



National Guideline for Integrated Management of Acute Malnutrition

December 2019

Foreword

Malnutrition remains a threat to global health and development. It is the greatest risk factor to the global burden of disease and contributes to an estimated 45 percent of deaths in children under the age of five years. Malnutrition is also associated with lower educational achievement and cognitive development during childhood and leads to long-term impairment, including increased risk of chronic diseases as well as lower economic status and productivity during adulthood. Its economic consequences contribute to Gross Domestic Product (GDP) losses of 10 percent. Its effects are far-reaching through the life course, forming a cyclical relationship of poverty and malnutrition which is passed from mother to child, across generations.

In Kenya, while national levels of acute malnutrition are at 4.0 percent (Kenya Demographic Health Survey, 2014); there are regions of the country especially the Arid and Semi-Arid Counties (ASAL) where high levels of Global Acute Malnutrition (GAM) rates are above 15 percent and malnutrition persists and is considered endemic. Further, morbidities like HIV/AIDS and Tuberculosis; if not well managed, are an additional challenge in maintaining adequate nutritional status amongst affected populations.

In 2009, Kenya revised the National Guideline for Management of Acute Malnutrition to include innovative approaches that enhanced timely access to treatment. By adopting outpatient and inpatient models, the opportunity cost for caregivers whose children did not have complications but were acutely malnourished; was significantly reduced as the children were managed as outpatients on a weekly basis at facility level and routinely followed up at community level. The National Guideline for Integrated Management of Acute Malnutrition (IMAM) has been further updated to reflect the 2013 World Health Organization (WHO) Guidelines¹ and the Kenya National Nutrition Action Plan (KNAP) 2018-2022². KNAP stresses that reducing child mortality and improving maternal health depend heavily on reducing malnutrition.

While this guideline focus on management of acute malnutrition, IMAM interventions should ensure continuum of care through strong linkages with programmes that focus on preventive and promotive services. The guideline also contains changes in the protocols for managing malnutrition at inpatient and outpatient level and incorporates updated guidance on management of acute malnutrition in infants aged less than 6 months. In addition, it also contains guidance from the Nurturing Care Framework, which recommends that services improving child survival outcomes also incorporate content that facilitates their all-round development and enables them to thrive and reach their full potential in life.

The Ministry of Health will provide the necessary leadership and coordination in liaison with the County governments to further ensure that quality and timely services are offered and avert any preventable deaths and failure to thrive due to malnutrition.

¹ WHO. Guideline: Updates on the management of severe acute malnutrition in infants and children. Geneva: World Health Organization; 2013.

² Government of Kenya, Ministry of Health (2018): The Kenya Nutrition Action Plan (KNAP), 2018 –2022

Acknowledgements

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ACRONYMS AND DEFINITIONS

AL:	Artemether-Lumefantrine
ANC:	Antenatal Care
ART:	Anti-Retroviral Therapy (treatment course of drugs for HIV)
ARV:	Anti-Retroviral (drugs used against HIV and AIDS)
ASAL:	Arid and Semi-Arid Lands
CCC:	Comprehensive Care Centre
CNC:	County Nutrition Officer
CHA:	Community Health Assistant
CHRIO:	County Health Records Information Officer
CHV:	Community Health Volunteer
CMV:	Combined Mineral Vitamin
CSB:	Corn Soya Blend
CSG:	County Steering Group
DND:	Division of Nutrition and Dietetics
DTC:	Diagnostic Testing and Counseling
ENAC:	Emergency Nutrition Advisory Committee
EPI:	Expanded Programme of Immunization
ETAT:	Emergency Triage Assessment and Treatment
FAO:	Food and Agriculture Organization
FBF:	Fortified Blended Food
FCDRR:	Facility Consumption Data Reporting and Request
F75:	Special milk for stabilization of severe malnutrition
F100:	Special milk for catch up growth for severe malnutrition
GAM:	Global Acute Malnutrition
GFD:	General Food Distribution
GoK:	Government of Kenya
HIV/AIDS:	Human Immunodeficiency Virus/ Acquired Immunodeficiency Syndrome
HRIO:	Health Records Information Officer
ICT:	Information Communication and Technology
IDP:	Internally Displaced People
IEC:	Information, Education and Communication
IMAM:	Integrated Management of Acute Malnutrition
IMNCI:	Integrated Management of Neonatal and Childhood Illness
IPC:	Integrated Phase Classification
IYCN:	Infant and Young Child Nutrition
KAP:	Knowledge, Attitudes and Practice
KDHS:	Kenya Demographic Health Survey
KEMSA:	Kenya Medical Supplies Authority
KFSSG:	Kenya Food Security Steering Group
KHIS:	Kenya Health and Information Systems
KNAP:	Kenya National Nutrition Action Plan
KEPI:	Kenyan Expanded Programme on Immunization
KHPT:	Kenya Humanitarian Partnership Team
KRCS:	Kenya Red Cross Society
LMIS:	Logistics Management and Information System
MAM:	Moderate Acute Malnutrition

MCH: Mother Child Health
MFL: Master Facility List
m-Health: Mobile Health
MIYCN: Maternal, Infant and Young Child Nutrition
MIYCN-E: Maternal Infant and Young Child Nutrition in Emergencies
MoH: Ministry of Health
MTCT: Mother to Child Transmission
MUAC: Mid-Upper Arm Circumference
NASCOP: National AIDS and STI's Control Programme
NDEF: National Drought Emergency Fund
NDMA: National Drought Management Authority
NDOC: National Disaster Operations Center
NG: Nasogastric tube
NGO: Non-Government Organization
NITWG: Nutrition Information Technical Working Group
OPD: Out Patient Department
ORS: Oral Rehydration Salts
OTP: Out-patient Therapeutic Programme
OVC: Orphaned, Vulnerable Children
PCR: Polymerase Chain Reaction
PLW: Pregnant and Lactating Women
PLWHA: People Living with HIV/ AIDS
ReSoMal: Rehydration Solution for Malnourished
RUSF: Ready to Use Supplementary Food
RUTF: Ready to Use Therapeutic Food
SAM: Severe Acute Malnutrition
SC: Stabilization Center
SCNC: Sub-County Nutrition Coordinator
SD: Standard Deviation
SFP: Supplementary Feeding Programme
SMART: Standardized Monitoring and Assessment of Relief and Transition
SQUEAC: Semi Quantitative Evaluation of Access and Coverage
TB: Tuberculosis
ToR: Terms of Reference
UN: United Nations
UN OCHA: United Nations Office for the Coordination of Humanitarian Action
UNICEF: United Nations Children's Fund
VCT: Voluntary Testing and Counselling
WHZ: Weight for Height Z score
WLZ: Weight for Length Z score
WAZ: Weight for Age Z score
WFP: World Food Programme
WHO: World Health Organization

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Introduction

Malnutrition is an important public health issue particularly for children under five years old who have a significantly higher risk of mortality and morbidity than well-nourished children. Maternal and child under-nutrition is prevalent in low and middle-income countries. New research estimates that the risks related to stunting, severe wasting and intrauterine growth retardation are linked to 2.2 million deaths and 21% of disability-adjusted life years worldwide for children under five years³. Deficiencies in Vitamin A and Zinc are estimated to be responsible for 600,000 and 400,000 childhood deaths respectively. Sub-optimum breast feeding, particularly for infants under-six months, is also a leading factor in childhood morbidity and mortality. Globally, 250 million children <5 years fail to reach developmental potential and 66% of these are in Sub-Saharan Africa (Lu, Black and Richter, 2016). Approximately 38% of three and four-year-olds in Kenya are not reaching their cognitive and socio-emotional milestones.⁴

Malnutrition is one of the determinants of poor development in children. Exposure to malnutrition in the early years of life may result in brain damage, causing developmental delays and difficulties in thinking, problem solving and learning. Routine child health and nutrition services do not necessarily include counseling on child development or monitoring for developmental milestones—a critical omission according to the WHO Nurturing Care Framework, 2018. The delays in growth and development caused by malnutrition may become irreversible if not corrected in the first two years of life.

In Kenya, the infant and under-five mortality rates are 39 and 52 per 1000 live births respectively⁵. The national figure for acute malnutrition of children under five years old is estimated at 4%, however there are huge variations in different regions of the country. In the Arid and Semi-Arid Areas (ASAL) where food insecurity and natural disaster have affected the population, rates of acute malnutrition are between 15-20% of children under five and sometimes substantially higher.

HIV and AIDS is also intrinsically linked with malnutrition. In 2017, the national adult HIV prevalence rate was estimated at 4.9% with prevalence higher among women (5.2%) than men (4.5%).⁶ Although the Spectrum results show a continued decline in HIV prevalence among the adult population aged 15-49 years over a period of time, the decline has been modest since 2010. There exist disparities on HIV prevalence across the counties with Siaya county having the highest prevalence rate (21.0%) and Wajir county with the lowest prevalence rate (1%). Mother to Child Transmission (MTCT) reduced from 14% in 2013 to 8.3% in 2015, however, the rates increased to 11.5%⁷ in 2017.

The Ministry of Health (MoH) in partnership with international and national non-governmental organizations (NGOs) continues to address the high rates of acute malnutrition in the ASAL and Non ASAL areas saving many lives. The cyclical nature of

³ Black et al, 2008. Maternal and Child Undernutrition 1. Maternal and child undernutrition: global and regional exposures and health consequences. Published Online January 17, 2008. DOI:10.1016/S0140-6736(07)61690-0

⁴ Investing Smart, Investing Early: A Business Guide to Early Childhood Development in Kenya, 2017.

⁵ Kenya Demographic Health Survey, 2014

⁶ Ministry of Health, Kenya HIV Estimates Report, 2018

⁷ Ministry of Health, Kenya AIDS Response Progress Report, 2018

emergencies calls for a systematic approach to build the health system capacity to address acute malnutrition in the long-term, however this is a challenge due to the limited capacity of health staff to manage the growing burden of acute malnutrition. Therefore, it is key to strengthen the community systems for an integrated approach to complement government efforts especially for sustainability and increase the access to services.

