health facility if the baby is refusing to breastfeed.
- Mothers should continue exclusive breastfeeding when their baby is sick.
- Mothers and caregivers should only give medicines that have been prescribed by a health care provider.
- Mothers should give expressed breast milk if the baby is too weak to suckle.
- Mothers should increase the frequency of breastfeeding during the recovery period to help the baby regain weight and catch up in growth.

Complementary Feeding When the Baby Reaches 6 Months

From 6 months onward, breast milk alone is not enough to meet the nutritional requirements of a rapidly growing baby. The baby needs other foods in addition to breast milk and complementary foods should be introduced.

Examples of complementary foods from the six food groups are: staple foods like porridge (maize, rice, millet, potatoes, sorghum), mashed banana, or mashed potato, which will give your child energy; legumes like beans and peas; meat and meat products like soft meat, fish, and eggs, which will help make your child strong; fruits like mangoes, tangerines, oranges, avocado, and juice of baobab, which will protect your child from illness; vegetables like green leafy vegetables such as *nkhwani*, *khwanya*, and *chisoso*.

Key Messages

- Mothers should continue breastfeeding the baby on demand at least 8 times per day, both during the day and at night, to meet the nutritional needs of the baby and maintain his/her health and strength.
- Mothers should continue to breastfeed the baby at least until 2 years of age.
- Mothers should breastfeed first before giving other foods.
- Mothers and caregivers should feed the baby complementary foods at least 2 times a day.
- Mothers and caregivers should give the baby 2 to 3 tablespoons of food at each feed; and the food should be thick enough to be fed by hand.
- Mothers and caregivers should avoid giving the baby thin, watery porridge, as it will fill the stomach but not provide enough nutrients.
- Mothers and caregivers should not give the baby fizzy drinks, because these do not help the baby to grow.
- Mothers and caregivers should be patient and actively encourage the baby to eat; but they should not force-feed their baby. Some babies need time to get used to eating food in addition to breast milk.

- Mothers and caregivers should use a separate plate to feed the baby to make sure he or she eats all of the food given.
- Mothers and caregivers should store food in a covered, clean container and give it to the baby within two hours of cooking.
- Mothers and caregivers should use a clean cup to give foods or liquids to the baby. Do not use bottles, teats, or spouted cups to feed the baby, as they are difficult to clean and can make the baby sick.
- Mothers and caregivers should wash their hands and the baby's hands with soap and clean running water before preparing food or feeding the baby and after using the toilet or cleaning the baby's bottom.
- Mothers and caregivers should treat drinking water by boiling it or using Water Guard®. Drinking water should be stored in clean, covered containers.

Complementary Feeding from 6–9 Months

From 6–9 months, continue feeding the baby soft, mashed foods at least two times per day. Food should be thick, not watery. Watery broth does not help your baby grow and will not satisfy his/her hunger.

Key Messages

Mothers and caregivers should:

- Give the baby thick porridge made with different foods like: groundnut flour, mashed or pounded vegetables like *nkhwani* (pumpkin leaves), *mpiru*, or *kholowa*, or dried vegetable powder; meat products like *mazira* (eggs), *mkaka* (milk), or *nsomba yosinjasinja* (ground fish); and fruits like mashed banana or fresh fruit juice.
- Gradually increase the amount of food given to the baby so that by 9 months, the baby is consuming ¾ to 1 full standard cup (250 ml), two to three times per day.
- Give the baby a portion of fish, meat (chicken, mouse, goat, beef, pork, bird, rabbit), or edible insects once a day (at least 2 heaping tablespoons). These foods are a good source of iron.
- Pound or mince the meat or fish (be careful to remove bones from fish if necessary).
- Fry/roast small dried fish and grind with maize. Make a thick porridge with the combined flour.
- Prepare fresh fish with vegetables such as tomato. Mash very well for the baby.
- Pound the baby's portion of meat and then cook it.
- Serve the liver to the baby whenever preparing a chicken.
- Feed the baby a piece of fruit one to two times a day; it will improve his/her appetite and growth.
- Prepare the family vegetables with some fat, oil, or groundnut powder. Give a portion of the same vegetables to the baby.
- Do not give the baby non-nutritious liquids or foods like artificial juices (squashes), freezes, fizzy drinks, *jiggies*, puffs, sweets, and biscuits; they are expensive and do not help the baby to grow. Instead it is cheaper to buy eggs or fruits like bananas or oranges.
- Be patient and actively encourage the baby to eat; do not force feed.
- Use a separate plate to feed the baby to note if the child finishes the food or not.
- Always use iodized salt.
- Add one new food to the child's diet each week.

Complementary Feeding from 9–12 Months

At this stage, the baby is growing fast so he/she requires more food frequently, but in small quantities that meet his/her growth and development needs. At this age, the baby needs to start the day with a meal in the morning.

Continue to breastfeed the baby and increase the amount of food given until you feed him/her a standard cup (250 ml), or 8 tablespoons, per meal. Feed your baby complementary foods at least three times per day.

Key Messages

Mothers and caregivers should:

- Feed thick *phala* (porridge) made from the six food groups. These should include fortified foods such as *Likuni Phala*, *ufa wa mgaiwa*, groundnut or soya flour, or *futali* in the morning.
- Give soft *nsima* with mashed beans or any other relish (according to what the mother has) to start the baby on the family meals.
- Bring some food for the baby, including snacks like fruits or *chikonda moyo* made from enriched flour, when taking the baby away from home.
- Wash hands and the baby's hands with soap and clean running water before feeding him/her.
- Stay with the baby during meals. He/she will eat better when someone is there to encourage him/her.
- Feed the baby before other family members until he/she has eaten enough.

Complementary Feeding from 12–24 Months

During the period of 12–24 months, children experience rapid growth as they go through various milestones such as tripling birth weight by 12 months, walking, running, all of which increases nutrient requirement. In addition the child is prone to various infections as they interact with their surroundings/environment, further increasing their nutrient requirements. Continued breastfeeding with increased complementary feeding is required.

Key Messages

- Mothers should continue breastfeeding the baby on demand at least eight times per day, both during the day and at night, to meet the nutritional needs of the baby and maintain his/her health and strength.
- Mothers should breastfeed first before giving other foods.
- Feed the child the same foods they feed the rest of the family and ensure that the food is chopped and moistened.
- Feed the child at least five times per day, including three main meals and nutritious snacks between meals, such as vegetables/fruits, which are good sources of vitamin A when prepared or eaten with fat, including dark green vegetables such as *chisoso*, *nkhwani*, *moringa*, *bonongwe*, or *kholowa*, as well as tomatoes, eggplant, carrots, or cabbage; and fruits like oranges, passion fruit, mango, papaya, bananas, watermelon, pineapple, avocado, *chikondamoyo*, or *chitumbuwa*.
- Increase portions of meat, fish, and eggs.
- Increase the amount of food given to the child so that by 24 months, the child is fed 16 tablespoons of food per meal.

- To achieve active or responsive feeding, mothers and caregivers should:
  - Be patient and actively encourage the child to eat.
  - Avoid forcing the child to eat.
- Use a separate plate to feed the child and note if the child finishes the meal or not.
- Practice good hygiene (cleanliness) to avoid diarrhoea and other illnesses.
- Use a clean spoon and cup to give foods or liquids to the child.
- Store the foods to be given to the child in a safe, hygienic place.
- Wash hands with soap and clean running water before preparing foods and feeding the child.
- Wash the child's hands with soap and clean running water before eating.
- Wash hands with soap and clean running water after using the toilet or washing or cleaning the child's bottom.

Feeding a Sick Baby over 6 Months of Age

Children need more food and liquids when they are sick. Even if the child's appetite is decreased, encourage him or her to eat small meals frequently.

After the child has recovered, actively encourage him or her to eat one additional meal of solid food each day during the following few weeks. This will help the child regain the weight he or she has lost.

Key Messages

- Mothers should breastfeed the sick child frequently to speed up recovery and reduce weight loss.
- Mothers and caregivers should provide oral rehydration solution (ORS) on the way to the health facility to a child who has diarrhoea or is vomiting to replace lost salts and fluids in his/her body.
- Mothers and caregivers should feed the child simple foods like porridge and avoid spicy or fatty foods. Even if the child has diarrhoea, it is better for him or her to keep eating.
- When the mother is sick, she should continue to breastfeed the baby whenever possible. She may need extra food, liquids, and support during this time.
- Mothers and caregivers should not use bottles, teats, or spouted cups as they are difficult to clean and can cause infection.
- Mothers and caregivers should offer other nutritious liquids in addition to breast milk; for example, homemade fruit juice (orange, tangerine, *malambe*, guava, *bwemba*).
- Mothers and caregivers should offer small amounts of diverse nutritious foods frequently; the child needs extra food to gain weight and recover.
- Mothers and caregivers should offer the child his/her favourite nutritious foods.
- Mothers and caregivers should add a few drops of lemon to the child's food to provide vitamin C and improve the taste.
- Mothers and caregivers should offer fruits such as mango, papaya, and oranges to stimulate the sick child's appetite.

Infant Feeding in the Context of HIV

Pregnant women should go to antenatal clinics within the first trimester to receive antenatal care, including HTS. HTS will help HIV-positive pregnant women take steps to reduce the chances of passing on the virus to their unborn child. The care they receive will protect their babies from HIV during pregnancy, labour, and breastfeeding.

Even in the context of HIV and AIDS, breastfeeding is the natural and best way of infant feeding because it saves lives and improves quality of life. For an HIV-positive lactating mother, exclusive breastfeeding reduces the risk of passing on HIV from mother to child. It also reduces the risk of childhood illnesses like diarrhoea and pneumonia.

Key Messages

- Pregnant women must be tested at a health facility to know their HIV status within the first trimester to receive optimal care.
- All lactating mothers should breastfeed their babies exclusively for the first 6 months, regardless of HIV status. Gradually start complementing breastfeeding with suitable hygienically prepared foods from age 6 months (such as *Likuni Phala*, fruits, vegetables, beans, ground nuts, and soya).
- HIV-positive lactating women should aim to stop breastfeeding at around 22 months, so that the final HIV test can be done at 24 months (6 weeks after breastfeeding has stopped). Stop breastfeeding gradually over a period of 1 month (no rapid cessation).
- Families and communities should provide support to mothers so that they can rest, eat well, practice good hygiene, and care for the baby.
- All mothers should eat a variety of foods from the six food groups and eat two extra meals every day.
- For details on infant feeding in the context of HIV, please refer to the current *Malawi Guidelines for Clinical Management of HIV in Children and Adults*.

Annex 1-2: Breastfeeding Support Checklist

I. ASSESSMENT: INFANT

Ensure the child has been assessed for IMCI danger signs and that any life-threatening problems have been addressed (see IMCI).

1. Anthropometric/Nutritional Assessment (tick ☑ where appropriate)					
Growth monitoring card?	☐ Not available, record weight for age: _____				
	☐ Yes				
CLASSIFY	**Red** **Severe problem**	**Yellow 1** **Moderate Problem**	**Yellow 2** **Some problem**	**Green** **Not urgent**	**ACTION**
Weight-for-length	-	☐ <-3	☐ >= -3 to <-2	☐ >=-2	
Recent weight loss	☐ severe	☐ moderate	-	☐ none	
No weight gain	☐ prolonged (weeks–months)	☐ recent (days–weeks)	-	☐ normal	
Dropping centiles on growth chart	☐ sharp	☐ moderate	-	☐ none	
Oedema	☐ yes	-	-	☐ no	
Non-responder	☐ yes	-	-	☐ no	
MEASURE	Record Mid Upper Arm Circumference (MUAC) (for on-going and future studies)				

2. Breastfeeding assessment					
Is infant breastfed?	☐ Yes, proceed with below examination				
	☐ No, refer to **Non-breastfeeding Assessment**, then continue with **3. Clinical Assessment**				
ASK/LISTEN	Feeding history: How often breastfed? Any problems or concerns? Gets other foods or drinks?				
IDENTIFY/ANALYSE	Structural and muscular abnormalities; breastfeeding based on observation				
CLASSIFY (tick ☑ any that apply)	**Red** **Severe problem**	**Yellow 1** **Moderate Problem**	**Yellow 2** **Some problem**	**Green** **Not urgent**	
	☐ Structural problem (e.g., cleft lip/palate) ☐ Abnormal tone/ posture/ movement (e.g., arms/legs/neck too stiff or too floppy) ☐ Excessive jaw opening or jaw clenching ☐ Not willing/able to suckle ☐ Coughing / choking while BF	☐ Not well attached ☐ Not suckling well ☐ <8 breastfeeds in 24 hours ☐ Gets other foods or drink	☐ Mother has a breast condition ☐ Respiratory difficulties, e.g., nasal congestion	☐ No feeding problem ☐ No other issues	

3. Clinical assessment (tick ☑ any that apply)

IDENTIFY/ANALYSE	Possible underlying clinical problems				
CLASSIFY	☐ HIV+ ☐ Risk of HIV	☐ TB+ ☐ Risk of TB	☐ Preterm	☐ LBW	
	☐ Any other concerns, what? (e.g., diarrhoea) ☐ Check vaccinations				

II. ASSESSMENT: MOTHER

1. Anthropometric/nutritional assessment (tick ☑ where appropriate)					
CLASSIFY	**Red** **Severe problem**	**Yellow 1** **Moderate Problem**	**Yellow 2** **Some problem**	**Green** **Not urgent**	
MUAC	☐ < 180 mm	☐ 180 to < 230 mm	-	☐ >=230 mm	
Oedema	☐ yes	-	-	☐ no	

2. Breastfeeding and non-breastfeeding assessment			
ASK/LISTEN	Feeding history		
IDENTIFY/ANALYSE	Breastfeeding and non-breastfeeding based on observation and conversation		
CLASSIFY (tick ☑ any that apply)		**Yellow 1: Enrol mother and infant in C-MAMI if meets any condition**	
		Breastfeeding mother	
		☐ Re-lactating	
		☐ Discharged from Supplementary Feeding Programme	
		☐ Needs to express breast milk and cup-feed	
		☐ Breast conditions, e.g., engorgement; mastitis; nipples sore/cracked/large/flat; thrush	
		☐ Perception of not having enough breast milk	
		☐ Other concerns: mother lacks confidence; is concerned about her diet; works away from infant	
		Non-breastfeeding mother	
		☐ Concerns about meeting infant's nutritional needs	
		☐ Working away from home	
		☐ Delegating infant feeding and care to another	

3. Clinical assessment (tick ☑ any that apply)					
IDENTIFY/ANALYSE	Clinical problems in mother; birth history of presenting infant				
CLASSIFY		**Yellow 1: Enrol mother and infant in C-MAMI if meets any condition**			
		☐ Anaemia	☐ Twins	☐ TB	
		☐ History of poor pregnancy outcomes		☐ HIV	
		☐ Adolescent mother (under 19 years)			

4. Depression/Anxiety (tick ☑ any that apply)					
CLASSIFY	**Red** **Severe problem**	**Yellow 1** **Moderate Problem**	**Yellow 2** **Some problem**	**Green** **Not urgent**	
	☐ Traumatised, rejects infant ☐ Depressed ☐ Gender-based violence ☐ Marital conflict	☐ Lack of care and social support	-	☐ No concerns	

Non-breastfeeding Assessment					
ASK/LISTEN	Mother present? Feeding history: When and why stopped BF? Feeding utensils? Gets other foods or drinks?				
IDENTIFY/ANALYSE	Structural and muscular abnormalities; non-breastfeeding based on observation				
FEEDING	Wet nurse available? Type and quantity of BMS used? BMS safely prepared?				
CLASSIFY (tick ☑ any that apply)	**Pink** **Severe problem**	**Yellow 1** **Moderate Problem**	**Yellow 2** **Some problem**	**Green** **Not urgent**	
	☐ Structural problem (e.g., cleft lip/palate) ☐ Abnormal tone/ posture/ movement (e.g arms/legs/neck too stiff or too floppy) ☐ Excessive jaw opening or jaw clenching ☐ Not able to feed by cup or bottle ☐ Coughing/choking while feeding ☐ Possibility to try supplementary suckling	☐ Willing/possibility to relactate ☐ Consuming less than 500 ml of BMS per 24 hours ☐ Inappropriate BMS ☐ Gets other foods or drinks ☐ Declines feeds ☐ Mother absent	☐ Respiratory difficulties, e.g., nasal congestion	☐ No feeding problem ☐ No other issues	

ASK/LISTEN	**Are there any other concerns (about the infant, carer, home/social environment) that need further review?**

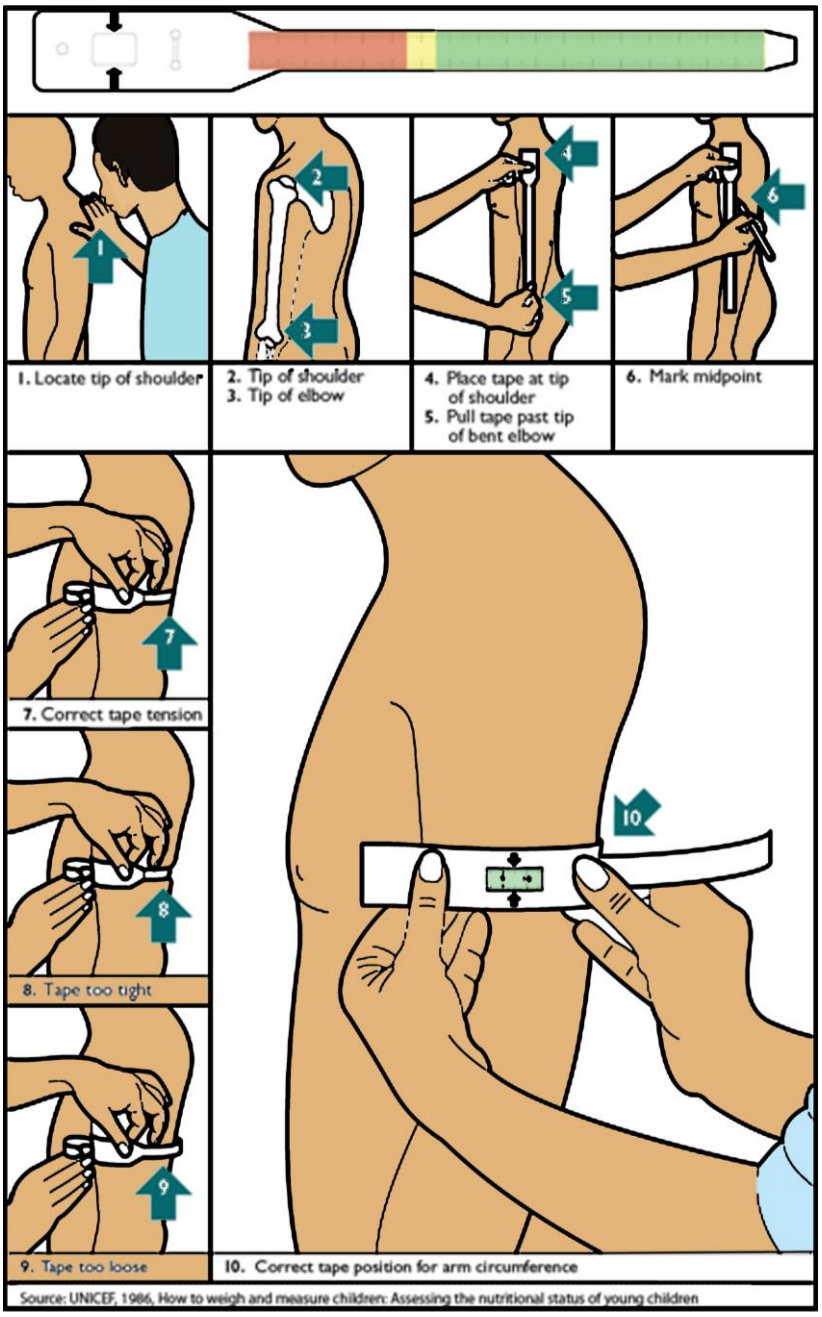
Annex 1-3: Health Education Topics

- Beneficiary rights to treatment: prevention of sexual abuse and exploitation
- Breastfeeding
- Complementary feeding
- Feeding pre-school children
- Child growth and development
- Feeding adults and older children
- Women's nutrition before, during, and after pregnancy
- Micronutrients
- The six food groups for a healthy family
- Food production and household food security
- Food processing, preparation, storage, and preservation
- Preventing infections and looking after sick children
- Danger signs of common childhood illness
- Sanitation and hygiene
- HIV and AIDS

Annex 1-4: How to Measure MUAC

MUAC is a very useful body measurement, as it correlates well with muscle mass and body nutritional reserves. Moreover, MUAC correlates better with risk of death than WFH/L.

- Always measure MUAC on the left arm.
- Measure the length of the child's upper arm, between the bone at the top of the shoulder [2] and the tip of the elbow [3] (the child's arm should be bent to easily locate the tip).
- Find the midpoint of the upper arm and mark it with a pen [6]. It is easier to use a string instead of the MUAC tape to find the midpoint.
- The child's arm should then be relaxed, falling alongside his or her body.
- Wrap the MUAC tape around the child's arm, so that all of it is in contact with the child's skin [7]. It should be neither too tight [8] nor too loose [9].
- Feed the end of the tape through the first opening and then through the second opening. The measurement is read from the window where the arrows point inward [10].
- Record the MUAC reading with a precision of 0.1 cm.



Annex 1-5: How to Assess for Bilateral Pitting Oedema

Look and feel for a pit in each foot. Oedema in the feet only is classified as **mild (+1) oedema.**

If there is no oedema in the feet, STOP. Nutritional oedema always spreads from the feet upwards.

If oedema is present in the feet look for oedema in the lower legs. Use the same technique as for the feet checking both sides. Bilateral pitting oedema in the feet AND the lower legs is classified as **moderate (+2) oedema.**

If oedema is present in the feet and lower legs, check the hands. Use the same technique. If there is oedema in the feet, lower legs, and hands this is also classified as **moderate (+2) oedema.**

If moderate oedema is diagnosed, check for oedema around the eyes (periorbital oedema). Do not press on the eyes to look for pitting. If there is oedema around the eyes this is classified as **severe (+3) oedema**. Children with +3 oedema are at high risk of mortality and are always treated in the NRU.

Annex 1-6: How to Measure Weight

To weigh a child using a hanging scale (if the child weighs less than 25 kg)

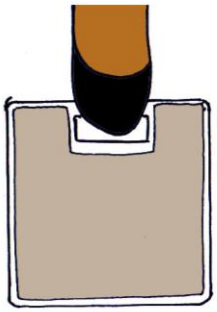
Children who weigh less than 25 kg are weighed with a hanging salter scale, graduated to 0.1 kg (100 grams). Do not forget to re-adjust the scale to zero before weighing. Check the scale daily against a known weight. If the measurement is off by 100 g or more, change the springs or replace the scale.

- Hook the scale to a rope on the ceiling or a stand in the clinic at eye level for the measurer.
- Before weighing the child, have the mother take off all the child's clothes.
- Make sure the scale arrow is at 0 ('zero the scale') with the hammock or cloth that will be used hooked on the scale.
- Place child in the *chitenje*, hook it on the scale, and let the child hang freely, touching nothing. Make sure the child is safely in the *chitenje*.
- When the arrow is steady, the measurer reads the child's weight in kg at eye level to the nearest 100 g (for example, 6.4 kg).
- Have the assistant repeat the weight for verification and then record it.
- Do not hold the scale when reading the weight.

To weigh a child using an electronic mother and infant scale

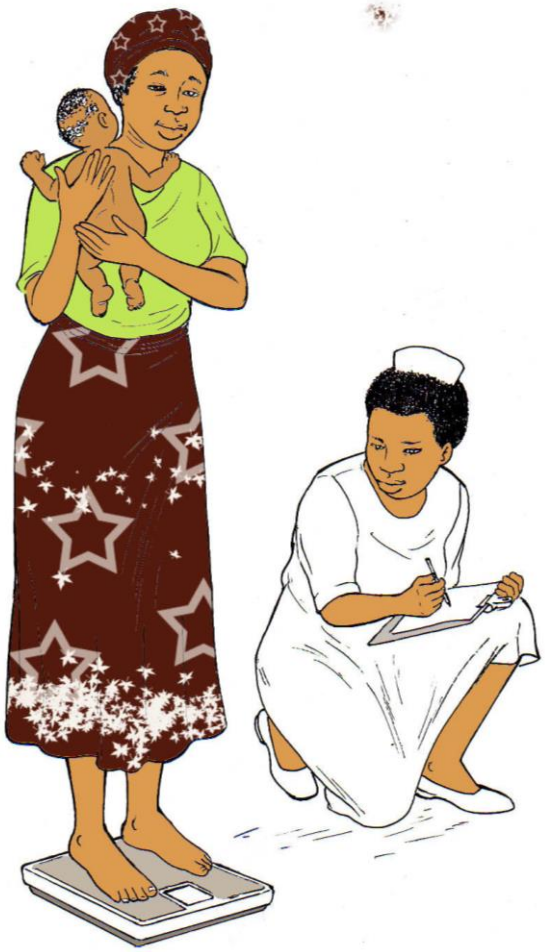
Explain the tared weighing procedure to the mother. Stress that the mother must stay on the scale until her child has been weighed in her arms.

Be sure that the scale is placed on a flat, hard, even surface.



- To turn on the scale and cover the solar panel for a second. When the number 0.0 appears, the scale is ready.
- Check to see that the mother has removed her shoes. You or someone else should hold the naked child wrapped in a *chitenje* or blanket.
- Ask the mother to stand in the middle of the scale, feet slightly apart (on the footprints, if marked), and remain still. The mother's clothing must not cover the display area.
- Remind the mother to stay on the scale even after her weight appears, until the baby has been weighed in her arms.

- With the mother still on the scale and her weight displayed, tare the scale by covering the solar panel for a second. The scale is tared when it displays a figure of a mother and baby and the number 0.0.
- Gently hand the naked baby to the mother and ask her to remain still.
- The baby's weight will appear on the display. Record the weight of the baby.
- Be careful to read the numbers in the correct order (as though you were viewing them while standing on the scale, rather than upside-down).

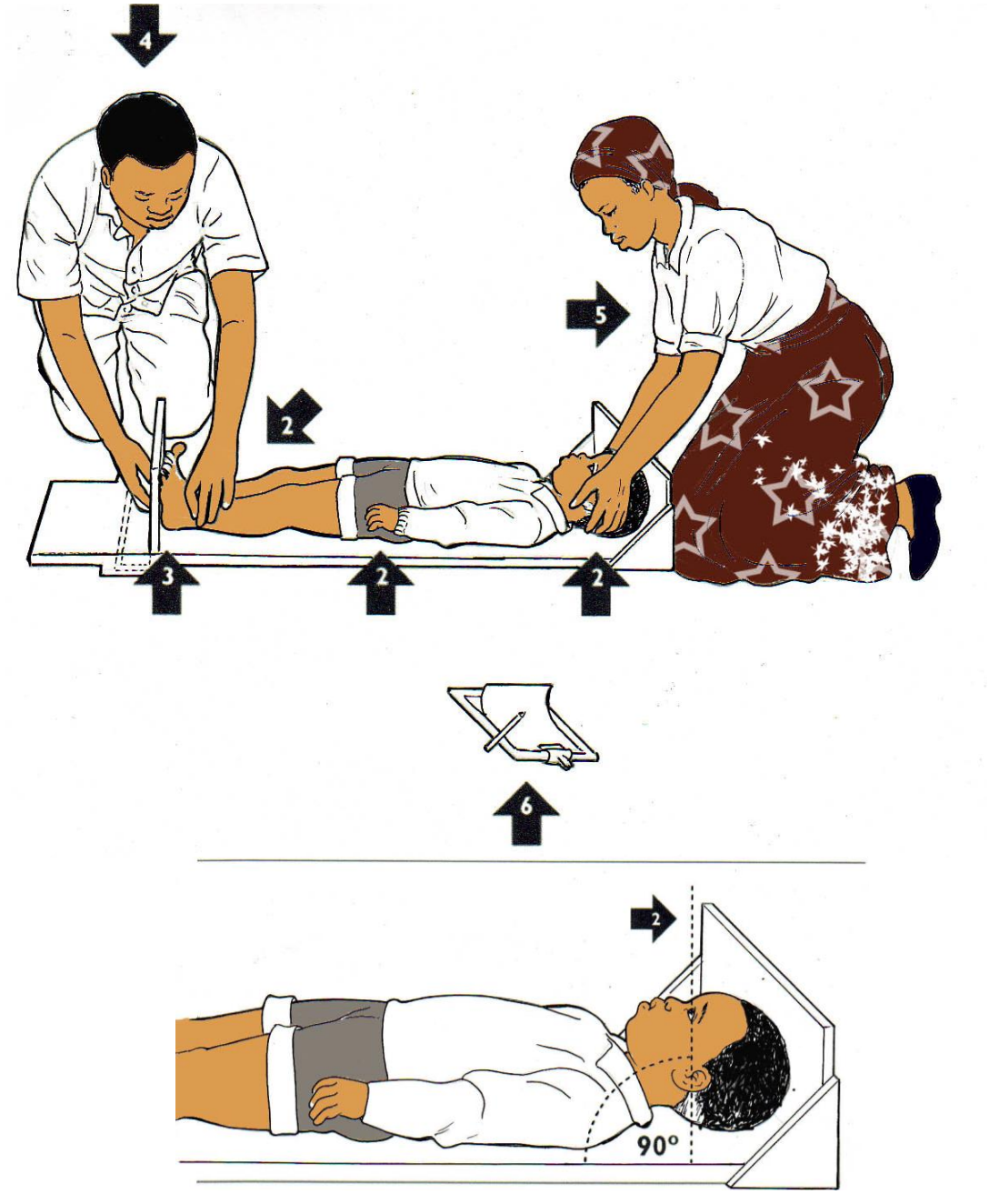


Annex 1-7: How to Measure Length/Height

Measuring Length

For children less than 87 cm, the measuring board is placed on the ground and the child measured lying down.

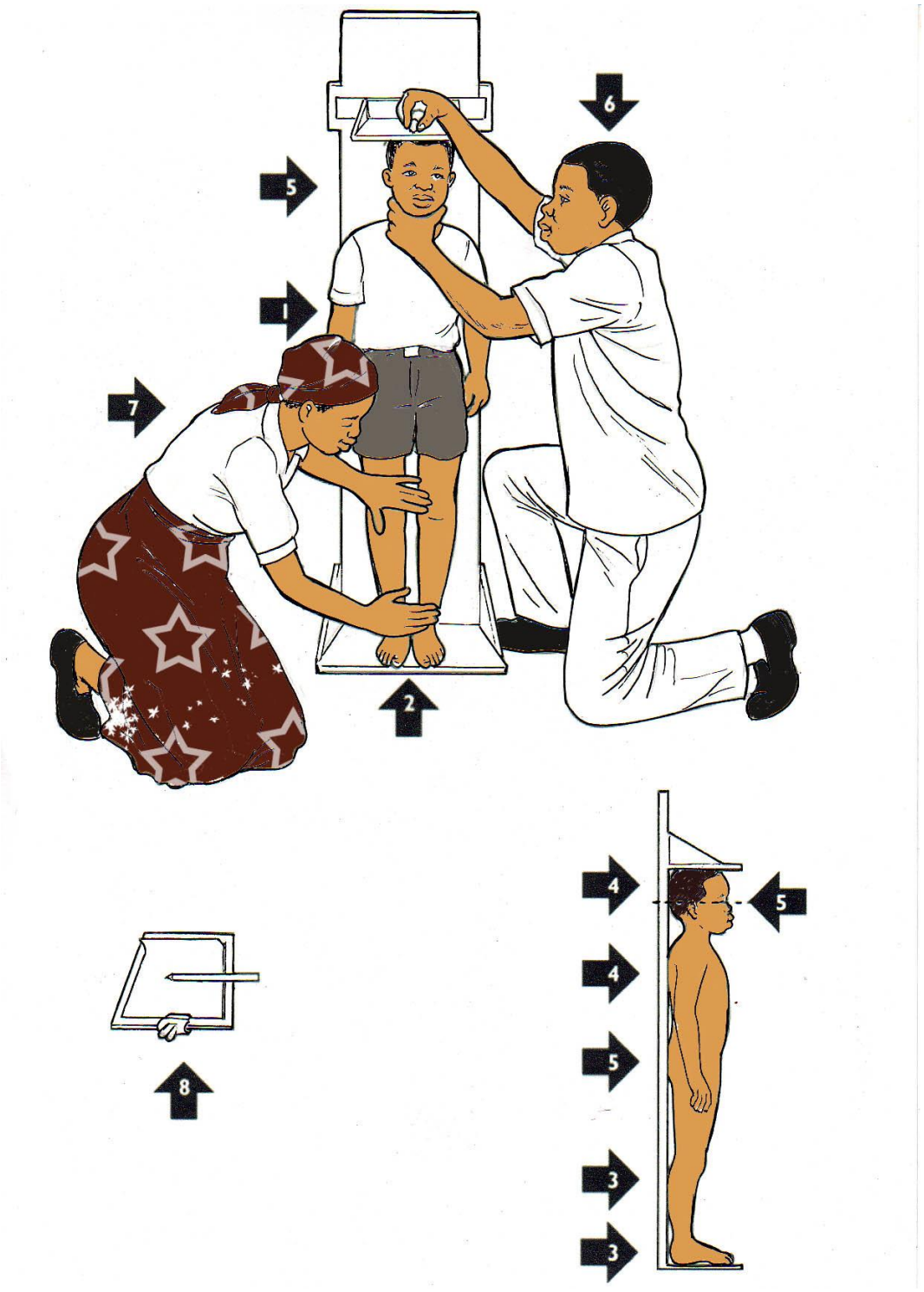
1. Lay the child down along the middle of the board.
2. The assistant holds the sides of the child's head while firmly touching the head against the fixed headboard with the hair compressed.
3. The measurer places her hands on the child's legs and keeps one hand on the knees to prevent flexion.
4. With the legs immobilised the moveable board is pushed firmly against the child's feet.
5. The footboard should be perpendicular to the axis of the board and vertical.
6. The height is read to the nearest 0.1 cm.



Measuring Height

For children taller than 87 cm, height is measured with the child standing.

1. The child stands upright against the middle of the measuring board.
2. The child's head, shoulders, buttocks, knees and heels are held against the board by the assistant.
3. The child should be looking straight ahead (neither up nor down).
4. The moveable headboard is pressed firmly against the head compressing the hair.
5. The height is measured after checking that the headboard is level (the reading should be the same on both sides of the measuring board).



Annex 1-8: How to Calculate Weight for Height

Example 1: A boy is measured according to the methods described in Annexes 1-5 and 1-6.

Height: 63 cm Weight: 5.6 kg

1. Look up the table for a child of 63 cm (measured lying down).

Weight-for-length

Boys birth–2 years (z-scores)					Girls birth–2 years (z-scores)			
-3 Z	-2 Z	-1 Z	Median	cm	Median	-1 Z	-2 Z	-3 Z
5.2	5.7	6.1	6.7	62.5	6.5	5.9	5.4	5.0
5.3	5.8	6.2	6.8	63.0	6.6	6.0	5.5	5.1
5.4	5.9	6.4	6.9	63.5	6.7	6.2	5.6	5.2

2. Read the table on the same line to the left (for boys) and look for the figure closest to 5.6 kg.
3. In this case, the child's weight of 5.6 kg is less than 5.8 kg, the figure in the yellow column (-2 z), but above 5.3 kg, the figure in the red column (-3 z). This means the child's weight is between -2 z and -3 z. Therefore the child has moderate acute malnutrition (MAM) according to his weight-for-height.

Example 2: A girl is measured according to the methods described in Annexes 1-5 and 1-6.

Height: 92.7 cm Weight: 10.2 kg

1. Look up the table for a child of 92.7 cm (measured standing). In this case, the child's height of 92.7 cm needs to be rounded to the nearest 0.5 cm, or to 92.5 cm.

Weight-for-height

Boys 2–5 years (z-scores)					Girls 2–5 years (z-scores)			
-3 Z	-2 Z	-1 Z	Median	Cm	Median	-1 Z	-2 Z	-3 Z
10.6	11.4	12.3	13.4	92.0	13.1	12.0	11.1	10.2
10.7	11.5	12.4	13.5	92.5	13.3	12.1	11.2	10.3
10.8	11.6	12.6	13.6	93.0	13.4	12.3	11.3	10.4

2. Look along the row to the right of 92.5 cm (for girls) and look for 10.2 kg. This is less than 10.3 kg in the -3 Z column. Therefore, this child has severe acute malnutrition according (SAM) to her weight-for-height.

The WHO tables for children from **birth–2 years of age** and from **2–5 years of age** are found in Annexes 1-9 and 1-10, respectively.