There are two basic objectives of the management of acute malnutrition:

- 1) To ensure early detection/identification and treatment of acute malnutrition to reduce associated morbidity and mortality.
- 2) To prevent malnutrition through implementation of public health interventions and nutrition education.

This guideline addresses both objectives, with emphasis on the identification and treatment of acute malnutrition and will be instrumental in building capacity of the health workers.

Objective of the Guideline

The National Guideline for IMAM was developed as a tool to assist health workers in the assessment and appropriate management; with services and/or counselling and the treatment of acute malnutrition both Moderate Acute Malnutrition (MAM) and Severe Acute Malnutrition (SAM). This guideline will focus on children under five years and reference is made to other guidelines for information specific to older children, adolescents and adults. To treat acute malnutrition successfully, this guideline must be used in its entirety. Strict implementation of the guideline can significantly contribute towards reducing the under-five mortality rates due to acute malnutrition.

Intended Readers

The National Guideline for IMAM is intended for use by healthcare workers supported by the required level of training and with adequate resources to perform the activities and deliver treatment in a safe and effective manner. Job aids will be developed to assist in the daily activities of the management of acute malnutrition. The guideline can also be used by training institutions to standardize the management of acute malnutrition for new graduates joining the Nutrition workforce.

The guideline will also help NGO partners involved in nutrition rehabilitation during emergencies to guide and standardize treatment protocols established by the MoH. Whilst some local adaptations may be made, these should be done only with the collaboration and consent of MoH.

The guideline complements other material developed by the MoH, including Kenya National Nutrition Action Plan (KNAP), IMNCI (Integrated Management of Neonatal and Childhood Illness) and the Kenyan National Guidelines on Nutrition and HIV, as well as complement national strategies, frameworks and policies.

How to Use the Guideline

The users of this guideline should take into consideration the following:

- Use of this guideline alongside other national guidelines that provide details on specific issues.
- Efforts to manage acute malnutrition must go hand in hand with efforts to curb the underlying causes of malnutrition in the target area.
- The protocol for the management of acute malnutrition should include as an inherent component, processes and interventions that buffer children against the long-term consequences of malnutrition, such as poor development.
- Select the relevant section of the guideline for the situation. One section may refer to another section for additional information.
- Make use of job aids and Information, Education and Communication materials (IEC) such as posters, counselling cards, and flowcharts to explain aspects during counselling.

Content of the Guideline

The guideline is divided into eight sections, each with a relevant annex.

Section 1: Defines malnutrition, classifications and triage. Also explains the principles of management of severe acute malnutrition.

Section 2: Management of severe acute malnutrition in children older than 6 months old in the in-patient setting.

Section 3: Management of acute malnutrition for infants less than 6 months old in the in-patient setting.

Section 4: Management of severe acute malnutrition in children older than 6 months in the out-patient setting known as Out-Patient Therapeutic care/programme (OTP).

Section 5: Management of moderate acute malnutrition for children and pregnant and lactating women.

Section 6: Management of severe acute malnutrition in older children, adolescents and adults

Section 7: Integrated management of Acute Malnutrition in the context of emergency including scaling up emergency nutrition response due to increased levels of acute malnutrition.

Section 8: Discusses key aspects of programme management such as Monitoring and Evaluation, supply chain systems, and overall coordination for an effective IMAM programme.

Section One: Overview and Classification of Malnutrition

1.1 Definition of Malnutrition

Malnutrition is defined as “a state when the body does not have enough of the required nutrients (under-nutrition) or has excess of the required nutrients (over-nutrition)” Malnutrition includes stunting (low height for age), wasting (low weight for height), underweight (low weight for age) and micronutrient deficiencies or insufficiencies (a lack of important vitamins and minerals) or an excess of the required nutrients (over-nutrition) which includes overweight, obesity and diet-related non-communicable diseases (such as heart disease, stroke, diabetes and cancer).

This guideline focusses on management of acute malnutrition

1.2 Components of Nutrition

Food contains essential nutrients that are vital for growth and maintenance of a healthy body throughout life course. There are 6 classes of nutrients found in food: carbohydrates, fats, proteins, vitamins, minerals and trace elements. All these nutrients, in addition to water, are essential for normal body function.

The 6 classes of nutrients are classified into two broad categories: Macronutrients and Micronutrients.

1.2.1 Macronutrients

Protein, fats, oils and carbohydrates are macronutrients that make up the bulk of a diet and supply the body's energy. In resource-poor populations, carbohydrates (i.e. starches and sugars) are often a large part of the diet (80%) and the main source of energy. Fats, also an essential component in the diet, in resource-poor populations make-up about 10% of the diet. Fats also supply energy and are important in cell formation. Proteins are required to build new tissue and for development- they are derived mostly from animal-based food sources such as milk, meat, eggs and their by-products. These animal-based food sources contain essential amino acids that cannot be produced by the body hence must be provided in the diet. Protein from legumes and pulses alone do not provide the sufficient balanced essential amino acids. Therefore, to obtain the correct balance without requiring protein from animal sources, cereals and pulses must be combined when planning a meal.

1.2.2 Micronutrients

There are around forty different micronutrients that are essential for good health. Micronutrients are divided into two classes. Most micronutrients are classed as Type I, which includes Iodine, Iron, folate, Vitamins A and C. Deficiencies in Type I micronutrients do not affect growth (i.e. the individual can have normal growth with appropriate weight and still be deficient in micronutrients) and thus deficiency in Type I micronutrients is not determined by anthropometric measurement. Deficiencies in Type I micronutrients will cause major illness such as anaemia, scurvy and impaired immunity.

Type II micronutrients, including Magnesium, Sulphur, Nitrogen, Essential amino-acids, Phosphorus, Calcium, Zinc, Potassium, Sodium and Chloride, are essential for growth and tissue repair. Type II micronutrients are required only in small quantities, but the correct balance is essential for good health. A deficiency in any of the Type II micronutrients will lead to growth failure, measured by stunting and wasting.

1.3 Types of Malnutrition

There are two types of malnutrition: **Acute Malnutrition** and **Chronic Malnutrition**. Individuals can also have a combination of both acute and chronic malnutrition. In addition, an individual may also have micronutrient deficiency which is a term used to refer to diseases caused by a dietary deficiency of vitamins or minerals. Vitamin A deficiency, iron deficiency anaemia and iodine deficiency disorders are the most common forms of micronutrient malnutrition.

1.3.1 Acute malnutrition is further categorised into Moderate Acute Malnutrition (MAM) and Severe Acute Malnutrition (SAM), determined by the individual's degree of wasting. All cases of bi-lateral oedema are categorized as SAM.

The following terms are used to describe the clinical manifestations of SAM:

- **Marasmus:** characterized by severe visible wasting as a result of the body breaking down body fat and muscle for energy.
- **Kwashiorkor:** characterized by bilateral pitting oedema (affecting both sides of the body) in the feet and lower legs which as it progresses becomes more generalized to the arms, hands and face. Oedema is the excessive accumulation of fluid in body tissues which results from severe nutritional deficiencies.
- **Marasmic-kwashiorkor:** characterized by a combination of severe visible wasting and bilateral pitting oedema

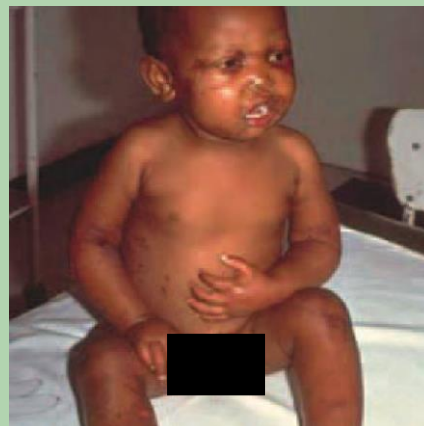
Table 1.1: Characteristics of Marasmus and Kwashiorkor

Marasmus



- Severe weight loss and wasting.
- Front view: ribs easily seen skin of upper arms loose, skin of thighs loose.
- Back view: ribs and shoulder bones easily seen, muscle missing from buttocks resulting in loose skin or “baggy pants”.

Kwashiorkor



- Bilateral pitting oedema.
- Loss of appetite.
- Apathetic and lethargic. Irritable when handled.

- Normal hair.
- Frequent infections with minimal external signs (not often showing fever).
- Usually active and may appear to be alert.
- May have good appetite.
- Changes in hair colour (yellow, reddish, orange) which becomes sparse, dry and brittle.
- Dermatitis (patches of skin abnormally light or dark, shedding of skin, ulceration of skin and/or weeping lesions)

Bilateral pitting oedema is a clinical manifestation of acute malnutrition caused by an abnormal infiltration and excess accumulation of fluid. Bilateral pitting oedema is verified when thumb pressure is applied on top of both feet for three seconds and leaves a pit (indentation) in the foot after the thumb is lifted (**See figure 1.1 below**). All children with bilateral, pitting oedema are considered to have SAM and should be referred and treated accordingly.

There are three grades of bilateral pitting oedema. When there is no bilateral pitting oedema, the grade is “absent.” Grades of bilateral pitting oedema are classified by plus signs as shown in table 1. 2 below.

Table 1.2: Grading of Bilateral Pitting Oedema

Grades of Bilateral Pitting Oedema	
Grade	Definition
Absent or 0	No bilateral pitting oedema
Grade +	Mild: Both feet/ankles
Grade ++	Moderate: Both feet, plus lower legs, hands or lower arms
Grade +++	Severe: Generalised bilateral pitting oedema, including both feet, legs, arms and face

Grade +

In this picture, there is bilateral pitting oedema in both feet. This is grade + oedema (mild), however the child might have grade ++ or +++

Grade ++

This child has both feet, lower legs, hands and lower arms swollen. This is grade + + bilateral pitting oedema (moderate).

Grade +++

This child has +++ bilateral pitting oedema (severe). It is generalized, including both feet, legs, arms, hands and face.

Figure 1.1: Grades of oedema

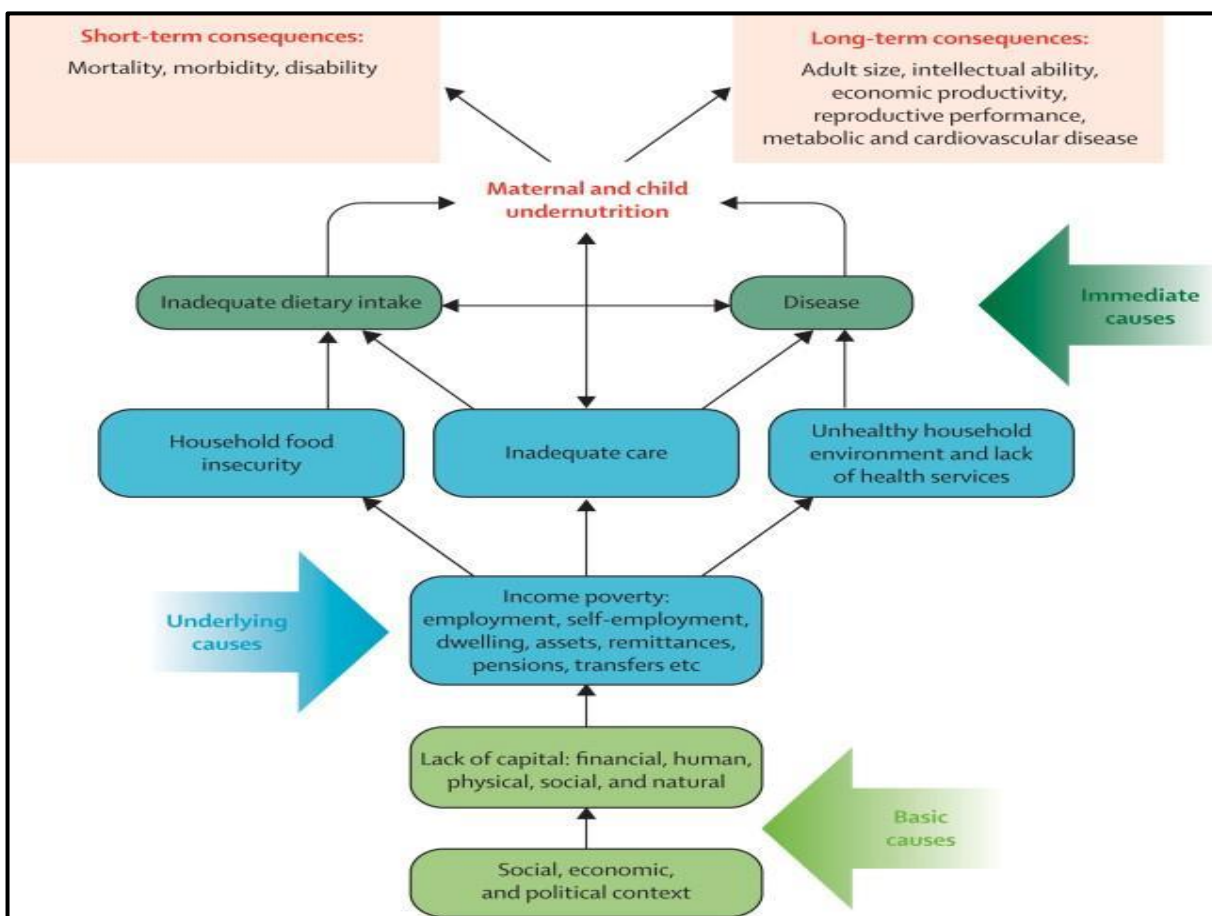


1.3.2 Chronic malnutrition

Chronic malnutrition is determined when an individual has not reached his or her expected height for a given age. Addressing chronic malnutrition requires both short and long-term focus that considers household food security in the long run; home care practices (feeding and hygiene practices); and issues related to public health.

1.4 Causes of Malnutrition

Figure 1.2: Causes of malnutrition⁸



1.4.1 Immediate Causes of Malnutrition

Inadequate food intake and disease are immediate cause of malnutrition and create a vicious cycle in which disease and malnutrition exacerbate each other. Malnutrition increases the risk and worsens the course of infectious disease; and infection leads to malnutrition. This cycle is known as the Malnutrition- Infection Complex. Thus, inadequate food intake and disease must both be addressed to support recovery from malnutrition.

1.4.2 Underlying Causes of Malnutrition

Three major underlying causes of malnutrition include:

- **Food:** household food insecurity (limited access or availability of food).
- **Health:** Limited access to adequate health services and/or inadequate environmental health conditions.
- **Knowledge and Care practices:** Inadequate social and care environment in the household and local community, especially with regard to women and children.
- **Household Income:** Employment means income for people and whether they can afford to acquire basic food commodities and increase their potential for diversified diets. Cash income for households may be from both productive and non-productive

⁸ Source: Black et al, 2008

activities. Income from productive activities consists primarily of property, agricultural and household enterprise whilst unproductive activity income is in the form of transfers.

1.4.3 Basic Causes of Malnutrition

The basic causes of malnutrition in a community originate at the regional and national level, where strategies and policies that affect the allocation of resources (human, economic, political and cultural) influence what happens at community level. Geographical isolation and lack of access to markets due to poor infrastructure can have a huge negative impact on food security. When conducting an assessment to determine the causes of malnutrition in a community, it is important to research the actions at each level and how these actions, or inactions, influence malnutrition rates. A multi-sectoral approach should be employed when designing interventions towards preventing malnutrition.

1.5 Diagnosis of Acute Malnutrition

Nutrition Assessments

There are four main types of nutrition assessment: anthropometric, biochemical, clinical and dietary. For this guideline we will focus on two of these: anthropometry and clinical assessment. Anthropometry is the measurement of the size, weight, and proportions of the body. Specifically, weight, height and MUAC are the measures of focus in this guideline. Clinical assessment includes checking for visible signs of nutritional deficiencies such as bilateral pitting oedema, emaciation (a sign of wasting, which is loss of muscle and fat tissue due to low energy intake and/or nutrient loss from infection), hair loss, and changes in hair colour. It also includes taking a medical history to identify comorbidities with nutritional implications, opportunistic infections, other medical complications, usage of medications with nutrition related side effects, food and drug interactions, and risk factors for disease (e.g., smoking, alcohol use, overweight) that affect or are affected by diet and nutritional status.

Anthropometric indicators together with specific clinical signs are used to assess the presence of acute malnutrition. This includes weight for height, Mid-Upper Arm Circumference (MUAC) measurement and bilateral oedema (**See Annex 2 for details on how to take anthropometric measurements**).

Mid-Upper Arm Circumference (MUAC) and assessment of bilateral oedema is often the primary screening parameters used to determine malnutrition for children 6 to 59 months as well as pregnant and lactating women in the community. A very low MUAC (<11.5cm for children under five years) is considered a high mortality risk and is a criterion for admission with severe acute malnutrition. **See Table 1.3 below for MUAC criteria for children under-five years.**

Table 1.3: MUAC Criteria for Children Under Five Years

<i>Severely Malnourished</i>	<i>Moderately Malnourished</i>	<i>At Risk of malnutrition</i>
<i>less than 11.5cm</i>	<i>11.5cm to 12.4cm</i>	<i>12.5cm to 13.4cm</i>

Admission criteria for acute malnutrition are determined by a child's weight and height, by calculating weight-for-height as "z-score" (using WHO Child Growth Standard, 2006), and presence of oedema. All children with bi-lateral oedema are considered to have severe acute malnutrition. The admission criteria for infants below 6 months are substantially different than for infants over six months (See Section 3).

Children who are malnourished are at high risk of mortality and morbidity. It is important that malnourished children, or those at risk of malnutrition, are identified and appropriate care commenced in any of the following ways:

1. Community health volunteers (CHVs) may identify children at risk of malnutrition in the community.
2. Health facility staff can determine if children who are brought for other reasons are in fact at risk of malnutrition.
3. Ministry of Health (MoH) programmes such as Integrated Management of Neonatal and Childhood Illness (IMNCI) and Mother & Child Health (MCH) focus on children under five years old, and screening for malnutrition as part of the programme process.
4. When nutrition screening is available in the community, CHVs identify children who are malnourished with anthropometric measurements (e.g. MUAC) or where oedema is evident.
5. Malnourished children are referred to the nearest health facility, nutrition unit, health post, or hospital out-patient department.
6. The child's anthropometric measurements are re-checked by a nutritionist, nurse or health worker. Those who appear very sick, weak, emaciated or underweight require fast-track admission.
7. Children identified with bi-lateral pitting oedema must be referred to the nearest health facility.

Additional Note: Determining Acute Malnutrition for Older Children, Adolescents Adults and Older Persons

International guidelines that recognize cut-off measurements to identify moderate acute malnutrition and severe acute malnutrition in adolescents, adults and older persons do not yet exist. Body Mass Index (BMI) varies considerably in different populations. In the adolescent age bracket (10 to 18 years) BMI-for-age can be used but is not applicable in the event of growth retardation or when age is indeterminate. Adolescents experience growth spurts (rapid growth), therefore anthropometric measurements to determine wasting can be difficult.

For adults (older than 18 years), BMI is the main way to identify acute malnutrition, however, it is important to include clinical signs such as bi-lateral oedema and dehydration that affect BMI results. Other underlying medical conditions, such as TB and HIV and AIDS, must also be considered. For adults and older persons, MUAC in combination with clinical signs can also identify clients who need specialized nutrition interventions.



During pregnancy, MUAC does not change considerably, while a pregnant woman’s weight should increase. A low MUAC of <21cm during pregnancy can indicate a need for extra nutritional support due to the pregnancy. A low MUAC for the mother during pregnancy increases the risk of growth retardation of the fetus. Criteria for admission for nutrition rehabilitation of different age groups is gathered from steps 4, 5 and 6 listed below from the Diagnosis and Triage of Acute Malnutrition. The cutoffs for these cohorts have been adopted from the Kenya National Guidelines on Nutrition and HIV, 2014.