Annex 1-9: Weight-for-Length Reference Tables, Birth to 2 Years of Age

Boys				Length	Girls			
-3 Z	-2 Z	-1 Z	Median	cm	Median	-1 Z	-2 Z	-3 Z
1.9	2.0	2.2	2.4	45.0	2.5	2.3	2.1	1.9
1.9	2.1	2.3	2.5	45.5	2.5	2.3	2.1	2.0
2.0	2.2	2.4	2.6	46.0	2.6	2.4	2.2	2.0
2.1	2.3	2.5	2.7	46.5	2.7	2.5	2.3	2.1
2.1	2.3	2.5	2.8	47.0	2.8	2.6	2.4	2.2
2.2	2.4	2.6	2.9	47.5	2.9	2.6	2.4	2.2
2.3	2.5	2.7	2.9	48.0	3.0	2.7	2.5	2.3
2.3	2.6	2.8	3.0	48.5	3.1	2.8	2.6	2.4
2.4	2.6	2.9	3.1	49.0	3.2	2.9	2.6	2.4
2.5	2.7	3.0	3.2	49.5	3.3	3.0	2.7	2.5
2.6	2.8	3.0	3.3	50.0	3.4	3.1	2.8	2.6
2.7	2.9	3.1	3.4	50.5	3.5	3.2	2.9	2.7
2.7	3.0	3.2	3.5	51.0	3.6	3.3	3.0	2.8
2.8	3.1	3.3	3.6	51.5	3.7	3.4	3.1	2.8
2.9	3.2	3.5	3.8	52.0	3.8	3.5	3.2	2.9
3.0	3.3	3.6	3.9	52.5	3.9	3.6	3.3	3.0
3.1	3.4	3.7	4.0	53.0	4.0	3.7	3.4	3.1
3.2	3.5	3.8	4.1	53.5	4.2	3.8	3.5	3.2
3.3	3.6	3.9	4.3	54.0	4.3	3.9	3.6	3.3
3.4	3.7	4.0	4.4	54.5	4.4	4.0	3.7	3.4
3.6	3.8	4.2	4.5	55.0	4.6	4.2	3.8	3.5
3.7	4.0	4.3	4.7	55.5	4.7	4.3	3.9	3.6
3.8	4.1	4.4	4.8	56.0	4.8	4.4	4.0	3.7
3.9	4.2	4.6	5.0	56.5	5.0	4.5	4.2	3.8
4.0	4.3	4.7	5.1	57.0	5.1	4.6	4.3	3.9
4.1	4.5	4.9	5.3	57.5	5.2	4.8	4.4	4.0
4.3	4.6	5.0	5.4	58.0	5.4	4.9	4.5	4.1
4.4	4.7	5.1	5.6	58.5	5.5	5.0	4.6	4.2
4.5	4.8	5.3	5.7	59.0	5.6	5.1	4.7	4.3
4.6	5.0	5.4	5.9	59.5	5.7	5.3	4.8	4.4
4.7	5.1	5.5	6.0	60.0	5.9	5.4	4.9	4.5
4.8	5.2	5.6	6.1	60.5	6.0	5.5	5.0	4.6
4.9	5.3	5.8	6.3	61.0	6.1	5.6	5.1	4.7
5.0	5.4	5.9	6.4	61.5	6.3	5.7	5.2	4.8
5.1	5.6	6.0	6.5	62.0	6.4	5.8	5.3	4.9
5.2	5.7	6.1	6.7	62.5	6.5	5.9	5.4	5.0
5.3	5.8	6.2	6.8	63.0	6.6	6.0	5.5	5.1
5.4	5.9	6.4	6.9	63.5	6.7	6.2	5.6	5.2
5.5	6.0	6.5	7.0	64.0	6.9	6.3	5.7	5.3
5.6	6.1	6.6	7.1	64.5	7.0	6.4	5.8	5.4
5.7	6.2	6.7	7.3	65.0	7.1	6.5	5.9	5.5
5.8	6.3	6.8	7.4	65.5	7.2	6.6	6.0	5.5
5.9	6.4	6.9	7.5	66.0	7.3	6.7	6.1	5.6
6.0	6.5	7.0	7.6	66.5	7.4	6.8	6.2	5.7
6.1	6.6	7.1	7.7	67.0	7.5	6.9	6.3	5.8
6.2	6.7	7.2	7.9	67.5	7.6	7.0	6.4	5.9
6.3	6.8	7.3	8.0	68.0	7.7	7.1	6.5	6.0
6.4	6.9	7.5	8.1	68.5	7.9	7.2	6.6	6.1
6.5	7.0	7.6	8.2	69.0	8.0	7.3	6.7	6.1
6.6	7.1	7.7	8.3	69.5	8.1	7.4	6.8	6.2
6.6	7.2	7.8	8.4	70.0	8.2	7.5	6.9	6.3
6.7	7.3	7.9	8.5	70.5	8.3	7.6	6.9	6.4
6.8	7.4	8.0	8.6	71.0	8.4	7.7	7.0	6.5
6.9	7.5	8.1	8.8	71.5	8.5	7.7	7.1	6.5
7.0	7.6	8.2	8.9	72.0	8.6	7.8	7.2	6.6
7.1	7.6	8.3	9.0	72.5	8.7	7.9	7.3	6.7
7.2	7.7	8.4	9.1	73.0	8.8	8.0	7.4	6.8
7.2	7.8	8.5	9.2	73.5	8.9	8.1	7.4	6.9
7.3	7.9	8.6	9.3	74.0	9.0	8.2	7.5	6.9
7.4	8.0	8.7	9.4	74.5	9.1	8.3	7.6	7.0
7.5	8.1	8.8	9.5	75.0	9.1	8.4	7.7	7.1
7.6	8.2	8.9	9.6	75.5	9.2	8.5	7.8	7.1
7.6	8.3	8.9	9.7	76.0	9.3	8.5	7.8	7.2
7.7	8.3	9.0	9.8	76.5	9.4	8.6	7.9	7.3
7.8	8.4	9.1	9.9	77.0	9.5	8.7	8.0	7.4
7.9	8.5	9.2	10.0	77.5	9.6	8.8	8.1	7.4
7.9	8.6	9.3	10.1	78.0	9.7	8.9	8.2	7.5

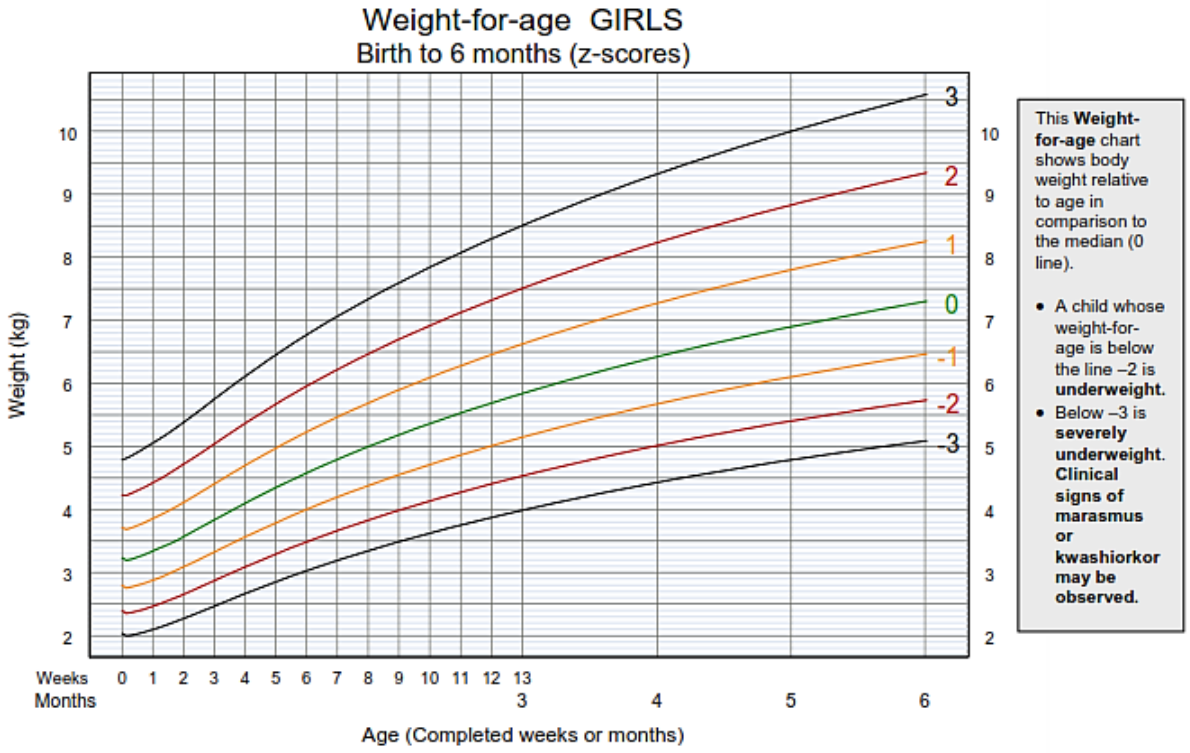
Boys				Length	Girls			
-3 Z	-2 Z	-1 Z	Median	cm	Median	-1 Z	-2 Z	-3 Z
8.0	8.7	9.4	10.2	78.5	9.8	9.0	8.2	7.6
8.1	8.7	9.5	10.3	79.0	9.9	9.1	8.3	7.7
8.2	8.8	9.5	10.4	79.5	10.0	9.1	8.4	7.7
8.2	8.9	9.6	10.4	80.0	10.1	9.2	8.5	7.8
8.3	9.0	9.7	10.5	80.5	10.2	9.3	8.6	7.9
8.4	9.1	9.8	10.6	81.0	10.3	9.4	8.7	8.0
8.5	9.1	9.9	10.7	81.5	10.4	9.5	8.8	8.1
8.5	9.2	10.0	10.8	82.0	10.5	9.6	8.8	8.2
8.6	9.3	10.1	10.9	82.5	10.6	9.7	8.9	8.2
8.7	9.4	10.2	11.0	83.0	10.7	9.8	9.0	8.3
8.8	9.5	10.3	11.2	83.5	10.9	9.9	9.1	8.4
8.9	9.6	10.4	11.3	84.0	11.0	10.1	9.2	8.5
9.0	9.7	10.5	11.4	84.5	11.1	10.2	9.3	8.6
9.1	9.8	10.6	11.5	85.0	11.2	10.3	9.4	8.7
9.2	9.9	10.7	11.6	85.5	11.3	10.4	9.6	8.8
9.3	10.0	10.8	11.7	86.0	11.5	10.5	9.7	8.9
9.4	10.1	11.0	11.9	86.5	11.6	10.6	9.8	9.0
9.5	10.2	11.1	12.0	87.0	11.7	10.7	9.9	9.1
9.6	10.4	11.2	12.1	87.5	11.8	10.9	10.0	9.2
9.7	10.5	11.3	12.2	88.0	12.0	11.0	10.1	9.3
9.8	10.6	11.4	12.4	88.5	12.1	11.1	10.2	9.4
9.9	10.7	11.5	12.5	89.0	12.2	11.2	10.3	9.5
10.0	10.8	11.6	12.6	89.5	12.3	11.3	10.4	9.6
10.1	10.9	11.8	12.7	90.0	12.5	11.4	10.5	9.7
10.2	11.0	11.9	12.8	90.5	12.6	11.5	10.6	9.8
10.3	11.1	12.0	13.0	91.0	12.7	11.7	10.7	9.9
10.4	11.2	12.1	13.1	91.5	12.8	11.8	10.8	10.0
10.5	11.3	12.2	13.2	92.0	13.0	11.9	10.9	10.1
10.6	11.4	12.3	13.3	92.5	13.1	12.0	11.0	10.1
10.7	11.5	12.4	13.4	93.0	13.2	12.1	11.1	10.2
10.7	11.6	12.5	13.5	93.5	13.3	12.2	11.2	10.3
10.8	11.7	12.6	13.7	94.0	13.5	12.3	11.3	10.4
10.9	11.8	12.7	13.8	94.5	13.6	12.4	11.4	10.5
11.0	11.9	12.8	13.9	95.0	13.7	12.6	11.5	10.6
11.1	12.0	12.9	14.0	95.5	13.8	12.7	11.6	10.7
11.2	12.1	13.1	14.1	96.0	14.0	12.8	11.7	10.8
11.3	12.2	13.2	14.3	96.5	14.1	12.9	11.8	10.9
11.4	12.3	13.3	14.4	97.0	14.2	13.0	12.0	11.0
11.5	12.4	13.4	14.5	97.5	14.4	13.1	12.1	11.1
11.6	12.5	13.5	14.6	98.0	14.5	13.3	12.2	11.2
11.7	12.6	13.6	14.8	98.5	14.6	13.4	12.3	11.3
11.8	12.7	13.7	14.9	99.0	14.8	13.5	12.4	11.4
11.9	12.8	13.9	15.0	99.5	14.9	13.6	12.5	11.5
12.0	12.9	14.0	15.2	100.0	15.0	13.7	12.6	11.6
12.1	13.0	14.1	15.3	100.5	15.2	13.9	12.7	11.7
12.2	13.2	14.2	15.4	101.0	15.3	14.0	12.8	11.8
12.3	13.3	14.4	15.6	101.5	15.5	14.1	13.0	11.9
12.4	13.4	14.5	15.7	102.0	15.6	14.3	13.1	12.0
12.5	13.5	14.6	15.9	102.5	15.8	14.4	13.2	12.1
12.6	13.6	14.8	16.0	103.0	15.9	14.5	13.3	12.3
12.7	13.7	14.9	16.2	103.5	16.1	14.7	13.5	12.4
12.8	13.9	15.0	16.3	104.0	16.2	14.8	13.6	12.5
12.9	14.0	15.2	16.5	104.5	16.4	15.0	13.7	12.6
13.0	14.1	15.3	16.6	105.0	16.5	15.1	13.8	12.7
13.2	14.2	15.4	16.8	105.5	16.7	15.3	14.0	12.8
13.3	14.4	15.6	16.9	106.0	16.9	15.4	14.1	13.0
13.4	14.5	15.7	17.1	106.5	17.1	15.6	14.3	13.1
13.5	14.6	15.9	17.3	107.0	17.2	15.7	14.4	13.2
13.6	14.7	16.0	17.4	107.5	17.4	15.9	14.5	13.3
13.7	14.9	16.2	17.6	108.0	17.6	16.0	14.7	13.5
13.8	15.0	16.3	17.8	108.5	17.8	16.2	14.8	13.6
14.0	15.1	16.5	17.9	109.0	18.0	16.4	15.0	13.7
14.1	15.3	16.6	18.1	109.5	18.1	16.5	15.1	13.9
14.2	15.4	16.8	18.3	110.0	18.3	16.7	15.3	14.0

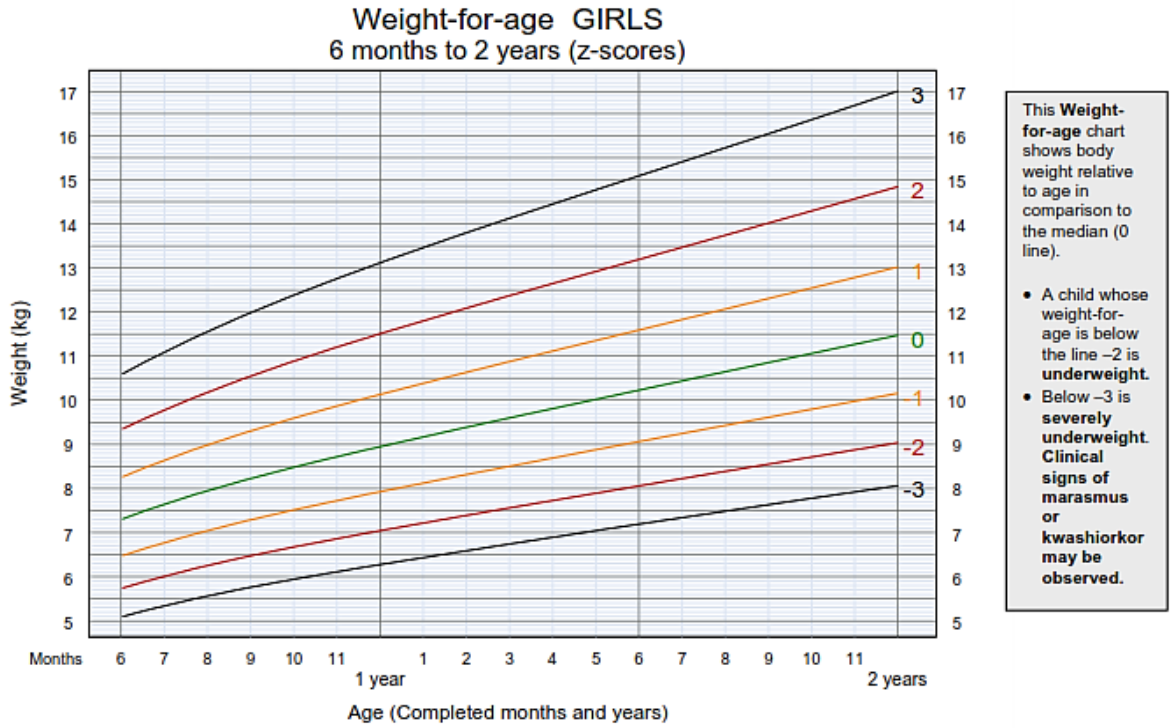
Annex 1-10: Weight-for-Height Tables for Children from 2–5 Years of Age

Boys				Height	Girls			
-3 Z	-2 Z	-1 Z	Median	Cm	Median	-1 Z	-2 Z	-3 Z
5.9	6.3	6.9	7.4	65.0	7.2	6.6	6.1	5.6
6.0	6.4	7.0	7.6	65.5	7.4	6.7	6.2	5.7
6.1	6.5	7.1	7.7	66.0	7.5	6.8	6.3	5.8
6.1	6.6	7.2	7.8	66.5	7.6	6.9	6.4	5.8
6.2	6.7	7.3	7.9	67.0	7.7	7.0	6.4	5.9
6.3	6.8	7.4	8.0	67.5	7.8	7.1	6.5	6.0
6.4	6.9	7.5	8.1	68.0	7.9	7.2	6.6	6.1
6.5	7.0	7.6	8.2	68.5	8.0	7.3	6.7	6.2
6.6	7.1	7.7	8.4	69.0	8.1	7.4	6.8	6.3
6.7	7.2	7.8	8.5	69.5	8.2	7.5	6.9	6.3
6.8	7.3	7.9	8.6	70.0	8.3	7.6	7.0	6.4
6.9	7.4	8.0	8.7	70.5	8.4	7.7	7.1	6.5
6.9	7.5	8.1	8.8	71.0	8.5	7.8	7.1	6.6
7.0	7.6	8.2	8.9	71.5	8.6	7.9	7.2	6.7
7.1	7.7	8.3	9.0	72.0	8.7	8.0	7.3	6.7
7.2	7.8	8.4	9.1	72.5	8.8	8.1	7.4	6.8
7.3	7.9	8.5	9.2	73.0	8.9	8.1	7.5	6.9
7.4	8.0	8.6	9.3	73.5	9.0	8.2	7.6	7.0
7.4	8.0	8.7	9.4	74.0	9.1	8.3	7.6	7.0
7.5	8.1	8.8	9.5	74.5	9.2	8.4	7.7	7.1
7.6	8.2	8.9	9.6	75.0	9.3	8.5	7.8	7.2
7.7	8.3	9.0	9.7	75.5	9.4	8.6	7.9	7.2
7.7	8.4	9.1	9.8	76.0	9.5	8.7	8.0	7.3
7.8	8.5	9.2	9.9	76.5	9.6	8.7	8.0	7.4
7.9	8.5	9.2	10.0	77.0	9.6	8.8	8.1	7.5
8.0	8.6	9.3	10.1	77.5	9.7	8.9	8.2	7.5
8.0	8.7	9.4	10.2	78.0	9.8	9.0	8.3	7.6
8.1	8.8	9.5	10.3	78.5	9.9	9.1	8.4	7.7
8.2	8.8	9.6	10.4	79.0	10.0	9.2	8.4	7.8
8.3	8.9	9.7	10.5	79.5	10.1	9.3	8.5	7.8
8.3	9.0	9.7	10.6	80.0	10.2	9.4	8.6	7.9
8.4	9.1	9.8	10.7	80.5	10.3	9.5	8.7	8.0
8.5	9.2	9.9	10.8	81.0	10.4	9.6	8.8	8.1
8.6	9.3	10.0	10.9	81.5	10.6	9.7	8.9	8.2
8.7	9.4	10.1	11.0	82.0	10.7	9.8	9.0	8.3
8.7	9.4	10.2	11.1	82.5	10.8	9.9	9.1	8.4
8.8	9.5	10.3	11.2	83.0	10.9	10.0	9.2	8.5
8.9	9.6	10.4	11.3	83.5	11.0	10.1	9.3	8.6
9.0	9.7	10.5	11.4	84.0	11.1	10.2	9.4	8.6
9.1	9.9	10.7	11.5	84.5	11.3	10.3	9.5	8.7
9.2	10.0	10.8	11.7	85.0	11.4	10.4	9.6	8.8
9.3	10.1	10.9	11.8	85.5	11.5	10.6	9.7	8.9
9.4	10.2	11.0	11.9	86.0	11.6	10.7	9.8	9.0
9.5	10.3	11.1	12.0	86.5	11.8	10.8	9.9	9.1
9.6	10.4	11.2	12.2	87.0	11.9	10.9	10.0	9.2
9.7	10.5	11.3	12.3	87.5	12.0	11.0	10.1	9.3
9.8	10.6	11.5	12.4	88.0	12.1	11.1	10.2	9.4
9.9	10.7	11.6	12.5	88.5	12.3	11.2	10.3	9.5
10.0	10.8	11.7	12.7	89.0	12.4	11.4	10.4	9.6
10.1	10.9	11.8	12.8	89.5	12.5	11.5	10.5	9.7
10.2	11.0	11.9	12.9	90.0	12.6	11.6	10.6	9.8
10.3	11.1	12.0	13.0	90.5	12.8	11.7	10.7	9.9
10.4	11.2	12.1	13.1	91.0	12.9	11.8	10.9	10.0
10.5	11.3	12.2	13.2	91.5	13.0	11.9	11.0	10.1
10.6	11.4	12.3	13.4	92.0	13.1	12.0	11.1	10.2
10.7	11.5	12.4	13.5	92.5	13.3	12.1	11.2	10.3
10.8	11.6	12.6	13.6	93.0	13.4	12.3	11.3	10.4
10.9	11.7	12.7	13.7	93.5	13.5	12.4	11.4	10.5
11.0	11.8	12.8	13.8	94.0	13.6	12.5	11.5	10.6
11.1	11.9	12.9	13.9	94.5	13.8	12.6	11.6	10.7

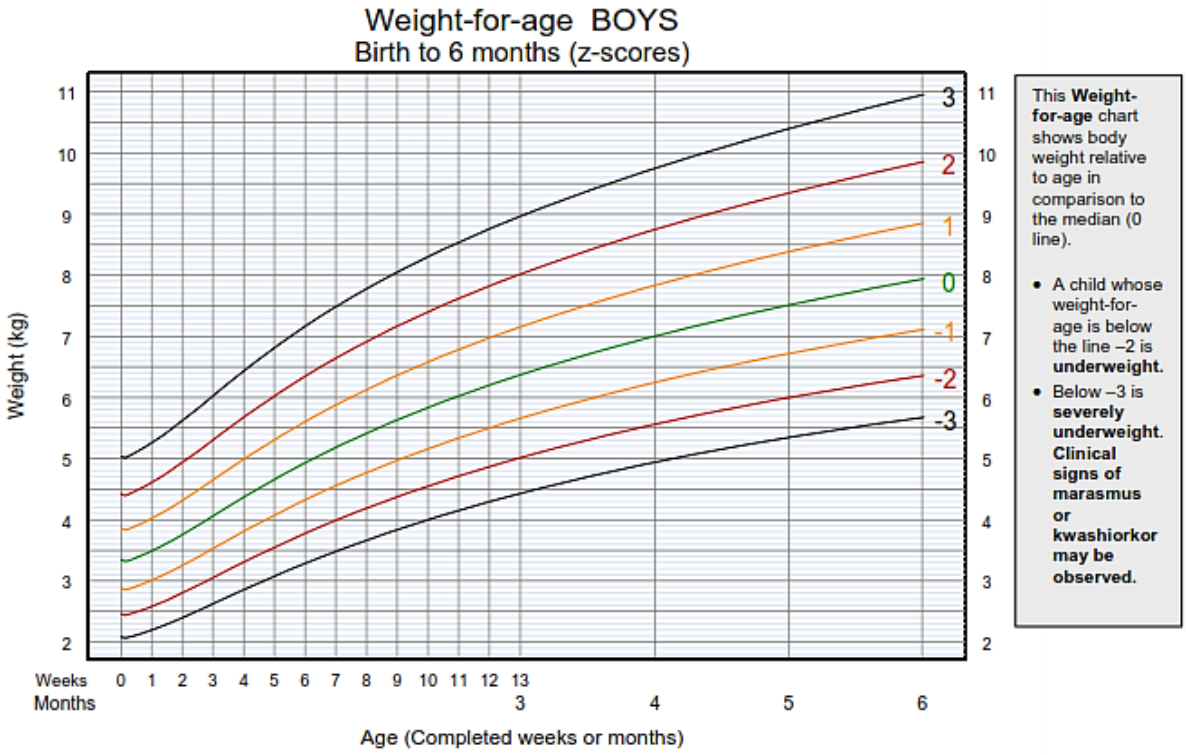
Boys				Height	Girls			
-3 Z	-2 Z	-1 Z	Median	Cm	Median	-1 Z	-2 Z	-3 Z
11.1	12.0	13.0	14.1	95.0	13.9	12.7	11.7	10.8
11.2	12.1	13.1	14.2	95.5	14.0	12.8	11.8	10.8
11.3	12.2	13.2	14.3	96.0	14.1	12.9	11.9	10.9
11.4	12.3	13.3	14.4	96.5	14.3	13.1	12.0	11.0
11.5	12.4	13.4	14.6	97.0	14.4	13.2	12.1	11.1
11.6	12.5	13.6	14.7	97.5	14.5	13.3	12.2	11.2
11.7	12.6	13.7	14.8	98.0	14.7	13.4	12.3	11.3
11.8	12.8	13.8	14.9	98.5	14.8	13.5	12.4	11.4
11.9	12.9	13.9	15.1	99.0	14.9	13.7	12.5	11.5
12.0	13.0	14.0	15.2	99.5	15.1	13.8	12.7	11.6
12.1	13.1	14.2	15.4	100.0	15.2	13.9	12.8	11.7
12.2	13.2	14.3	15.5	100.5	15.4	14.1	12.9	11.9
12.3	13.3	14.4	15.6	101.0	15.5	14.2	13.0	12.0
12.4	13.4	14.5	15.8	101.5	15.7	14.3	13.1	12.1
12.5	13.6	14.7	15.9	102.0	15.8	14.5	13.3	12.2
12.6	13.7	14.8	16.1	102.5	16.0	14.6	13.4	12.3
12.8	13.8	14.9	16.2	103.0	16.1	14.7	13.5	12.4
12.9	13.9	15.1	16.4	103.5	16.3	14.9	13.6	12.5
13.0	14.0	15.2	16.5	104.0	16.4	15.0	13.8	12.7
13.1	14.2	15.4	16.7	104.5	16.6	15.2	13.9	12.8
13.2	14.3	15.5	16.8	105.0	16.8	15.3	14.0	12.9
13.3	14.4	15.6	17.0	105.5	17.0	15.5	14.2	13.0
13.4	14.5	15.8	17.2	106.0	17.1	15.6	14.3	13.1
13.5	14.7	15.9	17.3	106.5	17.3	15.8	14.5	13.3
13.7	14.8	16.1	17.5	107.0	17.5	15.9	14.6	13.4
13.8	14.9	16.2	17.7	107.5	17.7	16.1	14.7	13.5
13.9	15.1	16.4	17.8	108.0	17.8	16.3	14.9	13.7
14.0	15.2	16.5	18.0	108.5	18.0	16.4	15.0	13.8
14.1	15.3	16.7	18.2	109.0	18.2	16.6	15.2	13.9
14.3	15.5	16.8	18.3	109.5	18.4	16.8	15.4	14.1
14.4	15.6	17.0	18.5	110.0	18.6	17.0	15.5	14.2
14.5	15.8	17.1	18.7	110.5	18.8	17.1	15.7	14.4
14.6	15.9	17.3	18.9	111.0	19.0	17.3	15.8	14.5
14.8	16.0	17.5	19.1	111.5	19.2	17.5	16.0	14.7
14.9	16.2	17.6	19.2	112.0	19.4	17.7	16.2	14.8
15.0	16.3	17.8	19.4	112.5	19.6	17.9	16.3	15.0
15.2	16.5	18.0	19.6	113.0	19.8	18.0	16.5	15.1
15.3	16.6	18.1	19.8	113.5	20.0	18.2	16.7	15.3
15.4	16.8	18.3	20.0	114.0	20.2	18.4	16.8	15.4
15.6	16.9	18.5	20.2	114.5	20.5	18.6	17.0	15.6
15.7	17.1	18.6	20.4	115.0	20.7	18.8	17.2	15.7
15.8	17.2	18.8	20.6	115.5	20.9	19.0	17.3	15.9
16.0	17.4	19.0	20.8	116.0	21.1	19.2	17.5	16.0
16.1	17.5	19.2	21.0	116.5	21.3	19.4	17.7	16.2
16.2	17.7	19.3	21.2	117.0	21.5	19.6	17.8	16.3
16.4	17.9	19.5	21.4	117.5	21.7	19.8	18.0	16.5
16.5	18.0	19.7	21.6	118.0	22.0	20.0	18.2	16.6
16.7	18.2	19.9	21.8	118.5	22.2	20.1	18.4	16.8
16.8	18.3	20.0	22.0	119.0	22.4	20.3	18.5	16.9
16.9	18.5	20.2	22.2	119.5	22.6	20.5	18.7	17.1
17.1	18.6	20.4	22.4	120.0	22.8	20.7	18.9	17.3

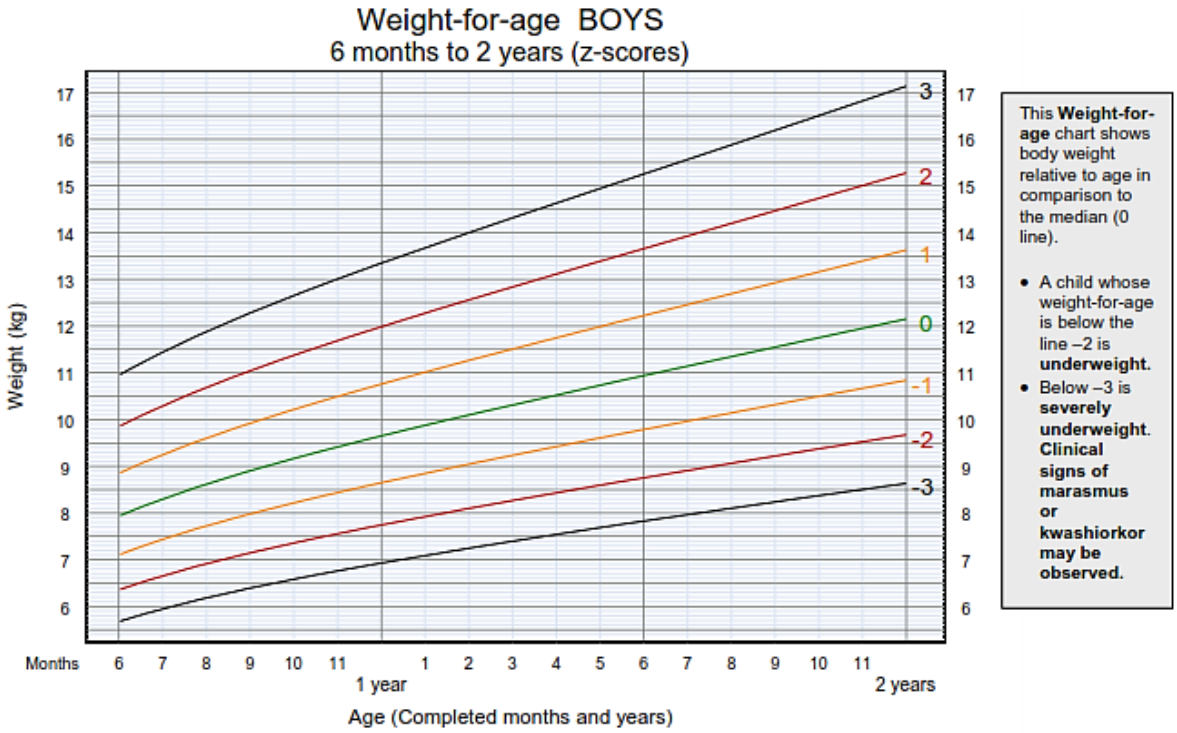
Annex 1-11: Weight-for-Age (Girls Birth to 5 Years)





Annex 1-12: Weight-for-Age (Boys Birth to 5 Years)





2 Community Outreach

The community outreach component focuses on the community sensitisation, mobilisation, active case finding, referral, follow-up, and counselling. Community outreach targets infants and children 0–15 years, pregnant and lactating women (up to 6 months postpartum).

For infants < 6 months, it can be difficult to assess acute malnutrition in the community. Infants who show visible signs of severe wasting, have recent weight loss or failure to gain weight based on their growth chart, difficulty with or ineffective breastfeeding, or bilateral pitting oedema should be referred to the health facility for further examination.

2.1 Aims of Community Outreach

1. Empowering the community and facilitating ownership of CMAM services.
2. Increasing access to and uptake (coverage) of CMAM services through improved community awareness.
3. Ensuring there is early case detection referral and follow up.
4. Strengthening the capacity of the community to manage acute malnutrition through: prevention, early case finding, referral, and follow-up of 'at-risk' cases, such as absentees, defaults, and those who fail to respond to treatment.
5. Strengthening accountability of the district health management team (DHMT), area and village health committees, health centre management committees, and stakeholders for the sustainability and ownership of CMAM services.

2.2 Roles of Service Providers in Community Outreach

Community-based Volunteer (e.g., Care Group or other Health Volunteer)

- Conducts community sensitisation and mobilisation activities
- Conducts nutrition assessments using MUAC
- Checks for the presence of bilateral pitting oedema
- Assesses infants using visible signs of undernutrition such as bilateral pitting oedema, visible wasting; weight loss or failure to grow (using the growth charts); or infants who have difficulty with or ineffective breastfeeding
- Refers identified cases of acute malnutrition to the health facility for further assessment and action
- Conducts follow-up visits to monitor children enrolled in OPT and SFP
- Conducts follow-up visits to pregnant and lactating women who are enrolled in the SFP
- Conducts follow-up visits to monitor infants 0–6 months who are discharged from inpatient care
- Reports deaths of children in the CMAM programme to the health facility
- Compiles monthly outreach activity reports, including screening forms

Health Surveillance Assistant (HSA)

- Organises community sensitisation and mobilisation activities
- Conducts nutritional assessment using MUAC and bilateral pitting oedema screening at the GMP and other community-based health and nutrition activities

- Assesses infants using visible signs of undernutrition such as bilateral pitting oedema, visible wasting; weight loss or failure to grow (using the growth charts); or infants who have difficulty with or ineffective breastfeeding
- Assigns children who need monitoring and follow-up to volunteers
- Supports and supervises community activities conducted by volunteers
- Links at-risk children to other available services through multi-sectoral collaboration
- Provides primary health care services to prevent illness and promote good health
- Compiles monthly outreach activities reports, including screening reports, and submits them to appropriate offices
- Performs the duties of the community volunteer in areas where there are no volunteers

Facility-based Health Worker

- Assesses children referred from communities
- Admits or refers acutely malnourished children to the appropriate services (NRU, OTP, or SFP)
- Assigns patients to volunteers for monitoring and follow-up
- Monitors the activities of the volunteers
- Compiles monthly outreach activities reports, including screening reports, and submits them to appropriate offices
- Conducts community mobilisation activities

NOTE: Support should be sought from other players in the community, such as the government line ministries, NGOs, civil society organisations, local leaders, political leaders, community child care groups, community-based organisations/faith-based organisations (CBO/FBOs). Multi-sectoral collaboration at all levels is very important for communities.

2.3 Stages of Community Outreach

Stage 1: Community Assessment

Community assessment is the first step of community outreach. The assessment is crucial in determining factors that are likely to impact both service delivery and demand for services. The community assessment should be coordinated by the senior HSA and health facility CMAM focal person, working in close collaboration with the Area Nutrition Coordination Committee (ANCC) and Village Nutrition Coordination Committee (VNCC). The ANCC should play a supervisory and coordination role.

The objective of the assessment is to answer two main questions:

1. What aspects are likely to affect demand for CMAM in the community?
2. How can community outreach be organised to meet this demand most effectively?

The following steps should be followed during a community assessment:

- Look for local terms for malnutrition, perceived causes, and common local solutions.
- Engage with the community in a participatory discussion to:
  - Share data on acute malnutrition, whether from routine facility data or recent nutrition surveys.
  - Explain the size of the malnutrition problem.
  - Discuss the causes of malnutrition and possible solutions in the community.
- Identify key community leaders, elders, and other influential people.

- Gather information on ethnic groups and the most vulnerable groups.
- Identify existing community structures and CBOs or care groups.
- Identify formal and informal communication channels that are known to be effective.
- Identify barriers and enablers to health, including attitudes, and health-seeking behaviours.
- Identify available child care services and resources.

Stage 2: Formulation of the Health Facility Community Outreach Action Plan

After conducting the community assessment, the senior HSA and the CMAM focal team (composed of HSAs, a clinician, a nurse, the facility supervisor, and OTP and SFP focal persons), the ANCC, and the VNCC should follow the steps below in developing the health facility community outreach plan:

- Identify the best mechanisms for community outreach and mobilisation, such as the volunteers who are most respected in the community and can conduct screening (e.g., care group volunteers, and mothers support groups).
- Ensure community care groups are actively engaged.
- Organise a meeting with community organisations (e.g., the Area Development Committee (ADC), Village Development Committee (VDC), Community Leaders for Action on Nutrition (CLAN), Health Advisory Committee (HAC), Community Advisory Group (CAG)) to ask for their continued support for CMAM services.
- Agree on the relevant groups and organisations that will be involved in CMAM and define how the support will be structured.
- Develop clear definitions of roles and responsibilities for the people who will be involved in community outreach and mobilisation activities.
- Develop a detailed training plan for the key community members who are involved in CMAM.
- Hold monthly meetings for the senior HSA, CMAM focal team, and the ANCC to address concerns, maintain changes in behaviour, and share success stories.

Stage 3: Developing Key Messages and Materials

Tools and locations for providing essential information about CMAM service aims, methods, and stakeholders include handbills (letters), local radio, churches, mosques, and meetings with community and religious leaders. Communities must know about CMAM services for acute malnutrition, in particular, including the objective of the services, who is eligible, where the services are located, how they benefit the community overall, and that the services are provided for free.

The senior HSA, with support from the CMAM focal team, should:

- Develop handbills (letters) and other relevant materials for criers, word of mouth, community radio stations, etc., to provide information about CMAM services to the community.
- Develop an orientation and dissemination plan on community mobilisation for key stakeholders that outlines when each activity will be done, where it is going to be conducted, who will lead the team, and who will be involved (e.g., frontline workers, the VNCC, community volunteers, HSAs or other support staff, managers, and supervisors).
- Ensure that the orientation and dissemination plan includes community-specific CMAM messages and other health and nutrition behaviour change messages (see *Annexes 1-1* and *1-2*) that are targeted at key members of the community: opinion leaders, mothers, other family members, and care providers.

Stage 4: Community Mobilisation and Training

Community mobilisation aims to raise awareness of CMAM services, promote understanding of its methods, and lay the foundation for community ownership in the future. Training should target community volunteers, including care group volunteers, GMP volunteers, and any other health volunteers.

The training conducted by HSAs should cover the following:

- The aim of CMAM and the target population
- The different forms of malnutrition, their causes, and identification and treatment of malnutrition
- Hands-on practice with measuring MUAC and classifying nutritional status (see *Annex 1-4*)
- Hands-on practice with assessment of bilateral pitting oedema (see *Annex 1-5*)
- A discussion of case-finding strategies, which may include:
    - House-to-house visits
    - Screening of children during child health days and GMP
    - Screening at community meetings, school, market days, and churches
- A discussion on how to use the community volunteer referral slip in *Annex 2-3*
- A discussion on how to use the home visit checklist in *Annex 2-4*
- A discussion on the community outreach action plan developed in Stage 2
- A discussion on the CMAM messages developed in Stage 3 and the channels that will be used for message delivery

Stage 5: Case Finding and Referral of New Cases

The following strategies should be used to identify and refer malnourished children:

- House-to-house visits by volunteers, care group mothers, or community health workers
- Screening during child health days, growth monitoring, and at health facilities
- Screening at community meetings, schools, and other available venues
- Self-referrals from the communities as community members become more aware of acute malnutrition and the programme gains acceptance by the community
- Screening at other NGO community activities and services

Conduct community-level case finding or screening using MUAC tapes and assessment of bilateral pitting oedema.

- Measure the MUAC of all children 6 months–15 years of age, all pregnant women, and lactating women (up to 6 months postpartum)
- Check for bilateral pitting oedema in all children 0–15 years of age**.**
- Record the information on the community screening form. See *Annex 2-1*.

Refer the following children, and pregnant and lactating women to the nearest health facility for further assessment.

- All infants (0–6 months) who have visible signs of undernutrition such as bilateral pitting oedema, visible wasting, weight loss and failure to grow (based on child growth chart), or have difficulty with or ineffective breastfeeding
- All children 6–59 months with MUAC < 12.5 cm and/or bilateral pitting oedema

- All children 5–9 years with MUAC < 14.5 cm and/or bilateral pitting oedema
- All children 10–15 years with MUAC < 18.5 cm and/or bilateral pitting oedema
- All pregnant women and lactating women (up to 6 months postpartum) with MUAC < 22.0 cm

Always use a referral slip to refer the children, pregnant and lactating women. See Annex 2-3 for referral slip.

Follow-Up and Counselling of Children with SAM and MAM

Children in treatment for SAM and MAM should be monitored to ensure sustained improvement of their condition.

Children with SAM and MAM require follow-up visits in their homes because they are at increased risk of death or developing other serious illnesses. Follow-up home visits are critical for children who:

- Are losing weight, have static weight, or whose medical condition is deteriorating
- Are not responding to treatment
- Have caregivers who have refused inpatient care for them
- Have been absent or defaulting
- Are infants 0–6 months of age and who have been discharged from SAM inpatient care after recovery

The clinician and the HSA should determine the need for follow-up and discuss such cases with community volunteers and the caregiver. Community volunteers should be encouraged to attend clinics when OTP and SFP are conducted so that they know which children have been identified as needing follow-up.

Children in CMAM should be linked with community volunteers. Community health workers (CHW) conduct home visits and ensure that children with SAM are identified and referred for treatment. CHW also provide feedback to health facilities on problems related to children's home environment. See *Annex 2-4* for the home visit checklist. CHW should also provide health and nutrition counselling to the caregivers of children in CMAM.

Children discharged from CMAM should be monitored through regular community-based screening and growth monitoring promotion for any recurrence of malnutrition.

Stage 7: Linking With Other Community Services, Programmes, and Initiatives

Identify and link children who are being discharged from CMAM to programmes that prevent malnutrition such as:

- Care groups
- Community-based GMP
- Positive deviance models (PD Hearth)
- Cash transfer projects
- Community complementary feeding and livelihood support (CCFLS)
- School health and nutrition
- Targeted farm input programme

Children and caregivers should also be linked to other community health, social protection, or livelihood services/programmes in the area that may complement CMAM. These could include programmes run by NGOs or CBOs or other government initiatives.

Stage 8: Continued Community Mobilisation and Training (Follow-up to Stage 4)

Community mobilisation is an ongoing activity, not a one-time event. Community engagement should be continuously reinforced to create demand for CMAM services and ensure effective service coverage. Community mobilisation should be seen as a process of constant dialogue in which communities can periodically voice their views and suggest alternative courses of action.

Annex 2-1: Community Volunteer Screening Form

Tsiku lotumizidwa	Dzina la Mwana / Mayi amene atumizidwa kuchipatala	Zaka	Mwana wamwamuna/ wamkazi	Dzina la Mudzi	T/A	Chifukwa chowatumizira kuchipatala 1. Otupikana 2. MUAC <12.5cm (Ana ochepela zaka 5) 3. MUAC < 14.5 cm (Ana azaka 5 mpaka 9) 4. MUAC < 18.5 cm (Ana azaka 10 mpaka 15) 5. MUAC <22cm (Amayi) 6. Ana onyentchela (ochepela miyezi 6)	Zotsatira 1. Alembedwa mu SFP 2. Alembedwa mu OTP 3. Agonekedwa mu NRU 4. Ali ndi nthanzi labwino

Ana ndi Amayi amene ayezedwa_____

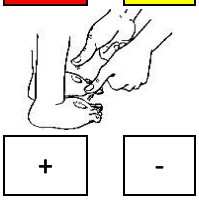
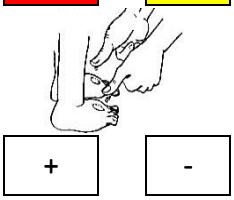
Ana ndi Amayi amene atumizidwa kuchipatala_____

Annex 2-2: Community Volunteer Screening Report Form

Ana ndi amayi omwe atumizidwa ku chipatala (Total number referred)	
Dzina la oyeza mwana (Name of screener)	
Dzina la mudzi (Name of village)	
Mwezi ndi chaka (Month and Year)	

	Ana ochepera miyezi 6 (Infants <6months)	Ana a miyezi 6 mpaka zaka 15 (Children 6 months to 15 years)					Amayi oyembekezela kapena oyamwitsa	
							Oyembekezela	Oyamwitsa
		MUAC <11.5cm	MUAC 11.5 - 12.5cm	MUAC <14.5cm	MUAC <18.5cm	Otupikana (Oedema)	MUAC <22.0cm	MUAC <22.0cm
Onse (Total)								
Ana ndi amayi omwe ayezedwa mwezi uno (Total number of children and women screened this month)								

Annex 2-3: Community Volunteer Referral Slip

KALATA YOTUMIZILA (Referral Stub)	KALATA YOTUMIZIRA KU CHIPATALA (Referral Slip to Health Centre)
Sungani gawo ili	(Perekani gawo ili kwa osamalila odwala)
Tsiku :	Tsiku:
Dzina la osamalira odwala:	Dzina la Odzipereka:
Dzina la mwana:	Dzina la osamalira odwala:
Mfumu Yaikulu:	Dzina la mwana:
Mudzi:	Mfumu Yaikulu:
Dela:	Mudzi:
Zaka: Wamkazi Wamwamuna	Dela:
	Zaka: Wamkazi Wamwamuna
MUAC 	MUAC 
Kutupikana 	Kutupikana 
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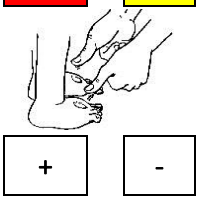
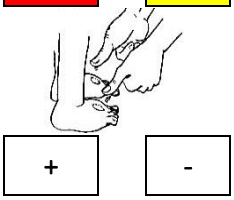
KALATA YOTUMIZILA (Referral Stub)	KALATA YOTUMIZIRA KU CHIPATALA (Referral Slip to Health Centre)
Sungani gawo ili	(Perekani gawo ili kwa osamalila odwala)
Tsiku :	Tsiku:
Dzina la osamalira odwala:	Dzina la Odzipereka:
Dzina la mwana:	Dzina la osamalira odwala:
Mfumu Yaikulu:	Dzina la mwana:
Mudzi:	Mfumu Yaikulu:
Dela:	Mudzi:
Zaka: Wamkazi Wamwamuna	Dela:
	Zaka: Wamkazi Wamwamuna
MUAC 	MUAC 
Kutupikana 	Kutupikana 
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Annex 2-4: Home Visit Checklist

Volunteer / Outreach Worker's Name:		
Date of Visit:		
Child's Name:		
Feeding		
Is the ration of RUTF/CSB+ or CSB++ present in the home?	Yes	No
If not, where is the ration?		
Is the available food ration enough to last until the next OTP/SFP session?	Yes	No
Is the food ration being shared or eaten only by the sick child?	Shared	Sick child only
Is food other than RUTF/CSB+ or CSB++ given to the sick child?	Yes	No
If yes, what type of food? (List the foods)		
How many times per day is the sick child given RUTF/CSB+ or CSB++?		
How many times per day is the sick child given food to eat?		
Does someone help/encourage the sick child to eat?	Yes	No
What does the caregiver do if the sick child does not want to eat? • Encourage ☐ • Take the child to the hospital or seek health workers' advice ☐ • Feeding the child in small amounts but more often ☐ • None of the above ☐		
Is the child currently breastfeeding? (for children < 2 years)	Yes	No
If yes, how often		
Is safe water available?	Yes	No
Is water given to the child when eating RUTF?	Yes	No
Caring		
Are both parents alive and healthy?	Yes	No
Who is the primary care giver?		
Is the sick child clean?	Yes	No
Health		
What is the household's main source of water?		
Is there soap in the house?	Yes	No
Do the caregiver and child wash hands with soap before the child is fed?	Yes	No
Is food/RUTF covered and free from flies?	Yes	No
What action does the caregiver take when the child has diarrhoea? • Increases breastfeeding frequency ☐ • Increases amount of other fluids ☐ • Continue giving the child frequent amounts of RUTF or other foods ☐ • If child shows signs of dehydration, mother continues breastfeeding, giving ORS, and seeking immediate medical care ☐ • None of the above ☐		
Food Security		
Does the household currently have food available?	Yes	No
What is the most important source of income for the household?		