1.6 Triage of Acute Malnutrition

Community health volunteers (CHVs) can screen children in the community using MUAC and the presence of oedema. They refer those who are malnourished to a health facility. However, the diagnosis of malnutrition for children under five years old is the responsibility of health staff at a health clinic, health dispensary, or an out-patient department (OPD) and hospital casualty department.

The procedure to determine a child’s medical history, nutritional status and appropriate treatment is presented in Table 1.4. This procedure conforms to the Kenya IMNCI Guidelines.

Table 1.4: Triage to determine treatment of either severe or moderate malnutrition

Ask	Look & Feel		Classify		Classify	Referral Point
1. Has there been any weight loss in previous month/ /failure to gain weight as per WHO weight velocity standards? 2. Does the individual have appetite? 3. Does the individual have	Check MUAC Weight, Height/ length, Bilateral- oedema (See Annex 2) Determine BMI or WFH Look at the shape of the growth curve		Severely Acutely Malnourished		No Appetite → With complications **	<i>Refer child to inpatient care</i>
			Good Appetite → No complications **		<i>Refer or admit child for outpatient therapeutic care (OTP)</i>	
			→		<i>Refer or admit child for management of moderate malnutrition and nutrition counselling</i>	
			Moderately Acutely Malnourished or ‘at risk’			

<p><i>any medical condition that will impair his nutritional status?</i></p> <p><i>4. Is the breastfeeding child suckling well?</i></p>	<p><i>1. Has the child lost weight?</i></p> <p><i>2. Is the growth curve flattening?</i></p>		<p>Healthy</p>			<p><i>Treat any infections. Congratulate the mother and give nutrition counselling</i></p>
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Step 1: Initial screening and referral. Ask:

- 1. Has there been any weight loss in previous month?*
- 2. Does the child have an appetite?*
- 3. Does the child have any medical condition that will impair nutritional status?*
- 4. Is the breast-feeding child suckling well?*

Step 2: Conduct a medical assessment to identify individuals with emergency signs and immediately transfer to a qualified health worker for treatment while quickly assessing for SAM using MUAC and/or presence of bilateral, pitting oedema.

Step 3: If no emergency signs are found, conduct a medical assessment to determine if the child has any priority signs.

Step 4: Nutritional screening at the health facility for non-urgent cases.

Step 5: Conduct thorough medical assessment including physical examination and medical history.

Step 6: Conduct appetite test if the individual has severe acute malnutrition.

Step 7: Identify underlying cause of malnutrition.

Step 8: Based on the above medical, nutrition and causal assessment, determine the management of the individual.

Notes: Evidence does not support using visible severe wasting as a stand-alone criterion for children who are less than 5 years of age. However, a trained clinician should always undress children identified with severe acute malnutrition and examine them naked to identify other medical complications.

When severe acute malnutrition is identified, the anthropometric admission criteria are the same whether the child can access an in-patient facility or out-patient therapeutic care. If there is no out-patient therapeutic care available, all children who have a criterion in the red column (severe malnutrition) of Table 1.3 - with or without complications should be admitted to the health center's in-patient section where they are to stay for each phase of the treatment of severe acute malnutrition. Also, children with medical complications and/or ++, +++ oedema and lack of appetite require in-patient treatment.

When out-patient therapeutic care service is available, the health staff determine the children who are eligible for it. Children without complications and with good appetite may go directly for out-patient treatment. It is important to conduct an Appetite Test (**See Annex 4**) to confirm if the child has a good appetite.

Based on the information gathered above, health workers should classify if the child is severe acute malnourished (SAM), moderate acute malnourished (MAM), at risk of acute malnutrition or healthy, and follow criteria below to determine if severely malnourished children should receive in-patient or out-patient care. (**See Table 1.5.**)

1.7 Steps on Admission

Step 1: Check for general signs of malnutrition

Health facility staff must check the child for general signs of malnutrition.

Step 2: Gather child's information

Refer to **Annex 2** for how to take anthropometric measurements.

Health facility staff:

- Carry-out the child's anthropometric measurements.
- Measure weight and height (if the child's height is less than 87cms, or if the child is younger than two years old, measure length instead), and calculate weight-for-height (Z-score) (**See Annex 1 for WHZ-Score Chart**).
- Take a MUAC measurement.
- Check for bi-lateral oedema. Record all measurements on child's card and register.

Step 3: Identify cause of malnutrition

Fill out a brief checklist to assist to identify why the child is malnourished. **See Annex 5 "Checklist to Identify Reasons for Acute Malnutrition"** for details. Fill out the checklist with information from the immediate caregiver or guardian.

- Is there an illness that leads to the child's weight loss?
- Are there cultural, economic, and social factors in the family that reduce food availability and/or access?
- Is there dynamics within the household contributing to the situation? (e.g. the mother sick).

Step 4: Conduct Appetite Test

If outpatient therapeutic care is available, conduct the Appetite Test. The Appetite Test is one of the main criteria to determine if a severe acute malnourished child requires in-patient or out-patient treatment. **See Annex 4 "Appetite Test"** for details.

Step 5: Determine appropriate treatment

A triage process must be established so that the acutely ill are examined and admitted quickly to the in-patient facility to start treatment immediately. In other words, a "fast track system" must be in place.

Establish the following parameters:

- Any child older than six months and a MUAC <11.5cm must be admitted to the nutrition programme for treatment of severe acute malnutrition as low MUAC has a high mortality risk.
- If out-patient treatment of malnutrition is not available, the child must be admitted to an in-patient facility for nutrition management. If out-patient management of malnutrition is available, determine if the child can be managed in the community or requires admission to an in-patient facility.
- A child identified as malnourished by the MUAC community screening process but whose anthropometric measurements taken at the health facility are not considered severely malnourished; is referred for Supplementary Feeding if it is available. (The community screening process may include higher MUAC cut-offs such as between 11.5 to 13.4cm for "the moderate" and "at risk" groups.)

SAM children who are waiting for admission in the health facility waiting area should receive 50ml (10% glucose) solution to prevent hypoglycaemia (1 rounded 5ml teaspoon of sugar in 50ml water) by a member of the health staff. See Section two, table 2.3 “preparation of sugar water 10% dilution,”

It is important that the parent or caregiver who attends the health facility with a child screened by a CHV is acknowledged for the visit. This is particularly important when the child is not considered malnourished by the weight and height anthropometry taken at the health center and to prevent the community from becoming disgruntled with the service, particularly if mothers travel a long distance. When not handled properly, it can seriously affect uptake of the services and negatively impact on coverage. Every mother should be congratulated for taking good care of her child. If there are consistent errors in the recorded MUACs when children who have been referred from the community arrive at the health facility, it is necessary to re-train CHVs on the measurement techniques. This will avoid clients attending health centers unnecessarily.

Table 1.5: Anthropometric criteria to identify severe, moderate and at-risk categories of acute malnutrition for all age groups and pregnant/lactating women

Indicator	Severe Acute Malnutrition (SAM)	Moderate Acute Malnutrition (MAM)	At Risk of Acute Malnutrition
Children 6 to 59 months			
W/H Z-Scores	< -3 Z-Score	Between -3 to < -2 Z-Score	Between -2 to < -1 Z-Score
MUAC	<11.5cm	11.5 to 12.4cm	12.5-13.4cm
Oedema	Oedema Present	Oedema Absent	Oedema Absent
Children 5 to 9 years			
MUAC	<13.5cm	13.5 to 14.5 cm	N/A
BMI for Age	< - 3 Z score	< - 2 Z score	N/A
Oedema	Oedema Present	Oedema Absent	N/A
Adolescent (10 years to 17 years)			
MUAC	< 16cm	16 – 18.5 cm	N/A
BMI for age	< - 3 Z score	< - 2 Z score	N/A
Adults (18 years to 65 years)			
MUAC	<17 cm irrespective of clinical signs	17-18.4 cm	N/A
BMI	<16 Kg/ m2	16-16.9kgs/m2	N/A
Older Persons (Above 65 years)			
MUAC	<17 cm	N/A	N/A
Pregnant & lactating women			
MUAC	< 18 cm	< 21cm	N/A

<i>MUAC for Pregnant⁹ and lactating women living with HIV</i>	<19 cm	19 – 22 cm	22 – 23 cm
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*Anthropometric criteria based on WHO Child Growth Standards (2006)

Note: For anthropometric criteria for infants less than 6 months refer to Section 3 of this guideline.

Additional Note

Criteria for admission of malnutrition in the context of HIV is the same for non-HIV individuals except for pregnant and lactating women as indicated in table 1.5 above

⁹ Source: Kenya National Guideline on Nutrition and HIV, August 2014

Section Two: In-patient Management of Severe Acute Malnutrition

2.1 Overview

The inpatient management for severe acute malnutrition is required for less than 10% of all severely malnourished children who present with medical complications, or poor appetite. The objective of the in-patient management for severe acute malnutrition is to stabilize the child and address the complications. For infants that are less than six months, the objective of in-patient management is to re-establish breastfeeding and address the complications as described in detail in Section 3 (for HIV exposed children, follow the HIV guidelines). Facilities that offer inpatient management for severe acute malnutrition should establish links with outpatient department, rural facilities and the community units. In addition, the facility should also have a clear referral system for outpatient management for uncomplicated SAM.

This section focuses on the inpatient management of children. Severely malnourished adolescents and adults often have other comorbidities that require individual management.

2.2 Pathophysiology of Severe Acute Malnutrition

Severe acute malnutrition can result in profound metabolic, physiological and anatomical changes. Virtually all physiological processes are altered due to severe acute malnutrition. Every organ and system is involved in reductive adaptation. Reductive adaptation is the physiological response of the body to under nutrition i.e. systems slowing down to survive on limited macro and micro-nutrients intake.

2.2.1 Cardiovascular system:

- Cardiac output and stroke volume are reduced.
- Infusion of saline may cause an increase in venous pressure.
- Any increase in blood volume can easily produce acute heart failure
- Any decrease will further compromise tissue perfusion.
- Blood pressure is low.
- Renal perfusion and circulation time are reduced.
- Plasma volume is usually normal and red cell volume is reduced.