3 Supplementary Feeding Programme (SFP)

Supplementary feeding programmes (SFP) provide support to children (0–15 years) and pregnant and lactating women (up to 6 months postpartum), including:

- Children with MAM, good appetite, and no medical complications
- Children discharged from inpatient care after recovery from SAM
- All pregnant women with a MUAC < 22.0 cm
- Lactating women (up to 6 months postpartum) with a MUAC < 22.0 cm
- Lactating mothers and infants 0–6 months who have been discharged from the NRU

3.1 Aims of SFP

- Treat MAM
- Prevent SAM from occurring
- Support individuals who are recovering from SAM to prevent relapses

At SFP, patients receive take-home rations of fortified blended flour such as Supercereal plus (CSB++) and Supercereal (CSB+) to supplement energy and nutrients that may be insufficient in their home diet.

SFP is normally implemented at the same site as the NRU and OTP programmes to facilitate referral among the four components of CMAM. Where necessary (considering distance and level of malnutrition), an outreach SFP service may be established in consultation with the district nutritionist.

3.2 Roles and Responsibilities of SFP Service Providers

Clinician or Nurse

- Does triage for all cases presenting at the health facility
- Supervises the SFP
- Conducts the medical assessment and refers immediately for further medical care, if needed
- Administers routine medication to the patient in the SFP

Assistant Environmental Health Officer, Health Surveillance Assistant, Home Craft Worker, or other Health Assistant

- Assists clinician and nurse with triage
- Assesses nutritional status of the patients (weight, height, MUAC, WFH/L, and bilateral pitting oedema)
- Records information on nutritional status in the health passport
- Admits patients according to the admission criteria
- Explains MAM management to the mother/caregiver
- Manages food and non-food items (stock control)
- Provides immunizations whenever needed
- Organises and gives health and nutrition education/counselling and cooking demonstrations
- Registers children and applies the criteria for admission, discharge, and failure to respond to treatment

- Identifies absentees and defaulters and informs community volunteers
- Prepares the monthly reports
- Distributes the SFP ration to children/caregivers and pregnant and lactating woman
- Discharges children and mothers from the SFP

Community Volunteer

- Assists clinician and nurse with triage
- Assists with assessing the nutritional status of patients referred from the community by:
  - Measuring the patients' weight, length, MUAC
  - Assessing for bilateral pitting oedema
- Assists with recording weight, height, MUAC, WFH/L, and bilateral pitting oedema information in the patient's health passport
- Assists with providing health and nutrition education
- Follows up children who need special attention
- Tracks defaulters and encourage them to come back
- Helps distribute SFP rations

3.3 Admission Criteria

Table 6: SFP Admission Criteria

Children 6–59 Months	Children 5–15 Years	Pregnant Women and Lactating Women up to 6 Months Postpartum
MUAC: 11.5–12.5 cm WFH -3 to -2 Z scores No bilateral pitting oedema **WITH** No medical complications Child clinically well and alert **AND** All children discharged from SAM treatment in the OTP or NRU	MUAC: 5–9 years: 13.0–14.5 cm 10–15 years: 16.0–18.5 cm No bilateral pitting oedema **WITH** No medical complications Child clinically well and alert **AND** All children discharged from SAM treatment in the OTP or NRU	MUAC < 22.0 cm Mother is successfully breastfeeding Mothers of infants 0–6 months who was admitted to inpatient care when: • Infant is 0–6 months (and has been discharged from NRU) • Mother is successfully breastfeeding ***NOTE:*** *Infants 0–6 months should not be provided with supplementary food. The ration is given to supplement the diet of the breastfeeding mother*

Note: Refer all **HIV-positive children** with the above criteria to OTP.

3.4 Admission Procedure

Welcome the child and caregiver at the health facility and inform them about the SFP admission criteria and procedure.

STEP 1: Triage for Very Sick Children

- A trained clinician or nurse should do the triage with the assistance of an HSA, and a trained volunteer.
- Identify and refer very sick children for assessment and management before health education sessions are conducted.

STEP 2: Take Anthropometric Measurements

An HSA or trained volunteer should take the anthropometric measurements (two people are needed to take anthropometric measurements for one child—one to hold the child properly and the other to record the measurements).

- Measure MUAC and record the measurement (see *Annex 1-4*).
- Check for bilateral pitting oedema and record the finding (see *Annex 1-5*).
- Measure weight and record (see *Annex 1-6*).
- Measure height or length and record (see *Annex 1-7*).
- Determine WFH/L z-score using the reference charts (see *Annexes 1-9* and *1-10*).

STEP 3: Conduct an HIV Test

- Offer HIV testing services to all children and pregnant and lactating women in SFP.
- If HIV test results are positive for children 6 months–15 years, refer them to the OTP[1].
- If HIV test results are positive for a pregnant or lactating woman, immediately link the woman to HIV treatment and care. Refer to the current *Malawi Guidelines on Clinical Management of HIV in Children and Adults* for details on the eligibility for starting ART.

STEP 4: Conduct Medical Assessment

The child's medical condition must be assessed by a trained clinician or nurse upon admission. The clinician should do the following:

- Take the medical history and record it in the health passport.
- Check immunisation status in the health passport. If required immunisations have not been given, refer the child for immediate immunisation or provide them onsite.
- Conduct a physical examination and record it in the health passport.
- Explain the findings of the assessment to the caregiver.

STEP 5: Management of a Child in SFP

If the patient has MAM with no medical complications, and he/she has a good appetite, the medical assistant should admit the patient to the SFP. The following should be done:

- Explain to the caregiver the principles of treatment in SFP, any action taken, and advice for home care.

[1] HIV infection can alter the way the body absorbs and uses nutrients, increase energy and nutrient needs, and increase nutrient losses. It is important, therefore, that HIV-positive children with MAM are referred to the OTP.

- Assign an SFP registration number if the patient is a new admission.
- Give routine medications according to the protocol:
    - Vitamin A
    - Albendazole
    - Iron and folic acid
- Check immunisation status. If required immunisations have not been given, refer the child for immediate immunisation or provide them onsite.
- Explain the nutritional care in the SFP to the caregiver and deliver appropriate health, nutrition, and hygiene messages (see *Annex 1-1* and *1-2*).
- Complete the SFP monitoring card (see example in *Annexes 3-1* and *3-2*).
- Decide which SFP admission entry category to assign to the child (see Table 7 below for details).
- Register the patient in the registration book.
- Record the child's information in the health passport.
- Assign the child a community-based service provider who will follow up the child.
- Explain to the caregiver that the child should attend the SFP every 2 weeks for nutritional assessment and to receive a supplementary food ration.
- Advise the caregiver to seek medical care at the nearest health facility immediately if the child refuses to eat food or becomes ill while at home.

Table 7. SFP Admission Entry Categories

Category	Definition
New Admission	• New cases of children 6–59 months and 5–15 years, classified according to MUAC or WFH/L • Pregnant and lactating women who meet the admission criteria indicated in Table 6 • Relapse cases, (considered to be new cases, since they were treated successfully before and now have a new episode of MAM)
Returns and Transfers	• Returning defaulter (patients who left the programme before ending the treatment and return to continue their treatment for the same episode) • Transferred from NRU, OTP, or from another SFP; transfers from another health facility are not counted as new admissions since they are already enrolled in the programme

3.5 Medical Treatment in SFP

Give routine medicines and a supplementary food ration. Ensure that the child and mother are linked with other health and nutrition interventions, such as immunisations, antenatal care, and post-natal care. Provide breastfeeding and complementary feeding counselling and support.

STEP 1:

- Always check the health passport for immunisation status.
- Administer the age-appropriate vaccine to all children who have not been fully immunised.
- Administer tetanus vaccine to all pregnant women who have not gotten the tetanus vaccine.
- Always advise patients to use insecticide-treated bed nets to prevent malaria.

STEP 2:

Administer the routine SFP drugs to children only. Routine treatment should not be given to pregnant or lactating women; refer all pregnant and lactating women to the antenatal or postnatal clinic.

Vitamin A Supplementation

On admission, check the health passport and/or ask the mother if the child has received vitamin A in the last 6 months. If not, give as shown in Table 8 below.

Table 8. Vitamin A Supplementation

Age	Vitamin A IU (µg) (Given Orally on Admission)
6–11 months	100,000 IU (30,000 µg)
12 months–15 years	200,000 IU (60,000 µg)

Deworming Treatment (Anti-helminth)

Albendazole or Mebendazole should be given routinely to all children over 12 months (> 1 year). See Table 9 below.

Table 9. Anti-helminth

AGE	ALBENDAZOLE*	MEBENDAZOLE*
< 12 months	None	None
12–23 months	200 mg single dose	100 mg twice daily for 3 days
24–59 months	400 mg single dose	100 mg twice daily for 3 days

* Repeat after 6 months.

Iron plus Folic Acid Supplementation

Administer iron plus folic acid at each fortnightly visit, as shown in Table 10 below.

Table 10. Iron and Folic Acid Supplementation

WEIGHT	DOSAGE
< 10 kg	1 tablet every 2 weeks
> 10 kg	2 tablets every 2 weeks

3.6 Nutrition Treatment in SFP

Supplementary Ration

Give a take-home ration of Supercereal Plus (CSB++) to children 6-59 months with MAM.

Give *Likuni Phala* (CSB+) and vegetable oil to children 5–15 years, and pregnant or lactating women. It is not recommended to give CSB+ and vegetable oil to MAM children 6–59 months.

Table 11. Super Cereal Plus (CSB++) Ration Size per Child (6–59 months)

Food Item	Daily Quantity	For 14 Days	Ration to Give
Supercereal Plus (CSB++)	200 g	2.8 kg	3.0 kg

Table 12. *Likuni Phala* / SuperCereal (CSB+) and Vegetable Oil Ration Size per child 5-15 years, and Pregnant/Lactating Woman

Food Item	Daily Quantity*	For 14 Days	Ration to Give*
Likuni phala (CSB+)	300 g	4.2 kg	4.5 kg
Vegetable Oil	33.33 ml	0.46 litres	0.5 litres

*Provides 1,400 kcal/person/day; 13% protein; 34% fat

STEP 1:

- Conduct health, nutrition, and hygiene education.
- Explain to the caregiver the following:
  - If the child is breastfeeding, she should continue to breastfeed on demand
  - How the child's nutritional status has progressed (during each visit to the SFP)
  - The amount of supplementary food to give to the child every day for the 2-week period
  - That the ration is intended for the malnourished child only and should not be shared

STEP 2:

- Conduct a cooking demonstration for new caregivers (see Figure 3).
- Explain how to prepare porridge for one child.

STEP 3:

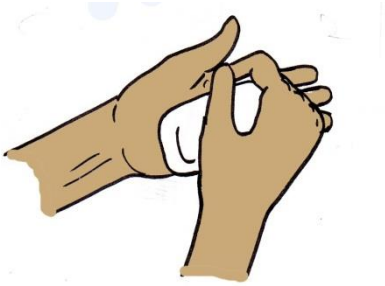
- Distribute a fortnightly (2 week) ration to the caregiver (see Tables 11 and 12 for the ration sizes).

Figure 3. Preparation of Porridge Using CSB++ or CSB+

- Wash hands thoroughly using soap, if available.

Step 1:

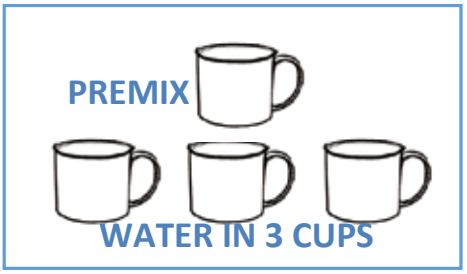
Step 2:



Step 3:

Step 4:

- Add water to the premix.
- Add 1 part/volume (e.g., cup) of premix to 3 parts/volume (e.g., cups) of water.
- Boil for 15 minutes and simmer for 5 minutes.
- Serve warm.



3.7 Monitoring during SFP Follow-Up Visits

Individual monitoring of children and pregnant and lactating women in SFP should be carried out by the HSA or SFP focal person every 2 weeks upon return to the health facility. The following parameters are monitored and recorded on the treatment chart during the follow-up visit:

Anthropometry

- Take MUAC and weight measurements of children at each distribution visit and on discharge (see *Annexes 1-4* and *1-6*).
- Check for oedema at each distribution (see *Annex 1-5*).

- Measure height or length once a month (see *Annex 1-7*).
- Determine WFH/L z-score (see *Annexes 1-9* and *1-10*).
- Take MUAC of pregnant and lactating women at each distribution visit.
- Assess nutritional status for possible discharge or referral to other services, at each visit.

Check to see whether the child is progressing normally or requires further referral and treatment. Conduct another thorough medical review if the child has:

- Not gained weight for three consecutive visits or after 5 weeks of treatment
- Lost weight for two consecutive visits
- Developed bilateral pitting oedema (if the child has bilateral pitting oedema, he/she has SAM and requires care in the OTP)
- Any illness (e.g., diarrhoea) that requires further medical treatment

Record Follow-Up Visit Information

- Record anthropometric data on the SFP monitoring card.
- Record routine medications given (i.e. vitamin A, Albendazole/Mebendazole and iron plus folic acid).
- Review vaccination status of the child or pregnant or lactating woman.

At the end of each SFP session, all of the SFP records should be reviewed to ensure that beneficiaries are being discharged appropriately (see Table 13 for discharge categories).

The records should be checked so as to ensure that:

- Beneficiaries who have been cured were discharged appropriately.
- Beneficiaries who were absent for two consecutive visits were discharged as defaulters.
- Beneficiaries who did not achieve the discharge criteria within 3 months were discharged as non-cured.
- At the end of every SFP follow-up visit, the health care provider indicates follow-up actions on the treatment chart (e.g., home visits for children requiring special attention)
- At each SFP follow-up visit, the caregiver or pregnant or lactating mothers were informed of their progress, and individual and/or group counselling was provided, including health and education messages on hygiene, sanitation, breastfeeding, and appropriate complementary foods.

Home Visits for Children Requiring Special Attention

- The senior HSA or SFP focal person should assign an HSA, care-group volunteer, or other community volunteer to each child admitted to the SFP.
- The assigned HSA or volunteer should visit patients at their homes between their 2-week visits to check the child's health and the caregiver's compliance with treatment.
- The HSA should prioritise home visits for children who require special attention. Children should be prioritised if they are:
    - Losing weight or have static weight
    - Absent or defaulting
- Community-based volunteers should record information from follow-up visits in a register or record book and report the results to the responsible health worker at the SFP.

3.8 Health, Nutrition, and Hygiene Messages in the SFP

Upon Admission

- Provide messages on the use of medicines and supplementary food at home, including:
    - Always breastfeed first
    - How to prepare the supplementary food
    - How often to feed the child
    - When and how to give the medicines to the child
    - When to return to the SFP
    - That the child should be brought to the health facility immediately if his/her condition deteriorates
- Ask the caregiver to repeat the messages to be sure the messages were understood.

At Follow-Up Visits

- Provide individual counselling to caregivers on the nutritional and medical progress of their children.
- Provide counselling on breastfeeding, complementary feeding, nutritional care for sick children, hygiene, health-seeking behaviours, and other relevant topics, as appropriate (see *Annexes 1-1* and *1-2*).
- If there are more than five cases at a given session, provide group health and nutrition education during the waiting time for outpatient care sessions. Refer to the infant and young child feeding messages.

3.9 Discharge Criteria

Table 13. SFP Discharge Criteria

Children 6–59 Months Old	Children 5–15 Years Old	Pregnant and Lactating Women
MUAC ≥ 12.5 cm **AND** WFH/L z-score ≥ -2 **AND** No bilateral pitting oedema **AND** Clinically well and alert for two consecutive visits	MUAC: 5–9 years: ≥ 14.5 cm 10–15 years: ≥ 18.5 cm **AND** No bilateral pitting oedema **AND** Clinically well and alert for two consecutive visits	MUAC ≥ 22.5 cm for two consecutive visits **OR** Infants reaches 6 months of age and infant's WFH/L ≥ -2
Other Discharge Criteria • **Defaulted**: Absent for two consecutive visits • **Died:** Child died during the time registered in the SFP. • **Non-cured**: Child has not met the cure criteria after 3 months in the SFP. • **Referred to OTP/NRU**: Child's condition has deteriorated and is referred to OTP/NRU for further medical investigations and care. • **Transfer to another SFP:** Child has been transferred for treatment in another SFP • Children 6 months–15 years referred to the SFP from the OTP or NRU should be discharged after one month of follow-up in the SFP if all indicators meet the above discharge criteria for different age categories.		

3.10 Discharge Procedure

- Give feedback to the caregiver on the final outcome of the child.
    - Record discharge weight and MUAC.
    - Check immunisation record.
- Give the final CSB++ or CSB+ ration (2-week supply).
- Record the discharge outcome in the SFP register and on the monitoring card (see Table 14 for exit categories).
- Counsel the caregiver on hygiene, sanitation, good nutrition, and cooking practices.
- Advise the caregiver to immediately go to the nearest health facility if child refuses to eat or has any of the following IMCI danger signs:
    - No appetite
    - Vomiting
    - Lethargic or unconscious
    - Convulsions
    - Bilateral pitting oedema
    - Weight loss
    - High fever
    - Diarrhoea or frequent watery or bloody stools
    - Difficult or fast breathing
- Refer the caregiver to other complementary nutrition services that are available in the area, such as community care groups or community-based GMP. These will reinforce CMAM behaviour change messages and otherwise continue to improve the child's nutritional status.
- Check the beneficiary records at the end of the SFP session to ensure that the child's outcome status is classified per exit category and clearly indicated on the SFP monitoring card.

The table below provides a summary of the exit categories.

Table 14. SFP Exit Categories

Category	Definition
Cured	Child or mother meets the discharge criteria (see Table 13).
Died	Child or mother dies while registered in the SFP.
Defaulted	Child or mother is classified as a defaulter if absent for two consecutive visits.
Non-cured	Child or mother does not meet the discharge criteria after 3 months (12 weeks) in treatment.
Referred to OTP/NRU	Child's health condition is deteriorating and he/she is referred for further care in the OTP/NRU.
Transferred to another SFP	Child has been transferred for treatment in another SFP.

3.11 Competencies and Standards for the SFP

Definition of Terms

Competency: The ability to apply knowledge and skills to produce a desired nutrition outcome (i.e. what SFP health care personnel are expected to know and be able to do).

Competency Standard: Defines the range of skills that are needed to achieve a desired nutrition outcome or competency.

Table 15. Competency Standards for SFP

Competency	Competency Standard/Tasks
1. Health care providers demonstrate the ability to admit MAM children, and pregnant and lactating women to the SFP.	HSA, nurse, clinician, or SFP focal person is able to identify the SFP admission criteria.
	HSA or volunteer is able to measure MUAC and classify the children's and mothers' nutritional status.
	HSA or volunteer is able to assess for bilateral pitting oedema and classify nutritional status.
	HSA or volunteer is able to measure children's weight.
	HSA or volunteer is able to measure children's height/length.
	HSA is able to classify children's nutritional status using WFH/L z-score
2. Health care provider demonstrates the ability to provide medical and nutrition care and treatment in the OTP.	HSA, nurse, clinician or SFP focal person is able to administer routine medication to children in the SFP.
	HSA is able to provide supplementary food to children and mothers in the SFP.
	HSA is able to provide health, nutrition, and hygiene messages to caregivers.
3. Health care provider demonstrates the ability to monitor an individual child or mother's progress over the course of treatment in the SFP.	HSA or volunteer is able to measure MUAC and classify the child's or mother's nutritional status during follow-up SFP.
	HSA or volunteer is able to assess for bilateral pitting oedema and classify nutritional status during follow-up SFP visits.
	HSA or volunteer is able to measure weight during follow-up SFP visits.
	HSA is able to conduct follow-up home visits for children and mothers who require special attention.
4. Health care provider demonstrates the ability to discharge children and mothers from the SFP	HSA, nurse, clinician, or SFP focal person is able to identify the SFP discharge criteria.
	HSA, nurse, clinician, or SFP focal person is able to take actions to discharge the child or mother from the SFP.

Annex 3-1: SFP Monitoring Card—Child

REGISTRATION NUMBER

77	88	9999	MMYY	XXX
District Code	Facility Code	Child Number	Month Year	Prog. Code

CHILD'S NAME

AGE (months)

SEX

MOTHER/CAREGIVER'S NAME

HEALTH FACILITY

REFERRED FROM

VILLAGE

ALBENDAZOLE DATE

TA

VITAMIN A DATE

DISTRICT

MEASLES VACCINE YES NO

Distribution	Date	Weight	Height	WFH/L z-score	MUAC	Iron/Folic Acid	Ration (kgs)
Admission							
2							
3							
4							
5							
Discharge							

Cured ☐ Died ☐

Defaulted ☐ Transferred ☐

Non-cured ☐

Annex 3-2: SFP Monitoring Card—Pregnant/Lactating Woman (up to 6 months postpartum)

Registration number			
Health Facility			
District			
Woman's name			
Infant's name			
Woman's age (years)			
Pregnant (months)		Lactating (months)	
Village			
TA			

Distribution	Date	MUAC	Ration	Infant weight	Infant length	Infant WFL z-score
Admission						
2						
3						
4						
5						
Discharge						

Cured		Died	
Defaulted		Transferred	
Non-cured			

Annex 3-3: SFP Register—Children

Registration Number	Name	Village	TA	Sex	Age	Re- Admit Y/N	Child Sero Status	Child started on ART Y/N

ADMISSION DETAILS							Measles vaccine Y/N	Vit A	Albend-azole	Iron/ Folic	DISCHARGE DETAILS					Outcome
Date	MUAC (cm)	Weight (kg)	Height (cm)	WFH/L z-score	Admission criteria	Target weight					Date	MUAC (cm)	Weight (kg)	Height (cm)	WFH/L z-score	

Annex 3-4: SFP Register—Pregnant/Lactating Woman (up to 6 months postpartum)

Registration Number	Name of Woman	Name of the Infant (if lactating woman)	Village	TA	PW	LW	Age	Infant age	HIV Status	Started on ART Y/N

Admission		Discharge		Length of stay	Outcome
Date	MUAC (cm)	Date	MUAC (cm)		

4 Outpatient Therapeutic Programme (OTP)

4.1 Aim of the OTP

OTP provides home-based treatment and rehabilitation for children with SAM who have an appetite and no medical complications. A trained clinician or nurse should run OTP services on a weekly basis, but sessions can be conducted every 2 weeks when:

- Poor access or long distance to the health facility increases the opportunity cost for the caregivers and prevents weekly participation.
- Seasonal factors such as the harvest or planting seasons prevent caregivers from attending weekly.

4.2 Roles and Responsibilities of OTP Staff

Clinician or Nurse

- Does triage on all cases presenting at the health facility
- Takes patients' medical history, conducts physical examinations and routine investigations, and completes the information on the OTP monitoring card
- Admits SAM children to the OTP according to the admission criteria and ensures they are recorded in the register
- Administers routine drugs
- Follows the patients every week and:
    - Records weight changes
    - Completes the medical history and physical examination sections of the OTP monitoring card during follow-up visits
    - Decides whether any further action is needed
- Diagnoses patients who have failed to respond to treatment and takes appropriate action (i.e., initiates home visits, repeats the appetite test, conducts a supervised feeding trial, and/or refers patients for in-patient treatment)
- Ensures quality of care is maintained for SAM children in the OTP
- Conducts in-service training for and supervises health facility and community service providers
- Organises monthly meetings with facility and community CMAM providers to discuss and resolve any problems
- Reviews monthly reports and data before submission to the district health office

Assistant Environmental Health Officer, Health Surveillance Assistants, Home Craft Worker, or other Health Assistant

- Assists clinician and nurse with triage
- Completes OTP registers and monitoring cards and assigns registration numbers to every child
- Assesses children referred from community outreach or the SFP by:
    - Measuring their weight, length, and MUAC
    - Assessing for bilateral pitting oedema
    - Classifying their nutritional status using WFH/L z-score, presence of bilateral pitting oedema assessment, and MUAC
- Conducts an appetite test

- Provides RUTF and informs the caregiver as to its proper use
- Provides health, nutrition, and hygiene messages to caregivers
- Assigns children to volunteers for monitoring and follow-up home visits for children who require special attention
- Supervises the activities of community volunteers
- Conducts community mobilisation activities
- Compiles OTP monthly reports and submits to clinician/nurse or facility supervisor for review
- Ensures therapeutic products and commodities needed for the following month are procured, if needed, and properly stored, distributed, and accounted for

Volunteer

- Assists clinician and nurse with triage
- Assists with assessing the nutritional status of children referred from community outreach or SFP by:
    - Measuring their weight, length, and MUAC
    - Assessing for bilateral pitting oedema
- Assists with recording weight, height, MUAC, WFH/L, and bilateral pitting oedema information in children's health passports
- Assists with providing health and nutrition education
- Follows up children who need special attention

4.3 Admission Criteria

Table 16. OTP Admission Criteria

Children 6–59 Months of Age	Children 5–15 Years of Age
MUAC < 11.5 cm WFH/L z-score < -3 Bilateral pitting oedema + or ++ **AND** RUTF appetite test passed No medical complications Child clinically well and alert **If child is HIV positive, admit to the OTP with** MUAC < 12.5 cm WFH/L z-score < -2 **AND** RUTF appetite test passed No medical complications Child clinically well and alert	MUAC: 5–9 years < 13.0 cm 10–15 years < 16.0 cm Bilateral pitting oedema + or ++ **AND** RUTF appetite test passed No medical complications Child clinically well and alert **If child is HIV positive, admit to the OTP with** MUAC: 5–9 years: 13.0–14.5 cm 10–15 years: 16.0–18.5 cm **AND** RUTF appetite test passed No medical complications Child clinically well and alert
Other reasons for OTP enrolment • Transfer from inpatient management of SAM after stabilisation treatment • Transfer from another OTP • Returned defaulter (use the previous registration number)	

NOTE: SAM infants 0–6 months, or children over 6 months weighing < 3.0 kg should be referred for inpatient care (NRU).

4.4 Admission Procedure

Welcome the child and caregiver at the health facility and inform them about the admission criteria and procedure.

STEP 1: Triage Very Sick Children

A trained clinician or nurse with the assistance of an HSA should do the triage.

- Identify and refer very sick children for assessment and management before health education sessions are conducted.
- Provide sugar water to all children to avoid hypoglycaemia. Sugar-water solution should contain approximately 10 percent sugar (10 g or one teaspoon of sugar dissolved in 100 ml) of water. If the child is breastfed, encourage the mother to breastfeed the child.

STEP 2: Take Anthropometric Measurements

An HSA or a trained volunteer should:

- Measure MUAC and record the measurement (see *Annex 1-4*).
- Check for bilateral pitting oedema and record the finding (see *Annex 1-5*).
- Measure and record weight (see *Annex 1-6*).
- Measure and record height or length (see *Annex 1-7*).
- Determine WFH/L z-score using the reference charts (see *Annexes 1-8, 1-9* and *1-10).*

STEP 3: Conduct an RUTF Appetite Test

Appetite and the ability to eat RUTF are essential for children in the OTP. If a child has no appetite, he/she will not be able to eat RUTF at home. Such a child should be referred for specialised inpatient care in the NRU.

The HSA or trained volunteers should conduct an RUTF appetite test at every visit to the OTP according to the following protocol:

- Conduct the appetite test in a quiet, separate area.
- Provide an explanation to the caregiver on the purpose and procedure of the appetite test.
- Ask the caregiver to:
    - Wash hands with soap before feeding the RUTF.
    - Sit with the child in his/her lap and gently offer the RUTF.
    - Encourage the child to eat the RUTF without force-feeding.
    - Offer plenty of clean, safe water to drink from a cup while the child is eating the RUTF.
- Give one packet of RUTF to the caregiver for the child.
- Observe the child eating the RUTF.
- Determine whether he/she passes or fails the appetite test.

Interpret the RUTF appetite test results as shown in Table 17 below.

Table 17. RUTF Appetite Test Results

Pass Appetite Test	Fail Appetite Test
The child eats at least 1/3 of a packet of RUTF (92 g).	The child does not eat at least 1/3 of a packet of RUTF (92 g).

Many children will eat the RUTF enthusiastically straight away, while others might initially refuse it. These children need to sit quietly with their caregivers in a secluded place and be given time to become accustomed to it.

STEP 4: Conduct Routine Investigations

- Test for malaria using a rapid diagnostic test (mRDT).
- Provide HIV testing services to all children with SAM and their caregivers. If the HIV test result is positive, immediately link the child to HIV treatment and care. Refer to the current *Malawi Guidelines on Clinical Management of HIV in Children and Adults* for details on the eligibility for starting ART.

STEP 5: Conduct a Medical Assessment

The child's medical condition must be assessed by a trained clinician or nurse upon admission. Results should be recorded on the OTP monitoring card (see *Annex 4-1*). The clinician should do the following:

- Take and record the medical history in the health passport and on the OTP monitoring card.
- Check immunisation status on the health passport. If scheduled immunisations have not been given, administer them or refer the child for immediate immunisation.
- Conduct a physical examination and record the findings in the health passport and on the OTP monitoring card.
- Determine whether the child needs referral to inpatient care (NRU) or treatment in the OTP.
- Explain the findings of the assessment to the caregiver.

STEP 6: Refer Children to Inpatient Care (if Appropriate)

If a child has medical complications or fails the appetite test, the clinician or nurse should immediately start life-saving treatment:

- Provide 10 percent sugar-water.
- Refer the child to the closest NRU, with the caregiver's consent.
- Record findings and the treatment given in the child's health record and/or on the referral form.
- Provide advice to the caregiver. Explain the:
    - Severity of the child's situation and the need for referral to inpatient care
    - Need to keep the child warm during transportation
    - Need to give frequent, small amounts of breast milk or 10 percent sugar water during transportation

STEP 7: Admit Children to the OTP (if Appropriate)

If the child has no medical complications and has a good appetite, the clinician or nurse, with the support of an HSA, should admit the child to the OTP and do the following:

- Explain the OTP treatment procedures to the caregiver and provide information on any actions that have been taken and instructions for home care.
- Decide which OTP admission entry category to assign to the child (see Table 18 for details).
- Assign an OTP registration number if the child is a new admission.
- Give the following routine medicines:
    - Amoxicillin
    - Albendazole

- When indicated, also give:
    - Malaria treatment
    - A measles vaccination
- Check immunisation status. If scheduled immunisations have not been given, administer them or refer the child for immediate immunisation.
- Complete the OTP monitoring card (see the example in *Annex 4-1*).
- Register the child in the registration book.
- Complete the information in the health passport.
- Assign the child to an HSA, who will follow up the child.
- Explain to the caregiver the nutritional care provided in the OTP and deliver health, nutrition, and hygiene messages.
- Explain to the caregiver that the child should attend the OTP weekly or bi-weekly for a nutritional assessment, medical check-up, and any necessary additional medical treatment, and to receive the RUTF ration.
- Advise the caregiver to seek medical care at the nearest health facility immediately if the child refuses to eat RUTF or becomes ill while at home.

Table 18. OTP Admission Entry Categories

Category	Definition

New Admission	• New cases of children 6–59 months or 5–15 years with SAM who meet the admission criteria indicated in Table 16
	• SAM cases are classified according to the type of SAM:
	  ○ Marasmus (WFH/L z-score < -3 or MUAC < 11.5 cm (6–59 months), < 13.0 cm (5–9 years), or < 16.0 cm (10–15 years)
	  ○ Kwashiokor (bilateral pitting oedema + or ++)
	• HIV-positive children whose WFH/L z-score is -3 to -2 or whose MUAC is 11.5–12.5 cm (6–59 months), 13.0–14.5 cm (5–9 years), or 16.0–18.5 cm (10–15 years)
	• Relapse cases (considered to be new cases, since they were treated successfully before and now have a new episode of SAM)

Returns and Transfers	• Returning defaulter (patients who left the programme before ending the treatment and return to continue their treatment, same episode) • Transferred from NRU, SFP, or other OTP; transfers coming from another health facility are not counted as new admissions as they are already enrolled in the programme

4.5 Medical Treatment in the OTP

Give routine medicines to all children upon admission to the OTP (see the table below for details). Carefully check the records of children who were previously treated in inpatient care or the SFP to avoid prescribing medicines that have already been given.

Routine Medical Treatment for New Admissions

Antibiotic Treatment with Amoxicillin

- Give oral amoxicillin for 7 days.
- The first dose should be taken during the admission process under the supervision of the health care provider.
- Explain to the caregiver on how to complete the treatment at home.

Table 19. Amoxicillin Dosage*

Weight of the Child (kg)	Syrup 125 mg / 5 ml	Syrup 250 mg / 5 ml	Tablets 250 mg
≤ 6.0 kg	62.5 mg (2.5 ml) 3 x per day	62.5 mg (1.25 ml) 3X per day	62.5 mg (¼ tablet) 3 x per day
6.0–9.9 kg	125 mg (5 ml) 3 x per day	125 mg (2.5 ml) 3X per day	125 mg (½ tablet) 3 x per day
10.0–30.0 kg	250 mg (10 ml) 3 x per day	250 mg (5 ml) 3X per day	250 mg (1 tablet) 3 x per day
> 30.0 kg	Not appropriate (give tablets)	Not appropriate (give tablets)	500 mg (2 tablets) 3 x per day

*Always check the label on the bottle for dosage and dilution instructions. Where Amoxicillin is not available Cotrimoxazole may be used as a substitute. Dosages should follow the national IMCI guidelines. If a child is HIV+ or HIV-exposed and taking Cotrimoxazole prophylaxis, Amoxicillin should also be given.

NOTE: Children who are HIV+ or HIV-exposed should be linked to HIV treatment and care. Refer to the current *Malawi Guidelines on Clinical Management of HIV in Children and Adults* for details on the eligibility for starting ART.

Malaria Treatment

- Test all children for malaria using a rapid diagnostic test (mRDT).
- If in clinical doubt, repeat the mRDT the following week.
- If malaria diagnostic test is positive, give oral Lumefantrine Artemether (LA), which contains 120 mg Lumefantrine and 20 mg Artemether as follows in Table 20.

Table 20. Lumefantrine Artemether (LA) Dosages

CHILD'S WEIGHT	DOSE
< 15.0 kg	1 tablet 2x/day/3days
15–24.9 kg	2 tablets 2x/day/3days
25–35 kg	3 tablets 2x/day/3days)
> 35 kg	4 tablets 2x/day/3days

NOTE: DO NOT give quinine to a SAM child. Refer severe malaria cases for in-patient management.

Deworming Treatment (Anti-Helminth)

Give a single dose of Albendazole or Mebendazole on the second visit (i.e., after 7 days in OTP). See the Table 21 below for dosages.

Table 21. Albendazole or Mebendazole Dosages

AGE	ALBENDAZOLE*	MEBENDAZOLE*
< 12 months	None	None
12–23 months	200 mg single dose	100 mg twice daily for 3 days
24–59 months	400 mg single dose	100 mg twice daily for 3 days

*Repeat after 6 months.

Measles Vaccination

Give a single dose of measles vaccine in the fourth week of OTP (fourth visit) for children 6–59 months if they do not have a record of receiving a previous vaccination.[2]

Vitamin A

Do not give additional vitamin A to SAM children in the OTP. Children with SAM do not require a high dose of vitamin A because RUTF contains adequate amounts.

If a child shows signs of vitamin A deficiency or measles, refer the child for inpatient care in the NRU.

Iron and Folic Acid

Iron and folic acid should not be given to children in the OTP. They are available in the RUTF.

If IMCI signs of severe anaemia are present, refer the child for inpatient care. Iron and folic acid should not be provided with a malaria treatment.

Zinc

Do not give zinc supplements to treat diarrhoea in SAM children in the OTP. RUTF contains adequate amounts of zinc.

Oral Rehydration Solution (ORS)

ORS contains high sodium and is inappropriate (and potentially fatal) for children with SAM. In OTP, mild and moderate dehydration can be treated adequately with RUTF and water. Children who require treatment for severe dehydration should be referred for inpatient care. In inpatient care, children with dehydration are treated with Rehydration Solution for Malnutrition (ReSoMal). The use of ReSoMal is inappropriate in an outpatient setting.

4.6 Nutritional Treatment in the OTP

Under OTP, nutritional treatment is managed in the home, with the children attending OTP sessions on a weekly basis to monitor their health and nutritional status and replenish RUTF stocks.

Quantities of RUTF to Provide

- Provide 200 kcal per kg of bodyweight per day of RUTF. Use the RUTF reference table (Table 22) to determine the amount of RUTF to give at each weekly visit, based on the child's weight.
- If the child has a twin, give a double ration to the caregiver.
- Explain to the caregiver how much RUTF the child should consume daily.
- Give the required RUTF ration to the caregiver and write the amount on the RUTF ration card.

Table 22. Reference Table for Amounts of RUTF to Give Children per Day or Week, based on 92 g Packets Containing 500 kcal

Weight of Child (kg)	Packets per Day	Packets per Week
3.5–3.9	1.5	10
4.0–4.4	1.5	11
4.5–4.9	1.75	12
5.0–5.9	2	14
6.0–6.9	2.5	17
7.0–7.9	3	20

[2]If there is a measles epidemic in the area, provide a measles vaccination upon admission to outpatient care.

8.0–8.9	3.25	23
9.0–9.9	3.75	26
10.0–11.9	4	28
≥12.0	5	35

Feeding Procedure

- Explain the following to the caregiver about the feeding procedure:
    - She/he should feed the child small amounts of RUTF and the child should finish the allocated daily ration before being given any other food (with the exception of breast milk).
    - She/he should encourage the child to eat as often as possible (every 3 hours during the day).
    - If the child is breastfeeding, offer breast milk on demand and before feeding with RUTF.
    - Give plenty of safe drinking water while feeding the child RUTF to keep the child hydrated.
    - Do not to mix RUTF with liquids; this might foster bacterial growth.
    - Do not mix RUTF with other food.
- Repeat the RUTF key messages on every visit to the health facility.
- Ask the caregivers to return empty RUTF packets at each follow-up visit.

4.7 Monitoring During OTP Follow-Up Visits

Individual monitoring of children with SAM should be carried out by the HSA, clinician and nurse upon weekly (or biweekly) return visits to the health facility. The following parameters should be monitored and recorded on the treatment chart at each weekly follow-up visit.

Anthropometry

- MUAC
- Weight
- Height/Length
- WFH/L z-score for children 0–59 months

History and Physical Examination

- Degree of bilateral pitting oedema (0, +, ++, +++)
- Weight gain (Children who lose weight, do not gain weight, or have weight fluctuations should receive special attention during the medical examination, as per Table 23)
- Body temperature
- Standard clinical signs: stool, vomiting, dehydration, cough, respiration rate
- Appetite test
- Any illness suffered by the child since the last visit
- Any action taken or medication given in response to a health condition

Table 23: Frequency of Assessment in Follow Up

Activity	Frequency
MUAC is measured	Every visit
Weight and oedema are assessed	Every visit
Appetite test is done	Every visit
Body temperature is measured	Every visit
IMCI clinical signs (stool, vomiting, etc.) are assessed	Every visit
Height/Length is measured	Every month
WFH/L z-score is calculated	On admission, every month, at discharge, and when required

Follow-Up Actions at the End of Every OTP Follow-Up Visit

The health care provider should indicate any necessary follow-up actions on the treatment chart, such as:

- Home visits for children requiring special attention
- Referral for further medical investigation

At each OTP follow-up visit, the caregiver should be informed of the child's progress, and individual and/or group counselling should be provided, including delivery of health and nutrition messages on hygiene, sanitation, breastfeeding, and appropriate complementary foods.