2.2.2 Gastro-intestinal system

- Production of gastric acid is reduced.
- Intestinal motility is reduced.
- Pancreas is atrophied and production of digestive enzymes is reduced.

- Small intestinal mucosa is atrophied; secretion of digestive enzymes is reduced.
- Absorption of nutrients is reduced.
- Increased absorption of bacteria that normally form part of the gut flora which then cause infection.

2.2.3 Liver function

- Synthesis of all proteins is reduced.
- Abnormal metabolites of amino acids are produced.
- Capacity of liver to take up, metabolize and excrete toxins is severely reduced.
- Energy production from substrates such as galactose and fructose is much slower than normal.
- Gluconeogenesis is reduced, which increases the risk of hypoglycemia during infection.
- Bile secretion is reduced.

2.2.4 Genitourinary system

- Glomerular filtration is reduced.
- Capacity of kidney to excrete excess acid or a water load is greatly reduced.
- Urinary phosphate output is low.
- Sodium excretion is reduced.
- Urinary tract infection is common.

2.2.5 Immune system

- All aspects of immunity are diminished.
- Lymph glands, tonsils and the thymus are atrophied Cell-mediated (T-cell) immunity is severely depressed.
- IgA levels in secretions are reduced.
- Complement components are low.
- Phagocytes do not kill ingested bacteria efficiently.
- Tissue damage does not result in inflammation or migration of white cells to the affected area.
- Acute phase immune response is diminished.
- Typical signs of infection, such as an increased white cell count and fever, are frequently absent.
- Hypoglycemia and hypothermia are both signs of severe infection and are usually associated with septic shock.

2.2.6 Endocrine system

- Insulin levels are reduced and the child has glucose intolerance.
- Insulin growth factor 1 (IGF-1) levels are reduced.
- Growth hormone levels are increased.
- Cortisol levels are usually increased.

2.2.7 Circulatory system

- Basic metabolic rate is reduced by about 30%.
- Energy expenditure due to activity is very low.

- Both heat generation and heat loss are impaired; the child becomes hypothermic in a cold environment and hyper thermic in a hot environment.

2.3 GENERAL PRINCIPLES FOR ROUTINE CARE

Medical complications associated with severe malnutrition require careful diagnosis, management and appropriate treatment. Often, severely malnourished children have underlying medical conditions that can be asymptomatic on admission. Certain symptoms present early in the treatment of severe malnutrition while others are masked and present later. These steps are accomplished in two phases: an initial stabilization phase where the acute medical conditions are managed; and a longer rehabilitation phase. Note that treatment procedures are similar for marasmus and kwashiorkor. The approximate timescale is given in the table below.

Table 2.1: The 10 Steps for Inpatient Management of SAM

Activities to be assessed and treated simultaneously during ETAT corresponding to the WHO specific protocols for SAM	Stabilization	Transition	Rehabilitation (Most children complete this phase in out-patient care with RUTF)
EMERGENCY TRIAGE ASSESSMENT AND TREATMENT (ETAT)			
Obstructed Breathing, Central Cyanosis/Severe Respiratory Distress, Shock, Coma, Convulsions, Dehydration	Within the first 24 hours		
INITIAL TREATMENT FOR SAM CHILD			
1. Prevent and treat hypoglycemia	Day 1-2		
2. Prevent and treat hypothermia	Day 1-2		
3. Prevent and treat dehydration	Day 1-2		
4. Correct electrolyte balance	Day 1-2		
5. Check for infection	Day 1-2		
6. Check and correct micronutrient deficiencies	Day 1- 7		
7. Start cautious feeding	Day 1- 7		
8. Monitor catch-up growth		Day 3 - 7	Day 3 - 14
9. Assure sensory stimulation		Day 3 - 7	Day 3 - 14
10. Prepare for follow up		Day 3 - 7	Day 3 - 14

2.4 Inpatient Management of Severely Malnourished Children 6 to 59 months

2.4.1 Treatment Process

Severe acute malnutrition requires specialized treatment to ensure rapid recovery and reduce the risk of mortality. Recently admitted children should if possible be in a different section of the treatment area if it's not possible to have a separate ward. This is because they are highly susceptible to infections. It is important to ensure that the treatment care allows for rooming in with caregivers, continued breastfeeding, and prevention of hypothermia (in the case where mothers are able to sleep with their infants or young children). Modifications of the treatment room can be done to cater for this.

The risk of nosocomial infections amongst children with SAM with medical complications is high. As such, proper care and management of this group is critical to ensure infection prevention and control. It is therefore important to put in place necessary measures for health workers, mothers/caretakers, children and bedding. A suitable environment is also crucial for the same reasons. Refer to Kenya Infection Prevention Control Guideline, 2010 for further guidance on each of the components. The management of severe acute malnutrition in the in-patient setting is divided into three phases: Phase 1, Transition Phase and Phase 2. Phase 1 covers nutrition and medical stabilization, treatment of medical complications, and commences nutritional rehabilitation. Transition Phase covers a gradual increase in diet leading to some weight gain while preventing complications of over-feeding. Phase 2 is a rapid weight-gain phase (catch-up growth) and covers preparation for discharge.

2.4.2 Requirements for the In-patient Setting

Successful management of the child with SAM does not require sophisticated facilities and equipment or highly qualified personnel. It does, however, require that each child with SAM is identified early before progress of severe disease, and treated with proper care and affection, and that each phase of the treatment be carried out properly by appropriately trained and dedicated health workers. Treatment of severe acute malnutrition is easy when a severely malnourished child is identified early in the course of the disease, and very difficult if the malnourished child is identified late in the course of the disease after developing several complications. Therefore, make every effort to avoid the need for inpatient management through early case identification.

2.4.3 Treatment Area

Children are admitted into the pediatric ward if available or inpatient ward in the County or Sub-county hospital with **24-hour care**. In the pediatric ward, care is taken that severely malnourished children are not mingled with the rest of the patients to prevent cross infections:

- Keep the child in a special area where they can be constantly monitored.
- If possible, be isolated from other children.
- Do not keep child near a window or in a draught, and windows should be closed at night.
- The room temperature should be kept at 28–32°C.
- There should be a space to take the daily anthropometric measurements, examine the child and to prepare the therapeutic milk.
- There should be adequate storage facilities for drugs and therapeutic feeds/formulas (F75/F100/RUTF).
- There should be a toy kit of age-appropriate toys/play items (which may be produced using locally available materials) that can be used by nurses,

nutritionists, and other service providers to demonstrate to caregivers how they can stimulate their children.

2.4.4 Staff

The management of severe acute malnutrition requires a variety of staff positions. Staff fully trained in management of acute malnutrition should be available at all times in the ward. 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). Therefore, new staff should receive training and be closely supervised until they have the required skills to take charge or work alone at night. All staff must be familiar with these guidelines and have received appropriate training.

Individual Roles and Responsibilities

The **parent, caregiver, or guardian** is the main caretaker of the malnourished child. He/she may be the mother, the father, a sibling, a relative or a family friend. **Nutritionists, clinicians/doctors and nurses** are responsible for most of the medical and nursing care.

a. Clinician/Doctor

- Conducts initial medical assessments (triage, history-taking, examinations, investigations, and treatment) of SAM children with complications.
- Works in collaboration with nutritionists, nurses and other healthcare workers in managing the child and required intervention.
- Monitors child's recovery progress.
- Conducts daily ward rounds to establish whether the child is responding to drugs and feeds and make adjustments based on his/her progress.
- Assesses children 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).

b. Nurse/ Nutritionist

- Performs triage and admits SAM children with medical complications to inpatient care.
- Registers children using the registration numbers given at the OTP and enters his/her information into the registration book and the critical care pathway.
- Collaborate with the clinician to review children in the inpatient care daily.
- Administers and documents all medications, including ReSoMal.
- Calls the child's OTP to inform the staff of his/her 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 (SC) procedures are followed, including taking vital signs as stipulated in the protocol.

2.4.5 Materials and Equipment

- **Register book (MoH 368)** is a record of all children admitted for in-patient care. It contains all the information that needs to be filled out to complete the monthly summary sheet.
- **In-Patient-OTP & SFP Facility Summary Sheet (MOH 713)** is a record completed monthly using the information collected in the register and to be sent to the county nutrition officer.
- **Multi-chart – (See Annex 6)** is the primary tool recommended for recording all information while managing the child with SAM. Other charts should not be used if this is available. All staff, regardless of position, should use the same documentation for the child to ensure consistency.
- **24-hour intake chart (See Annex 8)** is a recommended format to use for intake and output monitoring while managing the child with SAM.
- **In-patient to Out-patient care Transfer Form** is a form used when child has met the criteria in transition phase to move to outpatient therapeutic care.
- **Anthropometric equipment:** height board, salter scales, infant scales, MUAC tapes, baby scales.
- **A poster or counseling card** showing age-appropriate developmental milestones (**See Annex 9**), **a poster or counseling card** showing age-appropriate activities for stimulating children through play and communication (**See Annex 10**).
- **Diet, Drugs and other materials:** F75, F100, RUTF, antibiotics, anthelmintic, cups, drinking water, sugar, ReSoMal and measuring jugs.

2.5 Admission Criteria for In-patient Care

Table 2.2: Admission Criteria for in-patient care

CHILDREN 6-59 MONTHS
<input type="checkbox"/> Bilateral pitting Oedema grade++ and grade +++
OR <input type="checkbox"/> Any grade of bilateral pitting Oedema with severe wasting (MUAC < 11.5 cm or WHZ < -3 z-score)
OR <input type="checkbox"/> SAM (MUAC < 11.5 cm or WHZ < -3 z-score or bilateral pitting oedema) <u>with</u> any of the following medical complications:

<p>Danger signs</p> <ul style="list-style-type: none"> ● Obstructed breathing ● Severe respiratory distress ● Signs of shock ● Convulsions ● Lethargic or unconscious ● Vomiting everything 	<ul style="list-style-type: none"> ● Persistent diarrhoea ● Dehydration ● Pneumonia ● High grade fever ● Eye signs of vitamin A deficiency ● Jaundice ● Hypoglycaemia ● Hypothermia ● Severe anemia <p>OR</p> <ul style="list-style-type: none"> ● Failed appetite test
<p>OR <input type="checkbox"/> Referred from out-patient care according to action protocol (See Annex 11).</p>	

Even if an out-patient therapeutic care service exists for the management of severe acute malnutrition, children with the above criteria are admitted to the in-patient facility because of the need to treat the medical complications. Check the Appetite Test results to help decide if the child can be transferred to out-patient therapeutic care. A poor appetite requires admission to an in-patient facility (**See Annex 4: Appetite Test**).