Home Visits for Children Who Require Special Attention

The senior HSA or OTP focal person should assign an HSA, care-group volunteer, or other community volunteer to each child admitted to the OTP. The HSA and volunteer should visit all patients at their homes between weekly OTP sessions to check the children's health and the caregivers' compliance with treatment for SAM.

The HSA should prioritise home visits for children who require special attention. Children should be prioritised who:

- Are losing or not gaining weight
- Have a deteriorating medical condition
- Are not responding to treatment
- Have caregivers who have refused inpatient care for them
- Are absent or defaulting

The community-based volunteer should record information from follow-up visits in a register or record book and report the results to the responsible health worker at the OTP.

Referral to Inpatient Care in the NRU Based on the Action Protocol

Children with a poor appetite, developing medical complication, deteriorating nutritional status, and/or a medical condition should be referred to inpatient care for treatment for SAM with medical complications, following the OTP action protocol (see Table 25).

Also refer children who fit the criteria for failure to respond to inpatient care, as indicated in the Table 24 on the next page.

Table 24: Criteria for Failure to Respond to Treatment

Criteria for Failure to Respond	Time after Admission
No reduction in oedema	2 weeks
Oedema not completely resolved	3 weeks
Weight loss since admission to the programme (non-oedematous children)*	3 consecutive weeks
Static weight (non-oedematous children)	5 weeks
Failure of appetite test	At any visit
Failure to start to gain weight satisfactorily after loss of oedema (kwashiorkor)	At any visit
Child develops a medical complication	At any visit

*** NOTE: If a child is losing weight, arrange a home visit immediately.**

The following are frequent causes of failure to respond in outpatient care:

Problems Related to Treatment Quality

- Inappropriate evaluation of the child's health condition or missed medical complication
- Inappropriate evaluation of the appetite test
- Non-adherence to the RUTF protocol
- Abrupt weaning from RUTF
- Non-adherence to the routine medication protocol
- Inadequate guidance provided for home care

Problems Related to the Home Environment

- Inappropriate frequency of visits to the health facility and reception of RUTF
- Inadequate intake or sharing of RUTF and/or medicines

It is recommended that children who are referred to the NRU due to failure to respond to treatment be tested for other underlying chronic illnesses such as TB.

If a child is referred for inpatient care due to deterioration in his/her condition, a referral form should be provided and information should be recorded in the child's health passport (see Annex 4-3 for the referral form).

Table 25. OTP Action Protocol

Sign	Referral to Inpatient Care	Home Visit
GENERAL CONDITION	Deteriorating	Child is absent or defaulting Child is not gaining weight or losing weight on follow-up visit Child is not losing oedema Child has returned from inpatient care or refuses referral to inpatient care
BILATERAL PITTING OEDEMA	Grade +++	
	Any grade of bilateral pitting oedema with severe wasting (marasmic kwashiorkor)	
	Increase in bilateral pitting oedema	
	Bilateral pitting oedema not reducing by week 3	
ANOREXIA *	Poor appetite or unable to eat; failed appetite test	
VOMITING *	Intractable vomiting	
CONVULSIONS *	Ask mother if the child had convulsions since the previous visit	
LETHARGY, NOT ALERT *	Child is difficult to awake	
UNCONSCIOUSNESS *	Child does not respond to painful stimuli	
HYPOGLYCAEMIA	A clinical sign in a child with SAM is eyelid retraction: child sleeps with eyes slightly open. Low level of blood glucose < 3 mmol/l, < 54 mg/dl	
DEHYDRATION	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	
HIGH FEVER	Axillary temperature ≥ 38.5° C, rectal temperature ≥ 39° C taking into consideration the ambient temperature	
HYPOTHERMIA	Axillary temperature < 35° C, rectal temperature < 35.5° C taking into consideration the ambient temperature	
RESPIRATION RATE	≥ 60 respirations/minute for children under 2 months	
	≥ 50 respirations/minute from 2–12 months	
	≥ 40 respirations/minute from 1–5 years	
	≥ 30 respirations/minute for children over 5 years	
	Any chest in-drawing	
ANAEMIA	Palmar pallor or unusual paleness of skin	
SKIN LESION	Broken skin, fissures, flaking of skin	
SUPERFICIAL INFECTION	Any infection requiring intramuscular antibiotic treatment	
WEIGHT CHANGES	Below admission weight on week 3 (for non-oedematuos children)	
	Weight loss for three consecutive visits (for non-oedematous children)	
	Static weight for five consecutive visits	
REQUEST	Mother/caregiver requests treatment of child in inpatient care for social reasons (decided by supervisor)	
NOT RESPONDING	Child that is not responding to treatment is referred to inpatient care or hospital for further medical investigation.	

*refers to Integrated Management of Childhood (IMCI) danger signs

4.8 Health, Nutrition, and Hygiene Messages in the OTP

Upon Admission

- Provide messages on the use of medicines and RUTF at home (see Annex 4-4**)**. Explain the treatment principles to the caregiver:
    - Always breastfeed first
    - How to feed the child RUTF
    - When and how to give the child medicines
    - When to return to outpatient care
    - Bring the child to the health facility immediately if his/her condition deteriorates
- Ask the caregiver to repeat the messages to be sure they were understood.

At Follow-Up Visits

- Provide individual counselling to caregivers on their children's nutritional and medical progress.
- Provide counselling on breastfeeding, complementary feeding, nutritional care for sick children, hygiene, health-seeking behaviours, and other relevant topics, as appropriate (see *Annexes 1-1* and *1-2*).
- If there are more than five cases at a given session, provide group health and nutrition education during the waiting time at the outpatient care session. Refer to the IYCF messages.

4.9 Discharge Criteria

Table 26. OTP Discharge Criteria

Children 6–59 Months	Children 5–15 Years
Discharge as cured • MUAC ≥ 12.5 cm **AND** • WFH/L z-score ≥ -2 **AND** • No bilateral pitting oedema for 2 consecutive weeks **AND** • Clinically well and alert	**Discharge as cured** • MUAC ≥ 14.5 cm (5–9 years) • MUAC ≥ 18.5 cm (10–15 years) **AND** • No bilateral pitting oedema for 2 consecutive weeks **AND** • Clinically well and alert
Other discharge criteria	
Defaulted	Child is absent for two consecutive visits.
Died	Child died during the time registered in the OTP.
Non-cured	Child has not reached the cured criteria after 3 months.
Referral to NRU	Child's condition has deteriorated and requires inpatient therapeutic care.
Transfer to other OTP	Child has been transferred to continue treatment in another OTP.

4.10 Discharge Procedure

- Give feedback to the caregiver on the final outcome of the child.
- Ensure that the caregiver understands how to use continuing medications.
- If SFP is available, refer the child for continued nutrition support and follow-up in the SFP.

- Ensure that the caregiver understands the importance of follow-up care in the SFP or any other programme you have referred the child to.
- Give the final RUTF ration (one-week supply).
- Record the discharge outcome on the OTP register, treatment chart, and ration card (see Table 27 for exit categories).
- Counsel the caregiver on hygiene, sanitation, good nutrition, and cooking practices.
- Advise the caregiver to immediately go to the nearest health facility if child refuses to eat or has any of the following IMCI danger signs:
  - No appetite
  - Vomiting
  - Lethargic or unconscious
  - Convulsions
  - Bilateral pitting oedema
  - Weight loss
  - High fever
  - Diarrhoea or frequent watery or bloody stools
  - Difficult or fast breathing
- Refer the caregiver to other complementary nutrition services in the area, such community care groups or community-based GMP. These will reinforce CMAM behaviour change messages and otherwise continue to improve the child's nutritional status.
- Check the beneficiary records at the end of the OTP session to ensure that the child's outcome status is classified per his/her exit category and clearly indicated on the OTP monitoring card.

The table below provides a summary of the exit categories.

Table 27. OTP Exit Categories

Category	Definition
Cured	Child meets the discharge criteria (see Table 26).
Died	Child dies while registered in the OTP.
Defaulted	Child is classified as a defaulter if absent for two consecutive visits.
Non-cured	Child does not reach discharge criteria after 4 months (16 weeks) in treatment (medical investigation previously done).
Referred to NRU	Child's health condition is deteriorating (see Table 24).
Transferred to another OTP	Child has been transferred to continue treatment in another OTP.

4.11 Competencies and Standards for Outpatient Care

Definition of Terms

Competency: The ability to apply knowledge and skills to produce a desired nutrition outcome (i.e., what OTP health care personnel are expected to know and be able to do).

Competency Standard: Defines the range of skills that are needed to achieve a desired nutrition outcome or competency.

Table 28. Competency Standards in OTP

Competency	Competency Standard/Tasks
1. Health care providers demonstrate the ability to admit a SAM child for outpatient management.	HSA, nurse, and clinician should be able to identify the outpatient care admission criteria.
	HSA or volunteer should be able to measure MUAC and classify the child's nutritional status.
	HSA or volunteer should be able to assess for bilateral pitting oedema and classify nutritional status.
	HSA or volunteer should be able to measure the child's weight.
	HSA or volunteer should be able to measure the child's height/length.
	HSA should be able to classify the child's nutritional status using WFH/L z-score.
	HSA or volunteer should be able to conduct a RUTF appetite test.
	Clinician or nurse should be able to conduct a medical assessment.
	Clinician or nurse should be able to refer complicated cases to inpatient care.
	HSA, nurse, and clinician should be able to take action to admit SAM children without medical complications (and HIV-positive MAM children) into the OTP.
2. Health care providers demonstrate the ability to provide medical and nutritional care and treatment in the OTP.	Clinician and nurse should be able to administer routine medication to a SAM child in the OTP.
	HSA should be able to provide RUTF to SAM children in outpatient care.
	HSA should be able to provide health, nutrition, and hygiene messages to caregivers.
3. Health care providers demonstrate the ability to monitor an individual child's progress over the course of treatment in the OTP.	HSA or volunteer should be able to measure MUAC and classify the child's nutritional status during follow-up OTP visits.
	HSA or volunteer should be able to assess for bilateral pitting oedema and classify nutritional status, during follow-up OTP visits.
	HSA or volunteer should be able to measure weight during follow-up OTP visits.
	Clinician or nurse should be able to review history and conduct a physical examination of the child.
	HSA should be able to conduct follow-up home visits for children who require special attention.
	Clinician or nurse should be able to refer children who fail to respond to treatment or develop complications to inpatient care.
4. Health care providers demonstrate the ability to discharge the child from outpatient care.	HSA, nurse, and clinician should be able to identify the outpatient care discharge criteria.
	HSA, nurse, and clinician should be able to take action to discharge the child from outpatient care.

Annex 4-1: OTP Monitoring Card

ADMISSION: Outpatient Care for the Management of SAM without Medical Complications									
Name					Reg. No.				
Date of admission						NRU Admission	Yes	no	
Village and T/A						Readmission	Yes	no	
Address details						NRU refused	Yes	no	
Sex (M/F)		Age (Months)				Main carer			
Distance to home (time travelled)						Mother alive	Yes	no	
Received general ration	yes	no	# brothers and sisters			Father alive	Yes	no	
ADMISSION ANTHROPOMETRY									
Admission criteria			Oedema	No	+	++	+++		
Height (cm)		Weight (kg)		W/H z-score		MUAC (cm)			
MEDICAL HISTORY									
Appetite	good	poor	none			Vomiting	yes	no	
Diarrhoea	yes	no			Stools/day	1–3	4–5	>5	
Breastfeeding	yes	no				Passing urine	yes	no	
Fever	yes	no				Family history of tuberculosis	yes	no	
Cough	none	1 week	>2 weeks						
Swelling	none	feet	legs	other	How long swollen		Days	weeks	
PHYSICAL EXAMINATION									
Temperature°C				Respir. Rate *(# min)*		<30	30–39	40–49	50+
Palmar pallor	normal	pale					Chest in drawing	Yes	No
Mouth	normal	sore	candida				Eyes	normal	Sunken	discharge
Lymph nodes	normal	groin	neck					Ears	Normal	discharge
Skin changes	none	ulcers / abscesses	raw	peeling				Peripheries	Normal	cold
Dehydration	none	mild	moderate	severe				Radial pulse	Present	absent
VACCINATIONS									
BCG	yes	no	Measles	yes	No	Polio	yes	no	
ROTA	yes	no	PCV	yes	No	Pentavalent	yes	no	
INVESTIGATIONS									
HIV	reactive	non-reactive	EXPOSED	not tested			Malaria (RDT)	positive	negative
ROUTINE MEDICATION									
	date	Dosage				date	Dosage		
Amoxycillin*				Albendazole (2nd visit)					
Started on ART?									
OTHER MEDICATIONS (SPECIFY)									
Outcome from stabilisation in NRU (Phase 1/Transition)									
Discharge outcome	OTP	defaulter	died	non-cured	transfer hospital	Days in NRU			
Date of discharge			Name of NRU						
**Give Cotrimoxazole if Amoxycillin is not available*									

FOLLOW UP: Outpatient Care for the Management of SAM without Medical Complications																
NAME									**REG N°**							
Weeks in the programme	Admission day	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Date																
ANTHROPOMETRY																
Weight																
***Weight loss (Y/N)**																
Height (cm)																
WFH/L z-score																
MUAC (cm)																
Oedema (0, +, ++, +++)																
***WEIGHT CHANGES FOR MARASMUS CASES If below admission WT on week 3 refer to NRU. If no WT gain by week 5 refer to NRU.**																
HISTORY																
Diarrhoea (# days)																
Vomiting (# days)																
Fever (# days)																
Cough (# days)																
Extra HC visits (#)																
PHYSICAL EXAMINATION																
RUTF Test (Passed or Failed)																
Temp˚C																
Respiratory Rate *(#/min)*																
Dehydrated *(Y/N)*																
Anaemia *(Y/N)*																
SUPERFICIAL Infection *(Y/N)*																
Other problems/ other medication given																
RUTF (# sachets)																
OUTCOME **																
****OUTCOME: DC = discharged cured, D = defaulter (absent on 2 consecutive visits), X = died, NRU = Transferred to NRU, NC = discharged/non-cured ***Y/N should be recorded on the week when the activity is performed**																
Name of health worker																

Annex 4-2: OTP Register

ADMISSION DETAILS										
Registration Number	Name of Child	Village	TA	Sex	Age	Date of Admission	Oedema Grade	MUAC (cm)	Weight (kg)	Height (cm)

WFH/L z-score	Admission Criteria	HIV Testing Services (HTS)					Discharge details						Length of Stay	Total Number of RUTF Sachets Received	Outcome
		Referred for HTS Y/N	Tested Y/N	Child Sero-status	Child on ART?	Referral Type	Date of Discharge	Oedema	MUAC (cm)	Weight (kg)	Height (cm)	WFH/L z-score			

Annex 4-3: Referral Form OTP and NRU

Name of child						Registration #			
Date of referral						Time			
Initial treatment facility name						OTP *(tick as appropriate)*: ☐		NRU (*tick as appropriate*): ☐	
Referral treatment facility name						OTP *(tick as appropriate)*: ☐		NRU *(tick as appropriate)*: ☐	
Age		Oedema		MUAC		WFH/L z-score		Temp-erature	
Reason for referral									
Treatment given before referral									
Name of person referring the child									
Position									
Signature									

Annex 4-4: Key CMAM Messages

- RUTF is a food and medicine for severely malnourished individuals. It should not be shared.
- Sick children often don't like to eat. Give small amounts of RUTF regularly and encourage the child to eat often until the day's ration is finished.
- RUTF should never be added to or mixed with porridge or any other food.
- Your child should have (x) packets a day.
- For young children, continue breastfeeding on demand. Always breastfeed fully before giving the child RUTF.
- Always give the child RUTF after breastfeeding but before other food, including *Likuni Phala*.
- Always give the child plenty of breast milk or safe water to drink while eating RUTF. Children will need to drink more than normal.
- Use soap to wash the child's hands and ensure that the child is clean before feeding. Keep food clean and covered.
- Children who are malnourished get cold quickly. Always keep the child covered and warm.
- Do not stop feeding when the child has diarrhoea. Refer children with diarrhoea for clinical assessment. Increase the frequency of breastfeeding. After feeding the child RUTF, give him/her extra clean water.

This sheet includes only the key messages. More messages and additional details can also be provided if time allows. Refer to Annex 1-1 for key nutrition messages on breastfeeding and age-appropriate complementary feeding. Ask the caregiver to repeat back the messages to check that they have been understood correctly.

5 Nutrition Rehabilitation Unit (NRU)

Intensive inpatient therapeutic care should be provided in a specialised unit in the health facility (NRU) or in the children's ward at a health facility with 24-hour care at the secondary or tertiary level.

Inpatient care targets:

- Children 6 months–15 years with SAM who have medical complications or have no appetite (10– 20 percent of all SAM children).
- Children < 6 months who have SAM or have feeding difficulties and are not gaining weight or are losing weight

These infants and children are at high risk of death and need intensive 24-hour medical and nutrition care. Therefore they cannot be managed in the OTP.

5.1 Aim of the Inpatient Care

The inpatient care process focuses on stabilisation of medical and nutrition complications.

5.2 Roles and Responsibilities of Staff Working in Inpatient Care

All staff (clinicians, nurses, home-craft workers, etc.) who work in NRU, the OPD, and the ETAT room should be adequately trained before they can manage SAM patients. Staff turnover should be minimised and only one staff member should be rotated at a time. Heavy rotation of staff may induce higher patient mortality due to a lack of understanding of the pathophysiology in children with SAM (if trained and experienced staff are replaced with new staff who have not been trained in inpatient care).

Clinician/Doctor

- Conducts initial medical assessments (triage, history-taking, examinations, investigations, and treatment) of SAM patients with complications
- Conducts daily ward rounds to ensure that drugs and feeds are administered appropriately
- Monitors patients' recovery progress
- Assesses patients who fail to respond to treatment or present diagnostic difficulty and manages complications
- Takes action to transfer children to the OTP (if recovering) or to critical care (if their condition is worsening)

Nurse and Nurse In-charge of NRU

- Performs triage and admits SAM patients with medical complications to inpatient care
- Registers patients using the registration numbers given at the OTP and enters patient information into the registration book and the critical care pathway.
- Asks the clinician to review patients in the inpatient care daily
- Administers and documents all medications, including ReSoMal
- Calls the patient's OTP to inform the staff of the patient's arrival and discuss any details not recorded on the transfer form upon transfer from inpatient care
- Ensures that all 10 steps for the inpatient management of children with SAM are followed
- Ensures that inpatient care (NRU) procedures are followed, including taking vital signs as stipulated in the protocol

- Manages, mentors, and supervises home-craft workers and ward support staff (e.g., cleaners, ward attendants, ward clerks)
- Compiles monthly reports and submits them to the district health office

Home Craft Worker or other Health/Ward Assistant

- Assists clinicians and nurses in conducting triage
- Weighs and measures patients according to the protocol
- Prepares and gives feeds
- Records information on feeding on the NRU treatment chart
- Gives daily health and nutrition education sessions following outlined topics agreed by the nurse-in-charge
- Supports caregivers in appropriate feeding practices while their children are in inpatient care and upon discharge
- Assists caregivers in providing tender loving care, play, and stimulation to children with SAM; including preparation of play materials using locally available resources.

5.3 Inpatient Care for the Management of SAM with Medical Complications for Children 6 Months to 15 Years

5.3.1 Admission Criteria for Children 6 Months to 15 Years

Table 29. Inpatient Admission Criteria for Children 6 Months–15 Years

Bilateral pitting oedema +++

OR

Marasmic kwashiorkor defined as **any grade of bilaterial pitting oedema with severe wasting**:
- MUAC < 11.5 cm (6–59 months)
- MUAC < 13.0 cm (5–9 years)
- MUAC < 16.0 cm (10–15 years) or
- WFH/L z-score < -3

OR

Bilateral oedema + or **++** or **severe wasting:**
- MUAC < 11.5 cm (6–59 months)
- MUAC < 13.0 cm (5–9 years)
- MUAC < 16.0 cm (10–15 years) or
- WFH/L z-score < -3

WITH
Any of the following danger signs:
- Anorexia, no appetite
- Intractable vomiting
- Convulsions
- Lethargy, not alert
- Unconsciousness
- Inability to drink or breastfeed
- High fever (> 39° C rectal or > 38.5° C axillary)

OR WITH
Any of the following medical complications:

- Hypoglycaemia
- Hypothermia (< 35° C axillary and < 35.5° C rectal)
- Infections
- Severe dehydration
- Shock
- Very severe anaemia
- Cardiac failure
- Severe dermatosis
- Signs of vitamin A deficiency
- Diarrhoea with dehydration
- Severe malaria

Referrals from the OTP

- Deterioration in the child's medical condition, based on the Outpatient Care Action Protocol
- Increase in bilateral pitting oedema
- Weight loss for 3 consecutive weeks or static weight for 5 weeks
- Not responding to treatment after 12 weeks (3 months) in the OTP programme

NOTE: Infants > 6 months and < 3.0 kg should follow the same treatment protocol as infants < 6 months with SAM *(See section 5.4).*

5.3.2 Admission Procedure

Welcome the child and caregiver to the inpatient care facility and inform them about the admission criteria and procedure.

STEP 1: Triage – Look for Priority Signs Following the Emergency Triage Assessment and Treatment (ETAT) Principles

Admissions of SAM children into inpatient care should follow ETAT principles. During triage, SAM children with medical complications should be identified as having priority signs that require prompt assessment and treatment.

Conduct prompt initial assessment and treatment of the following:

- Obstructed breathing
- Severe respiratory distress
- Central cyanosis
- Shock (cold hands, capillary refill time longer than 3 seconds, fast heart rate with weak pulse, and low or unmeasurable blood pressure)
- Unconsciousness
- Convulsions
- Severe dehydration
- Severe anaemia
- Hypoglycaemia
- Hypothermia
- Congestive heart failure

If any of the above signs are present, begin immediate emergency treatment. See *Annex 5-1* for emergency treatment of children with SAM and refer to the national guidelines on ETAT.

STEP 2: Take the Child's Medical History

A trained clinician should take a thorough history to determine risk factors for SAM and record the following information on the inpatient treatment chart (see *Annex 5-2*):

- Symptoms of current illness
- Screening for diarrhoea/dehydration
    - Fluid intake (kind of fluid, how much)
    - Output (duration, frequency, and severity of diarrhoea and vomiting, urine output)
    - Type of diarrhoea (watery, mucoid, or bloody)
- Duration of weight loss
- Medical history
    - Chronic cough
    - Known or suspected HIV infection or exposure
    - Recent contact with measles
- Dietary history
    - Loss of appetite
    - Breastfeeding practice
    - Other milk intake (bottle feeding?)
    - Complementary foods (variety, frequency, when started)
- Immunisation history (Bacillus Calmette Guerin [BCG], measles, and rotavirus vaccines are especially relevant)
- Birth history (birth weight and gestation)
- Social history
    - Parents alive? If not, who is the caregiver?
    - Family size and spacing between children
    - Income
    - Food availability
    - Close contact with others with TB
- Developmental milestones

STEP 3: Take Anthropometric Measurements to Confirm SAM

Take the following anthropometric measurements to confirm SAM:

- Measure MUAC and record measurement (see *Annex 1-4).*
- Check for bilateral pitting oedema and record the findings (see *Annex 1-5).*
- Measure and record weight (see *Annex 1-6).*
- Measure and record height or length (see *Annex 1-7).*
- Determine WFH/L z-score using reference charts (see *Annexes 1-8, 1-9* and *1-10).*

STEP 4: Examine the Child for Other Complications of SAM and Underlying Causes

A clinician should conduct a thorough clinical examination (see Table 30 below for case definitions of medical complications of SAM) and check for:

- Signs of vitamin A deficiency
- Signs of infection (pneumonia, skin, ear/nose/throat)
- Mouth ulcers

- Skin changes from kwashiorkor:
    - Hypo- or hyper-pigmentation
    - Desquamation
    - Ulceration (spreading over limbs, thighs, genitalia, groin, or behind the ears)
    - Exudative lesions (resembling severe burns), often with secondary infection (including candida)
- Signs of developmental delay
- Signs of any underlying chronic diseases/conditions
    - HIV/AIDS
    - TB
    - Cerebral palsy
    - Congenital anomalies (e.g., congenital heart disease, cleft palate)

Table 30. Case Definitions for SAM Medical Complications

Medical Complication	Case Definition
Anorexia, poor appetite*	Unable to drink or breastfeed. Child failed a RUTF appetite test.
Intractable vomiting*	Child vomits after every oral intake.
Convulsions*	Uncontrollable movements of the limbs and/or face and/or rolling eyes and/or loss of consciousness. Ask the mother if the child has had any convulsions during this current illness.
Lethargy, not alert*	Child is difficult to wake. Ask the mother if the child is drowsy, shows no interest in what is happening around him/her, does not look at the mother or watch her face when talking, or is unusually sleepy.
Unconsciousness*	Child does not respond to painful stimuli.
Hypoglycaemia	There are often no clinical signs for hypoglycaemia. One sign that occurs in children with SAM is eyelid retraction (children sleep with eyes slightly open).
High fever	Child has a high body temperature—axillary temperature ≥ 38.5° C or rectal temperature ≥ 39° C—taking into consideration the ambient temperature.
Hypothermia	Child has a low body temperature—axillary temperature < 35° C or rectal temperature < 35.5° C—taking into consideration the ambient temperature.
Severe dehydration	For children with SAM, diagnosis of severe dehydration is based on recent history of diarrhoea, vomiting, high fever, or sweating, and on recent appearance of clinical signs of dehydration, as reported by the caregiver.
Persistent diarrhoea	An episode of diarrhoea that starts acutely and lasts at least 14 days.
Lower respiratory tract infection	Child has a cough with difficult breathing, fast breathing (if child is 2–12 months: 50 breaths per minute or more; if child is 12 months–5 years: 40 breaths per minute or more), or chest in-drawing.
Severe anaemia	Child has palmer pallor or unusual paleness of the skin (compare the colour of the child's palm with the palms of other children); haemoglobin (Hb) < 4 grams per decilitre (g/dl), or if there is respiratory distress, Hb between 4 and 6 g/dl.
Signs of vitamin A deficiency	Dry, opaque, and dull conjunctiva, with or without Bitot's spots (foamy material on the conjunctiva) Corneal ulceration
Skin lesions	Child has broken skin, fissures, or flaking of skin.

* Shows Integrated Management of Childhood Illness (IMCI) danger sign

STEP 5: Conduct Routine Investigations

The following routine investigations should be taken for all children with SAM:

- Malaria rapid diagnostic test (mRDT)
- Offer HIV testing services; if positive, immediately link the child to HIV treatment and care. Refer to the current *Malawi Guidelines on Clinical Management of HIV in Children and Adults* for details on the eligibility for starting ART.

If indicated, also check:

- Blood glucose
- Haemoglobin
- Urine analysis (in oedematous children, to rule out nephrotic syndrome)

STEP 6: Initiate Medical and Nutrition Treatment in Inpatient Care

Medical treatment and nutritional rehabilitation should follow 10 essential steps *(*See *Figure 4. The WHO 10 Steps for Inpatient Management of SAM)*:

- Treat and prevent hypoglycaemia.
- Treat and prevent hypothermia.
- Treat and prevent dehydration.
- Correct electrolyte imbalances.
- Treat and prevent infections.
- Provide micronutrient supplementation.
- Start cautious feeding.
- Give catch-up diet for rapid growth.
- Provide sensory stimulation and emotional support.
- Prepare for follow-up and discharge to the OTP.

5.3.3 Inpatient Care and Treatment

Treatment for SAM in an inpatient setting involves following the 10 steps outlined by the WHO in two phases:

- **Stabilisation phase (Phase 1),** in which life-threatening problems are identified and treated, specific deficiencies are corrected, metabolic abnormalities are reversed, and feeding is established. F-75 is used to promote repair of physiological and metabolic functions and electrolyte balance for therapeutic milk specifications). Rapid weight gain at this stage can be dangerous. Therefore, children on F-75 should not gain weight.
- **Transition phase** in which the diet is changed to RUTF (or F-100) to increase the energy intake by about 30 percent, such that the child starts to gain weight. The transition phase is important because a sudden change to large amounts of food in the diet (in the rehabilitation phase) before physiological function is fully restored can be dangerous and lead to electrolyte disequilibrium and ‘refeeding syndrome’.
- **Rehabilitation Phase (Phase 2),** in which the child is transferred to OTP to complete recovery. There are a few exceptions where children cannot be safely transferred to OTP:
    - Infants < 6 months
    - Children < 3 kg
    - Children who do not tolerate RUTF
    - Children who have no access to an OTP near their homes
    - Children whose caregiver refuses OTP, despite being adequately counselled

  These children should instead stay in inpatient care during the rehabilitation phase.

Figure 4. The WHO 10 Steps for Inpatient Management of SAM

Steps and Action	Stabilisation		Rehabilitation
	Day 1–3 Phase 1	**Day 3–7 Transition**	**Week 2—Recovery Phase 2**
1. Prevent or treat hypoglycaemia.	→	→	
2. Prevent or treat hypothermia.	→	→	
3. Prevent or treat dehydration.	→	→	
4. Correct urea and electrolyte imbalances.	→	→	
5. Treat and prevent infections.	→	→	
6. Correct micronutrient deficiencies.	No iron →	No iron →	**With iron→**
7. Start cautious feeding.	→	→	
8. Give catch-up diet for rapid growth.			→
9. Provide loving care, play, and stimulation.	→	→	→
10. Prepare for follow-up and discharge to the OTP.		→	→

STEP 1: Treat and Prevent Hypoglycaemia

Hypoglycaemia and hypothermia usually occur together and are signs of infection. Check for hypoglycaemia whenever hypothermia (axillary temperature < 35.0° C or rectal temperature < 35.5° C) is found. Frequent feeding is important in preventing both conditions.

Treatment

If the child is conscious and a glucose test shows < 3 mmol/L or 54 mg/dl, give:

- 50 ml of 10% glucose or 10% sucrose solution (1 rounded teaspoon of sugar in 3 tablespoons water) orally or by nasogastric tube (NGT), then feed F-75 (see STEP 7) every 30 minutes for 2 hours, giving ¼ of the 2-hour feed each time
- Antibiotics (see STEP 5)
- Feed every 2 hours, day and night (see STEP 7)

If the child is unconscious, lethargic or convulsing, give:

- Intravenous (IV) sterile 10 % glucose solution (5 ml/kg of body weight), followed by 50 ml of 10% glucose or sucrose solution by NGT, then feed F-75 (see STEP 7) every 30 minutes for 2 hours, giving ¼ of the 2-hour feed each time
- Antibiotics (see STEP 5)
- Feed every 2 hours, day and night (see STEP 7)

Monitor

- Blood glucose:
    - If low, repeat the glucose test after two hours, taking blood from the child's finger or heel; once treated, most children stabilise within 30 minutes.
    - If blood glucose falls to < 3 mmol/L, give a further 50 ml of 10% glucose or sucrose solution and continue feeding every 30 minutes until stable.
- Axillary temperature: If < 35.0° C, repeat the glucose test.
- Level of consciousness: If this deteriorates, repeat the glucose test.

Prevention

- Feed every 2 hours, starting straightaway, if possible.
- Always give feeds throughout the day and night.

NOTE: If you are unable to test the blood glucose level, assume all children with SAM are hypoglycaemic and treat accordingly.

STEP 2: Treat and Prevent Hypothermia

Treatment

If the axillary temperature is < 35.0° C:

- Feed straightaway (or start rehydration, if needed).
- Re-warm the child: Either clothe the child (including head), cover with a warmed blanket, and place a heater or lamp nearby (do not use a hot water bottle), or put the child on the mother's bare chest (skin to skin) and cover both of them.
- Give antibiotics (see STEP 5).

Monitor

- Body temperature half-hourly in the first 2 hours
- Body temperature: During re-warming, take temperature every 2 hours until it rises to > 36.5° C (take half-hourly if heater is used).
- Ensure the child is covered at all times, especially at night.
- Feel for warmth.
- Blood glucose level: Check for hypoglycaemia whenever hypothermia is diagnosed.

Prevention

- Feed every 2 hours, starting straightaway (see STEP 7).
- Always give feeds throughout the day and night.
- Keep the child covered and away from draughts.
- Warm your hands before touching the child (both health service providers and caregivers).
- Keep the child dry and promptly change wet nappies, clothes, and bedding.
- Avoid exposure (e.g., bathing, prolonged medical examinations).
- Let the child sleep with the mother/caregiver at night for warmth.
- Maintain room temperature between 25° C and 36.5° C.

STEP 3: Treat and Prevent Dehydration

Treatment

- Give ReSoMal 5 mls/kg every 30 minutes for the first 2 hours.
- Then, if the child is still dehydrated, give ReSoMal 5–10 ml/kg/h. Alternate with F-75, up to a maximum of 10 hours. Encourage the mother to give the fluid slowly and to persist, even if the child is slow to take the fluids. Give the mother only the amount of fluid required for the next hour.
- If the child is refusing or vomiting, insert a nasogastric tube (NGT) and commence NG fluids.
- Length of rehydration is dependent on the child's thirst and fluid loss from vomiting and stools.

- Do not treat dehydration with intravenous fluids, because children can become overloaded with fluid very quickly, which is very dangerous and can lead to heart failure and death.
- Continue breastfeeding.

During treatment, rapid respiration and pulse rates should slow down and the child should begin to pass urine.

NOTES

- Dehydration is difficult to diagnose in children with SAM. Clinical signs associated with dehydration in well-nourished children (dry mouth, sunken eyes, skin lying in folds, etc) are often present in SAM children without dehydration.
- Check the eyelids to see if they are not closing. This is a sign of dehydration[3].
- Taking an accurate history is very important in diagnosing dehydration in children with SAM. Misdiagnosis and inappropriate treatment of dehydration is a common cause of death in malnourished children.
- A diagnosis of dehydration needs to be associated with a definite recent history of significant fluid loss, such as watery (not just soft or mucoid), frequent (more than 3 stools per day) diarrhoea, with a recent onset.
- It is difficult to estimate dehydration status in children with SAM using clinical signs alone. Assume that all children with watery diarrhoea have dehydration and prescribe ReSoMal as indicated above.
- SAM children have too much sodium and too little potassium in their bodies. The standard treatment protocol for well-nourished, dehydrated children should not be used. Oral rehydration solution (ORS) (90 mmol sodium/L) and low osmolarity ORS (75mmol sodium/L) contain too much sodium and too little potassium for children with SAM. Instead, give ReSoMal.
- Low osmolarity ORS is recommended instead of ReSoMal where cholera or acute watery diarrhoea (AWD) has been diagnosed.

Monitor Rehydration Progress

Observe the child every 30 minutes for 2 hours, then hourly for the next 6–12 hours, recording:

- Pulse rate
- Respiratory rate
- Urine frequency
- Stool/vomit frequency
- Signs of improvement
    - Decreasing pulse and respiration rate
    - Reduced thirst
    - Increasing urinary output
    - Faster skin pinch, less sunken eyes, and moist mouth (not always noticeable in severely malnourished children)
    - Child is more alert
- Signs of over-hydration
    - Increased heart rate (by 25 beats a minute)
    - Increased respiration (by at least five breaths a minute)
    - Signs of increased oedema (such as puffy eyelids)

[3] Dehydration stimulates adrenaline release to compensate for low blood pressure resulting in sympathetic over-activity that leads to contraction of muscles responsible for eye opening.

- Prominent neck veins and enlargement of the liver

Continued rapid breathing and pulse during rehydration suggest coexisting infection or over-hydration. If there are signs of over-hydration, stop ReSoMal immediately and re-assess in one hour.

NOTE: Low blood volume can coexist with oedema. Do not use the IV route for rehydration except in cases of shock, and then do so with care, infusing slowly to avoid flooding the circulation and overloading the heart *(*refer to *Annex 5-1 Emergency Treatment for Children with SAM).*

Prevention

To prevent dehydration when a child has continuing watery diarrhoea:

- Keep feeding with F-75 (see STEP 7).
- Replace the approximate volume of stool losses with ReSoMal. Give 50–100 ml after each watery stool.

  NOTE: It is common for SAM children to pass many small, unformed stools. These should not be confused with profuse watery stools and do not require fluid replacement.
- If the child is breastfed, encourage the caregiver to continue breastfeeding.

STEP 4: Correct Electrolyte Imbalance

Children with SAM have excess body sodium, even though plasma sodium may be low; giving high sodium loads will cause death. They are also deficient in potassium and magnesium and these deficiencies may take at least 2 weeks to correct. Oedema is partly due to these imbalances. Do not treat oedema with a diuretic.

- Therapeutic foods such as F-75, F-100, and RUTF, and ReSoMal contain extra potassium and magnesium.
- When rehydrating, give children with SAM low sodium rehydration fluid (ReSoMal).

STEP 5: Treat and Prevent Infection

In a child with SAM, typical signs of infection, such as fever, are often absent and infections are often hidden. Therefore, give a broad spectrum antibiotic routinely on admission.

Choice of Broad-Spectrum Antibiotics

- **If the child has no medical complications**, give a first-line broad-spectrum oral antibiotic:
  - Amoxicillin 15 mg/kg every 8 hours orally for 5 days (infants < 2 months Amoxicillin 15 mg/kg every 12 hours).
- **If the child has medical complications** (e.g., respiratory distress or pneumonia, lethargy or unconsciousness, shock, hypoglycaemia, hypothermia, convulsions, severe anaemia, dehydration, signs of blindness, or high fever and sickly appearance), give a first-line broad-spectrum IV antibiotic:
  - Benzyl penicillin 50,000 IU/kg every 6 hours intravenous or intramuscular (IV/IM) for 48 hours, then oral Amoxicillin 15 mg/kg every 8 hours for 5 days

    AND
  - Gentamicin 7.5 mg/kg IV (or IM) once a day for 7 days
- **If the child fails to improve within 48 hours, give second-line broad spectrum antibiotic:**
  - Ceftriaxone 100 mg/kg IV (or IM) once a day for 5 days (Infants < 3 kg: 50 mg/kg).

- **If the child fails to improve within 48 hours and staphylococcal infection is suspected**, give:
  - Cloxacillin 25–50 mg/kg IV (or IM) every 6 hours for 5 days (Infants < 3 kg: 25–50 mg/kg every 8 hours).
- **If a specific infection is identified that requires a specific antibiotic not already being given**, give the appropriate antibiotic to address that infection according to the Malawi Standard Treatment Guidelines. For example, dysentery may require other antibiotics. Certain skin infections, such as candidiasis, require specific antifungals.
- **If the child is HIV positive**, in addition to the above antibiotic and ART, give:
  - Cotrimoxazole orally once a day, and link to care and treatment according to the national ART guidelines.

NOTE: Adapt antibiotic regimens according to local resistance patterns.
Children with SAM are at higher risk of nosocomial infection. Standard infection prevention (IP) protocols should always be followed in inpatient care.

Measles Vaccination

Give measles vaccine according to the national immunization schedule. If there is an epidemic, give all children ≥ 6 months a measles vaccine on admission (delay if the child is in shock). If the child has an active case of measles or has had measles recently, give a high dose of vitamin A on days 1, 2, and 14 (or upon discharge from programme) as follows in Table 31.

Table 31. Vitamin A Supplementation for Children with Active Measles Cases

Age	Vitamin A orally *
< 6 months	50,000 IU (15,000 µg)
6–12 months	100,000 IU (30,000 µg)
> 12 months	200,000 IU (60,000 µg)

NOTE: In the case of measles or severe signs of vitamin A deficiency, a high dose of vitamin A is given, irrespective of the type of therapeutic food the child is receiving.

Anti-Malarial

A rapid diagnostic test for malaria should be done on all children admitted to inpatient care. Children with positive diagnostic tests should be treated with Lumefantrine Artemether (LA) according to the malaria treatment guidelines for Malawi[4]. See Table 32 below for dosages.

Table 32. LA Dosages

WEIGHT	DOSE
5–14.9 kg	1 tablet 2x/day/3days
15–24.9 kg	2 tablets 2x/day/3days
25–35 kg	3 tablets 2x/day/3days
> 35 kg	4 tablets 2x/day/3days

- Intravenous or intramuscular injection of Artesunate should only be used if the child has severe malaria. Use with caution in children with kwashiorkor or heart failure because of the sodium content.
- **Do not give quinine to a child with SAM.**

[4] Always refer to the most up-to-date national treatment protocol.

HIV Infection

All children with SAM should be tested for HIV to determine their need for ART. Children should be managed as follows:

- HIV-positive children or exposed infants with PSHD qualify for ART and should be started on treatment soon after stabilisation of metabolic complications and sepsis (indicated by return of appetite and resolution of severe oedema).
- HIV-infected children with SAM should be given the same ART regimen, in the same doses, as children with HIV who do not have SAM.
- Children should be closely monitored (inpatient and outpatient) in the first 6–8 weeks following initiation of ART to identify early metabolic complications and opportunistic infections.
- HIV-infected children who have any one of the following symptoms—poor weight gain, fever, current cough or contact history with a TB case—should be evaluated for TB and other conditions.
- Children with SAM who are HIV infected should be managed with the same therapeutic feeding approaches as children with SAM who are not HIV infected.
- HIV-infected children with SAM with persistent diarrhoea that does not resolve with standard management, should be examined for infections, which may require different management, such as antibiotics or modification of fluid and food intake.

Refer to the current *Malawi Guidelines on Clinical Management of HIV in Children and Adults* for details on the eligibility for starting ART.

Treatment of Parasitic Worms

Give Albendazole at the start of rehabilitation (on day 7), when the child is being discharged to outpatient care. If Albendazole is not available, give Mebendazole (see Table 33).