Phase 1 treatment is always given in an in-patient setting. This phase of the treatment is intended to:

- Stabilize children with complications,
- Restore metabolic functions,
- Prevent and/or treat associated conditions and complications and
- Intensively monitor the children.

2.5.1 Definition of New admissions and Referrals

- Clients who come spontaneously to the hospital/SC because of another illness (such as diarrhoea, pneumonia, malaria, etc.) and are found to be severely malnourished on screening or clinical examination. (See the triage procedure in Section 1, Table 1.4).
- Clients referred by a health facility or private practitioner because they fulfil the criteria for SAM, require immediate in-patient admission without admission at OTP.

These children are NEW admissions; they will be registered with a new unique nutrition registration).

2.5.2 Transfer in from OTP

- Clients referred by a health facility or private practitioner because they fulfil the criteria for SAM, require immediate in-patient admission after admission at OTP

Note:

- *Take a brief history focusing on the complaints, symptoms and signs. Examine the child clinically and assess any complications.*
- *Re-measure the weight, height, MUAC and check for oedema.*

2.6 STABILIZATION PHASE

When a malnourished child is admitted to the in-patient facility, particularly during the initial stabilization phase, check for severe infections as well as hypoglycaemia, hypothermia, and dehydration (Table 2.1, Steps 1-3). These usually occur soon after admission and need to be addressed urgently to prevent death. Infections and electrolyte imbalance may manifest at any time during treatment (Table 2.1, Steps 4-5). If any of these complications present, treat as per the outlined guideline in this section: *Treatment of Medical Complications for the management of severe medical complications*. The remainder of the steps address the nutrition care at different stages, micro-nutrient support, sensory stimulation and planning for discharge.

2.6.1 Treatment of Medical Complications

Hypoglycaemia

Though uncommon, severely malnourished children can develop hypoglycaemia. All children who have travelled long distances to attend a health center should be given sugar-water as soon as they arrive: 1 level teaspoon of sugar in 50ml of water. Children who have hypothermia or septic shock should be given 50-100ml of sugar water, whether or not they have low blood glucose.

A child who has taken the prescribed quantity of F75 diet each day (with 5-6 feedings per day) will not develop hypoglycaemia overnight and does not need to be woken for night time feeding. If the diet is not completely taken during the day (due to vomiting or refusal of milk), the health worker should encourage the caregiver to give at least one prescribed quantity of F75 during the night.

Clinical Signs of Hypoglycaemia

- Low body temperature
- Lethargy or limpness

- Possible loss of consciousness
- Eyelid retraction is one sign of over-active, sympathetic nervous system, which starts before actual hypoglycaemia develops. If a child is sleeping with his eyes slightly open, wake the child up and give sugar-water to drink. Health staff and caretakers should be taught to look for this sign during the night.
- Sweating and pallor do not usually occur in malnourished children with hypoglycaemia; often the only sign before death is drowsiness.

Table 2.3: Preparation of sugar water (10% dilution)

Quantity of Water	Quantity of Sugar	
50ml	5g	1 level teaspoon
100 ml	10g	2 level teaspoons
200 ml (average cup)	20g	4 level teaspoons
500 ml (small bottle)	50g	10 level teaspoons
1 liter	100 g	20 level teaspoons

Notes: Take safe drinking water (slightly warm if possible, to help dilution). Add required amount of sugar and shake or stir vigorously. Give immediately to **ALL ADMISSIONS IF MILK CAN NOT BE GIVEN IMMEDIATELY.**

Treatment of Hypoglycaemia

Children who are conscious and able to drink are given about 50ml (approximately 5-10ml/kg) of sugar-water (10% glucose: 1 level spoon of ordinary sugar in 50mls of potable water). Or they can be given F75 diet or F100 (depending on what is immediately available) orally. The actual amount given is not critical.

Children losing consciousness are given 50ml (or 5-10ml/kg) of sugar-water by NG tube immediately. When consciousness is regained, give milk feed frequently.

Unconscious children are given sugar-water by nasogastric tube (NG) tube. They should also be given glucose as a single intravenous injection (5ml/kg of a sterile 10% glucose solution).

All **severely malnourished children** with suspected hypoglycaemia should be treated with second-line antibiotics.

Monitoring Hypoglycaemia

- 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 $< 35.0^{\circ}$ C, repeat the glucose test.
- Level of consciousness: If this deteriorates, repeat the glucose test.

Prevention of Hypoglycaemia

- Make sure that the severely malnourished child receives sugar-water solution on admission, if it is not close to a feed time or the child is waiting in the casualty/emergency department for over one hour.
- For children at risk of hypoglycaemia, (very sick children with poor appetite, with vomiting or diarrhoea), give frequent, regular feeds every three (3) hours.

Hypothermia

Clinical signs of Hypothermia

Severely acutely malnourished children are highly susceptible to hypothermia. Hypothermia is indicated by a rectal temperature below 35.5° C, or an under-arm temperature below 35° C.

Treatment of Hypothermia

- Do not bathe severely malnourished children on admission. Later, when the child is stabilized, bathe him/her only during the warmest part of the day with warm water. Dry the child quickly and gently after washing.
- Re-warm the child: Either clothe the child (including head), cover with a warmed up blanket, and place a heater or lamp nearby or put the child on the mother's bare chest (skin to skin) and cover both of them (Use the "kangaroo technique" for children with a caregiver). **Do not use a hot water bottle.**
- Put a hat on the child and wrap mother and child together.

- Offer hot drinks for the mother to drink to keep her skin warm (plain water, tea or any other hot drink).

“Kangaroo Care”

Kangaroo care means keeping an infant in continuous skin-to-skin contact with the mother, father or adult caregiver. The infant is kept near the breast.

- The care giver removes inner clothing.
 - The infant only wears a nappy and head covering.
 - The infant is held close against the caregiver’s bare chest by wrapping a culturally appropriate cloth.
 - The caregiver wears enough usual outer clothing to keep warm, adjusting so that the infant’s face is exposed to the air and the caregiver can see the infant.
-

Monitoring Hypothermia

- Monitor a child’s body temperature during re-warming and chart.
- The room should be kept warm, especially at night (between 28⁰C and 32⁰C). A maximum-minimum thermometer should be on the wall in the Phase 1 area to monitor the temperature.
- Treat for hypoglycaemia and give second-line antibiotic treatment.
- Ensure the child is covered at all times, especially at night.
- Blood glucose level: Check for hypoglycaemia whenever hypothermia is diagnosed.

Note: The thermo-neutral temperature range for malnourished children is 28⁰C to 32⁰C. This is often uncomfortably warm for the staff and caregivers who may want to adjust the room to suit them. Staff and caregivers should not reduce the room temperature as it will be too cold for severely malnourished children. Children should sleep with their mothers or caregivers and not in the traditional hospital child-cots. There should be adequate blankets and a thick sleeping mat or adult bed. Most heat is lost through the head; hats should be worn by malnourished children. Windows and doors should be kept closed at night.

Prevention

- 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.
- Ensure availability of a room thermometer and a chart for monitoring room temperature.
- Maintain room temperature between 25° C and 36.5° C.

Dehydration and shock

Misdiagnosis and inappropriate treatment for dehydration is the most common cause of death of the severely malnourished child. It is difficult to diagnose dehydration in these children. The signs of dehydration - such as non-elastic skin and sunken eyes - are often present in the severely malnourished child regardless of hydration status. It is important to take a detailed medical history and determine if there was a recent fluid loss from acute diarrhoea or vomiting.

During treatment of severe acute malnutrition, beware of the following: **The standard protocol for the dehydrated child (who is not malnourished) should not be used. A severely malnourished dehydrated child has a different protocol.**

- With severe malnutrition, the “therapeutic window” is narrow: even dehydrated children can quickly go from having a depleted circulation to experiencing over-hydration with fluid overload and cardiac failure.
- In malnutrition, both marasmus and to a greater extent kwashiorkor, IV infusions are rarely used because there is a particular renal problem that makes the children sensitive to salt (sodium) overload and at high risk of fluid overload.
- To prevent overuse of oral rehydration salts i.e. ReSoMal, do not leave these products accessible in the ward for the caretakers to give freely to children. An over-supply of ReSoMal can lead directly to heart failure, as well as failure to lose re-feeding oedema with the commencement of re-feeding.
- If there is no dehydration, **do not** treat diarrhoea with rehydration fluids with the intention to prevent the onset of dehydration. This will again lead to over-hydration and heart failure.

Diagnosis of Dehydration with the Marasmic Child

For the child with marasmus, all the classical signs of dehydration are unreliable and should not be used to make the diagnosis of dehydration:

- i. **Do NOT use the skin pinch test to diagnose dehydration in malnourished children.**
Marasmic skin often lies in folds and is inelastic, thus the “skin pinch” test is generally positive regardless if the child is hydrated or not.
- ii. **Do NOT assume that marasmic children who have sunken eyes are dehydrated.**
Marasmic eyes are normally sunken regardless of dehydration. The orbit contains the eye, small muscles and nerves, fat, the lachrymal gland and a venous plexus. In marasmus the fat and lachrymal gland atrophy, so that the eyes sink. In dehydration there is contraction of the venous plexus forcing blood out of the orbit so that the eyes sink.
- iii. These are a helpful sign of dehydration, but only when the mother says the sunken appearance is recent.
- iv.