Table 33. Albendazole or Mebendazole

AGE	ALBENDAZOLE	MEBENDAZOLE
< 1 year	None	None
1–2 years	200 mg single dose	100 mg twice daily for 3 days
> 2 years	400 mg single dose	100 mg twice daily for 3 days

STEP 6: Provide Micronutrient Supplementation

Children with SAM have vitamin and mineral deficiencies (especially potassium and magnesium). Although anaemia is common, iron should not be given until the child has a good appetite and starts gaining weight (usually by the second week in inpatient care), because giving iron can make infections worse.

Vitamins and minerals, including vitamin A, folic acid, zinc, and copper, are present in F-75, F-100, and RUTF. When commercially premixed therapeutic foods are used, there is no need to give additional doses of these micronutrients. In addition, if there are no signs or history of measles, do not give a high dose of vitamin A, because the amounts present in therapeutic foods are enough.

NOTE: If commercial products are not available, a combined minerals and vitamins mix (CMV) can be used to fortify locally prepared therapeutic foods (F-75 and F-100) and ReSoMal (see Annex 5-14**)**.

Treatment of Micronutrient Deficiencies

- Give oral vitamin A on days 1, 2, and 14 if the child has signs of vitamin A deficiency (e.g., corneal clouding, corneal ulceration, Bitot spots), or if the child has a history of measles.

- 0–5 months, give 50,000 IU
- 6–12 months, give 100,000 IU
- > 12 months, give 200,000 IU

- If F-100 is used during the rehabilitation phase, start iron at 3 mg/kg per day after 2 days on F-100 catch-up formula. Do not give iron in the stabilisation phase, and do not give iron if the child is receiving RUTF.

STEP 7: Start Cautious Feeding

Stabilisation Phase

A cautious approach is required in the stabilisation phase because of the child's fragile physiological state and reduced homeostatic capacity. Feeding should be started as soon as possible after admission and should be designed to provide just sufficient energy and protein to maintain basic physiological processes.

Treatment

The essential features of feeding in the stabilisation phase are:

- Give small, frequent feeds (every 2–3 hours) with low osmolality and low lactose.
- Give NG feeds if the child eats < 80 percent of the amount offered at two consecutive feeds
- Provide calories at 100 kcal/kg per day.
- Provide protein at 1–1.5 g/kg per day.
- Provide liquid at 130 ml/kg per day if no oedema. Liquid should be reduced to 100 ml/kg per day if the child has severe oedema.
- If the child is breastfed, encourage the child to continue breastfeeding.
- Give the prescribed amounts of starter formula to make sure the child's needs are met (even if the child is breastfed).

The suggested therapeutic diet and feeding schedules (see sub-sections below) are designed to meet the daily requirements for the child. Milk-based diets such as F-75, which contains 75 kcal/100 ml and 0.9 g protein/100 ml, are satisfactory for most children. Give milk from a cup. Very weak children may be fed by spoon, dropper, or syringe.

For children with a good appetite and no oedema, the stabilisation phase can be completed in 2–3 days. *Annexes 5-4* and *5-5* show volume/feed calculations according to body weight. Use the day 1 weight to calculate how much to give, even if the child loses or gains weight in this phase.

During the stabilisation phase, feeds should be provided at least every 3 hours (eight feeds per day) to prevent hypoglycaemia. It is important that feeds be provided to the child during the day and night. Breastfed children should be offered breast milk on demand before being fed F-75.

Feed Preparation

- **For a large number of children (≥ 5):** Add 1 packet of F-75 (102.5 grams) to ½ litre (500 ml) of water. The water needs to be boiled and cooled prior to mixing.
- **For a few children (< 5): Smaller** volumes can be prepared by measuring small amounts of F-75 using the red scoop. Add 20 ml boiled and cooled water per 1 red scoop of F-75 powder.
- If pre-packaged F-75 is not available, use one of the recipes to prepare F-75, using locally available ingredients and (imported) CMV (see Annex 5-14 for alternative recipes for F-75, F-100, and ReSoMal using CMV).

Feeding Procedure

Feed by cup and saucer. Only feed with a NG tube when the child is unable to take sufficient F-75 by mouth. A sufficient amount is defined as intake of 80 percent of the milk. An NG tube should be used if the child:

- Takes less than 80 percent of the prescribed diet on two consecutive feeds during stabilisation
- Has pneumonia (rapid respiration rate) and difficulty swallowing
- Has painful lesions/ulcers of the mouth
- Has a cleft palate or other physical deformity
- Is very weak and shows difficulty remaining conscious

The NG tube should only be used in the stabilisation phase. Refer to *Annex 5-18* for instructions on how to insert an NG tube.

Feeding Technique

Aspiration pneumonia is very common in severely malnourished children due to muscle weakness and slow swallowing. Applying the correct feeding technique is important to ensure adequate and safe milk intake.

The child should be on the caregiver's lap against his/her chest with one arm behind his/her back. The child should be sitting up (vertical). The caregiver's arm should encircle the child and the caregiver should hold a saucer under the child's chin. The caregiver should give the child F-75 by cup, and any milk that dribbles into the saucer should be returned to the cup. The child should never be force-fed, have his/her nose pinched, or lie back and have the milk poured into his/her mouth.

Meal times should be sociable. Caregivers should sit together in a semi-circle around an assistant, who should talk to the caregivers, encourage them, correct any faulty feeding techniques, and observe how the child takes the milk.

The health facility should coordinate taking of meals for the caregivers. Caregivers should never eat their meals beside the child, as sharing meals with the child can be dangerous, given the child's delicate physiology. For example, added salt or condiments in the caregiver's meal can be sufficient to provoke heart failure in children with SAM.

NOTE: If staff resources are limited, give priority to 2-hourly feeds for only the most seriously ill children, and aim for at least 3-hourly feeds for the remaining children, initially. Ask mothers and caregivers to help with the feeding. Show them what to do and supervise the feeding. Night feeds are essential and staff rosters may have to be adjusted. If, despite the staff's best efforts, it's not possible to give all the night feeds, space the feeds equally throughout the night to avoid long periods without a feed, due to SAM children's increased risk of hypoglycaemia and mortality.

Feeding Children Who Are Vomiting

If the child vomits during or after a feed, estimate the amount vomited and offer that amount of feed again. If the child keeps vomiting, offer half the amount of feed twice as often. For example, if the child is supposed to take 40 ml of F-75 every 2 hours, offer half that amount (20 ml) every hour until vomiting stops.

Monitoring

- Measure and record weight on the treatment chart and plot it on the chart each day.
- Assess and record the degree of oedema (0 to +++) each day.
- Measure MUAC on admission, and then once per week.

- Monitor body temperature, pulse, and respiration every 4 hours.
- Assess and record any standard clinical signs (stools, vomiting, dehydration, cough, skin conditions, and perianal lesions) daily.
- Measure height every 4 weeks.
- Note and record in the patient record each day whether the patient is absent, vomits, or refuses a feed, and whether the patient is fed by NG tube or is given an IV infusion or blood transfusion.

During the inpatient phase, diarrhoea should gradually diminish, and children with bilateral pitting oedema should start losing weight.

If diarrhoea continues despite cautious re-feeding or worsens substantially, re-evaluate the child.

Watch carefully patients with infections such as pneumonia, sepsis, ear infection, or urinary tract infection (UTI) for signs of:

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

Alert a clinician if any of these danger signs appear. Provide continued care at night because many deaths in severely malnourished children occur at night.

NOTE: A clinician should be allocated to the NRU forward rounds twice daily.

Transition

Use the following criteria to assess a child's readiness to transition from the stabilisation phase:

- Appetite has returned (the child easily finishes all F-75 milk during 3-hourly feeds).
- Subsiding bilateral pitting oedema (e.g., severe oedema [+++] has been reduced to at least moderate oedema [++]).
- No serious medical problems, such as vomiting, watery diarrhoea, dehydration, nasogastric feeding, respiratory distress, or any complication that requires IV infusion, are present.

Transition Using RUTF

During this period, RUTF is gradually introduced alongside F-75. Some children may initially refuse the RUTF; continue to offer RUTF at every feed until they eat the full diet.

The diet should provide an average increase in daily energy intake about one-third higher than the amount given during the stabilisation phase (i.e., 150 kcal/kg bodyweight/day).

RUTF Quantities

A full day's amount of RUTF should be given to the caregiver and the amount taken should be checked five times per day.

When the child is taking more than 75 percent of the daily prescribed amount of RUTF, he/she should be referred to OTP and continue treatment at home. See Table 22 for the amount of RUTF to give a child per day, according to the child's body weight.

Feeding Procedure

- Provide RUTF to the caregiver to feed the child.
- Encourage the caregiver to provide small, frequent RUTF feeds every 4 hours (five to six times per day).
- Breastfed children should be offered breast milk on demand before being fed RUTF.
- Children should be offered as much clean water as they will drink during and after the RUTF feed.
- Every 3–4 hours, provide the caregiver the same amount of F-75 milk for the child as in the stabilisation phase.
- When the child finishes 50 percent of the RUTF, reduce the volume of F-75 provided by 50 percent.
- Stop providing F-75 when the child is able to finish 75–100 percent of the daily RUTF ration.

Transition Special Cases Who Cannot Consume RUTF

In rare cases, some children are not able to consume RUTF, such as children who have problems with swallowing due to severe mouth sores, cleft palate, or neurological problems such as cerebral palsy. In these circumstances, children should be put on F-100. Ongoing counselling should also be given to caregivers to explain the child's condition and the implications for feeding.

Quantities of F-100 for Children Who Do Not Take RUTF

- The volume of feeds remains the same as in the stabilisation phase.
- Give 130 ml of F-100 (150 kcal) per kg bodyweight per day.
- Use the F-100 look-up table (see *Annex 5-6*) for the volume of F-100 to give per feeding, according to the child's bodyweight.

Preparation of F-100

- **For a large number of children (≥ 5):** Add 1 packet of F-100 (114 grams) to ½ litre (500 ml) of water. The water needs to be boiled and cooled prior to mixing.
- **For a few children (< 5):** Smaller volumes can be prepared by measuring small amounts of F-100 using the red scoop (add 18 ml water per red scoop of F-100 powder).

Feeding Procedure

The procedures and timing of F-100 feeds in the transition phase are the same as in the stabilisation phase. Breastfed children should be offered breast milk on demand before being fed F-100. Children should never be force-fed.

Monitoring during the Transition Phase

The following parameters should be monitored daily and entered on the inpatient treatment chart:

- Weight
- Degree of oedema (0 to +++)

- Body temperature, pulse, and respiration
- Standard clinical signs, such as stool, vomiting, dehydration, cough, respiration, and liver size
- MUAC (measure and record each week)
- Other relevant data (e.g., absences, refusal of feed)
- Mood or smile

Progression from the Transition Phase

Recovering children can progress to outpatient care. Only those who cannot eat RUTF remain in inpatient care. Infants under six months should remain in inpatient care until full recovery. Children experiencing certain complications (more details in the appropriate subsection below) should be returned to the stabilisation phase.

Criteria to Move Back from the Transition Phase to the Stabilisation Phase

The child should be moved back to the stabilisation phase if there is:

- Weight gain of more than 10 g/kg/day in association with an increase in respiratory rate (indicative of excess fluid retention)
- Increasing or developing oedema
- A rapid increase in the size of the liver
- Any sign of fluid overload
- Tense abdominal distension
- A complication that necessitates an intravenous infusion
- A need for feeding by NG tube
- Significant refeeding diarrhoea leading to weight loss

NOTE: It is common for children to have some change in stool frequency when their diet changes. This does not need to be treated unless the children lose weight. Having several loose stools without weight loss is **not** a criterion for moving the child back to the stabilisation phase.

Criteria to Move from the Transition Phase to the Outpatient Care

- A good appetite: The child passes the appetite test and takes more than 75 percent of the daily RUTF ration.
- Oedema reduced to moderate (++) or mild (+). If marasmic kwashiorkor, oedema should totally disappear
- Medical complications are resolving.
- Child is clinically well and alert.

Criteria to Move from the Transition Phase to the Rehabilitation Phase in Inpatient Care (for the Very Few Exceptions Who Cannot Transition to RUTF)

- A good appetite: The child takes all of the F-100 prescribed for the transition phase (150 kcal/kg/day).
- Oedema reduced to moderate (++) or mild (+). If marasmic kwashiorkor, oedema should totally disappear.
- Medical complications are resolving.
- Child is clinically well and alert.

STEP 8: Give Catch-up Diet for Rapid Growth

In the rehabilitation phase, a vigorous approach to feeding is required to achieve very high energy intakes and rapid weight gain of >10 g gain/kg/day. RUTF or F-100 are used during the rehabilitation phase.

Children progressing to the rehabilitation phase who consume RUTF should be discharged from inpatient to outpatient care and monitored weekly or bi-weekly at a facility close to his/her home. Refer to chapter 4 of these guidelines for case management in OTP.

A very small number of children who progress from the transition phase will require inpatient care and should be moved to the inpatient rehabilitation phase.

Dietary Treatment for the Small Proportion of Children in Inpatient Rehabilitation

- Provide F-100 according to child's bodyweight.
- Give four-hourly feeds of F-100 per day.

Quantities of F-100

- Give 200 ml of F-100 (200 kcal) per kg of bodyweight per day.
- Use the reference tables in *Annex 5-6* for the volume of F-100 to give per feed in the inpatient rehabilitation phase, according to child's bodyweight.

Preparation of F-100

- **For a large number of children (≥ 5):** Add 1 packet of F-100 (114 grams) to ½ litre (500 ml) of water. The water needs to be boiled and cooled prior to mixing.
- **For a small number of children (< 5):** Smaller volumes can be prepared by measuring small amounts of F-100 using the red scoop and adding 18 ml water per 1 red scoop of F-100 powder.

If pre-packaged F-100 is not available, use one of the recipes in *Annex 5-14* to prepare F-100 using locally available ingredients and CMV.

Feeding Procedure

- Feed by cup and saucer.
- Breastfed children should be offered breast milk on demand before being fed F-100.
- After the feed, always offer an additional quantity to the child if he/she takes all the feed given quickly and easily. The child should be allowed to take as much as F-100 as he/she wants.

Individual Monitoring

Monitor and record the following parameters on the inpatient treatment chart:

- Weight (daily)
- Degree of oedema: 0, +, ++, or +++ (daily)
- Body temperature, respiration, and pulse (two times per day)
- Standard clinical signs, such as stool, vomiting, dehydration, cough, and respiration (daily)
- MUAC (each week)
- Other data, such as absence, refusal of feed, etc. (daily)
- Findings of full medical examinations (daily)
- If a child develops any signs of a medical complication while receiving treatment in rehabilitation phase, he/she should be referred back to the stabilisation phase.

STEP 9: Provide Sensory Stimulation and Emotional Support

Sensory stimulation should be provided to the children throughout the period they are in inpatient care, including:

- Tender loving care
- A cheerful, stimulating environment
- Structured play therapy for 15–30 minutes per day
- Maternal involvement, when possible, for comforting, feeding, bathing, and playing with the child

The Environment

- The NRU should be brightly coloured, with decorations that interest children.
- A radio can provide background music.
- The atmosphere in the NRU should be relaxed, cheerful, and welcoming.

Play Activities

- The mother should engage with the child by talking, singing, playing simple games, and gazing into the child's eyes with a smile. Love and affection are important for quick recovery in a child with SAM.
- Play materials (e.g., toys) should be available for the children. These can be made locally by mothers while their children are in the NRU to keep them busy and stimulate them, as well.

Physical Activities

- Use tins as a drum and bang them with sticks.
- Put things 'in' and 'out' of a cup and teach these words whilst doing the action.
- Build towers with small blocks of wood.
- Make a ball (e.g., stuff a sock) and throw or kick the ball.
- Sing songs with actions (e.g., clapping hands).
- Play games like counting toes.
- Look at and talk about pictures.
- Teach parts of the body, or the names of clothes, when dressing.
- Teach words like 'water' and 'splash' when bathing.

STEP 10: Prepare for Follow-up and Discharge

The table below provides the criteria for referring children from inpatient care for continued follow-up and care as outpatients. Only a very small proportion of children will complete treatment until full recovery in inpatient care.

Table 34. Discharge Criteria from Inpatient Care (NRU)*

1. Stabilised and Referred to Outpatient Care

- Appetite has returned (passed a RUTF appetite test; the child eats more than 75% of the daily RUTF prescription) and start of weight gain.
- Medical complications are resolving.
- Bilateral pitting oedema is decreasing (if marasmic kwashiorkor admission, bilateral pitting oedema resolved).
- Child is clinically well and alert.

2. Full Recovery in Inpatient Care **:

Discharged from Inpatient Care after Rehabilitation Phase for Children 6–59 Months of Age

- MUAC ≥ 12.5 cm
- WFH/L z-score ≥ -2
- No bilateral pitting oedema for 2 consecutive weeks
- Clinically well and alert

Discharged from Inpatient Care after Rehabilitation Phase for Children 5–15 Years

- MUAC ≥ 14.5 cm (5–9 years)
- MUAC ≥ 18.5 cm (10–15 years)
- No bilateral pitting oedema for 2 consecutive weeks
- Clinically well and alert

* **NOTE:** All criteria in each category must be met to qualify for referral or discharge.

NOTE: Children should be referred to SFP for monitoring after full recovery.

NOTE: The same anthropometric indicator that is used to confirm SAM should also be used to assess whether a patient has reached nutritional recovery.

- If MUAC is used as the admission criteria, then MUAC should be used to assess and confirm nutritional recovery.
- If weight-for-length/height is used as the admission criteria, then weight-for-length/height should be used to assess and confirm nutritional recovery.
- Children who were admitted only on the basis of bilateral pitting oedema should be discharged from treatment when they meet whichever anthropometric indicator (MUAC or weight-for-length/height) is routinely used in the programme.

5.3.4 Discharge Procedure from Inpatient Care (NRU) to the OTP

- Give feedback to the caregiver on the final outcome of the child.
- Ensure that the caregiver understands how to use continuing medications.
- Measure weight, height, bilateral pitting oedema, and MUAC.
- Note the referral in the health passport, record all medications given, and indicate any important instruction for outpatient care health care providers on the OTP monitoring card. Give the card to the caregiver to bring to the OTP.
- Update the inpatient care (NRU) register with the treatment outcome. See Table 35 below for the exit categories.

- Discuss the importance of continuing care in the OTP and indicate which OTP the caregiver should attend and when.
- Give adequate RUTF to last until the next OTP appointment at the site nearest to the child's home.
- Counsel the caregiver on how to give RUTF to the child.
- Counsel the caregiver on hygiene, sanitation, good nutrition, and cooking practices.
- Advise the caregiver to immediately go to the nearest health facility if the child refuses to eat RUTF or has any of the following signs:
    - High fever
    - Frequent watery stools or stools with blood
    - Diarrhoea lasting more than 4 days
    - Difficult or fast breathing
    - Lethargy (not alert), severe weakness, loss of conscious, or convulsions
    - Increase in oedema

Table 35. Inpatient Care (NRU) Exit Categories

Category	Definition
Stabilised and Referred to OTP	Child's health condition has stabilised and is referred to outpatient care to continue treatment.
Cured	Child fully recovers in the NRU and meets discharge criteria (see Table 34).
Died	Child dies while registered in inpatient care.
Defaulted	Child is classified defaulted if absent for 2 consecutive days.
Non-Cured	Child does not meet the discharge criteria after 4 months (16 weeks) in treatment (after undergoing previous medical investigation).
Transferred for further medical care or to another NRU	Child has been transferred to another inpatient care facility for further medical investigation and treatment.

5.3.5 Failure to Respond to Treatment

Some children undergoing inpatient care may fail to respond to treatment or their condition may deteriorate at different stages of the treatment. The most frequent causes of failure to respond to inpatient treatment are listed below.

Table 36. Frequent Causes of Failure to Respond to Inpatient Treatment

Problems related to the health facility:

- Poor environment for malnourished children
- Lack of adherence to treatment protocols for SAM
- Failure to treat malnourished children in a separate area
- Failure to complete the individual treatment chart (multi-chart) correctly, resulting in gaps in data relevant to the child's progress
- Insufficient staff (particularly at night) or inadequately trained staff
- Inadequate supervision and constant rotation of staff in the treatment facility
- Inaccurate weighing scales
- Food prepared or given incorrectly

Problems related to the individual child:

- Infections, especially diarrhoea (amaebiasis, giardiasis, dysentery), pneumonia, TB, urinary infection, otitis media, malaria, HIV/AIDS, schistosomiasis, and/or hepatitis/cirrhosis
- Other serious underlying diseases or conditions, such as congenital abnormalities (e.g., Down Syndrome), neurological damage (e.g., cerebral palsy), or inborn errors of metabolism
- Insufficient feeds given
- Psychological trauma (particularly in families living with HIV and in refugee situations)
- Vitamin and mineral deficiencies
- Rumination
- Malabsorption

There are two categories of treatment failure:

- Primary failure to respond to treatment is attributed to unrecognised bacterial (e.g., TB), viral (e.g., measles, hepatitis B, or HIV) or parasitic (e.g., malaria) infections or drug-resistant infections.
- Secondary failure to respond to treatment may be due to acute infection contracted during inpatient care, reactivation of infection as immune and inflammatory responses recover, as well as insufficiency in essential nutrients in the diet provided to the child.

Table 37. Criteria for Failure to Respond to Treatment

Criteria	Time after Admission
Primary Failure to Respond	
Failure to regain appetite	Days 4–7
Failure to start to lose oedema	Days 4–7
Oedema still present	Day 10
Failure to gain at least 5 g/kg bodyweight	Day 10
Secondary Failure to Respond	
Failure to gain at least 5 g/kg bodyweight/day for 3 consecutive days	During inpatient care—rehabilitation phase

A child who meets any of the above criteria should be diagnosed as failing to respond to treatment.

The child requires extensive medical evaluation to look for causal factors; overall case management practices of these children should also be reviewed (e.g., evaluation of adherence to treatment protocol, availability of trained staff). Record 'Failure to respond to treatment' on the individual treatment chart and schedule the child to be seen by a senior, experienced paediatrician.

Corrective measures should be taken to strengthen specific areas that need improvement in the facility's SAM management practice while ensuring that treatment protocols are adhered to and that staff is adequately supervised.

Primary Failure to Respond to Treatment

Every child with unexplained primary failure to respond should be checked carefully for feeding problems and infections as follows:

- Take a careful feeding history.
- Check whether the child is finishing all feeds, and if the caregiver or another sibling is taking the food.
- Check whether night feeds are being given.
- Check that weight is taken properly.
- Check whether the feeding chart is being completed accurately.
- Monitor child feeding. Is the child taking other foods?
- Is there vomiting and/or diarrhoea?
- Check all aspects of feed preparation (i.e., use of functioning scales, proper measurement of ingredients, adequate mixing, adequate cooking).
- Check the treatment chart records.
- Check whether all medicines were given, especially antibiotics.
- Check all previous records of temperature, pulse, and respiration rate.
- Examine the child carefully, and retake his/her medical history.
- Take and record the temperature, pulse, and respiration rate.
- If possible, examine the child's urine for UTI and culture blood.
- Examine and culture sputum or tracheal aspirate[5] for tubercle bacilli.
- Examine the stool for blood, trophozoites, or cysts of Giardia; culture for bacterial pathogens.
- Test for other illnesses such as TB, hepatitis, or malaria.
- If the HIV status of the mother or child is not known, refer for testing. If child is HIV positive or exposed and has not been referred to ART services, refer him/her.

Secondary Failure to Respond to Treatment

Secondary failure to respond to treatment is a deterioration/regression in the child's condition after having progressed satisfactorily to the rehabilitation phase with a good appetite and weight gain. It is usually due to:

- Inhalation of food into the lungs: Children with SAM often have poor neuromuscular coordination between the muscles of the throat and the oesophagus. It is quite common for children to inhale food into their lungs during recovery if they are:
    - Force-fed, particularly with a spoon or by pinching the nose
    - Lying down on their back while eating
    - Given liquid diets

[5] Tracheal aspirates are very rarely positive in malnourished children with active TB, particularly if there is overnight feeding. This test should not be relied on, as it is difficult to perform well and is traumatic for the child. If it is used, overnight feeds should not be given.

- Inhalation of part of the diet is a common cause of pneumonia in malnourished patients. Patients should be closely observed while being fed by the caregiver to ensure that the correct feeding technique is being used. One of the advantages of RUTF is that it is much less likely than other food to be force-fed and inhaled.
- An acute infection contracted in the health facility from another patient (nosocomial infection) or at home from a visitor/sibling/household member: At times, as the immune and inflammatory system recovers, there appears to be a 'reactivation' of infection during recovery.
- Acute onset of malaria or TB (e.g., sudden enlargement of a cervical abscess or development of a sinus infection) may arise several days or weeks after starting a therapeutic diet.
- A limiting nutrient in the body has been 'consumed' by the child's rapid growth and is not being supplied in adequate amounts by the diet: This is very uncommon with therapeutic food such as F-100 and RUTF, but it may occur with homemade diets or with the introduction of other foods.
- Frequently, introduction of the family diet slows the rate of recovery of a SAM child.

Required Actions When Children Fail to Respond to Treatment

- Keep accurate records of all children who fail to respond to the treatment or who die. These records should include, at a minimum, each child's age, sex, date of admission, MUAC on admission, principal diagnosis, treatment, and where appropriate, date, time, and apparent cause of death.
- Systematically examine the common causes of failure to respond and death, and identify areas where case management practices should be improved to rectify problems.
- If the above actions are not immediately successful, an external evaluation should be conducted by an expert in inpatient care for SAM. An investigation into the organisation and application of the treatment protocol should be carried out as part of the evaluation.
- Review staff supervision with refresher training, if necessary.
- Recalibrate scales (and length-boards).

5.3.6 Treatment of Associated Conditions

Eye Problems

Corneal ulceration due to vitamin A deficiency requires emergency care.

- Put 1 drop of Atropine into the affected eye three times daily to relax the eye and prevent the lens from being pushed out.
- Give vitamin A immediately.
- Cover the affected eye with a damp gauze pad (dampen with 0.9% saline) and bandage to hold the pad in place.
- If necessary, put mittens or bandages on the child's hands to prevent him/her from touching his/her eyes.
- If there is pus or inflammation, instil Chloramphenicol or Tetracycline eye drops 4 times daily for 7–10 days.

NOTE: Children with vitamin A deficiency are likely to be photophobic and will keep their eyes closed. It is important to examine the eyes very gently to prevent corneal rupture.

Oral Thrush

Treat oral thrush with oral nystatin suspension (100,000 IU/ml). Give 1–2 ml 4 times a day for 7 days.

Severe Anaemia

Anaemia is only a serious problem if it is very severe and there is a risk of heart failure.

- Treat if the haemoglobin concentration is <4 g/dl or if Hb concentration is 4-6 g/dl and there are signs of respiratory distress.
- Stop oral intake and IV fluids during the transfusion.
- Give Furosemide 1 mg/kg intravenously at the start of the transfusion.
- Give a small blood transfusion of whole fresh blood (10 ml/kg) slowly over 3 hours (or 7 ml/kg packed red cells if there are signs of congestive heart failure).
- Wait 3 hours after the transfusion before feeding.
- Do not give a second transfusion, even if the Hb is still low, for at least 3 days.
- Do not give iron in the stabilisation and transition phases.

Dermatosis (Skin Lesions)

Signs

- Hypo-or hyperpigmentation
- Desquamation
- Ulceration (spreading over limbs, thighs, genitalia, groin, and/or behind the ears)
- Exudative lesions (resembling severe burns), often with secondary infections, including Candida

Treatment

- Protect skin from further damage by handling the child gently. Infections enter the body easily through broken skin or fissures.
- Give second or third-line systemic antibiotics.
- Monitor body temperature; do not wash the child unless the environmental temperature is high.
- If possible, uncover and expose the lesions during the heat of the day so that they dry (form a crust).
- If the child has severe (+++) dermatosis, bathe for 10–15 minutes/day in 1% potassium permanganate solution. This dries the lesions, helps prevent loss of serum, and inhibits infection. If the child has severe dermatosis but is too sick to be bathed, dab 1% potassium permanganate solution on the lesions and dress oozing areas with gauze to keep them clean.
- If 1% potassium permanganate is not available, dress with silver sulfadiazine impregnated tulle or cream (1%) once per day; if unavailable, apply barrier cream (10% zinc oxide ointment, castor oil ointment, petroleum jelly, or gentian violet paint). Use a different tube of ointment for each child to avoid spreading infection.
- At night and in cold conditions, dress raw areas with sterile paraffin gauze.
- For sore areas around the perineum, omit diapers and keep the area dry. Apply nystatin cream twice daily if the diaper area is colonized with Candida.

Persistent Diarrhoea

- Diarrhoea is a common feature of malnutrition, but it should subside during the first week of treatment with cautious feeding. In the rehabilitation phase, loose, poorly formed stools are no cause for concern, provided that weight gain is satisfactory.
- Mucosal damage and giardiasis are common causes of continuing diarrhoea. Where possible examine the stools by microscopy. If cysts or trophozoites of giardia lamblia are found, give:

- Metronidazole (7.5 mg/kg 8-hourly for 7 days)
- Treat with Metronidazole if stool microscopy cannot be undertaken or if there is clinical suspicion of giardiasis.

Lactose intolerance: Only rarely is diarrhoea due to lactose intolerance. Treat only if continuing diarrhoea is preventing general improvement. Starter F-75 is a low-lactose feed. In exceptional cases, substitute milk feeds with yoghurt or a lactose-free infant formula. Reintroduce milk feeds gradually in the rehabilitation phase.

Osmotic diarrhoea may be suspected if diarrhoea worsens substantially with hyperosmolar starter F-75 and ceases when the sugar content is reduced and osmolarity is <300 mOsmol/l. In such cases, use isotonic F-75 or low osmolar cereal-based F-75.

Tuberculosis (TB)

If TB is strongly suspected (i.e., if the child has had contact with an adult TB patient, poor growth despite good intake, chronic cough, or a chest infection that has not responded to antibiotics):

- Perform a Mantoux test (**NOTE:** false negatives are frequent).
- Take a chest x-ray, if possible.
- If the test is positive or there is a strong suspicion of TB, treat according to national TB guidelines.

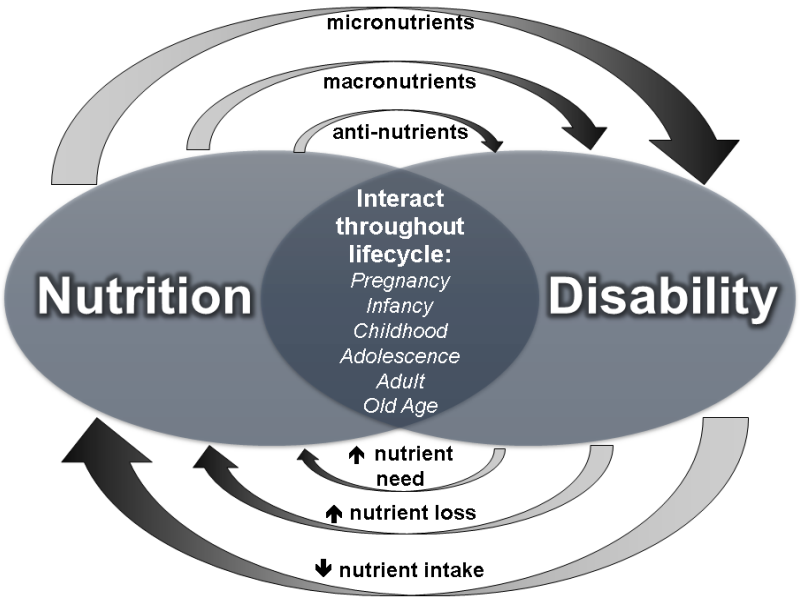
5.3.7 Management of SAM Children with Disability

As outcomes in management of SAM children continue to improve and children who previously would have died now survive, disability is becoming a more common underlying factor of admissions into the CMAM programme.

There are important links and interactions between disability and malnutrition (Kerac et al. 2014; Gladstone et al. 2014). Each can cause or contribute to the other (see Figure 5 below) (Groce et al. 2013). Children may not be able to reach/access food as well as their healthy siblings; they may have impaired swallowing; they may lose nutrients through vomiting. Cerebral palsy, cleft lip/palate are some of the common disabilities in children with SAM. It is important for CMAM programme to proactively look for and manage disability for the following reasons:

- To counsel and advise the mother/carer about the disability
- To offer disability-specific feeding advice and treatment
- To have more realistic outcome expectations (e.g., the child may be much slower to gain weight; may not reach target weight at all)
- To ensure that a child is referred to appropriate support services/organisations

Figure 5. Interactions between Malnutrition and Disability



5.4 Inpatient Care for the Management of SAM with Medical Complications for Infants 0–6 Months

Management of infants 0–6 months with SAM and infants over 6 months who weigh under 3.0 kg, should be done within the context of IYCF recommendations (WHO 2009; UNICEF 2011; ENN 2007).

Breastfeeding support is an integral component of therapeutic care for infants with SAM. This support includes protection and support for early initiation, exclusive, and continued breastfeeding. For non-breastfed infants, therapeutic care offers support for reducing the risks from artificial feeding.

The following factors may lead to SAM in infants:

- Maternal factors
  - Lack of breastfeeding
  - Partial breastfeeding
  - Mother is dead or absent
  - Mother is malnourished, traumatized, ill, or otherwise unable to care for the infant
- Social factors
  - Early initiation of artificial feeds
- Infant factors
  - Disabilities that affect the infant's ability to suckle or swallow, or a developmental problem affecting infant feeding
  - Prematurity

Infants with SAM need special care. The main objective of treatment for these infants is to improve or re-establish breastfeeding and provide temporary or longer term, appropriate therapeutic feeding, as well as to provide nutritional, psychological, and medical care for their caregivers.

Infants 0–6 months with SAM should always be treated in inpatient care. RUTF is not suitable for infants 0–6 months, as the reflex of swallowing is not yet present.

This chapter provides guidance on treatment of two categories of infants 0–6 months:

- Breastfed infants 0–6 months with a lactating caregiver
- Non-breastfed infants 0–6 months without the prospect of breastfeeding

Infants over 6 months with a bodyweight under 3.0 kg should be included in these two categories, as well.

5.4.1 Breastfed Infants

Table 38. Admission Criteria for Breastfed Infants 0–6 Months or > 6 Months Weighing < 3.0 Kg

Breastfed infants 0–6 months, admit if the infant has:

- WFH/L z-score < -3 (if > 45 cm)
- Bilateral pitting odema +, ++, or +++
- Visible severe wasting (if the infant is < 45 cm in length)
- Too weak to suckle effectively (independently of weight-for-length), or
- Fails to gain weight[6]
- Any medical or social issue that requires detailed assessment or intensive support, e.g., disability, depression of the caregiver, or other adverse social circumstances

All infants > 6 months but weighing < 3.0 kg should be admitted to inpatient care.

[6] Children less than 6 months whose growth is faltering (or is below the -3z weight-for-age growth curve) during growth monitoring must be referred to a clinician for further assessment. If the child does not gain weight following breastfeeding counselling and /or treatment of underlying medical conditions, then the child should be referred to NRU.

Routine Medicines and Supplements

Antibiotics

If no medical complications: Give Amoxicillin 15 mg/kg 3 times per day for 5 days to infants weighing at least 3 kg.

If medical complications: Give benzyl penicillin 50,000 IU/kg IV/IM every 6 hours for 48 hours, then oral Amoxicillin 15 mg/kg every 8 hours for 5 days (infants < 2 months should take 15 mg/kg every 12 hours) **AND**
Gentamicin 7.5 mg/kg bodyweight/day IM or IV for 7 days. If not possible to give amoxicillin, continue benzyl penicillin IV/IM for a total of 7 days **and** give Gentamicin 7.5 mg/kg bodyweight/day IM or IV for 7 days.

Do not use Chloramphenicol in infants under 2 months of age.

Dietary Treatment

The objective is to supplement the child's breastfeeding with therapeutic milk while stimulating breast milk production.

- The infant should be breastfed as frequently as possible. Breastfeed every 3 hours for at least 20 minutes (more if the child cries or demands more).
- Between 30 minutes and 1 hour after a normal breastfeeding session, give maintenance amounts of therapeutic milk.
- Breastfed infants without bilateral pitting oedema should be provided with F-100-Diluted (see Feed Preparation subsection below).
- Provide F-75 for infants with oedema and change to F-100-Diluted when the oedema is resolved.

Quantities of F-100-Diluted to Give

F-100-Diluted is given at amounts of 130 ml/kg/day, distributed across 8 feeds per day (i.e., feeding every 3 hours).

Use the reference tables (see Annex 5-7) for amounts of F-100-Diluted to give to infants during feeding. Use the supplementary suckling technique for feeding F-100-Diluted (see Feeding Technique below). The quantity of F-100-Diluted should not be increased as the child starts to gain weight.

F-100-Diluted Intake and Changes in Bodyweight

The progress of the infant is monitored by daily weighing. The infant should be weighed daily with a scale graduated to within 10 g (or 20 g).

If the infant loses weight over 3 consecutive days, continues to be hungry, and is taking all his/her F-100-Diluted, add 5 ml extra to each feed.[7]

In general, supplementation is not increased during the stay in the health facility. If the infant grows regularly with the same quantity of milk, it means the quantity of breast milk is increasing. Also, if the child does not finish all the supplemental feed but continues to gain weight over several days, the intake from breast milk is increasing and the infant is taking adequate quantities to meet his/her requirements.

[7]Maintenance amounts of F-100-Diluted are given using the supplemental suckling technique. If the volume of F-100-Diluted being taken results in weight loss, either the child's maintenance requirement is higher than calculated or there is significant malabsorption.

When an infant gains weight at a rate of at least 10 g/day for 3 consecutive days:

- Decrease the quantity of F-100-Diluted by one-quarter and after 2–3 days, to one-half of the maintenance intake, so that the infant gets more breast milk.
- If the infant continues to gain weight, stop supplementary suckling completely.
- If the infant does not continue to gain weight, increase the amount of F-100-Diluted given to 75 percent of the maintenance amount for 2–3 days, and then reduce it again if weight gain is maintained.
- If the caregiver consents, it is advisable to keep the infant in inpatient care for a few more days on breast milk alone to make sure that he/she continues to gain weight. If the caregiver wishes to go home as soon as the infant is taking breast milk with increased demand, discharge the child and refer him/her to the nearest SFP for follow-up.

Preparation of F-100-Diluted

- **For a large number of children (≥ 5):** Add one packet of F-100 (114 g) to 675 ml of water (instead of 500 ml). This is referred to as F-100-Diluted.
- **For a small number of children (< 5):**
  - Add 35 ml of water to 100 ml of prepared F-100 to make 135 ml of F-100-Diluted. Discard any excess milk after use. Do not make smaller quantities.
  - If you need more than 135 ml, add 70 ml of water to 200 ml of F-100 to make 270 ml of F-100-Diluted and discard any excess milk after use.
- If pre-packaged F-100 is not available, use one of the alternative recipes provided in Annex 5-14 to prepare F-100 using locally available ingredients and CMV. Add 350 ml of water to 1 litre of prepared F-100 to make F-100-Diluted.

F-100-Diluted Feeding Procedure

- Ensure good breastfeeding through good attachment and effective suckling. Avoid distractions and let the infant suckle the breast at his/her own speed.
- Build the mother's confidence to help milk flow.
- Encourage more frequent and longer breastfeeding sessions to increase milk production and remove any distractions that may disrupt breastfeeding.
- Use the supplementary suckling technique to provide F-100-Diluted.
- An NG tube should be used if the child:
  - Takes less than 80 percent of the prescribed diet on two consecutive feeds during stabilisation
  - Has pneumonia (rapid respiration rate) and difficulty swallowing
  - Has painful lesions/ulcers of the mouth
  - Has a cleft palate or other physical deformity
  - Is very weak and shows difficulty remaining conscious
  - The NG tube should only be used in the stabilisation phase. Refer to *Annex 5-18* for instructions on how to insert an NG tube.

Ferrous Sulphate

Add ¼ crushed 50 mg ferrous sulphate tablet to ½ litre (500 ml) of F-100 before diluting with an additional 175 ml of boiled, cooled water to make F-100-Diluted. Alternatively, provide daily doses of iron syrup orally (see dosage instructions in the table below).

Table 39. Doses of Iron Syrup if F-100 Is Used in Rehabilitation

Weight of Child	Doses of Iron Syrup: Ferrous Fumarate, 100 mg per 5 ml (20 g elemental iron per ml)
3–6 kg	0.5 ml
6–10 kg	0.75 ml
10–15 kg	1 ml
Note that the above dosages are very small (less than ¼ teaspoon) and need to be measured with a syringe.	

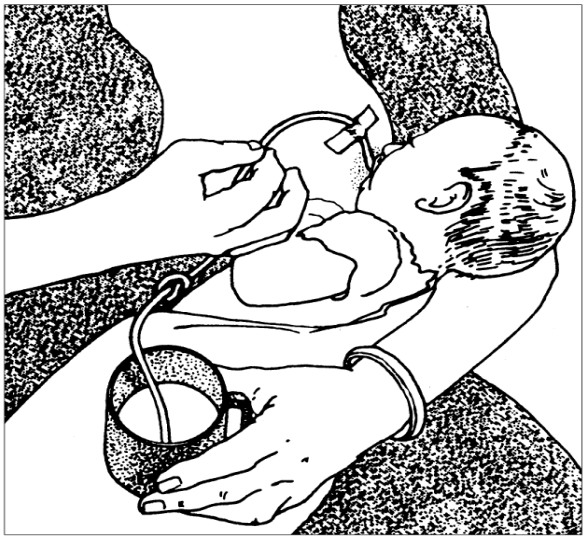
Supplementary Suckling Technique

Use the supplementary suckling technique to re-establish or commence breastfeeding, and to provide maintenance amounts of F-100-Diluted to severely malnourished infants. The technique entails having the infant suckle the breast while also taking supplementary F-100-Diluted through a fine tube that runs alongside the nipple. The infant is nourished by the supplementary F-100-Diluted and the suckling stimulates the breast to produce more milk.