Do not make a definitive diagnosis of dehydration. If the child seems to be dehydrated, make a *provisional* diagnosis and observe the response to treatment before confirming the diagnosis.

The diagnosis is determined by the child's history rather than by examination.

There needs to be:

- A definite history of significant and recent fluid loss. Usually this is a watery diarrhoea (not just soft or mucus), frequent, and with a sudden onset within the past few hours or days.
- There should also be a history noted of a recent change in the child's appearance.
- If the eyes are sunken, the caretaker must be able to report that the eyes have become sunken since the diarrhoea started.
- The child must not have any oedema.
- Thirst: drinking eagerly is a reliable sign of "some" dehydration. In infants this may be expressed as restlessness. Thirst is not a symptom of septic shock.
- Urine flow: urine flow diminishes as dehydration or septic shock worsens. In severe dehydration or fully developed septic shock, no urine is formed

Children with persistent or chronic diarrhoea (without an acute watery exacerbation) are not considered dehydrated.

Treatment of Dehydration for the Marasmic Child

When possible and feasible, rehydrate the child orally with ReSoMal. Intravenous infusions are dangerous and NOT recommended unless there is: 1) severe shock with 2) loss of consciousness from 3) confirmed dehydration. The management of dehydration is based on the accurate measurements of a child's weight which is the best measurement of fluid balance¹⁰. The child should be weighed without any items of clothing on (naked).

Before starting any rehydration treatment:

- Weigh the child;
- Take and record the child's pulse;
- Record the child's respiration rate and;
- Mark the edge of the liver and the costal margin on the skin with an indelible marker pen (skilled staff). If the staff is qualified to do so, record the child's heart sounds (presence or absence of gallop rhythm).

The Marasmic malnourished dehydrated child is managed entirely by:

- Weight changes
- Clinical signs of improvement such as alertness
- Clinical signs of over-hydration (engorged veins, rapid pulse, respiratory distress)

Zinc supplementation in the prevention and/or treatment of dehydration

For well-nourished children, Zinc supplementation of 20 mg daily for 10-14 days for children 6-59 months old and 10 mg daily for 10 days for infants less than 6 months old are recommended to reduce the duration and severity of the diarrhoea episode and reduce the risk of a new episode in the following 2-3 months. **However**, Zinc supplementation in children with SAM who receive therapeutic food that comply with WHO specifications is **not recommended**. Therapeutic foods contain already high levels of Zinc (F75 contains 2.0 mg Zinc/100 ml, F-100 2.3 mg Zinc/100 ml, and RUTF 2.2-2.8 mg Zinc/20 g equivalent to 100 ml F-100), and therefore there is **no need** for Zinc supplementation for severely malnourished children with diarrhoea.

Step 1: Determine if there is need for re-hydration

A severely malnourished child under follow up should be rehydrated only if the child has a history of diarrhoea and has lost weight. If this is on the first day of treatment, the child has a definite history of fluid loss with other symptoms as explained above.

Step 2: Administer re-hydration fluid

The fluid must be given slowly over time to prevent complications such as overload or heart failure.

- Give Oral Rehydration Solution for Malnutrition (ReSoMal) orally or by NG tube.
- Give: 5ml/kg every 30 minutes for first two (2) hours.
- Give 5-10mls/kg hourly until weight gain has been achieved.

Case Study:

For a 4kg child, over the first two hours give the following orally or by NG tube:

5ml/kg ReSoMal every 30 minutes for two hours = 20ml x four (there are four 30-minute intervals in two hours) = 80ml. (This is 2% of a 4kg child's body weight).

Over the next number of hours give 5 to 10ml/kg/hour ReSoMal until weight gain is achieved and the child shows clinical signs of improvement. Therefore, for a 4kg child, give 20 to 40ml per hour after the initial two hours.

It is important to re-assess frequently to make sure that the child does not become over-hydrated¹¹. Fluid balance is measured at frequent intervals by weighing the child.

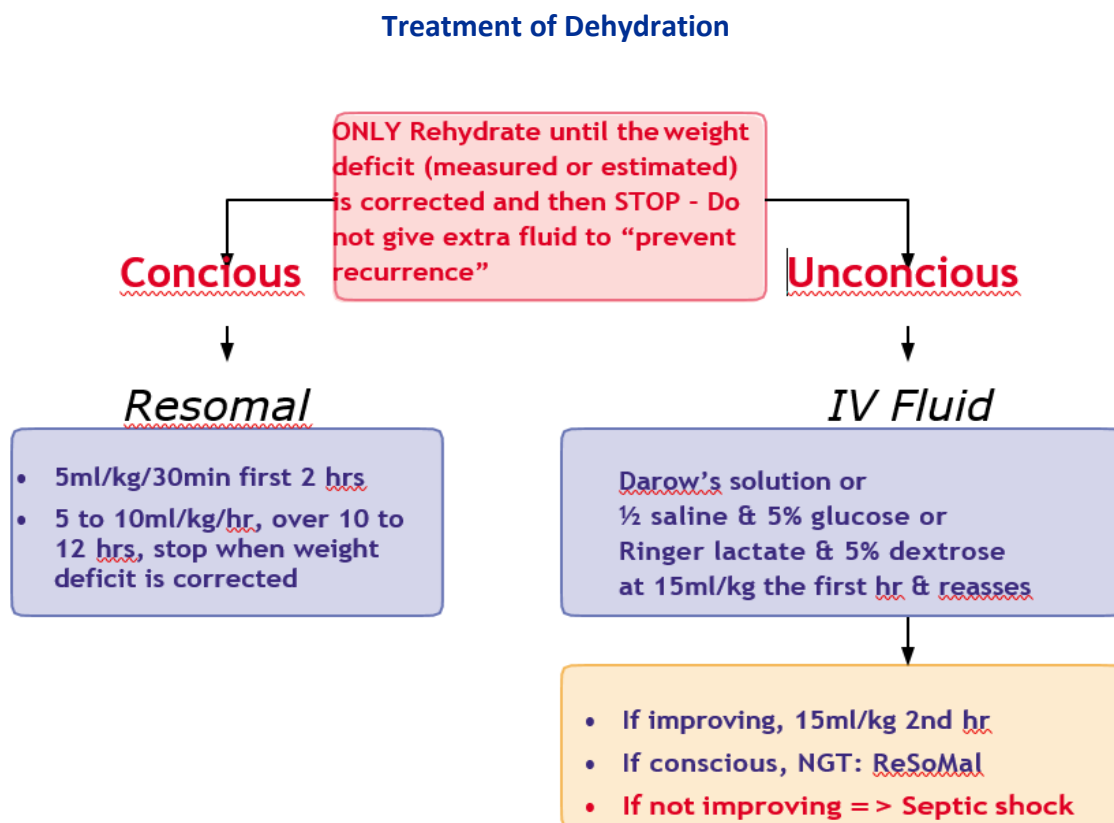
Step 3: Complete the re-hydration

Give re-hydration fluid until the weight deficit (measured or estimated) is corrected. Stop

¹¹ Expound – over hydration in relation to what?

as soon as the child is re-hydrated, having reached the target rehydrated weight. As the child gains weight during rehydration, definite clinical improvements should be obvious. The signs of dehydration should disappear. If there is no improvement in the clinical condition of the child despite rehydration with weight gain, the initial diagnosis of dehydration was wrong and rehydration therapy must be stopped.

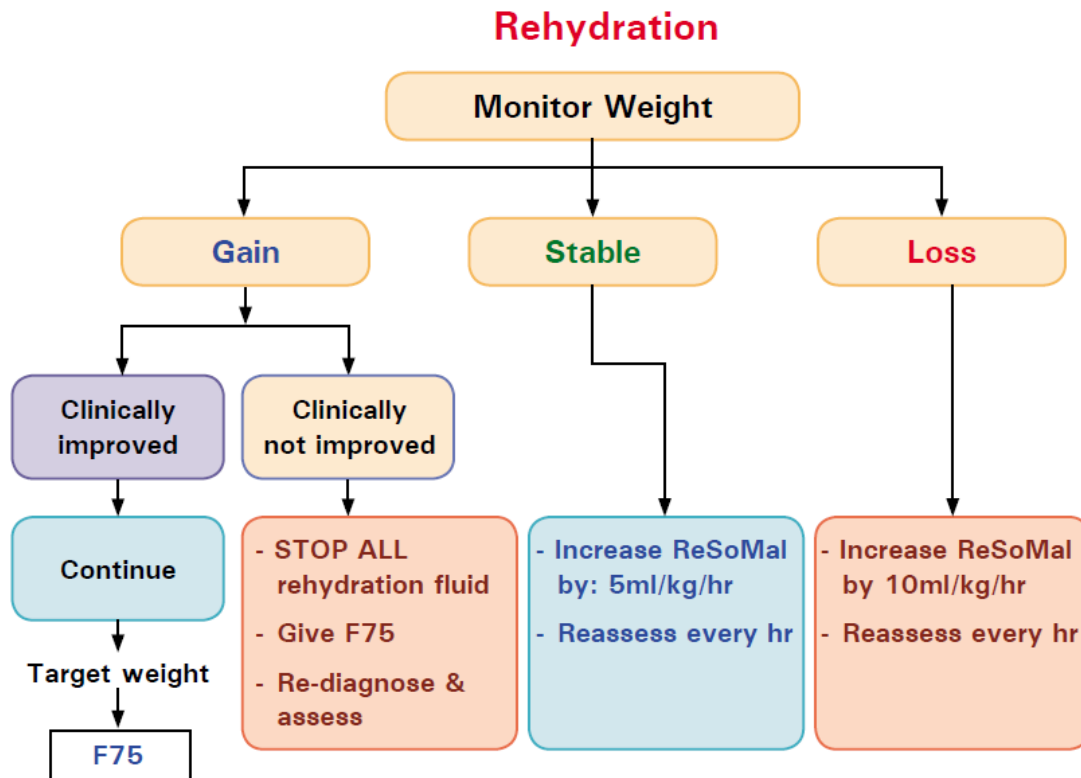
Figure 2.1: Treatment of dehydration – assessment



Step 4: After re-hydration

After rehydration, usually no further treatment is given. However, for severe acute malnourished children from 6 to 24 months, 30ml of ReSoMal can be given for each incidence of a watery stool. **The standard instructions to give 50-100ml for each stool should not be applied. It may cause fluid overload which is dangerous.**

Figure 2.2: Treatment of dehydration - monitoring



Two hours after commencing re-hydration therapy, make a major medical reassessment.