Using the supplementary suckling technique is simple. Follow the steps below:

- The caregiver holds a cup of F-100-Diluted.
- One end of an NG tube (size nº 8) is put in the cup and the other end of the tube is placed on the breast, at the nipple.
- The infant is offered the breast, ensuring proper attachment.
- The cup should be held 5–10 cm below the level of the nipple for easy suckling. If the child has a strong suckle, the cup can be lowered to up to 30 cm below nipple-level.

Figure 6. Supplementary 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 possible, the tube is then exposed to direct sunlight to kill bacteria.

Individual Monitoring

The following parameters should be monitored daily and entered on the inpatient care treatment chart:

- Weight
- Degree of oedema (0, +, ++, or +++)
- Body temperature, pulse, and respiration
- Standard clinical signs: stool, vomiting, dehydration, cough, respiration, and liver size
- Other relevant data, e.g., if the child is absent, vomits or refuses a feed; whether the patient is fed by NG tube or given an IV infusion or transfusion

Supportive Care for Mothers

- Provide mothers with supportive care for breastfeeding.
- Focus on creating conditions that will facilitate and increase breastfeeding, such as establishing safe "breastfeeding corners" for mothers and infants, one-on-one counselling, and mother-to-mother support.

- Traumatised and depressed mothers may have difficulty caring for their infants and require mental and emotional support, which should also support an increase in breastfeeding.
- Ensure that you assess the mother's nutritional status using the MUAC. If her MUAC is less than 22.0 cm, enrol her in the SFP.
- Explain to the mother the different treatment steps her child will go through. Try to strengthen the mother's confidence and discourage self-criticism for her perceived inability to provide adequate breast milk.
- Alert the mother of the risk of a new pregnancy during this period.

Adequate Nutrition and Supplementation for Breastfeeding Mothers

Breastfeeding mothers need about 450 kcal per day of extra energy. Essential micronutrients in breast milk come from the mother's diet or micronutrient supplements. It is important that the mother's nutrient and energy needs be met. The mother should consume at least 2,500 kcal per day. The health facility should provide nutritious food for the mother. The mother should also receive vitamin A (200,000 IU) if within 8 weeks postpartum. Dehydration may interfere with breast milk production; it is important to ensure that the mother drinks at least 2 L of water per day.

Discharge Criteria

Table 40. Discharge Criteria for Breastfed Infants

Infants < 6 months of age (or weighing < 3.0 kg) can be transferred from inpatient to outpatient care when:

- Successful re-lactation with effective suckling has been achieved.
- All clinical conditions or medical complications, including oedema, are resolved.
- Infants have a good appetite and are clinically well and alert.
- Weight gain on exclusive breastfeeding is satisfactory (e.g., above the median of the WHO growth velocity standards, or more than 5 g/kg/day for at least 3 successive days).
- Infants have been checked for immunisations and other routine interventions.
- Mothers or caregivers have been linked with community-based follow-up and support.

Follow-Up After Discharge

Follow-up is very important. The mother should be referred to nearest SFP and receive fortified blended flour (CSB+) to supplement her diet. It is important to monitor the infant's progress and support breastfeeding and the introduction of complementary food at 6 months. Follow-up should begin 2 weeks after discharge.

5.4.2 Infants 0–6 Months without the Prospect of Breastfeeding

Table 41. Admission Criteria for Non-Breastfed Infants 0–6 Months or > 6 Months Weighing < 3.0 kg

- Visible severe wasting (if the infant is < 6 months and < 45 cm length)
- WFH/L z-score < -3 (if > 45 cm)
- Bilateral pitting oedema
- Any medical or social issue that require detailed assessment or intensive support, e.g. disability, depression of the caregiver, or other adverse social circumstances
- Infant > 6 months and weighs under <3.0 kg)

STABILISATION PHASE

Routine Medicines and Supplements: Antibiotics

If no medical complications: Provide Amoxicillin 15 mg/kg 3x/day for 5 days to infants ≥ 2 months.

If medical complications: Give benzyl penicillin 50,000 IU/kg IV/IM every 6 hours for 48 hours; followed by oral Amoxicillin 15 mg/kg every 8 hours for 5 days (Infants < 2 months should receive 15 mg/kg every 12 hours) **AND** Gentamicin 7.5 mg/kg/day IM or IV for 7 days.; if Amoxicillin is not available, continue benzyl penicillin IV/IM for a total of 7 days and give Gentamicin 7.5 mg/kg/day IM or IV for 7 days.

Do not use Chloramphenicol on infants under 2 months of age.

Dietary Treatment

- Infants 0–6 months with wasting (marasmus) should be given F-100-Diluted in the stabilisation phase. Never provide full-strength F-100 to infants 0–6 months.
- Infants 0–6 months with oedema (kwashiorkor) should always be given F-75 in the stabilisation phase.

Use the reference table (see *Annex 5-8*) for amounts of F-100-Diluted or F-75 to give to non-breastfed infants in the stabilisation phase.

Feed Preparation

- **For a large number of children (≥ 5):** Add 1 packet of F-100 (114 grams) to 675 ml of water (instead of 500 ml) to make F-100-Diluted. For larger quantities of F-100-Diluted, add 700 ml of water to 2 l of prepared F-100.
- **For a small number of children (< 5):**
    - Add 35 ml of water to 100 ml of prepared F-100 to make 135 ml of F-100-Diluted. Discard any excess milk after use. Do not make smaller quantities.
    - If you need more than 135 ml, add 70 ml of water to 200 ml of F-100 to make 270 ml of F-100-Diluted. Discard any excess milk after use.
- If pre-packaged F-100 is not available, use one of the recipes in *Annex 5-14* to prepare F-100 using locally available ingredients and CMV.

Feeding Procedure

- Feed by cup and saucer or with an NG tube (by drip using gravity, not pumping).
- An NG tube should be used if the child:
    - Takes less than 80 percent of the prescribed diet on two consecutive feeds during stabilisation
    - Has pneumonia (rapid respiration rate) and difficulty swallowing
    - Has painful lesions/ulcers of the mouth
    - Has a cleft palate or other physical deformity
    - Is very weak and shows difficulty remaining conscious
    - The NG tube should only be used in the stabilisation phase. *Refer to Annex 5-18 for instructions on how to insert an NG tube.*

Feeding Technique

Apply the correct feeding technique (see Feeding Technique subsection in STEP 7: Start Cautious Feeding) to ensure that the infant has adequate intake.

Ferrous Sulphate

Add ¼ of a crushed 50-mg ferrous sulphate tablet to ½ litre (500 ml) of F-100 before diluting the F-100 with 175 ml of boiled, cooled water to make F-100-Diluted. Alternatively, provide daily doses of iron syrup orally (see Table 39 for dosage amounts).

Individual Monitoring

The following parameters should be monitored daily and entered on the inpatient treatment chart:

- Weight
- Degree of oedema (0, +, ++, or +++)
- Body temperature, pulse, and respiration
- Standard clinical signs: stool, vomiting, dehydration, cough, respiration, and liver size
- Other relevant data (e.g., if the child is absent, vomits, or refuses a feed; whether the patient is fed by an NG tube or is given IV infusion or transfusion)

Criteria to Progress from the Stabilisation Phase to the Transition Phase

Two criteria must be met for children to progress from the stabilisation to the transition phase:

- Return of appetite
- Lessening of oedema, which normally consists of appropriate and proportionate weight loss as oedema starts to subside (children with severe oedema [+++] should remain in the stabilisation phase until their oedema can be categorized as moderate [++])

TRANSITION PHASE

Routine Medicines and Supplements

Routine antibiotic therapy should be continued during the transition phase until the child is transferred to the rehabilitation phase.

Dietary Treatment

Use the standard protocol for older children in the transition phase, with one modification—use only F-100-Diluted.

Increase the volume of F-100-Diluted feeds by one-third, as compared to the amount given during the stabilisation phase. Refer to Annex 5-9 for the amount of F-100-Diluted to give to non-breastfed infants in the transition phase.

Individual Monitoring

Continue surveillance as outlined in the stabilisation phase.

Criteria to Progress from the Transition Phase to the Rehabilitation Phase

Four criteria must be met before children can progress from the transition to the rehabilitation phase. Children must have:

- A good appetite, defined as taking almost all (at least 90 percent) of the F-100-Diluted prescribed for the transition phase
- Complete loss of oedema (kwashiorkor)
- Completed a minimum 2-day stay in the transition phase (if patient was wasted)
- No other medical problems

REHABILITATION PHASE

Dietary Treatment

Use the standard protocol for older children in the rehabilitation phase, with the following modifications:

- Only use F-100-Diluted.
- Infants should receive twice the volume of F-100-Diluted per feed, as compare to the amount given during the stabilisation phase. Refer to *Annex 5-10* for the amounts of F-100-Diluted to give to non-breastfed infants in the rehabilitation phase.

Individual Monitoring

Continue with rehabilitation phase surveillance, as outlined in the standard protocol for older children, using the inpatient care treatment chart.

Rehabilitation Phase Discharge Criteria for Non-Breastfed Infants under 6 Months or Older Non-Breastfed Infants Weighing under 3.0 Kg

Table 42. Discharge Criteria for Non-Breastfed Infants 0–6 Months or Older Non-Breastfed Infants Weighing < 3.0 Kg

Required criteria:

- WFH/L z-score ≥ - 2 for 2 consecutive weeks
- No oedema for 2 consecutive weeks
- Clinically well and alert, with no medical problems

Other recommendations:

- Infants can be switched to other methods of feeding upon discharge, per the Malawi IYCF recommendations.
- Caregiver should be provided adequate counselling on care and feeding practices, danger signs, and when to return to the health centre for follow-up.
- Infants should be referred to the growth monitoring programme.
- Caregivers should be referred to social welfare.

Follow-Up

- Continuity of care and follow-up are important after discharge to monitor the child's recovery and progress and to educate the caregivers on the need to introduce complementary food at 6 months of age.
- Follow-up should be done every 2 weeks in the SFP until the child is 6 months of age.
- Non-breastfed children < 6 months should be referred to social welfare.
- Non-breastfeed children > 6 months whose criteria of admission was weight less than 3 kg should be discharged to the SFP and given CSB++.

5.5 Competencies and Standards for Inpatient Management of SAM in Children

Definition of Terms

Competency: The ability to apply knowledge and skills to produce a desired nutrition outcome (i.e., what OTP health care personnel are expected to know and be able to do).

Competency Standard: Defines the range of skills that are needed to achieve a desired nutrition outcome or competency.

Table 43. Competency Standards in Inpatient Care

Competency	Competency Standard
1. Health care provider demonstrates the ability to admit a SAM child with medical complications for inpatient care.	Understands admission criteria for the management of SAM with medical complications
	Prioritises SAM children for ETAT
	Takes children's medical history
	Takes children's anthropometric measurements
	Examines children for medical complications and underlying causes of SAM
	Conducts routine investigations (e.g., HIV, rapid malaria test, and Hb) and explains the procedures to caregivers
2. Health care provider demonstrates the ability to provide medical and nutritional care and to treat SAM children in the inpatient care unit.	Prevents and treats hypoglycaemia
	Prevents and treats hypothermia
	Prevents and treats dehydration
	Corrects electrolyte imbalances
	Treats and prevents infections
	Provides micronutrient supplementation
	Starts cautious feeding
	Gives catch-up diet for rapid growth
	Provides sensory stimulation and emotional support
	Prepares children for follow-up and discharge
3. Health care provider demonstrates ability to identify and manage failure to respond to treatment.	Identifies common reasons for failure to respond to treatment
	Takes action in the management of primary failure to respond to treatment
	Takes action in the management of secondary failure to respond to treatment
4. Health care provider demonstrates the ability to discharge the child from inpatient care.	Understands the outpatient care discharge criteria
	Takes action to discharge children from inpatient care

Annex 5-1: Emergency Treatment for Children with SAM

CONDITION	IMMEDIATE ACTION
Dehydration	**If a child with SAM and acute diarrhoea or severe vomiting has any signs of dehydration** (e.g., sunken eyes with recent onset of diarrhoea)**, and is not lethargic or unconscious:** **DO NOT GIVE IV FLUID; rehydrate orally as follows:** • Give 50 ml 10% glucose or sugar water (infants 25 ml) orally or by nasogastric tube (NGT). • Give ReSoMal 5 ml/kg every 30 minutes for 2 hours orally (if child is too ill, give ReSoMal by NGT). • Monitor pulse and respiration rates every 30 minutes during rehydration. • Then, give ReSoMal 5–10 ml/kg every 2 hours in alternate hours with F-75 10 ml/kg every 2 hours for up to 10 hours. **STOP if child displays signs of hydration:** clinically well and alert, normal eyes, tears, moist tongue, and drinks normally. **STOP if child shows signs of over-hydration (which may lead to congestive heart failure):** fast breathing, increase in both respiratory rate (≥5 breaths/min) **AND** pulse rate (≥25 beats/min).

Shock	**If the child has signs of shock (**cold hands with slow capillary refill (longer than 3 seconds) and/or weak or fast pulse) **and is lethargic or unconscious:**
	
	• Give oxygen, 1–2 litres/minute.
	• Keep the child warm.
	• Give sterile 10% glucose 5 ml/kg IV.
	• Give IV fluid at 15 ml/kg for 1 hour, using one of the following solutions (in order of preference):
	  ○ Half-strength Darrow's solution with 5% dextrose, or
	  ○ Ringer's lactate with 5% dextrose*
	  ** Add sterile potassium chloride (20 mmol/L).*
	
	(Or if above not available use 0.45% saline with 5% glucose*)
	
	DO NOT GIVE AS A BOLUS
	
	• Monitor pulse and respiration rates every 10 minutes.
	• Give antibiotics.
	
	STOP IV if the child shows signs of over-hydration (may lead to congestive heart failure): fast breathing, increase in both respiratory rate (≥ 5 breaths/min) **AND** in pulse rate (≥ 25 beats/min). Other signs of heart failure are: distension of the jugular veins, enlarged liver, eyelid oedema, gallop rhythm, fine crackling in the lungs.
	
	If there are signs of improvement after giving IV fluid for an hour, continue to give IV fluid 15 ml/kg for a second hour.
	
	If there are NO signs of improvement after the first hour of IV fluid, assume child has septic shock. In this case:
	
	• Give maintenance fluids 4 ml/kg/hour while waiting for blood.
	• Order 10 ml/kg fresh whole blood and when blood is available, stop oral intake and IV fluids.
	• Give Furosemide 1 ml/kg IV at the start of the transfusion.
	• Transfuse whole fresh blood 10 ml/kg slowly over 3 hours. If there are signs of heart failure, give 7 ml/kg packed cells instead of whole blood.

	If the child with SAM has signs of shock, but is not lethargic or unconscious: • Keep the child warm. • Give 10% glucose 5 ml/kg or 50 ml 10% glucose or sugar water (infants 25 ml) orally or by NGT. • Give antibiotics. • Proceed immediately to full assessment and treatment; initiate oral or nasogastric feeding with F-75.

Hypoglycaemia	**If the child with SAM has hypoglycaemia** (blood glucose < 3 mmol/L or < 54 mg/dl)**:** • Give sterile 10% glucose 5 ml/kg IV, then 50 ml 10% glucose or sugar water (infants 25 ml) by NGT, or what is first available. • Keep the child warm. • Give antibiotics. • Start feeding with F-75.
Hypothermia	**If the child with SAM has signs of hypothermia** (< 35°C axillary temperature)**:** • Warm the child. • Give sterile 10% glucose 5 ml/kg IV or 50 ml 10% glucose or sugar water (infants 25 ml) by NGT. • Give antibiotics. • Start feeding with F-75.
Severe pneumonia	**If the child with SAM has signs of severe pneumonia** (central cyanosis, severe respiratory distress, inability to drink or retain fluids (i.e. vomiting everything), convulsions, low chest wall in-drawing, stridor (in a calm child), or fast breathing)**:** • Give oxygen, 1-2 litres/minute. • Keep the child warm. • Give antibiotics. • Initiate cautious feeding by NGT.
Convulsions	**If the child with SAM has signs of convulsions:** • Give Diazepam or Paraldehyde rectally. • Turn the unconscious child onto his/her side to reduce the risk of aspiration and stabilise the body position. • Give sterile 10% glucose 5 ml/kg by IV.
Severe anaemia	**If the child with SAM has very severe anaemia** (Hb < 4 g/dl *or* < 6 g/dl with respiratory distress), a blood transfusion is required: • Give whole fresh blood 10 ml/kg body weight slowly over 3 hours. If there are signs of anaemic heart failure, give 7 ml/kg packed cells over 3 hours rather than whole blood. • Stop all oral intake and IV fluids during the transfusion. • Give Furosemide 1 ml/kg IV at the start of the transfusion.
Congestive heart failure	**If the child with SAM develops signs of fluid overload or heart failure during rehydration** (the first sign is fast breathing; other danger signs are increases in respiratory rate (≥ 5 breaths/min) and in pulse rate (≥25 beats/min), distension of the jugular veins, an enlarged liver, eyelid oedema, gallop rhythm, and fine crackling in the lungs)**:** • Stop all food intake and IV fluids. Do not give any fluids until the heart failure has improved. • Give Furosemide 1 mg/kg IV. Monitor the child closely when giving furosemide and reassess the child frequently until symptoms improve. Give Digoxin 15 µg/kg IV only if the diagnosis of heart failure is unmistakable (elevated jugular venous pressure).
Signs of Blindness	**If the child with SAM has dry conjunctiva or cornea, corneal clouding or ulceration, Bitot's spots, or keratomalacia:** • Give vitamin A immediately (< 6 months 50,000 IU, 6–12 months 100,000 IU, > 12 months 200,000 IU) and repeat on day 2 and day 15. • For corneal ulceration, instil 1 drop of Atropine (1%) into the affected eyes for pain and to prevent the lens from pushing out. • Administer Chloramphenicol eye drops every 3 hours or apply Tetracycline eye ointment every 4 hours and bandage the child's eyes when he/she is stable. NOTE: Children with vitamin A deficiency are likely to be photophobic and will keep their eyes closed. It is important to examine the eyes very gently to prevent corneal rupture.

Annex 5-2: Inpatient Care Treatment Chart

INITIAL MANAGEMENT CHART Comments on pre-referral and/or emergency treatment already given: _____

SIGNS OF SAM Severe wasting? Yes No

Bilateral Pitting Oedema? 0 + ++ +++

Dermatosis? 0 + ++ +++ (raw skin, fissures)

Weight: _____ kg Height / length: _____cm

WFH: _____ z-score MUAC: _____mm

TEMPERATURE: _____ °C axillary / rectal Cover child.
If axillary <35° C or rectal <35.5° C, actively warm child. Check temperature every 30 min.

BLOOD GLUCOSE (*<3 mmol/L or <54 mg/dl):* _____ (***If no test, treat for hypoglycaemia.)***
If alert, give 10% glucose ***50 ml*** *(infant 25 ml) orally or by NG.*
If lethargic/unconscious, give sterile 10% glucose ***5 ml/kg*** *IV, then* ***50 ml*** *(****25 ml*** *infant) by NG.*
Amount IV: 5 ml x ____ kg (child's weight) = ____ ml. Amount oral: ____ ml
Time glucose given: _____ H Route: Oral NG IV

HAEMOGLOBIN (Hb): _____ g/dl (or PCV: _____ %) Blood type: _____
If Hb <4 g/dl (or Hb 4–6 g/dl **AND** respiratory distress), transfuse **10 ml/kg** whole fresh blood slowly over 3 hours (or **7 ml/kg** packed cells in case of suspected heart failure).
Amount: _____ Time started: _____H Ended: _____H

EYE SIGNS: None Left Right **MEASLES:** Yes No
Bitot's spots Corneal clouding, Corneal ulceration Pus or Inflammation

If eye signs (Bitot's spots, corneal clouding and corneal ulceration) or measles, give vitamin A treatment dose and atropine immediately. Record vitamin A in box below, and on Daily Care Chart.

VITAMIN A:		
If eye signs or recent measles, give treatment dose on day 1, 2, and 14. **Time first dose: _____**	< 6 months	50,000 IU
	6–12 months	100,000 IU
(Do not give vitamin A if the child does not have eye signs.	> 12 months	200,000 IU

EDING:

Begin feeding with F-75 as soon as possible.

If child is rehydrated, reweigh before determining amount to feed. New weight: _____ kg.

Amount for 2-hourly feedings: ____ ml of F-75* Time first fed: _____

Record all feeds on 24-Hour Food Intake Chart.

** If hypoglycaemic, feed ¼ of this amount every half hour for first 2 hours; continue until blood glucose reaches 3 mmol/L. or 54 mg/dl*

SIGNS OF SHOCK: None Lethargic/unconscious Cold hands Slow capillary refill (> 3 seconds) Weak or fast pulse

If lethargic or unconscious, cold hands, plus either slow capillary refill or weak or fast pulse, give oxygen. Give IV glucose as described under Blood Glucose (left).

Then give IV fluids: Amounts IV fluids per hour: 15 ml X _____kg (child's wt.) = _____ ml

	1st hr	Start	Monitor every 10 minutes					2nd hr	Monitor every 10 minutes					
Time								*						
Respiratory rate								*						
Pulse rate								*						

**If improvements after 1 hour (respiratory and pulse rates are slower), repeat same amount IV fluids for second hour; then alternate ReSoMal and F-75 for up to 10 hours. If no improvement after 1 hour, treat for septic shock (transfuse whole fresh blood, see 'Haemoglobin'), give maintenance IV fluids (4 ml/kg/hour) while waiting for blood.*

SIGNS OF DEHYDRATION:

Watery diarrhoea? Yes No
Blood in stool? Yes No
Vomiting? Yes No
Number of days with diarrhoea: _____

If diarrhoea, circle signs present:
Restless/irritable Lethargic Thirsty
Recent sunken eyes Dry mouth/tongue No tears

If diarrhoea and/or vomiting, give ReSoMal orally (or by NG tube if too ill) every 30 minutes for first 2 hours and monitor * **. *Amount:*
5 ml x ____ kg (***child's*** weight) = ____ ml ReSoMal

For up to 10 hours, give ReSoMal and F-75 orally (or by NG tube) in alternate hours and monitor every hour * **.
Amount: **5-10 ml** x ____ kg (***child's*** weight) = _____ to _____ ml ReSoMal every 2 hours

Time	*Start:*													
Respiratory rate* (breaths/minute)														
Pulse rate* (beats/minute)														
Passed urine (YES/NO)														
Number of stools														
Number of vomits														
Hydration signs (Yes/No)**														
Amount ReSoMal taken (ml)						F-75		F-75		F-75		F-75		F-75

Stop ReSoMal if any sign of over-hydration: *Fast breathing, increasing pulse and resp. rates, engorging jugular veins, puffing of eyelids.*
**** ***Stop ReSoMal if two or more signs of hydration****: Passing urine, moist tongue, making saliva, not thirsty.*

ANTIBIOTICS: Prescription/Route	**Dose/Frequency/Duration**	**Time of 1st Dose**
MALARIA TEST (Type/Date/Outcome):		

HTS Date:___/___/_____Outcome: NR R Exposed **DNA PCR: Positive Negative Not done N/A** **Date started cotrimoxazole: ___/___/_____ Date started ART: ___/___/_____**

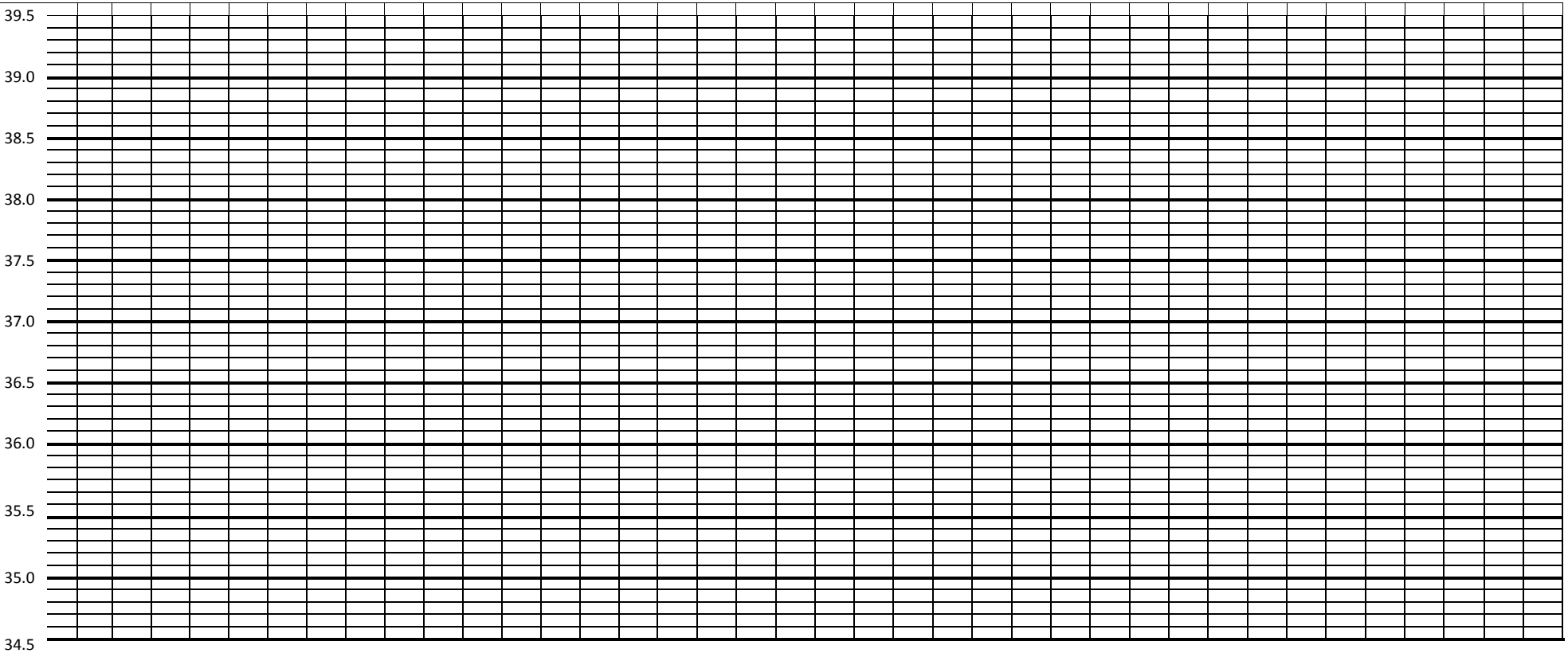
DAILY CARE CHART

	Week 1							Week 2							Week 3						
DAYS IN HOSPITAL	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**
Date																					
Daily weight (kg)																					
Weight gain (g/kg) *Calculate when on RUTF/F-100 and breastfed infant*																					
Bilateral pitting oedema 0 + ++ +++																					
Diarrhoea (Write number of loose stools),																					
Vomiting (write the frequency)																					
RESOMAL……mls																					
FEED PLAN: Type of feed																					
# daily feeds																					
Amount to give per feed (ml)(packet)																					
Total amount taken (ml)(packet)																					
NG tube Yes/No																					
Breastfeeding Yes/No																					
ANTIBIOTICS AND OTHER DRUGS	*List prescribed antibiotics and other drugs in left column. Allow one row for each daily dose. Draw a box around days/times that each drug should be given. Sign when given.*																				
ANTIMALARIAL:																					
VITAMIN A treatment dose on days 1, 2, and 14																					
Albendazole/Mebendazole. *Give after 1 week.*																					
IRON Give 3 mg/kg/day, 2 x daily, after 2 days starting to gain weight during transition. Do not give when on RUTF.	Crush 200 mg ferrous sulphate in 2–2.4 L F-100 or F-100 Diluted. Do not give iron if child is on RUTF.																				
EYE INFECTIONS Tetracycline ointment 3x daily or Chloramphenicol 1 drop 4x daily											*After 7–10 days eye drops are no longer needed.*										
Corneal ulceration: As above, plus Atropine 1 drop 3 x daily																					
Ear, mouth, or throat problems																					
Dermatosis 0 + ++ +++																					
Bathing, 1% potassium permanganate or zinc oxide																					

MONITORING CHART

Monitor respiratory rate, pulse rate, and temperature **every 4 hours** until after stabilisation. Then monitoring can be less frequent (e.g., twice daily).

DATE Time																																				
RESPIRATORY RATE																																				
Breaths/minute																																				
PULSE RATE																																				
Beats/minute																																				
TEMPERATURE																																				



Danger Signs: Watch for increasing pulse and respirations, fast or difficult breathing, sudden increase or decrease in temperature, rectal temperature below 35.5° C, and other changes in condition (see Monitoring Danger Signs during Inpatient Management of Severe Acute Malnutrition Job Aid).

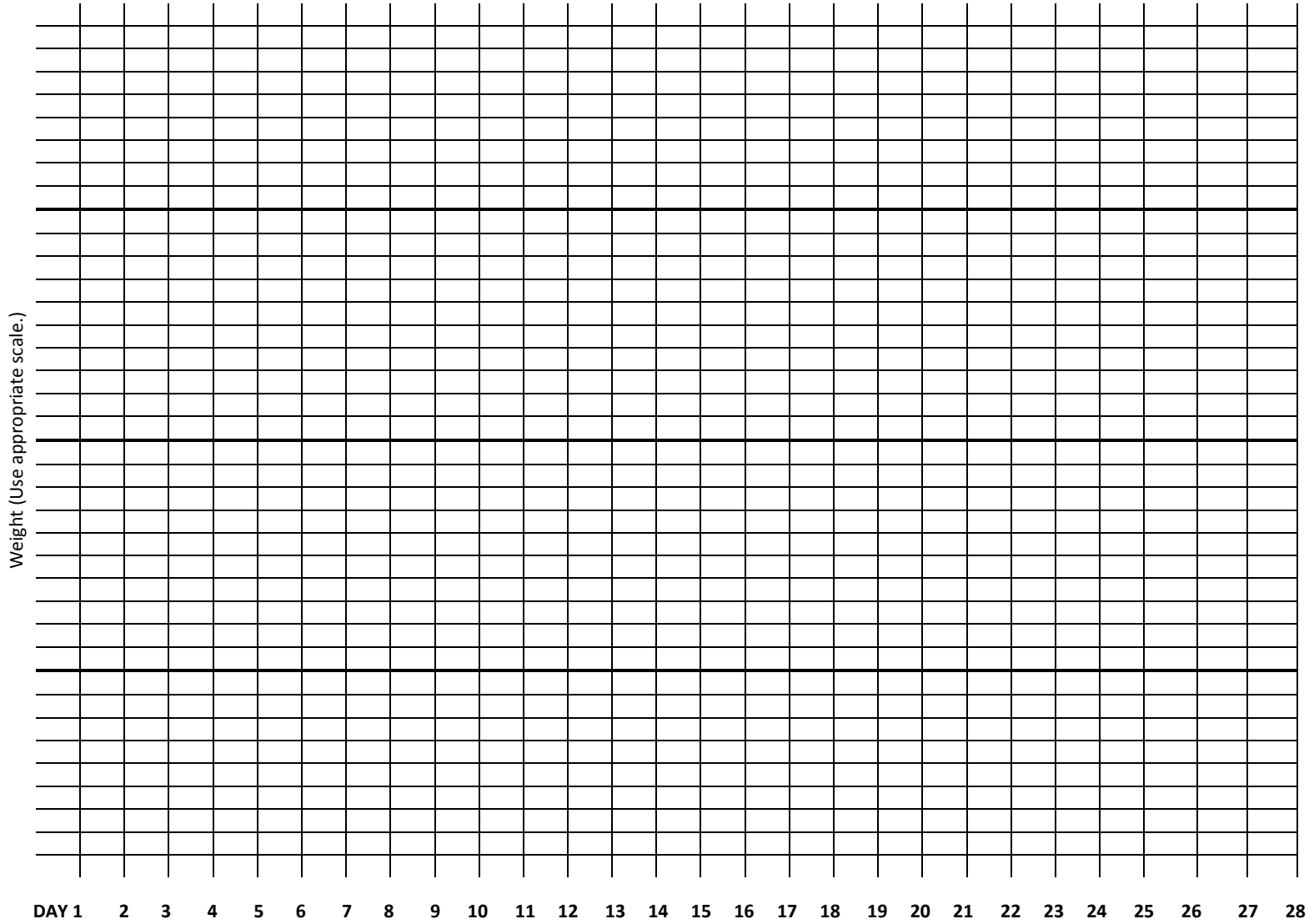
WEIGHT CHART

Weight on **admission**: kg

MUAC on **admission**: mm

Height/length on **admission**: cm

Bilateral pitting oedema on **admission**: 0 + ++ +++



24-HOUR FOOD INTAKE CHART

Complete one chart for every 24-hour period during stabilisation and transition.

Starting weight (kg): Today's weight (kg): Oedema: 0 + ++ +++ **DATE:**

TYPE OF FEED (circle): F-75 F-100 Infant Formula or F-100-Diluted RUTF

FEEDS	**GIVE** ____ milk feeds of _____ ml, or _____ ml per day (X)					**GIVE** ____RUTF feeds of about _____packet, or _____ packets per day (Y)		
Time	**a.** Amount of milk offered (ml)	**b**. Amount of milk left in cup (ml)	**c.** Amount milk taken orally (ml) (a – b)	**d.** Amount of milk taken by NG tube if needed (ml)	**e.** Estimated amount of milk vomited (ml)	**f.** Estimated amount of RUTF taken (proportion of packet)	**g.** Amount of milk offered to complete the RUTF feed (ml) (20 g RUTF or 2 teaspoons = 135 ml F-75 or 100 ml F-100)	**i.** Passed loose stools (Yes/No)
TOTALS			**C.**	**D.**	**E.**	**F.**	**G.**	
24-HOUR INTAKE	**Total daily amount of milk taken (H)= (C) + (D) – (E) =** _____ ml **Estimated proportion of daily amount of milk taken (H/X): _____ %**					**Estimated proportion of daily amount of RUTF taken (F/Y): _____ %**		

OUTCOME CHART

COMMENTS

FOLLOW-UP OR DISCHARGE INSTRUCTIONS

COUNSELLING and PSYCHOSOCIAL SUPPORT TO MOTHER OR CARER

IMMUNISATIONS

Vaccination	At birth	First	Second	Third
BCG*	At birth	—	—	—
OPV	At birth	At 6 weeks	At 10 weeks	At 14 weeks
Penta**	—	At 6 weeks	At 10 weeks	At 14 weeks
PCV		At 6 weeks	At 10 weeks	At 14 weeks
Rotavirus	—	At 6 weeks	At 10 weeks	—
IPV				At 14 weeks
Measles	—	At 9 months	At 15 months	—

OUTCOME

DISCHARGE DATE: _____ Name of discharging officer_____

TRANSFER to Outpatient Care, Name of Site: _____

OUTCOME Date:		
Transferred (Transfer to outpatient care to continue treatment)		Weight: _____ kg
Cured (Discharge at full recovery)		MUAC: _____ mm
Early Departed or Defaulted (Absence against medical advice for more than 2 days)		Height: _____ cm
Non-cured (Not reaching end of treatment criteria after 4 months of comprehensive investigation and treatment, medical referral to higher care)		
Medical Transfer (Transferred to another higher level facility for further medical investigations and treatment)		
Died Apparent cause(s) of death:_____		Number of days after admission: < 1 1–3 days 4–7 days > 7 days Time of death: Day Night Did child receive IV fluids? Yes No

Annex 5-3: Therapeutic Milk – New Sachet/Carton

Therapeutic Milk: New Sachet/Carton Sizes

Substantial changes have been made to the sachet sizes for F-75 and F-100 therapeutic milk as well as to the carton sizes.

Therapeutic milks F-75 and F-100 are used in inpatient centres for the treatment of children with severe acute malnutrition (SAM). The introduction of ready-to-use therapeutic food (RUTF) has allowed the majority of children to be treated at the household level. As a result, treatment with therapeutic milk is now recommended only for children with complications who need hospitalisation.

F-75 and F-100 contain milk, sugar, oil, minerals, and vitamins. They come in powder form in sachets. Previously, these needed to be reconstituted before use (by adding 2 litres of boiled water to the content of each sachet to make about 2.4 litres of liquid milk). Reconstituted milk needs to be consumed immediately or used within 24 hours, if stored in a refrigerator. Because most children with SAM are treated in outpatient centres with RUTF, much of reconstituted milk was wasted. In an effort to prevent wastage, suppliers began providing scoops in the sachets for preparing smaller volumes of milk. However, this created an additional risk—diluting the milk incorrectly by adding an incorrect amount of water to the scoop of powder.

To resolve these problems, UNICEF initiated discussions in 2010 among the UNICEF Programme Division, Supply Division, Regional Offices, nutritionists working in inpatient centres, and suppliers, and concluded that the sachet sizes should be reduced. It was agreed that the optimal volume of the milk should be about 500 ml.

Hence, sachet sizes were reduced by 75 percent. The **new sachets should be reconstituted by adding 500 ml of boiled water, resulting in 600 ml of liquid milk**. No scoops will be provided.

Carton sizes have also been adjusted to reflect the higher demand for F-75 and lower demand for F-100. The previous F-75 carton produced 48 litres of F-75 milk; this has now been increased to 72 litres. The F-100 carton previously produced 72 litres, but now produces 54 litres. For details see the table below.

Table 44. Changes in Packaging for F-75 and F-100

	F-75		F-100	
	Old	**New**	**Old**	**New**
Sachet size (grams)	410	102.5	456	114
Volume of water to be added (litres)	2	0.5	2	0.5
Volume of milk produced from 1 sachet (litres)	2.4	0.6	2.4	0.6
Number of sachets per carton	20	120	30	90
Net weight of the carton (kg)	8.2	12.3	13.7	10.3
Volume of milk produced from 1 carton (litres)	48	72	72	54

Annex 5-4: Stabilisation Phase Look-Up Tables for F-75 for Children With Severe Wasting (Marasmus)

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, moderate diarrhoea (< 5 watery stools per day), and the child finishes 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 finishes most feeds, change to 4-hourly feeds.

Annex 5-5: Stabilisation Phase Look-Up Tables for F-75 for Children 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 (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 feeds for at least the first day. When there is little or no vomiting, moderate diarrhoea (< 5 watery stools per day), and the child finishes 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 finishes most feeds, change to 4-hourly feeds.

Annex 5-6: Reference Table for Quantity of F-100 to Give to an Individual Child 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 (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.

Annex 5-7: Reference Table for Maintenance Amounts of F-100-Diluted to Give to an Individual Infant per Feed

Bodyweight (kg)	F-100-Diluted (ml per feed) (assumes 8 feeds per day, given 3-hourly)
≥ 1.2	25
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

Annex 5-8: Reference Table for Amounts of F-100-Diluted (Marasmus) or F-75 (Kwashiorkor) to Give to Non-breastfed Infants in the Stabilisation Phase

Bodyweight (kg)	F-100-Diluted or F-75 (ml per feed), 8 feeds per day, no breastfeeding (3-hourly feeds)
≤ 1.5	30
1.6–1.8	35
1.9–2.1	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

Annex 5-9: Reference Table for Amounts of F-100-Diluted to Give to Non-breastfed Infants 0–6 Months or Older Infants Weighing Less Than 3.0 kg in the Transition Phase

Bodyweight (kg)	F-100-Diluted (ml per feed), 8 feeds per day, no breastfeeding (3-hourly feeds)
≤ 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

Annex 5-10: Reference Table for Amounts of F-100-Diluted to Give to Non-breastfed Infants 0–6 Months or Older Infants Weighing Less Than 3.0 kg in the Rehabilitation Phase

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

Annex 5-11: Preparation of F-75

Red scoop of F-75	Water (ml)	
1	20	
2	40	
3	60	
4	80	
5	100	
6	120	
7	140	
8	160	
9	180	
10	200	
Sachets of F-75	**Water (ml)**	**Volume F-75 milk (ml)**
1 sachet	500	600
2 sachets	1,000	1,200
3 sachets	1,500	1,800
4 sachets	2,000	2,400

Annex 5-12: Preparation of F-100

Red scoop of F-100	Water (ml)	
1	18	
2	36	
3	54	
4	72	
5	90	
6	108	
7	126	
8	144	
9	162	
10	180	
Sachets of F-100	**Water (ml)**	**Volume of F-100 milk made (ml)**
1 sachet	500	600
2 sachets	1,000	1,200
3 sachets	1,500	1,800
4 sachets	2,000	2,400

Annex 5-13: Preparation of F-100-Diluted

Red scoop of F-100	Water (ml)	
1	24	
2	28	
3	72	
4	96	
5	120	
6	144	
7	168	
8	192	
9	216	
10	240	
Sachets of F-100	**Water (ml)**	**Volume of F-100-Diluted (ml)**
1 sachet	670	700
2 sachets	1,350	1,500

Annex 5-14: Alternative Recipes for F-75, F-100, and ReSoMal Using Combined Mineral and Vitamin Mix (CMV)

It is possible to make F-75 and F-100 from a variety of ingredients if a commercial product is not available. The table below contain recipes for making F-75 and F-100 using dry skimmed milk (DSM), dry whole milk (DWM), or fresh cow's milk. Sugar and oil are added to all recipes. Three of the recipes include the addition of cereal powder (maize flour) when preparing F-75. Add cooled, boiled water to all the recipes.

Recipes to Make F-75 and F-100

Alternatives	Ingredients	Amount for F-75
If you have dried skimmed milk	Dried skimmed milk Sugar Cereal flour Vegetable oil Combined mineral and vitamin mix (CMV)* *Water to make 1,000 ml*	25 g 70 g 35 g 30 g ½ levelled scoop *1,000 ml*
If you have dried whole milk	Dried whole milk Sugar Cereal flour Vegetable oil CMV* *Water to make 1,000 ml*	35 g 70 g 35 g 20 g ½ levelled scoop *1,000 ml*
If you have fresh cow's milk, or full-cream (whole) milk	Fresh cow's milk, or full-cream (whole) milk Sugar Cereal flour Vegetable oil CMV* *Water to make 1,000 ml*	300 ml 70 g 35 g 20 g ½ levelled scoop *1,000 ml*
If you do not have cereal flour, or there are no cooking facilities, use one of the following recipes for F-75:		
Alternatives	**Ingredients**	**Amount for F-100**
If you have dried skimmed milk	Dried skimmed milk Sugar Vegetable oil CMV** *Water to make 1,000 ml*	80 g 50 g 60 g ½ levelled scoop *1,000 ml*
If you have dried whole milk	Dried whole milk Sugar Vegetable oil CMV* *Water to make 1,000 ml*	110 g 50 g 30 g ½ levelled scoop *1,000 ml*
If you have fresh cow's milk, or full-cream (whole) milk	Fresh cow's milk, or full- cream (whole) milk Sugar Vegetable oil CMV* *Water to make 1,000 ml*	880 ml 75 g 20 g ½ levelled scoop *1,000 ml*

* ***Important note about adding water****: Add just the amount of water needed to make 1000 ml of formula. (This amount will vary from recipe to recipe, depending on the other ingredients.) Do not simply add 1000 ml of water, as this will make the formula too dilute. A mark for 1000 ml should be made on the mixing container for the formula, so that water can be added to the other ingredients up to this mark.*

** *Where CMV is not available, use 20 ml of mineral and vitamin mix.*Mix the sugar, oil, cereal, and milk to make a paste, then slowly add the cooled, boiled water. Make up to 2 litres. If available, use a food blender or whisk to make the mix. Use the red scoop found inside the CMV tin to measure the amount of CMV to add to the prepared F-75 or F-100. **Add one scoop of CMV (6.35 g) to 2 litres of 'made' F-75 or F-100.**

When using cereal in the F-75, add the CMV after the cereal mix has been cooked to prevent the loss of minerals and vitamins during the cooking process. Maize meal, rice flour, among others, may be used for the cereal flour. Mix the flour, milk or milk powder, sugar, oil, and mineral mix in a 1-litre jug. Slowly add cooled, boiled water up to 1000 ml. Boil the mixture gently for 4 minutes, then transfer it back to the measuring jug after cooling and add enough boiled, cooled water to make 1,000 ml.

If CMV is not available, prepare mineral and vitamin mix as described in Appendix 4 of the WHO's Physicians Manual on *Management of Severe Malnutrition* (WHO 1999).

Recipe to Make ReSoMal

Ingredients	Amount
Water (boiled and cooled)	2 litres
Standard WHO-ORS	One 1-litre packet
CMV	1 red scoop (6 g) or 40 mls
Sugar	50 g

NOTE: ReSoMal contains approximately 45 mmol Na, 40 mmol K, and 3 mmol Mg per litre.

Annex 5-15: Therapeutic Milk Specifications

Constituent	F-75 Amount in 100 ml	F-100 Amount in 100 ml	F-100 Diluted Amount in approx. 100 ml
Energy	75 kcal	100 kcal	74 kcal
Protein	0.9 g	2.9 g	2.1 g
Lactose	1.3 g	4.2 g	3.1 g
Potassium	3.6 mmol	5.9 mmol	4.1 mmol
Sodium	0.6 mmol	1.9 mmol	1.4 mmol
Magnesium	0.43 mmol	0.73 mmol	0.54 mmol
Zinc	2.0 mg	2.3 mg	1.7 mg
Copper	0.25 mg	0.25 mg	0.1 mg
% energy from protein	5 %	12 %	12 %
% energy from fat	32 %	53 %	53 %
Osmolarity	333 mOsmol/L	419 mOsmol/L	310 mOsmol/L

Annex 5-16: Mean Nutritional Value of RUTF

	For 100 g	Per 92 g sachet
Energy	545 kcal	500 kcal
Protein	13.6 g	12.5 g
Fat	35.7 g	32.86 g
Calcium	300 mg	276 mg
Phosphorus	300 mg	276 mg
Potassium	1 111 mg	1 022 mg
Magnesium	92 mg	84.6 mg
Zinc	14 mg	12.9 mg
Copper	1.8 mg	1.6 mg
Iron	11.5 mg	10.6 mg
Iodine	100 mcg	92 mcg
Selenium	30 mcg	27.6 mcg
Sodium	< 290 mg	< 267 mg
Vitamin A	910 mcg	840 mcg
Vitamin D	16 mcg	15 mcg
Vitamin E	20 mg	18.4 mg
Vitamin C	53 mg	49 mg
Vitamin B1	0.6 mg	0.55 mg
Vitamin B2	1.8 mg	1.66 mg
Vitamin B6	0.6 mg	0.55 mg
Vitamin B12	1.8 mcg	1.7 mcg
Vitamin K	21 mcg	19.3 mcg
Biotin	65 mcg	60 mcg
Folic acid	210 mcg	193 mcg
Pantothenic acid	3.1 mg	2.85 mg
Niacin	5.3 mg	4.88 mg

Annex 5-17: Infection Prevention Protocols in NRU

- All health care workers should exercise handwashing:
    - Before and after handling a patient
    - When conducting a clean/aseptic procedure
    - After conducting procedures involving risk of exposure to bodily fluids
- Health care workers should wear gloves for all procedures involving potential contact with bodily fluids.
- Keep all decontaminated utensils and equipment in well-covered storage containers, such as basin/buckets with lids.
- Label all decontamination and storage containers with their correct labels.
- During health talks, responsible staff should educate caregivers on handwashing before preparing food, feeding their children, administering oral drugs, and administering oral rehydration fluids. Caregivers should also wash their hands before and after changing an infant's nappy and after using the toilet.
- Health care workers should treat all reusable utensils such as oxygen tube connectors, prongs, and suction tubes by soaking in 0.5% chlorine solution for 10 minutes, and then, they should be cleaned with soapy water, rinsed, and allowed to air dry.
- Decontaminate and clean medical equipment such as tubes in separate basins from feeding/kitchen utensils.
- Responsible staff should ensure caregivers and children with SAM maintain high standards of personal hygiene by educating caregivers on hygiene and sanitation and providing clean linens and clean water for personal hygiene.

Annex 5-18: Nasogastric Feeding

Child with gastric tube.

Before Insertion

- Nasogastric (NG) feeding is usually received poorly by mothers, since it is considered invasive. Mothers should be counselled on:
  - How the tube will assist the child
  - Anticipated discomfort during insertion
  - Improved comfort after insertion
- Educate the mother on the path the nasogastric tube will take (i.e., an already existing connection from the nose, through the throat, and into the stomach). Allow the mother to express her fears, concerns, and questions to facilitate acceptance and adherence.
- This is a clean procedure; health care workers should, therefore, wash their hands thoroughly with soap prior to putting on gloves in readiness for the insertion. The child's face and torso should also be washed with soap and rinsed.
- Once correctly inserted, conduct a confirmatory test to ensure the NGT tube is in the stomach by:
  - Aspirating abdominal contents and testing on a litmus paper. A pH of less than 7 confirms stomach placement.
  - Pushing in air using the feeding syringe and listening to the abdomen for air sounds as you push in the air.

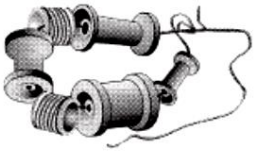
Feeding Using a Nasogastric Tube

- Emphasise the following messages with the caregiver: good hygiene practices, washing hands before feeds, and keeping utensils clean and dry.
- Assist the primary caregiver with administering the first feed; demonstrate the correct feeding position, which is the fowlers/upright position.
- After attaching the feeding syringe to the nasogastric tube, milk should be poured in and allowed to flow downward freely using gravity. In cases where the free flow of milk is not achieved, raise up the feeding syringe and NG tube apparatus to a higher position.
- The NG tube can also be squeezed for several seconds and then released to facilitate the flow.
- **ONLY** when these attempts fail should a plunger be used in a slow, twisting motion. This will aid in pushing the milk downward with minimal air entry.
- Caregivers should be allowed to feed the child using the NG tube once given a demonstration on how to feed correctly using a NG tube.
- Feeding should be done when the child is calm to avoid backflow of gastric contents; if the child is still breastfeeding, allow the child to be breastfed.
- Change the tube if blocked. Do not plunge F-75 through the NG tube; let it drip in, or use gentle pressure.
- Abdominal distension can occur with oral or NG feeding, but it is more likely with NG feeding. If the child develops a hard, distended abdomen with very little bowel sound, give 2 ml of a 50% solution of magnesium sulphate intramuscular (IM).
- Remove the NG tube when the child either takes:
  - 80% of the day's amount orally; or
  - Two consecutive feeds fully by mouth.

Exception: If a child takes two consecutive feeds fully by mouth during the night, wait until morning to remove the NG tube, just in case it is needed again in the night.

Annex 5-19: Toys for Children

Ring on a string (from 6 months)
Thread cotton reels and other small objects (e.g. cut from the neck of plastic bottles) on to a string. Tie the string in a ring, leaving a long piece of string hanging.

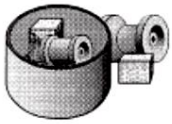


Rattle (from 12 months)
Cut long strips of plastic from coloured plastic bottles. Place them in a small transparent plastic bottle and glue the top on firmly.

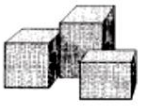
Drum (from 12 months)
Any tin with a tightly fitting lid.

Mirror (from 18 months)
A tin lid with no sharp edges.

In-and-out toy (from 9 months)
Any plastic or cardboard container and small objects (not small enough to be swallowed).



Posting bottle (from 12 months)
A large transparent plastic bottle with a small neck and small long objects that fit through the neck (not small enough to be swallowed).



Blocks (from 9 months)
Small blocks of wood. Smooth the surfaces with sandpaper and paint in bright colours, if possible.

Push-along toy (from 12 months)
Make a hole in the centre of the base and lid of a cylindrical-shaped tin. Thread a piece of wire (about 60 cm long) through each hole and tie the ends inside the tin. Put some metal bottle tops inside the tin and close the lid.

Stacking bottle tops (from 12 months)
Cut at least three identical round plastic bottles in half and stack them.

Pull-along toy (from 12 months)
As above, except that string is used instead of wire.

Nesting toys (from 9 months)
Cut off the bottom of two bottles of identical shape, but different size. The smaller bottle should be placed inside the larger bottle.

Doll (from 12 months)
Cut out two doll shapes from a piece of cloth and sew the edges together, leaving a small opening. Turn the doll inside-out and stuff with scraps of materials. Stitch up the opening and sew or draw a face on the doll.

Puzzle (from 18 months)
Draw a figure (e.g. a doll) in a crayon on a square- or rectangular-shaped piece of cardboard. Cut the figure in half or quarters.

Book (from 18 months)
Cut out three rectangular-shaped pieces of the same size from a cardboard box. Glue or draw a picture on both sides of each piece. Make two holes down one side of each piece and thread string through to make a book.

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6 Monitoring, Reporting, and Quality Improvement

The CMAM monitoring and reporting (M&R) system encompasses individual monitoring of admission, treatment process, and outcome. Service M&R of community outreach, SFP, OTP, and NRU facilities individually, and of CMAM services combined, involves timely collection of relevant information, aggregating and disaggregating at various levels of the system, and subsequent analysis and reporting.

This chapter also recommends a quality improvement (QI) model that can be used to continuously improve the quality of CMAM service delivery. QI is critical for improving the quality of patient care and overall service delivery.

6.1 Aim of Monitoring, Reporting, and Quality Improvement

- To systematically collect, manage, and use key information for patient and programme management. In a CMAM programme, quantitative data are collected in the SFP, OTP, and NRU. Qualitative data are collected through consultation with affected communities and stakeholders.
- The analysis and use of data enables service providers to ensure that proper treatment and care is given to the individuals, families, and the community.

6.2 Monitoring individual Treatment

Monitoring a Child in SFP and OTP

Monitoring and Ration Cards

- Medical, anthropometric and nutritional information is recorded on these cards by health care staff.
- Clinicians and supervisors regularly review individual cards to ensure proper treatment and action protocols are being followed and that children are given proper referral and follow-up. Additional information such as length of stay and rate of weight gain may be calculated to indicate response to treatement.
- The ration card is kept by the caregiver and stapled into the health passport as a permanent record of treatment.

Efficient Filing System

The SFP and OTP treatment cards should be maintained in an efficient filing system. Two files are kept and cards are filed after each distribution. Patient information is also recorded in an SFP and OTP register.

Table 45. Filing System for SFP and OTP Monitoring Cards

File 1 Currently in SFP or OTP	File 2 Discharged
• Currently in SFP or OTP • Absentees • Transfers to NRU • Transfers from one SFP to another/or from one OTP to another	• Cured * • Defaulters ** • Non-cured • Deaths

* A separate file may be required for discharged cured cases due to the large number of cards.
** If defaulters return for treatment, monitoring continues with the same card/registration number.

NRU

- The child's information should be entered on the inpatient care treatment chart or Critical Care Pathway (CCP) chart (See *Annex 5-2: Inpatient Care Treatment Chart*). Medical history, clinical and nutrition assessment at admission and daily surveillance information should be recorded. This helps monitor the child's progress and inform decision making during treatment. The outcome of the treatment is also marked on the chart.
- The Inpatient Care Treatment Charts should be filed on a monthly basis, according to treatment outcome (see file 2 in Table 45 above for OTP and SFP). Patient information should also be maintained in a NRU register.

Numbering and Tracking

A proper numbering system allows for the effective tracking of the child and the efficient transfer of information between the different components of the CMAM (Community outreach/SFP/OTP/NRU).

Standard Numbering

The standard Health Management Information Systems (HMIS) numbering system in Malawi uses the following format:

7788/9999/MMYY/XXX

77	Usual two-digit code for the district
88	Usual two-digit code for the health facility
9999	Child's individual number
MMYY	Month and year of admission
XXX	The last three-letter code indicates where the child *started* treatment. This may be SFP, OTP, or NRU. The code is retained through all phases of treatment and between facilities, in case of transfers.

The child's registration number should be recorded on all documentation. Other relevant registration numbers (e.g., given in other clinics or hospitals for HTS or ART) should also be recorded on the treatment cards and registers.

Tracking

The health passport, monitoring cards, and referral form are used to record essential information whenever a child is referred between the different programme components.

- The home visit checklists used by community volunteers or HSAs (see *Annex 2-4*) should be used to record the outcome of the visits. Basic feedback should be recorded on the OTP monitoring card, (*Annex 4-1*).
- If the child is referred from OTP to NRU or vice versa, the caregiver should be given a **referral form** with instructions on how and when to go where.
- If a child is referred from OTP to the NRU and does not return to the OTP within 2 weeks, the HSA or community volunteer should conduct a follow-up visit, first at NRU then community to find out the reason for non-presentation.

6.3 Reporting

Report forms are used to record information on CMAM admissions, transfers, and discharges, and to send programme data for analysis. Accurate recording of data on report forms is essential since the analysis of these data gives important information about the performance of the individual health facilities and the CMAM programme as a whole for that district. CMAM Report forms are provided in *Annexes 6-4, 6-5***,** and *6-6*. For stock reports, use the form in *Annex 6-3***.**

Data Collection and Reporting

Health worker should tally children admitted and discharged at the end of each OTP/SFP session, the supervisor should check for accuracy. Monthly reports are then compiled by the supervisor at the end of every month (see *Annex 6-4*, *6-5*, and *6-6*). Each health facility sends a monthly report to the District Health Office where the data are entered into the district health information system – version 2 (DHIS2). The District Health Officer responsible then produces a report for NRU, OTP, and SFP in the district.

The report form includes the following variables:

- Number of patients admitted and discharged, by age and admission/discharge criteria
- Number of patients who relapsed
- The total number of patients admitted by gender
- The total number of patients enrolled at the end of the month
- Additional information as shown in the table below

Table 46. Reporting: Additional Information to Record

Information	Description	Where it is recorded
Returned defaulter	A returned defaulter is a child who has defaulted within the previous 3 months, and has returned to the SFP or OTP. The health worker should find the child's old SFP or OTP monitoring card and continue treatment using the same registration number.	In the report form table, in the returned defaulter column. Returned defaulters are not counted as new admissions.
Relapse	A patient who was successfully treated in CMAM within the last 6 months, but who again meets the eligibility requirement for admission.	Relapses should be recorded as a new admission in the report form table according to admission criteria. The number of relapsed admissions should be recorded in space provided beneath the main table.
Admissions by gender	New admissions should be recorded by gender to understand trends in admissions.	Children are recorded as new admissions in the report form table according to their admission criteria. The number of children admitted by gender should be counted at the end of the OTP session, and the totals noted in the space provided beneath the main table.

6.4 Monitoring Programme Performance

The analysis of quantitative (from the clinics) and qualitative data (from the community and supervisory checklists) enables health workers, in collaboration with supervisors and the community, to make more effective changes to the implementation of the CMAM programme.

Indicators

Reporting programme outcomes is done through the analysis of treatment cards, monthly reports, and by comparing results with international standards. On a monthly basis, supervisors at all levels should calculate and review the programme indicators below.

The outcomes are calculated as a proportion of all the CMAM programme discharges over the time period (usually monthly or quarterly).

Cure rate: The proportion of children who are discharged having reached the cure discharge criteria

Default rate: The proportion of children discharged having defaulted

Deaths: The proportion of children discharged having died while registered in the CMAM programme

Non-cured: Proportion of children discharged having not achieved the cure discharge criteria

Other Reporting Categories

Transfer to/from SFP, OTP, or NRU: Transfers between SFP, OTP, and NRU are not 'true discharges' from CMAM. Although the child may have been 'discharged' from one facility and 'admitted' to another, in terms of reporting these children are considered transfers within the CMAM programme.

Transfer to/from other SFP: A child moving between two SFPs is still in the treatment programme. Even though the child is 'discharged' from one facility to another, in reporting terms the child is considered a transfer since they are still under treatment.

Medical transfer: A child in NRU may be transferred for further medical care or to other hospital.

Other Programme Indicators

Mean length of stay (LOS): The average length a child requires in the programme to achieve cure. LOS is only calculated for children discharged cured. It should be calculated separately for each admission criteria since these will have different LOS. Care should be taken to differentiate between those admitted to SFP for curative care versus those admitted for a minimum stay after therapeutic care in OTP or NRU.

Programme coverage: This refers to the proportion of health facilities within a district or the proportion of facilities and districts in Malawi that offer services to treat acute malnutrition.

Case coverage: Refers to the proportion of children with acute malnutrition who are receiving treatment in an NRU, OTP or SFP within a given health catchment area, district, or even nationally. On a local level case coverage is a more important indicator of service provision.

Simply put:

$$\textit{Case Coverage} = \frac{\textit{number of children with acute malnutrition being treated in the programme}}{\textit{Total number of children in the community with acute malnutrition}}$$

Methods of estimating coverage include:

- Direct measurement through a Coverage Survey
    - CSAS – Centric Systematic Area Sampling
    - LQAS – Lot Quality Assurance Sampling
    - SLEAC – Simplified LQAS Evaluation of Access and Coverage
    - SQEAC – Semi Quantitative Evaluation of Access and Coverage
- Indirect estimation is achieved by comparing the estimated caseload with the actual. Caseload is estimated from the village census or head count and calculated from the best estimate of the prevalence of malnutrition in that locality at that time of year.

Indirect estimates are extremely prone to error and should not be used as a tool to monitor or evaluate programme performance. Low resource methods of assessment such as LQAS, SLEAC, or SQEAC are much more reliable and also give rich programme information to assist managers in planning. It is outside the scope of these guidelines to detail the methodologies. Where these surveys are conducted appropriate training will be given to health staff and volunteers.

At least once each 4–6 months an attempt should be made to provide information on programme coverage. Assessing coverage requires simple but specific data collection methods. Training will be given where these coverage evaluation tools are used.

Coverage may be estimated indirectly. However this is error prone and should not be used to assess programme performance and should not be reported as such.

Example of unreliable reporting:

Total population: 1,000
Population of children < 5 years = 200 (=20 percent)
Malnutrition rate (MAM or SAM) = 5 percent
Total number of malnourished children expected = 10
Number of children registered in programme = 6
Coverage = 60 percent

6.5 Programme Outcome Indicators

Table 47. Programme Outcome Indicators

	SFP	OTP
Cured	> 75%	> 75%
Defaulted	< 15%	< 15%
Died	< 3%	< 10%
Non-cured	Not stated	Not stated
Length of stay	< 56 days*	40–62 days
Rate of weight gain	Not applicable	**>5 g/kg/day
Coverage: urban * **	> 70%	> 70%
Coverage: rural * **	> 50 %	> 50 %

* The length of stay in SFP may be significantly longer if the child is admitted from NRU/OTP and has minimum stay of 4 months.

** A weight gain of 5g/kg/day is a suggested guideline (WHO, 2005) for community-based programmes. Weight gains may vary for kwashiorkor and marasmus cases.

*** The coverage of a programme is assessed by conducting a coverage survey. This reflects the number of acutely malnourished individuals in the programme catchment area who have received treatment through the CMAM programme. It does not reflect the distribution of services within the district.

Sphere standards for the management of acute malnutrition - cure, default, and death rates are presented in Table 47 above. In a traditional NRU setting, the standard for mortality is <10 percent. However, in the context of CMAM - NRU, death rates may be higher, as children referred to NRU are only those who have severe medical complications that increase the risk for mortality. The mortality rate should be reported for the OTP and NRU combined (management of severe acute malnutrition).

6.6 Quality Improvement

QI is the combined and unceasing effort of everyone involved in family health, including health care providers, patients, and their families, to make changes that will lead to better patient outcomes, better system performance, and better professional development (Batalden and Davidoff 2007). QI enables health care providers to systematically improve the quality of health care delivery by identifying weaknesses in existing practices, analysing the reasons for the weaknesses, and developing solutions to improve the practices.

QI can play an important role in improving a variety of processes that affect **safety**, **effectiveness**, **patient centeredness**, **timeliness**, **efficiency,** or **equity** within a health care delivery system.

There are four main principles of QI:

- **Patient focus:** Patients are the focus of QI activities. Services should meet the needs and the expectations of patients and their communities.
- **Focus on systems and processes:** Health care providers should analyse the systems and processes through which they are delivering services in order to improve the services. By understanding how systems and processes work, service providers are better able to analyse gaps and understand causes of poor performance.
- **Test changes and emphasise the use of data:** Health care providers develop and test changes to improve the way services are provided and to determine whether they yield the desired changes.
- **Teamwork.** QI is achieved through a team approach to problem solving. A QI team should consist of representatives from every step in a process or system of health care delivery.

Using a Process to Identify and Solve Problems in CMAM

QI can help ensure that health service providers deliver quality care in all components of CMAM. By monitoring case management, individual patient progress and care and overall patient outcomes, QI may assist to identify such problems as:

- Certain clinicians manage fluids poorly in the inpatient care.
- Children are not fed every 2 hours through the night.
- The case fatality rate in the inpatient care was 20 percent during the previous year.
- Children who stay in the inpatient care until full recovery have poor weight gain.
- Patients stay too long in outpatient care.

QI should be a continuous process whereby teams of service providers routinely examine the system processes and use the existing data to continuously analyse the quality of care.

The QI Model

The QI model described in this chapter is referred to as the ‘model for improvement’; it is based on answering three questions:

- What are we trying to accomplish?
- How will we know that a change is an improvement?
- What changes can we make and what changes will result in improvement?

Figure 7 shows the model for improvement; the model guides service providers to test changes using the Plan-Do-Study-Act (PDSA) cycle.

STEP 1. Identify: What Are We Trying to Accomplish?

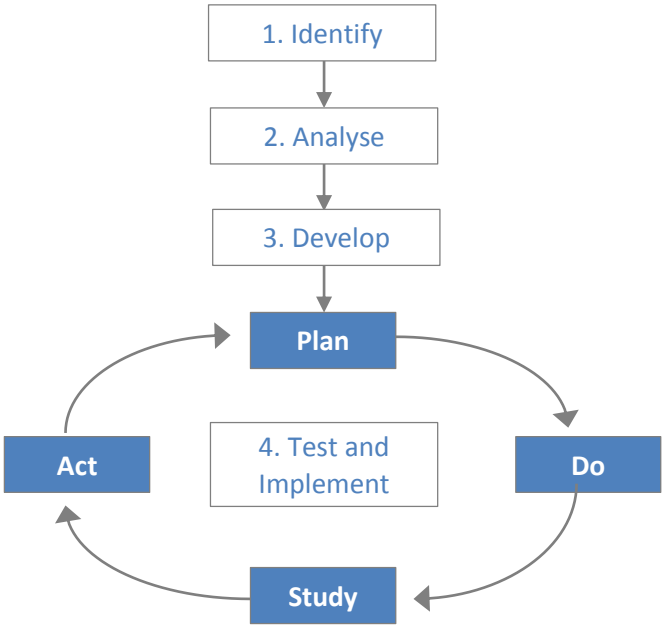
Service providers, working in a team, clearly identify and articulate the problem that they want to solve. Identifying the problem requires defining the problem; how frequently it occurs; and the effect that the problem has on patients, communities, and service delivery. Once a problem has been identified, a clearly defined 'aim' statement should be developed. The improvement aim should have the following characteristics:

- A defined **boundary** that specifies the scope of the improvement aim
- Specific **numerical goals for outcomes** that are ambitious but achievable
- A **time frame** (how much improvement and by when?)
- **Guidance** on how the aim will be achieved

Example of an Improvement Aim for CMAM

At Chinsapo NRU, we will increase the proportion of SAM children tested for HIV from 49% to 90% between January 2016 and June 2016 by involving HIV testing counsellors to provide HIV testing services (HTS) in the inpatient care daily.

Figure 7. The Model for Improvement

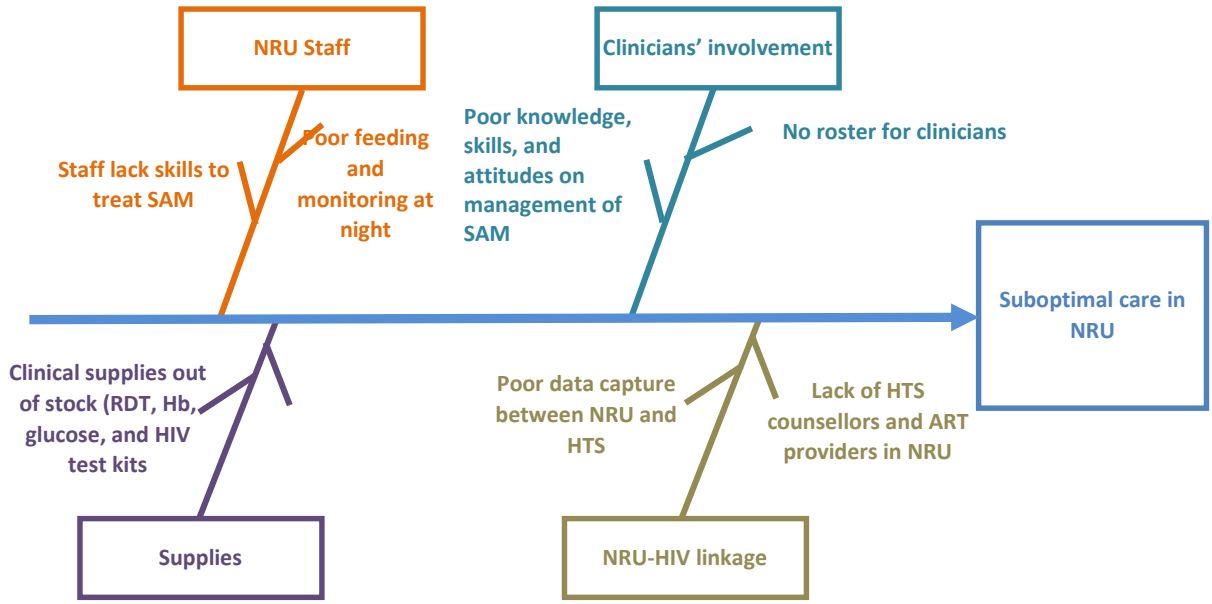


Source: Lagley 2009.

STEP 2. Analyse the Information: What Do We Need to Understand to Make an Improvement?

Once an improvement aim has been developed, the team of service providers works together to identify the root cause of the problem and its effects. This involves analysing the systems and processes that are used in providing services to patients. Analysis of available data and information can provide important insight on the problem that needs to be addressed. A cause-and-effect analysis using a fishbone diagram can help in identifying and documenting all the potential causes of problems that need to be addressed (see Figure 8: Example of Analysis of Causes and Effect in Poor Care Practices in Inpatient Care).

Figure 8. Example of Analysis of Causes and Effect in Poor Care Practices in Inpatient Care



Investigation of causes may involve doing laboratory tests for a patient, observing and asking questions of staff, reviewing treatment charts, treatment procedures, and/or monitoring food preparation. A checklist of treatment and ward procedures may be used to assist in identifying the problem and the cause of the problem.

STEP 3. Determining Solutions or Changes to be Made

With a clear aim and the root cause(s) of the problem identified, the team of health workers needs to identify potential ideas to test at facility level to improve the system. 'Change ideas' are actionable steps for change targeted at improving specific processes and outcomes. Change ideas can come from referencing evidence-based practices from other settings or from creative brainstorming sessions. The table below provides examples of change ideas developed by a QI team to reduce the number of deaths associated with poor fluid management in inpatient care.

Problem: Children admitted with dehydration at Chinsapo NRU are not treated according to protocol resulting in many deaths associated with poor fluid management.

Table 48. Example of Change Ideas to Improve Fluid Management in Inpatient Care

Improvement Aim	Possible Change Ideas	Period of Testing Change
At Chinsapo NRU, we will ensure children admitted with dehydration are managed according to protocol by pasting flow charts, improving monitoring during rehydration, and improving knowledge of staff in fluid administration.	Create flow charts for treatment of dehydration and paste them in NRU and admission rooms.	April 1 – 30, 2016
	Use Continuous Professional Development (CPD) to update clinicians on the management of SAM and maintain some trained staff to remain in the ward during ward rotations.	April 1 – June 30, 2016
	Strengthen triage of all SAM children eligible for NRU admission.	April 1 – June 30, 2016
	Ensure all SAM children with dehydration are strictly reviewed and managed by clinicians and nurses	April 1 – June 30, 2016
	Emphasise to clinicians to supervise that ReSoMal and intravenous fluids are administered correctly and monitored	April 1 – June 30, 2016

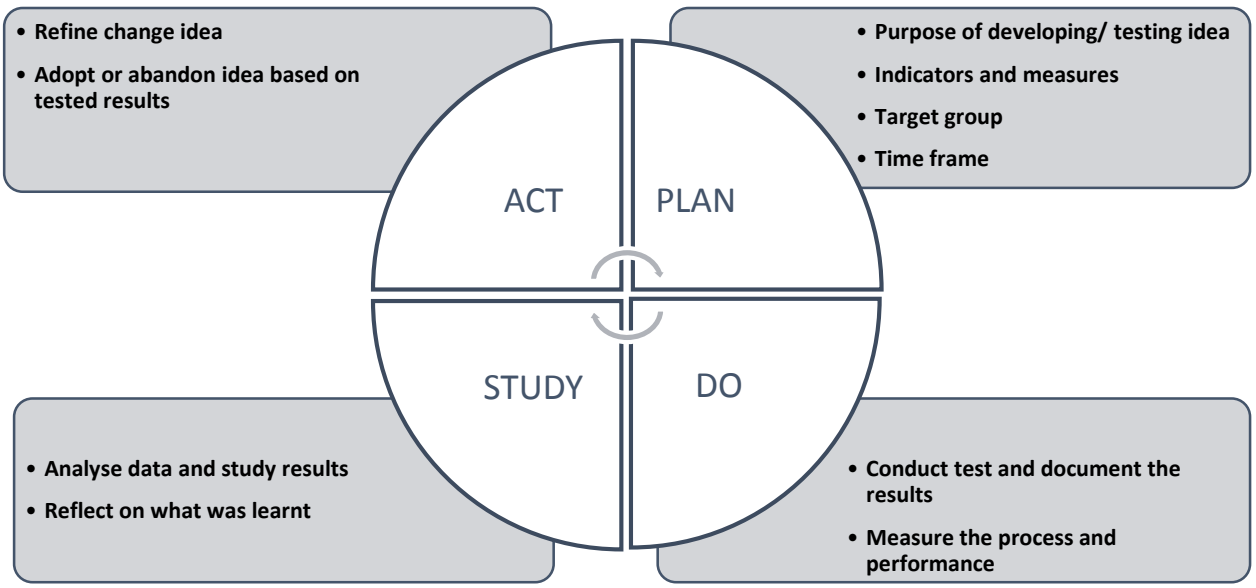
STEP 4. Test and Implement Change Ideas

The model for improvement relies on a continuous process of developing and conducting small tests of changes using the PDSA cycle shown in **Figure 9:** The PDSA Cycle. This approach allows teams to introduce a change and observe whether it helps lead to improvement before implementing the change at a large scale.

A PDSA cycle can build knowledge for further testing, demonstrate the benefits of new ideas, and be used to engage staff. Small tests of change may help in uncovering the undesirable effects of changes, allowing QI teams to modify or abandon a change idea that has unintended negative consequences.

To determine whether changes made are actually leading to tangible improvement, information/data on the impact of changes need to be collected, analysed, and reported on. This includes both **process** and **outcome** measurements. Information/data collected should be on a small sample of sites or beneficiaries, and results should be plotted on time series charts.

Figure 9. The PDSA Cycle



The table below provides an example of change ideas that were tested using the PDSA cycle. A change idea was either adopted, abandoned, or refined based on its effectiveness.

Table 49. Example of Change Ideas that were Tested Using the PDSA Cycle

Improvement Aim	Change Ideas	Period of Testing Change	Change effective or not?	Comment
At Chinsapo NRU, we will ensure children admitted with dehydration are managed according to protocol by pasting flow charts, improving monitoring during rehydration, and improving knowledge of staff in fluid administration.	Create flow charts for treatment of dehydration and paste them in NRU and admission rooms.	April 1 – 30, 2016	Effective (Change adopted)	Health service providers found the flow charts to be easy to use as a job aid.
	Use Continuous Professional Development (CPD) to update clinicians on the management of SAM and maintain some trained staff to remain in the NRU during quarterly rotations.	April 1 – June 30, 2016	Not Effective (Change abandoned)	• CPD not well attended • Management not supportive of maintaining permanent staff in NRU
	Strengthen triage of all SAM children who are eligible for NRU admission.	April 1 – June 30, 2016	Effective (Change adopted)	Helped to identify children with dehydration immediately and initiate resuscitation in good time
	Ensure all SAM children with dehydration are strictly reviewed and managed by clinicians and nurses.	April 1 – June 30, 2016	Effective (Change adopted)	Now clinicians participate fully in the management of children with dehydration in NRU.
	Emphasize to clinicians to supervise that ReSoMal and intravenous fluids are administered correctly and monitored.	April 1 – June 30, 2016	Effective (Refine the idea)	Supervision was only possible during the day but difficult at night. Consider other ways of ensuring supervision at night when staff is lean.

6.7 Death Audits

- Death audits should be conducted for any child who dies while receiving treatment within the CMAM programme.
- Monthly reports, registers, treatment charts, monitoring, and ration cards should contain information about the children (such as weight, age, and sex), day of admission, date of discharge, or date and time of death as well as the care received up to the time of death. This information will help in completing the details in the death audit form (see *Annex 6-15: Death Audit Form for Inpatient Care*).
- To identify the factors that can be changed to improve inpatient care determine whether most of the deaths occurred:
  - Within 24 hours: Consider untreated or delayed treatment of hypoglycaemia, hypothermia, septicaemia, or severe anaemia, incorrect rehydration fluid or volume of fluid or overuse of IV fluids.
  - Within 72 hours: Check whether the volume of feed given during re-feeding was too high or the formulation was wrong. Were antibiotics given?

- Over 72 hours: Consider nosocomial infection, re-feeding syndrome, heart failure, and HIV infection.
- At night: Consider hypothermia due to insufficient covering of the child or no night feeds.
- When beginning F-100 or RUTF: consider too rapid a transition from starter to catch-up feeds.

NOTE: It is not enough to merely conduct death audits. Heath service providers ought to demonstrate that they are learning from each death that is audited to prevent similar deaths from occurring in future.

6.8 Mentorship and Supportive Supervision

Supervisors should use the supervisor checklists to assist in monitoring the quality of the programme. (See Annex 6-12 Supervision Checklist for Community Outreach, 6-13 Supervision Checklist for SFP and OTP, and Annex 6-14 Supervision Checklist for Inpatient Care). Personnel conducting supervisory visits should also review the treatment or monitoring charts, particularly those of children who have defaulted, died, or are not responding to treatment. This ensures that weaknesses in the implementation of the programme or in the management of individual children are identified so that improvements can be made in both.

Supervisors and clinicians should review:

- Proper completion of the treatment cards, monitoring cards, ration cards, and health passports
- Proper adherence to CMAM and other medical protocols
- Progress of individual children, checking for consistent weight gain
- Proper community follow-up or referral
- Proper completion of registers and report forms
- Proper completion of stock records of medicines and RUTF
- Other procedures according to the supervision checklist

6.9 Exchange of Information with the Community

This may be done through focus group discussions. Focus groups should be carefully selected to ensure that specific issues are discussed by appropriate community representatives. These may be community leaders, teachers, or caregivers, for example. Discussions should be a two-way process that allows for explanation of programme protocols or specific issues and for the community to provide input into the programme.

Groups may discuss issues such as perceptions of the feeding programmes, why mothers do not bring children to the CMAM programme, and how this can be improved.

Annex 6-1: Summary of Admission and Discharge Criteria

Summary of CMAM Admission Criteria

NRU

Children > 6 Months

Bilateral pitting oedema +++

OR Marasmic kwashiorkor defined as any grade of bilaterial pitting oedema and severe wasting:

- MUAC < 11.5 cm (6–59 months)
- MUAC < 13.0 cm (5–9 years)
- MUAC < 16.0 cm (10–15 years) or
- WFH/L z-score < -3

OR Bilateral oedema + or ++ or severe wasting:

- MUAC < 11.5 cm (6–59 months)
- MUAC < 13.0 cm (5–9 years)
- MUAC < 16.0 cm (10–15 years) or
- WFH/L z-score < -3

WITH Any of the following danger signs:

- Anorexia, no appetite
- Intractable vomiting
- Convulsions
- Lethargy, not alert
- Unconsciousness
- Inability to drink or breastfeed
- High fever (> 39° C rectal or > 38.5° C axillary)

OR WITH Any of the following medical complications:

- Hypoglycaemia
- Hypothermia (< 35° C axillary and < 35.5° C rectal)
- Infections
- Severe dehydration
- Shock
- Very severe anaemia
- Cardiac failure
- Severe dermatosis
- Signs of vitamin A deficiency
- Diarrhoea
- Malaria

OR Referrals from the OTP due to:

- Deterioration in the child's medical condition, based on the Outpatient Care Action Protocol
- Increase in bilateral pitting oedema
- Weight loss for 3 consecutive weeks or static weight for 5 weeks

OTP

Children 6–59 Months

MUAC < 11.5 cm

OR WFH/L z-score < -3

OR Bilateral pitting oedema + or ++

AND

- RUTF appetite test passed
- No medical complications
- Clinically well and alert

HIV-positive Children 6–59 Months

MUAC < 12.5cm

OR WFH/L z-score -3 to -2

AND

- RUTF appetite test passed
- No medical complications
- Clinically well and alert

Children 5–15 years

MUAC: 5–9 years < 13.0 cm
10–15 years < 16.0 cm

OR Bilateral pitting oedema + or ++

If child is HIV positive, admit to the OTP with

MUAC: 5–9 years: 13.0–14.5 cm
10–15 years: 16.0–18.5 cm

AND

- RUTF appetite test passed
- No medical complications
- Clinically well and alert

SFP

Children 6–59 Months

MUAC 11.5–12.5 cm

OR WFH/L z-score -3 to -2

OR Discharged from SAM treatment in OTP or NRU

NOTE: Admit HIV+ children with MAM to OTP

Children 5–15 Years

MUAC: 5–9 years: 13.0–14.5cm
10–15 years: 16.0–18.5 cm

OR Discharged from SAM treatment in OTP or NRU

NOTE: Admit HIV+ children with MAM to OTP

Pregnant and lactating women

MUAC < 22 cm

OR Mothers of infants < 6 months old who are discharged from inpatient care

• Not responding to treatment after 3 months in the OTP programme **Infants < 6 Months** WFL z-score < -3 (if > 45 cm) **OR** Bilateral pitting oedema +, ++, or +++ **OR** Visible severe wasting (if infant is < 6 months and < 45 cm in length) **OR** If infant is > 6 months and weighs < 3.0 kg **OR** Too weak to suckle effectively (independent of weight-for-length) **OR** Failure to gain weight*		

** Children < 6 months whose growth is faltering or are below -3 z-scores on the weight-for-age growth curve must be referred to a clinician for further assessment. Children who do not gain weight following breastfeeding counselling and/or treatment of underlying medical conditions should be referred to the NRU.*

Summary of Discharge Criteria

NRU

STABILISED AND REFERRED TO OUTPATIENT CARE

Appetite returned (passed appetite test for RUTF; the child is eating more than 75% of daily prescription of RUTF) and start of weight gain

AND Medical complications resolving

AND If bilateral pitting oedema on admission, bilateral pitting oedema decreasing

AND If marasmic kwashiorkor on admission, bilateral pitting oedema resolved

AND Clinically well and alert

FULL RECOVERY IN INPATIENT CARE

Children 6–59 months

- MUAC ≥ 12.5 cm
- WFH/L z-score ≥ -2
- No bilateral pitting oedema for two consecutive weeks
- Clinically well and alert

Children 5–15 Years

- MUAC ≥ 14.5 cm (5–9 years)
- MUAC ≥ 18.5 cm (10–15 years)

AND

- No bilateral pitting oedema for 2 consecutive weeks
- Clinically well and alert

Infants < 6 months (Breastfeeding)

- Successful re-lactation with effective suckling
- Good appetite, clinically well and alert
- Weight gain with exclusive breastfeeding is satisfactory

Infants < 6 months (Not Breastfeeding)

- WFL z-score ≥ -2 for 2 consecutive weeks
- No oedema for 2 consecutive weeks
- Clinically well and alert, no medical problems

OTP

Children 6–59 Months

MUAC ≥ 12.5 cm
AND WFH/L z-score ≥ -3

AND No bilateral pitting oedema for 2 consecutive weeks

AND Clinically well and alert

Children 5–15 Years

MUAC ≥ 14.5 cm (5–9 years)
MUAC ≥ 18.5 cm (10–15 years)

AND No bilateral pitting oedema for 2 consecutive weeks

AND Clinically well and alert

SFP

Children 6–59 Months

MUAC ≥ 12.5 cm

AND WFH/L z-score ≥ -2

AND No bilateral pitting oedema

AND Clinically well and alert for two consecutive visits

NOTE: Children referred to the SFP from the OTP or NRU should be discharged after 1 month of follow-up in the SFP

Children 5–15 Years

MUAC: 5–9 years: ≥ 14.5 cm
10–15 years: ≥ 18.5 cm

AND No bilateral pitting oedema

AND Clinically well and alert for two consecutive visits

Pregnant and lactating women

MUAC ≥ 22.5 cm for 2 consecutive visits

OR

Child reaches 6 months of age

Annex 6-2: Store Room Stock Management Card

Date	Reference Number	Unit Measure	IN	OUT	Balance	Storekeeper's Name	Storekeeper's Signature

The Store Room Stock Management Card should be kept up to date to register the flow of food in and out of the store room as necessary. The balance between in and out on the stock card should equal the number of actual items in the store room. Use one stock card for each item of stock.

Deliveries

Commodities must be checked on delivery. On the waybill verify contents of the delivery and certify receipt of the delivery. Indicate (in writing) any problem or inconsistencies between the actual delivery and the waybill. THIS IS VERY IMPORTANT. You should retain one copy of the waybill and return one copy to the W FP driver.

Storage of Food and Non-food Commodities

The storeroom should be:

- Sufficiently big (1 m to 2 m^3) to store 2 months stock of food commodities
- Easily accessible by vehicle in any season
- Well ventilated and sheltered from the rain
- Regularly cleaned/disinfected
- Protected from rodents
- Secure—under lock and key.

Commodities

- Food commodities should be separated from the non-food items.
- Food products should be put on wooden pallets 30 cm from the wall.
- Split bags should be separated from others.

Annex 6-3: Monthly Report Stock Sheet

Name of Facility:	Month of Report:
District:	Year:
TA:	Date:
No of Outreach Clinics:	

Commodities	Packaging and Unit	Stock on the first day of the month	Deliveries received in the month	Quantity distributed to beneficiaries	Quantity used for cooking demonstration	Quantity lost	Stock on the last day of the month	Request for the following month
Maize meal	Kg							
CSB+/ Likuni Phala	Kg							
CSB++/Supercereal	Kg							
Vegetable Oil	L(litres)							
pulses	Kg							
DSM	Kg							
Sugar	Kg							
F75	Sachets							
F100	Sachets							
RUTF/ Plumpynut	Sachets							
Rice	Kg							
Resomal	Sachets							

Reasons for loss:

BENEFICIARY NUMBERS			
Beneficiary Category	Male	Female	Total
Number of Children			
Number of Care Takers of Children in Therapeutic Feeding			
Number of Pregnant and Lactating women			
Other			

Prepared by:_____

Checked by: _____

Annex 6-4: SFP Monthly Report

Name of Health Facility:	Month:	Year:
District:	TA:	
Prepared by:	Position:	
Checked by:	Position:	

Age	Total at the start of the month (A)	New admissions			Total new admissions (E)=B+C+D	Returns and Transfers		Total admissions (H)=E+F+G	Discharges						Total discharged (O)=I+J+K+L+M+N	Total at end of month (P)=(A+H)-O
		WFH/L >-3 to <-2 z-scores (B)	MUAC (C)	Other (D)		Returned defaulters (F)	NRU/OTP or Other SFP (G)		Cured (I)	Died (J)	Defaulted (K)	Non-cured (L)	Referrals and Transfer			
													OTP/NRU (M)	Other SFP (N)		
6–23 months																
24–59 months																
5–12 years																
12–15 years																
Follow up NRU/OTP																
Pregnant																
Lactating																
TOTAL																
														Cure rate = I/ (I+J+K+L)*100 Death rate = J/ (I+J+K+L)*100 Default rate =K/ (I+J+K+L)*100 Non-cured rate =L/ (I+J+K+L)*100		
								Target	>75%	<3%	<15%	N/A				

Children referred for HTS *No. referred during the month*	**Children tested for HIV** *No. of test results received in month*	**Children HIV status already known** (*No. of children tested elsewhere*	**Child HIV sero-status** *Of all children tested (include children tested elsewhere)*		Exposed Children	Number of Children on ART
			R: (1)	NR: (0)		
PW/L referred for HTS *No. referred during the month*	PW/L tested for HIV *No. of test results received in month*				*Mothers HIV +ve but status of children not known*	
			R=Reactive, NR=Non-reactive			

PW HIV sero-status		**LW HIV sero-status**		**Other information**
R: (1)	NR: (0)	R: (1)	NR: (0)	Number of relapses

New admissions by gender (Children 6 months–15 years)							
Children 6–23 Months		Children 24–59 months		Children 5–12 Years		Children 12–15 Years	
Female	Male	Female	Male	Female	Male	Female	Male

Annex 6-5: OTP Monthly Report

Name of Health Facility:	Month:	Year:
District:	TA:	
Prepared by:	Position:	
Checked by:	Position:	

Age	Total at the start of the month (A)	New admissions				Total new admissions (F)=B+C+D+E	Returns and Transfers				Total Admissions (K) = F+G+H+I+J	Discharges						Total discharged (R)=L+M+N+O+P+Q	Total at end of month (S)=(A+K)-R
		WFH/L z-scores (B)	MUAC (C)	Bilateral Oedema (D)	HIV positive with MAM (E)		Returned defaulter (G)	Transfer from				Cured (L)	Died (M)	Defaulted (N)	Non-cured (O)	Referral and Transfer to			
								SFP (H)	NRU (I)	Other OTP (J)						NRU (P)	Other OTP (Q)		
6–59 months																			
5–12 years																			
12–15 years																			
TOTAL																			

Target	>75%	<10%	<15%	N/A

Cure rate = L/ (L+M+N+O)*100
Death rate = M/ (L+M+N+O)*100
Default rate =N/ (L+M+N+O)*100
Non-cured rate =O/ (L+M+N+O)*100

Other Information:

Children referred for HTS *No. referred during the month*			**New admissions by gender (Children 6 months–15 years)**						**Parental Status**	
Children tested for HIV *No. of test results received in the month*			6–59 months		5- 12 years		12–15 years		Without mother	
Children HIV status already known *No. of children tested elsewhere*			Male	Female	Male	Female	Male	Female	Without father	
Child HIV sero-status *Of all children tested (include children tested elsewhere)* *R=Reactive NR=Non-Reactive*	R (1)								Without both parents	
	NR(0)								With both parents	
Exposed children			**Relapses**							
Number of children on ART										

Comments on performance indicators: _____

Annex 6-6: NRU Monthly Report

Name of Health Facility:	Month:	Year:
District:	TA:	
Prepared by:	Position:	
Checked by:	Position:	

Age	Total at the start of the month (A)	New admissions				Total new admissions (F)=B+C+D+E	Returns and Transfers				Total Admissions (K) = F+G+H+I+J	Discharges							Total discharged (S)=L+M+N+O+P+Q+R	Total at end of month (T)=(A+K)-S
		WFH/L z-scores (B)	MUAC (C)	Bilateral Oedema (D)	Other (E)		Returned defaulter (G)	Transfer from				Stabilised to OTP (L)	Cured (M)	Died (N)	Defaulted (O)	Non-cured (P)	Referral and Transfer to			
								Hospital (H)	OTP (I)	Other NRU (J)							Medical transfer (Q)	Other NRU (R)		
< 6 Months																				
6–59 months																				
5–12 years																				
12–15 years																				
TOTAL																				
											Target	>75%		<10%	<15%	N/A				

Stabilised & Cure rate = L+M/ (L+M+N+O+P)*100
Death rate = N/ (L+M+N+O+P)*100
Default rate =O/ (L+M+N+O+P)*100
Non-cured rate =P/ (L+M+N+O+P)*100

Other Information:

Children referred for HTS *No. referred during the month*			**New admissions by gender (Children from 0 months–15 years)**												**Parental Status**	
Children tested for HIV *No. of test results received in the month*			< 6 months		6–59 months		5- 12 years		12–15 years						Without mother	
Children HIV status already known *No. of children tested elsewhere*			Male	Female	Male	Female	Male	Female	Male	Female					Without father	
Child HIV sero-status *Of all children tested (include children tested elsewhere)* *R=Reactive NR=Non-Reactive*	R (1)														Without both parents	
	NR(0)														With both parents	
HIV Exposed children											**Relapses**					
Number of children on ART																

Comments on performance indicators: _____

Annex 6-7: Essential CMAM Equipment for SFP and OTP

Tools, Materials, and Other OTP/SFP Supplies	Minimum Amount per Clinic
Strong file to store treatment cards	4
Small clock or watch with second hand	2
Bucket – plastic, graduated, lid, 8.5 litres	2
Jug – transparent plastic, graduated, 1 litre	2
Marker pens (permanent ink)	12
Notebook	4
Metal spoons	4
Teaspoons	12
Nail clippers	4
Water carrier – plastic, 20 litres	4
Water jug (with lid)	4
Small metal bowl	4
Thermometer – electronic	2
Hanging scale with 100 g indications	1
Adult scale/electronic scale	1
Height boards	1
MUAC bands for children	20
Calculators	2
Weight-for-height chart	1
Additional height board	1
Scissors	1
Stapler and staples	1
Beaker – orange plastic (500 ml)	2
Copy of CMAM guidelines	2
Set of cups and spoons	6
Wooden pallets for food	10
Cooking pots for SFP demonstration	1
MUAC tapes for adults	5
SFP and OTP monitoring cards	
OTP register	
OTP Report	
SFP registers – one for children and one for mothers	
SFP monthly report booklet	
Supplementary and Theraputic	**Minimum Amount**
Sugar to make 10% sugar solution	500g
RUTF	
CSB++	
CSB+	
Vegetable Oil	
Routine Medicines for OTP	**Amount**
Amoxicillin syrup 125 mg/5 ml	500 bottles
Albendazole or Melbendazole100 mg	4 tins
Paracheck (malaria rapid test)	200
HIV Test Kit	

Annex 6-8: Essential CMAM Equipment for NRU

Tools, Materials, and Other NRU Supplies	Minimum Amount per Clinic
Strong file for treatment cards	4
Small clock or watch with second hand	2
Bucket – plastic, graduated, lid, 8.5 litres	2
Jug – transparent plastic, graduated, 1 litre	2
Marker pens (permanent ink)	12
Notebook	4
Metal spoons	4
Teaspoons	12
Nail clippers	4
Water carrier – plastic, 20 litres	4
Water jug (with lid)	4
Small metal bowl	4
Hanging scale with 100 g indications	1
Adult scale/electronic scale	1
MUAC bands	20
Calculators	2
Weight-for-height chart	1
Height board	1
Scissors	1
Stapler and staples	1
Beaker – orange plastic (500 ml)	2
Set of communication materials for counselling on health and nutrition	2
Job aids for staff	1
Copy of CMAM guidelines	1
Registration book	1
Monthly reporting forms	1
NRU treatment card	
Set of cups and spoons	6
Infant scale with 10 g indications	1
Food scale (up to 10 kg) for weighing milk powder	1
Electric kettle	1
Beds (that can sleep mother and baby)	20
Thermos flask	1
Blankets	1
Wall thermometers (room thermometer)	1
Hand whisk	1
Syringes (for measuring small milk feeds)	50
Room heater	2
Resuscitator hand, infant/child set	1
Insecticide-treated bed nets (ITN)	20
Therapeutic Foods	
F-75 milk	
F-100 milk	
RUTF	
Sugar	
CMV	

Routine and Essential Drugs	
Vitamin A	
Folic Acid	
Ferrous Sulphate	
Amoxicillin	
Cotrimoxazole	
Gentamycin	
Benzyl Penicillin	
Cefotaxime	
Ceftriaxone	
Ciprofloxacin	
Cloxacillin	
Tetracycline eye ointment	
Chloramphenicol eye drops	
1% Atropine eye drops	
Nystatin (oral suspension)	
Fluconazole	
Benzyl Benzoate (12.5%)	
Whitfields	
Gentian Violet	
Silver Sulfadiazine	
Zinc Oxide Ointment (10%).	
Paraffin Gauze	
Measles Vaccine	
10% Dextrose	
Metronidazole	
Blood for transfusion	
Albendazole or Mebendazole	
Anti-malarial drugs – Lumefantrine Artemether -LA (oral)	
Antiretroviral therapy (ART)	
TB drugs	
Medical Supplies	
ReSoMal	
Malaria test kit	
HIV test kit	
Hb test strips	
IV kits	
NG tubes	
Mixing syringes (50–60 ml)	
Glucometer or glucose test kit	
IV fluids: Half-strength Darrow's or Ringer's lactate	
Thermometer (for measuring body temperature)	

Annex 6-9: Division of Responsibilities in SFP

Position	Responsibilities
Clinician/Nurse	Perform overall supervision and case management at the SFP site. Carry out initial physical examination. Prescribe routine and additional medications according to protocol. Refer caregivers for HTS, ANC and immunisation services. Supervise SFP staff. Discharge beneficiaries according to protocols. Manage logistics. Review consolidate and submit monthly reports to the DHO. Monitor programme indicators at the facility level.
HSAs	Organise set-up of SFP and ensure smooth flow of patients. Provide health education sessions. Take anthropometric measurements. Register beneficiaries. Organise cooking demonstrations. Monitor hygiene and sanitation situation. Check and administer vaccinations. Distribute rations. Conduct follow-up visits. Complete tally sheets and monthly report forms.
Volunteers	Screen children at household level and refer to the health facility if meeting referral criteria. Conduct follow-up visits. Keep records.

Annex 6-10: Division of Responsibilities in OTP

Position	Responsibilities
Clinician/Nurse One Clinician/Nurse should be responsible for overall supervision and case management at the OTP site. The clinician may be a clinical officer, medical assistant, or other medically trained professional.	Investigate medical history through caregiver interview.
	Carry out initial physical examination.
	Review child's growth and health at each follow-up OTP session.
	Record medical history and examination results on OTP monitoring card.
	Refer children for further medical care/NRU treatment if necessary.
	Prescribe routine and additional medications according to protocol.
	Identify non-responders for follow-up.
	Refer non-responding HIV-positive children for ARV staging.
	Refer caregivers for HTC, ANC, and immunisation services.
	Allocate duties to staff.
	Supervise OTP staff.
	Manage logistics (stock management, transport for referrals, storage and supply of RUTF).
	Maintain good filing system.
	Track children through various components of CMAM programme.
	Review accuracy of monitoring cards at the end of the OTP session.
	Review, consolidate, and submit monthly reports to the DHO.
	Monitor programme indicators at the facility level.
Health Surveillance Assistant (HSA)/Senior HSA At least 2 HSAs are required at each OTP session. An additional HSA may be used at busy OTPs. 1 HSA should have the responsibility of coordinating volunteer/outreach activities.	Organise set-up of OTP and ensure smooth flow of patients.
	Provide health education sessions to caregivers at OTP sessions.
	Measure, weigh, and check MUAC and oedema for all children attending OTP session. Determine W/H%. Administer vaccinations
	Record registration information on monitoring and ration cards.
	Assign OTP beneficiaries to the nearest volunteer/outreach worker for follow-up.
	Distribute RUTF rations.
	Discharge children and refer to SFP if available.
	Identify absentees and defaulters for follow-up.
	Complete weekly tally sheet and submit to CO.
	Discuss follow-up cases with assigned volunteer/outreach worker.
	Review follow-up visit checklists and report results to CO.
	Coordinate regular meetings with volunteers/outreach workers to refresh training, share information, and discuss performance.
	Give feedback to village headman or committee on volunteer performance and CMAM progress.
	Involve influential community groups in case-finding (women's groups, CBOs, religious groups).
Volunteer/ outreach worker 1 volunteer per village	Case finding in the community: Check for oedema and measure MUAC.
	Refer cases to the nearest health facility.
	Visit absentee or defaulter children in their homes and encourage them to return to the OTP/NRU.
	Follow up children who are not responding in their homes as requested.
	Record home visits and report to the health centre on a timely basis.
	Conduct community sensitisation meetings.
	Give monthly verbal feedback to village headman or committee on number of CMAM beneficiaries, defaults, deaths, and other issues,

Annex 6-11: Division of Responsibilities in NRU

Position	Responsibilities
Clinicians/Doctors One clinician should be responsible for overall case management at the NRU. The clinician may be a medical doctor, clinical officer, medical assistant, or other medically trained professional	Conduct initial medical assessments (triage, history taking, examinations, investigations, and treatment) of SAM patients with complications.
	Conduct daily ward rounds to ensure drugs and feeds are administered appropriately and monitor progress of recovery.
	Assess any patients that fail-to-respond to treatment or present diagnostic difficulty and the management of the complications.
	Take actions to transfer the child to OTP if recovering or to critical care if condition is worsening.
Nurses or Nurse In-charge One Nurse should be allocated for night duty in the NRU.	Triage and admit the SAM patients with complications to the inpatient care.
	Register the patient using his/her registration number given by the OTP. The details are entered into the registration book and multi-chart.
	Ask the clinician to review patients daily in the inpatient care.
	Administer and document all medications, including administration of ReSoMal.
	Give a phone call to the OTP transferring the patient to inform them of arrival and discuss any details that are not recorded on the transfer form.
	Ensure all the 10 steps in the inpatient management of children with SAM are followed.
	Ensure inpatient care (NRU) procedures are followed all the time in the inpatient care.
	Allocate, mentor, and supervise home-craft workers and ward support staff (cleaners, ward attendants, ward clerks, etc.).
	Compile monthly reports and submit them to the DHO.
Home Craft Workers (or any other health/ward assistants)	Weigh and measure patients according to the protocol.
	Prepare and give feeds.
	Record information on feeding on the NRU treatment chart.
	Give daily health and nutrition education session following outlined topics agreed by the nurse-in-charge. See Annex 1-1 and 1-2 .
	Support caregivers in appropriate feeding practices while in inpatient care and upon discharge.
	Assist caregivers in providing tender loving care, play, and stimulation to children with SAM.

Annex 6-12: Outreach / HSA Supervision Checklist

Name of Outreach/HSA: _____

Health Centre: _____ Date: _____

	Quality 1 – Done correctly 2 – Done, but needs work 3 – Not done or done incorrectly	Discussed with supervisor (Y/N)	Comment
All absentees/defaulters from previous week followed up			
Outreach follow-up form filled in correctly and information noted on ration card			
Appropriate education (according to education message sheet) given to mothers at home			
Oedema measured and graded accurately			
MUAC measured accurately			
Referred children from community screening followed up for admission			
Caregiver referred for additional care or services if appropriate using referral slip			
Timely and appropriate referral to the clinician made for non-responders			
Volunteer/outreach worker returns follow-up visit checklists or observations to health centre			
Volunteer/outreach worker feedback provided on a timely basis (before the next OTP/SFP session)			
Volunteer/outreach worker has a helpful, positive attitude with caregivers			
Community feedback sessions /meetings conducted (how often in comments)			

Summary of recommendations for follow up:

Name and signature of focal person: _____

Name and signature of supervisor(s): _____

Annex 6-13: Supervision Checklist for Outpatient Therapeutic Programme (OTP) and Supplementary Feeding Programme (SFP)

General Information

Name of Health Facility:	District:	Health Zone:
Name of Focal Person:	Phone Number:	
Name of Supervisor(s):		
Date of Supervision:		

General Objective

To support health workers in the management of acute malnutrition according to the National CMAM guideline.

Specific Objective

- To support the health workers and community volunteers to detect, refer, and admit children with acute malnutrition according to the national CMAM guidelines.
- To support the health workers to treat children with acute malnutrition without complications following the national CMAM guidelines including care practices.
- To support the health workers to collect and manage CMAM data.
- To support the health worker to manage CMAM supplies.
- To support the health workers and community volunteers in planning and executing nutrition and health education messages following CMAM and IYCF national guidelines.
- To support the health workers and community volunteers in practicing appropriate hygiene practices and promotion.

Methodologies to be used

- Direct observation and feedback
- One-on-one interview
- Document analysis

Topics

- Welcoming of Clients
- Detection and Triage
- Admission Procedures
- Treatment Protocols
- Discharge Procedures
- Documentation
- Stock Management

	Quality 1 – Done correctly 2 – Done, but needs work 3 – Not done or done incorrectly	Discussed with In-charge / Nurse / HSA supervisor (Y/N)	Comment/Follow-up Action
Welcoming of Clients			
Number of staff and volunteers present			*Staff:* *Volunteers:*
Staff greet the caregivers and are friendly and helpful			
Caregivers do not wait for too long before attended to			
Detection and Triage			
Oedema measured and graded accurately			
MUAC measured accurately			
Weight measured accurately			
Height measured accurately			
Weight-for-height z-score calculated accurately			
Emergencies and very sick children are detected and prioritised			
Nurses and clinicians are involved in triage			
Sugar water is given to all children upon arrival			
Admission Procedures			
Registration numbers assigned correctly			
Registration numbers written on all documentation			
Medical history properly done by nurses/clinicians and recorded accurately			
Physical examination performed by nurses/clinicians and recorded accurately (check monitoring card)			
Child's appetite assessed using RUTF (on admission and at all return visits)			
Caregivers wash their hands before giving RUTF during appetite test			
Safe drinking water available and given to children during appetite test			
Admission is according to correct criteria (spot check monitoring cards)			
Treatment Protocols			
Routine medications given by clinicians according to protocol and recorded accurately			
Appetite test is done according to guidelines			
Amount of RUTF or *Likuni Phala* needed is correctly calculated and given according to guidelines			
Appropriate health and nutrition education given to caregivers/mothers of OTP/SFP beneficiaries			*Note topic:*

Community volunteers take part in health and nutrition education			
Follow-up medication given by clinicians according to guidelines and recorded accurately			
Discharge Procedures			
Non-responders are identified according to the definition for follow-up and referral if necessary			
Priorities for follow up are discussed with HSA/community worker if needed			
Beneficiaries discharged according to protocol			
Correct number of absentees/defaulters passed to HSAs/community health worker for follow–up			
Appropriate key messages are given to the caregiver on discharge			
Documentation and Reporting			
Registers, monitoring cards, ration cards, reporting forms are available			
Registers, monitoring cards, ration cards, and stock cards correctly completed and updated (spot check)			
Reports are compiled accurately			
Reports are timely sent to district/national level as per deadlines			
Cards for children in the programme, defaulters, cured, and deaths are filed systematically in separate folders/boxes			
Stock Management			
Store room clean and free of rodents and other infestations			
Stock cards available and updated			
Stock matches with admissions (please check from monitoring and ration cards)			
Critical stock levels are known and reported to district level on time for replenishment			

Summary of recommendations for follow up:

Name and signature of focal person: _____

Name and signature of supervisor(s): _____

Annex 6-14: Supervision Checklist for Inpatient Care

1a) Hospital Assessment Form: SAM CHILD RECORD REVIEW

Assess the last 3 patients' records using the following form. *Enter information in blank boxes. For 'status' enter if the child* ***is currently in care, cured, stabilised, defaulted, or death****. Under "monitoring", tick 'check' boxes [V] if actions were carried out correctly and cross [X] if done incorrectly. Where 'check' boxes are crossed, provide an explanation in 'notes' column. If the action is not applicable (e.g. child was not dehydrated) write N/A. If it is unclear if the action was carried out correctly mark '?' and seek clarification.*

District:			Health Facility:			
Where is Management of SAM located (paediatric ward, Nutrition Rehabilitation Unit (NRU) or other:						
BASIC INFORMATION:	Registration no:		Registration no:		Registration no:	
	STATUS:		STATUS:		STATUS:	
INDICATORS:	*Notes*		*Notes*		*Notes*	
STATUS OF CHILD (WHEN ADMITTED ONTO THE CURRENT WARD)						
Age (months)						
Sex						
Admission weight (kg)						
MUAC (cm)						
Weight-for-height/length Z- score						
Oedema grade (0 + ++ +++)						
Dermatosis (skin lesions)						
HIV status (is the child positive, negative, exposed or not tested?)						
Where was the child referred from?						
New admission or readmission in inpatient care						
KEY DATES						
Date admitted to current ward						
Time admitted to current ward						
Date discharge or death						
Time of death *(if applicable)*						
Date of transition from F-75 onto RUTF or F-100						
Date ReSoMal first prescribed *(if applicable)*						
Date malaria test done (indicate test result)						

INDICATORS	*Check*	*Notes*	*Check*	*Notes*	*Check*	*Notes*
Step 1: Treat/prevent hypoglycaemia						
Fed F75 within 30 minutes of arrival on current ward and/or given 10% glucose (IV) or sugar solution (orally)	☐		☐		☐	
Step 2: Treat / prevent hypothermia						
Temperature monitored twice daily?	☐		☐		☐	
Step 3: Treat / prevent dehydration						
Watery stools documented	☐		☐		☐	
ReSoMal prescribed and documented as given after each watery stool	☐		☐		☐	
IV fluids only prescribed if child in shock	☐		☐		☐	
If given IV, duration does not exceed 2 hours	☐		☐		☐	
If given IV, respirations and pulse monitored every 10 minutes	☐		☐		☐	
Child diagnosed as dehydrated only if has watery stools/ vomiting	☐		☐		☐	
If dehydrated, correct volume of ReSoMal prescribed (5ml/kg every 30 mins for 2 hrs and 5-10ml/kg for next 4-10 hrs)	☐		☐		☐	
If dehydrated, ReSoMal documented as given according to prescription	☐		☐		☐	
If dehydrated, ReSoMal alternated with F75 after first 2 hours	☐		☐		☐	
If dehydrated, duration of ReSoMal does not exceed 12 hours	☐		☐		☐	
If dehydrated, Child's respirations and pulse monitored at least hourly whilst on ReSoMal	☐		☐		☐	
Step 4: Correct Electrolyte Imbalance						
Were feeds given according to standard protocol?	☐		☐		☐	
Diuretic not prescribed for oedema	☐		☐		☐	
Resomal used (e.g. ReSoMal) for dehydration	☐		☐		☐	
Step 5: Treat / prevent infection						
Antibiotics given on day 1	☐		☐		☐	
Appropriate course of broad-spectrum antibiotics given (5 -7 days)	☐		☐		☐	
Cotrimoxazole given if HIV +/exposed	☐		☐		☐	
Antibiotics documented as given according to prescription	☐		☐		☐	

INDICATORS	*Check*	*Notes*	*Check*	*Notes*	*Check*	*Notes*
If positive, was the child started on ART after stabilization?	☐		☐		☐	
Step 6: Micronutrient deficiencies						
Were the standard feeds, F-75, F-100, RUTF given?	☐		☐		☐	
Does the child have eye signs of vitamin A deficiency?	☐		☐		☐	
If child has eye signs or measles, was Vitamin A given on day 1, Day 2 & Day 14?	☐		☐		☐	
Vitamin A recorded as given according to prescription	☐		☐		☐	
if the child is transitioning using F-100, was iron (3mg/kg/day) prescribed only after transition onto F100	☐		☐		☐	
Iron recorded as given according to prescription	☐		☐		☐	
Step 7: Start cautious feeding						
F75 given as starter feed	☐		☐		☐	
Correct volume of F75 prescribed 2 or 3 hourly during stabilization	☐		☐		☐	
Frequency of F75 lowered and volume increased correctly (if no vomiting, <5 watery stools, finishing most feeds)	☐		☐		☐	
F75 recorded as given according to prescription	☐		☐		☐	
NG tube correctly prescribed (if intake <80% feed over 24 hours or <80% for 3 consecutive feeds)	☐		☐		☐	
Step 8: Achieve catch up growth						
Transition onto RUTF / F100 prescribed at right time (if appetite and reduced/ minimal oedema)	☐		☐		☐	
Correct volume of F75 and RUTF / F100 prescribed and given during transition	☐		☐		☐	
Volume of F75 and RUTF / F100 recorded as given according to prescription	☐		☐		☐	
If child is getting F100, Volume of F100 increased by 10ml per feed on day 3 of transition	☐		☐		☐	
Volume of RUTF or F100 increased after day 3 of transition	☐		☐		☐	
Total 24 hour daily feed volume calculated correctly	☐		☐		☐	
If transitioned using F100, volume of F100 given in correct amount every 4 hours	☐		☐		☐	
Step 9: Follow up						
If transitioned using RUTF caregiver being informed of the	☐		☐		☐	

INDICATORS	*Check*	*Notes*	*Check*	*Notes*	*Check*	*Notes*
nearest health centre outpatient to her home and being given a transfer slip and a weekly ration of RUTF.						
Monitoring						
Weight accurately plotted on chart	☐		☐		☐	
Z scores recorded daily using WHO charts	☐		☐		☐	
Target weight correctly recorded on admission	☐		☐		☐	
Record weight daily	☐		☐		☐	
Key Points						

(1b) Hospital Assessment Form: OBSERVATIONS on WARD

Observe activities on the ward during feeds (one session) and after feeds (during ward rounds, 2 sessions per day). *Complete the blank spaces. Tick check boxes if actions were carried out correctly and cross if done incorrectly. Where check boxes are crossed provide an explanation in notes column. If it is unclear if the action was carried out correctly mark '?' and seek clarification.*

District			
Health Facility			
Where is Management of SAM located (paediatric ward, Nutrition Rehabilitation Unit (NRU) or other:			
OBSERVATION PERIOD:	*Date*	*Start time*	*End time*

INDICATORS:	*Check*	*Notes*
Step 1: Treat / prevent hypoglycaemia		
Checking question: are children admitted onto the ward within 2 hours of arrival?	☐	
Checking question to mothers: what time did you arrive at the hospital?	☐	
Step 2: Treat / prevent hypothermia		
Children remain covered	☐	
Each child has a blanket	☐	
Ward is not draughty (prevention of cold air getting into the ward, that causes discomfort)	☐	
Hot water bottle discouraged	☐	
Kangaroo method encouraged	☐	
Checking question for HCP: if a child is hypothermic, what would you do? (Active rewarming?)	☐	
Other emergency treatments		
Checking question: If child shows signs of shock are they stabilized at OPD?	☐	
Checking question: If child is in septic shock is 10ml/kg whole blood ordered and administered?	☐	
Checking question: If child has severe anaemia, is 10ml/kg whole blood (or 5-7ml/kg packed cells) ordered and administered?	☐	

INDICATORS:	*Check*	*Notes*
Appropriate wall charts for giving IV fluids are present	☐	
Checking question: Are IV fluids not given to treat dehydration unless the child is in shock?	☐	
Checking question: Are pulse and respirations monitored every 10 minutes during IV fluids?	☐	
Step 3: Treat / prevent dehydration		
ReSoMal given instead of ORS to prevent and treat dehydration	☐	
ReSoMal given on time, as prescribed	☐	
Staff accurately measure out ReSoMal volumes according to prescription	☐	
Children on ReSoMal monitored for return of rehydration signs (check pulse rate, respiratory rate every 10 to 30 mn)	☐	
Checking question: Is ReSoMal given routinely after every watery stool?	☐	
Resomal not being given to children who are not severely malnourished (answer yes if given, no if not given)	☐	
Step 4: Correct electrolyte imbalance		
Salt not added to additional foods (ask knowledge of the caregiver and health workers)	☐	
Step 5: Treat/ prevent infections		
Antibiotics given on time (within 30 minutes of prescription time) [Treat]	☐	
Antibiotic type and dose given according to prescription [Treat]	☐	
Staff wash hands between contact with each child [Hand washing]	☐	
Staff wash hands before preparing feeds [Hand washing]	☐	
Mothers wash hands before giving feeds [Hand washing]	☐	
Running water available for staff [Hand washing]	☐	
Soap available for staff [Hand washing]	☐	
Running water available for mothers [Hand washing]	☐	
Soap available for mothers [Hand washing]	☐	
New syringes used for each injection [Ward hygiene]	☐	
New or sterilized syringes used for each feed given through NG tube [Ward hygiene]	☐	
Cups used for feeding children (not bottles) [Ward hygiene]	☐	
Cups washed with soap between each feed [Ward hygiene]	☐	
Feeding equipment washed with soap between each feed preparation [Ward hygiene]	☐	
Separate sink used for washing equipment from washing hands [Ward hygiene]	☐	
Children do not share beds with each other [Ward hygiene]	☐	
Ward appears clean [Ward hygiene]	☐	
No evidence of pests on ward (e.g. rat droppings, cockroaches) [Ward hygiene]	☐	
Clean toilet available for staff [Ward hygiene]	☐	
Clean toilet available for mothers [Ward hygiene]	☐	
Area and detergent available for washing clothes and nappies [Ward hygiene]	☐	
Bed sheets clean and dry [Ward hygiene]	☐	

INDICATORS:	*Check*	*Notes*
Steps 7: Start cautious feeding & Step 8: Achieve catch-up growth		
Feeds not shared? [Feed preparation]	☐	
F75 recipe used is correct [Feed preparation]	☐	
RUTF / F100 used as feed once child has stabilized [Feed preparation]	☐	
F100 recipe used is correct [Feed preparation]	☐	
Recipe/s on display close to where feeds are prepared [Feed preparation]	☐	
Jugs measuring in 10ml used to measure volumes [Feed preparation]	☐	
Scoops, if used, provide an accurate measure for each ingredient [Feed preparation]	☐	
Staff use good technique to measure ingredients [Feed preparation]	☐	
Boiled water used to make feeds [Feed preparation]	☐	
Feeds made up to correct volume (whether add x litres or make up to x litres)[Feed preparation]	☐	
Ingredients mixed thoroughly (if starting from scratch, oil not separated out) [Feed preparation]	☐	
Feeds either refrigerated or fresh feeds made every 4 hours [Food storage and administration]	☐	
Utensils and feeds always covered [Food storage and administration]	☐	
WHO F75 feed volume chart easily accessible [Food storage and administration]	☐	
Feeds given on time (within 15 minutes of prescription) [Food storage and administration]	☐	
Staff accurately measure out feed volumes for each child [Food storage and administration]	☐	
Correct feed type given to each child according to prescription (F75 or RUTF / F100) [Food storage and administration]	☐	
Correct volume of feed given to each child according to prescription [Food storage and administration]	☐	
Staff measure any leftovers for each child [Food storage and administration]	☐	
Feeds recorded according to actual volume taken (i.e. leftovers charted) [Food storage and administration]	☐	
Feeds recorded according to actual time given [Food storage and administration]	☐	
If child vomits, feed re-offered [Food storage and administration]	☐	
Reluctant feeders encouraged to eat with patience (no force feeding) [Food storage and administration]	☐	
Children on RUTF / F100 fed until quantity offered finished [Food storage and administration]	☐	
Checking question: Are additional foods withheld from children in stabilisation phase? Ask mother: is the child given anything in addition? [Food storage and administration]	☐	
Oral route tried first before NG route used at each feed [NGT]	☐	
NG tube checked to ensure in place before each feed [NGT]	☐	
Large syringes used for NG feeding (e.g. 20ml) so that fluid can flow freely [NGT]	☐	
NG tube flushed with water (about 20 ml) straight after feeds [NGT]	☐	
Feed allowed to flow through tube by gravity, not forced [NGT]	☐	
Step 9: Sensory stimulation		

INDICATORS:	*Check*	*Notes*
Home-craft workers / Nurses touch and hold the children	☐	
Home-craft worker / Nurse contacts with children are gentle, caring and loving	☐	
Mothers interact with their children	☐	
Colourful pictures/ displays up on walls	☐	
Toys are available in/ around beds	☐	
Checking question: Are structured play sessions held for children?	☐	
Step 10: Follow up		
Mothers are treated kindly and supportively by staff	☐	
Checking question: Are educational sessions on children stimulation held for mothers?	☐	
Checking question: Are mothers given a transfer card and referred to the nearest outpatient site to their home?	☐	
Checking question: Are mothers given a weekly ration of RUTF in discharge from NRU	☐	
Checking question: Is the list of health centre providing outpatient Management of SAM available and information given to the mothers?	☐	
Raw skin covered (zinc and castor oil ointment, or petroleum jelly or paraffin gauze) [Nursing]	☐	
1% potassium permanganate solution diluted to pale violet to treat dermatosis [Nursing]	☐	
Pulse rate recorded [Nursing]	☐	
Respiratory rate recorded [Nursing]	☐	
Temperature recorded twice daily [Nursing]	☐	
Set of weighing scales present [Monitoring]	☐	
Good technique used to weigh children [Monitoring]	☐	
Length board present OR MUAC tapes available [Monitoring]	☐	
Good technique used to measure height/length OR to measure MUAC [Monitoring]	☐	
WHO weight for length charts OR MUAC charts easily accessible to staff [Monitoring]	☐	
Critical Care Pathway (CCP), weight gain tally sheet, 24 hour feeding card filled for each child [Monitoring]	☐	
Separate ward or 'corner' available to treat severe malnutrition [Ward]	☐	
Separate kitchen available [Ward]	☐	
Guidelines for treatment of severe malnutrition easily accessible to staff [Ward]	☐	
Charts for each child kept at end of their bed (e.g. intake, weight, drugs, vital signs) [Ward]	☐	
Admissions register complete (n admitted, readmission, defaulters, death, cured) [Ward]	☐	
Referral slip for outpatient care complete [Ward]	☐	
Ward in good state of repair [Ward]	☐	
Equipment on ward in good working order [Ward]	☐	
Oxygen available [Ward]	☐	
Minimum of one nurse to five children available during day [Staff]	☐	
At least one qualified nurse, plus one other person available at night [Staff]	☐	

INDICATORS:	*Check*	*Notes*
Duty shift organised every 12 hours [Staff]	☐	
Ward round carried out every day, including weekends [Staff]	☐	
Doctor/s visit ward at least once per day outside of ward rounds/ emergencies [Staff]	☐	
KEY NOTES		

(1c) NRU Routine data

	Number
Total at the start of the month	
WFH/L < -3 z-score	
MUAC < 11.5cm	
Bilateral Oedema	
Other	
TOTAL NEW ADMISSIONS	
Returned defaulter	
Transfer from Hospital	
Transfer from OTP	
Transfer from other NRU	
TOTAL ADMISSIONS	
Stabilised	
Cured	
Died	
Default	
Medical Transfer	
Transfer to other NRU	
TOTAL EXITS	
Total at the end of the month	
Cure Rate (%)	
Death Rate (%)	
Default Rate (%)	
Medical Transfer	
Children referred for HTS	
Children tested for HIV	
Children HIV status already known	
Child HIV sero-status R: (1)	
Child HIV sero-status NR: (0)	
HIV Exposed children	
On ART	

Annex 6-15: Death Audit Form for Inpatient Care

Child's Name / Barcode				Child's Registration Number	
NRU Name District					
DOB (dd/mm/yyyy)		Age (months):		Gender: M F	
Date of Admission		Time (24 hr clock)		Dead on arrival?	Yes No
Date of Death		Time (24 hr clock)			
REFERRAL?					
Y N Unknown If yes, circle & name	OTP	Medical Transfer	Another Hospital	Unknown	
Name of Referral Facility					

NUTRITION STATUS (on admission)							
Marasmus / wasting	Bilateral pitting oedema (Kwashiorkor)	Marasmic-Kwashiokor	Oedema grade: 0 + ++ +++	MUAC (cm) _____	Wt (kg) _____	Ht (cm) _____	Z-scores _____
List the medical complications the child had on admission:							

HIV STATUS							
HIV Exposure Status	Not exposed	Exposed mum not on ARV's	Exposed, mum on ARV's	Other		Unknown	
HIV < 12 months results	DNA PCR not done	DNA PCR pending	DNA PCR negative	DNA PCR Positive, not on ART	DNA PCR Positive & on ART	Poor ART compliance	Unknown
HIV > 12 months results	Known positive on ART	Known positive pre ART	Not exposed	Exposed negative by rapid test	Exposed positive by rapid test	Poor ART compliance	Unknown
TREATMENT PHASE (Feed the child was on): Stabilisation (F-75), transition (F-75 & RUTF or F-100) or rehabilitation (F-100 or RUTF)							

MAIN CAUSE OF DEATH	
Underlying conditions or other important diagnoses	

MODIFIABLE FACTORS THAT CONTRIBUTED TO THE DEATH							
FAMILY FACTORS	Y	N	Comment	REFERRAL FACILITY FACTORS	Y	N	Comment
Delay in seeking care				Case assessment / management			
Did not come when referred				Lack of personnel			
Transport problems				Drugs, equipment, blood, lab			
Not Immunised				Delay in referral			
Other				Lack of transport / communication			

INTERVENTIONS	Y	N	Comment
Was initial clinical and nutrition assessment done?			
Were interventions provided to prevent and treat hypoglycaemia?			
Were interventions provided to prevent and treat hypothermia?			
Were interventions provided to prevent dehydration?			
Did the child have dehydration?			
Was the dehydration correctly diagnosed and treated according to protocol			
Was the child monitored during administration of ReSoMal?			
Were interventions to treat for infections given according to the standard treatment protocol			
Was the child tested for HIV?			
If HIV positive was s/he linked to HIV treatment and care?			
Were interventions for micronutrient deficiencies provided according to the protocol?			
Did the child receive initial feeding according to protocol?			
Was the child in NRU transitioned to RUTF/F-100 at the appropriate time?			
Were catch up feeds given according to the protocol?			
Was the child monitored during feeding (vital signs, weight, appetite, diarrhoea, etc.).			
Was the child provided with stimulation, play, and loving care?			
Was the child a relapse? If yes, previous date of discharge?			
Other (specify)			
In your opinion could this death have been avoided? (circle) yes no not sure	Comment		

ACTION POINTS TO IMPROVE FUTURE CARE	RESPONSIBLE PERSON	BY WHEN

Date of audit	(dd/mm/yyyy)

AUDIT TEAM	
Name	Position

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