- i. Check all vital signs such as body temperature, pulse and respiration rate.
- ii. Check heart sounds.
- iii. Check for clinical signs of respiratory distress.
- iv. Check consciousness levels and weight gain.
- v. Check for vomiting and/or diarrhoea.

If there is:

- **Continued weight loss:** Increase ReSoMal by 10ml/kg/hour and re-assess the child in one hour.
- **No weight gain:** Increase ReSoMal by 5ml/kg/hour and re-assess the child in one hour.
- **Weight gain** and deterioration of the child's condition with the re-hydration therapy:
 - The diagnosis of dehydration was definitely wrong. (Even senior clinicians make mistakes in the diagnosis of dehydration in malnutrition.)
 - Stop the ReSoMal and start the child on F75 diet.
- **No improvement** in the mood and look of the child, or reversal of the clinical signs:
 - The diagnosis of dehydration was probably wrong.
 - Stop ReSoMal and continue with F75.
- **Clinical improvement**, but signs of dehydration
 - Continue with treatment until the appropriate weight gain is achieved.
 - Continue with ReSoMal alone. Or F75 and ReSoMal can be alternated.
- **Resolution of the signs of dehydration:** Stop re-hydration treatment and start the child on F75 diet.

During re-hydration, breastfeeding should not be interrupted.

Prescribe and give F75 as soon as possible after rehydration has been completed. The F75 can be given orally or by NG tube. ReSoMal and F75 can be alternated each hour in the case of a child with mild dehydration and continuing diarrhoea. The introduction of F75 is usually achieved within two to three hours after starting the re-hydration process when the child should be improving. The re-commencement of F75 will also help to prevent development of hypoglycaemia

Monitoring Re-hydration

Rehydration (oral or intravenous) therapy must **immediately stop** if any of the following are observed:

- *The target weight for rehydration is achieved (start F75 as per feeding schedule).*
- *Visible veins are full (start F75 as per feeding schedule).*
- *The development of oedema (indicates over-hydration: start F75).*
- *The development of prominent neck veins.*
- *The neck veins engorge when the abdomen (liver) is pressed.*
- *An increase in the liver size by more than one centimeter.*
- *The development of tenderness over the liver.*
- *An increase in the respiration rate by 5 breaths per minute or more.*
- *The development of a “grunting” respiration (this is a noise on expiration not inspiration)¹².*
- *The development of a triple rhythm.*

Diagnosis of Shock from Dehydration for the Marasmic Child

The marasmic child is going into shock from dehydration when:

- There is definite dehydration determined by the child’s history and the medical examination, **AND**
- There is a weak or absent radial or femoral pulse, **AND**
- The child has cool or cold hands and feet (check with back of hand gently for five seconds).

The child is going into severe shock when, in addition to the above signs, there is a decrease in the level of consciousness, the child is semi-conscious or cannot be roused. The treatment of cardiogenic shock or liver failure is not the same as shock due to dehydration. With cardiogenic shock or liver failure, fluid given is severely restricted or it can cause serious deterioration and the treatment itself could lead to death.

Treatment of Shock from Dehydration for the Marasmic Child

¹² This sign indicates that the child has fluid overload, an over-expanded circulation, and is going into heart failure.

If the child is definitely dehydrated (a history of fluid loss, a change in the appearance of the eyes), and shows all of the following three bullets, then the child should be treated with intravenous fluids:

- Semi-conscious or unconscious and
- Rapid weak pulse and
- Cold hands and feet

The amount of IV fluid given is half or less of that used for nourished, dehydrated children.

Use one of the following solutions:

- Half strength Darrow's solution
- Ringer-Lactate with 5% dextrose
- Half strength saline with 5% dextrose

NOTE: Re-hydration needs to be done slowly and monitored closely to prevent over-hydration. Administer 15 ml/kg over the first hour and reassess the child.

- **If there is continued weight loss, or the weight is stable,** repeat the 15ml/kg IV over the next hour. Continue until there is weight gain with the infusion. (15ml/kg is 1.5% of body weight, so the expected weight gain after two (2) hours is up to 3% of body weight.)
- **If the child has gained weight but there is no improvement,** assume that the child has toxic, septic or cardiogenic shock or liver failure. Stop rehydration treatment. Look and assess for other causes of loss of consciousness.

As soon as the child regains consciousness, or the pulse rate drops to a normal level, then stop the intravenous fluids and treat the child orally or by NG tube with 10ml/kg/hour of ReSoMal. Continue with the protocol above for re-hydration of the child orally, using weight change as the main indicator of progress.

Note: Other Causes of Shock

Apart from the shock related to dehydration, there are four other causes of shock in the severe acutely malnourished child.

- Toxic shock
- Septic shock
- Liver failure
- Cardiogenic shock.

Diagnosis of Dehydration for the Kwashiorkor Child

Children with bi-lateral oedema are over-hydrated and have increased total body water and increased sodium levels. Oedematous children thus cannot be dehydrated, although they are frequently hypovolemic. The hypovolemia (relatively low circulating blood volume) is due to a dilatation of the blood vessels with a low cardiac output. The treatment of

hypovolemia in kwashiorkor is the same as the treatment for septic shock (see below).

If a child with kwashiorkor has watery diarrhoea, and the child is deteriorating clinically, then the fluid lost can be replaced on the basis of 30ml of ReSoMal per watery stool.

Persistent Diarrhoea

Persistent diarrhoea is diarrhoea that occurs at least three times a day, every day for at least 14 days. If the stool contains visible blood, treat the child with ciprofloxacin and if no improvement after 2 days then add metronidazole according to the treatment protocols in the Kenya IMNCI Guidelines. Every child with persistent diarrhoea should be examined for non-intestinal infections, such as pneumonia, sepsis, urinary tract infection and otitis media. Antimicrobial treatment of these infections should follow the Kenya IMNCI protocols. Anti diarrhoeal drugs should never be used. Such drugs are not effective in children and some may be dangerous. Feeding guidelines are the same as for severe acute malnutrition without diarrhoea. Breast-feeding should be continued as often and for as long as the child wants. Milk intolerance is rare when the recommended feeding guidelines for severe acute malnutrition are followed. Persistent diarrhoea usually resolves when the child begins to gain weight.

Septic (or Toxic) Shock for All Malnourished Children

Septic shock is a serious medical condition. It is caused by decreased tissue perfusion and oxygen delivery as a result of infection and sepsis. It can cause multiple organ failure and death. Children, immuno-compromised individuals, and the elderly are most susceptible as their immune systems cannot cope with infection as well as healthy adults do. The mortality rate from septic shock can be as high as 50%. Septic shock presents with some of the signs of true dehydration and also of cardiogenic shock. The differential diagnosis is often very difficult.

Children who appear very ill may have septic shock, cardiogenic shock, liver failure, poisoning with traditional medicines, malaria, acute viral infection or other severe conditions. All “very ill” children should not be automatically diagnosed as having septic shock; the true reason for the condition should be sought.

If septic shock develops after admission, treatment must be carefully reviewed to determine if the treatment is the cause of the clinical deterioration. Any unnecessary drugs should be stopped.

Diagnosis of Septic Shock

To diagnose septic shock, signs of hypovolemic shock are present. There is a fast, weak pulse with **all three** of the following:

- Cold peripheries
- Disturbed consciousness
- Absence of signs of heart failure

Treatment of Septic Shock

All children with **signs of early or developed septic shock** should immediately:

- Be given broad-spectrum antibiotics.
- Therefore, continue first-line antibiotic and add second-line antibiotics. (See “Systematic Antibiotics” under Routine Medication later in Section Two).

For incipient (early) septic shock, give the standard F75 diet by NG tube.

For **developed septic shock**: Consider third-line antibiotics, antifungal treatment and anti-staphylococcal treatment. (See “Systematic Antibiotics” under Routine Medication later in Section Two)

- Keep the child warm to prevent or treat hypothermia.
- Give child sugar-water (1 teaspoon sugar in 50ml water) by mouth or NG tube as soon as the diagnosis is made (to prevent hypoglycaemia).
- Do not physically disturb the child (no washing, excess examination, investigations in other departments, etc.)
- Do not transport child to another facility. The stress of transport leads to dramatic deterioration.

Heart Failure

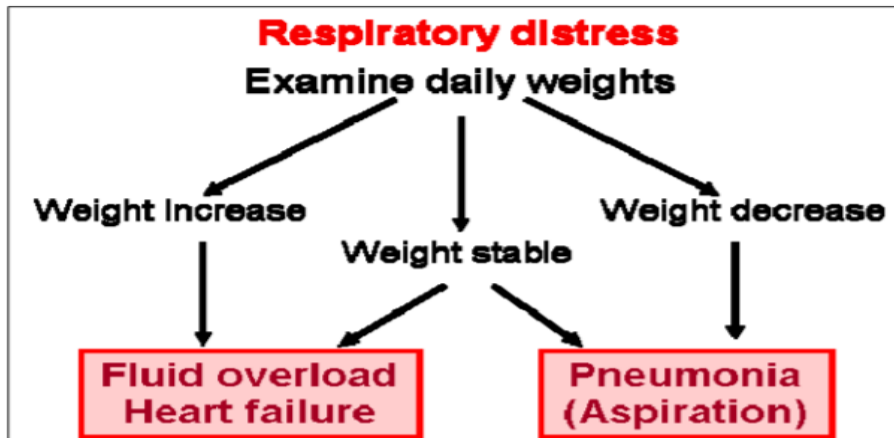
For the severely malnourished child, congestive heart failure is usually a complication of over-hydration (when IV fluids or standard ORS solution is given). It can also manifest when there is very severe anaemia; after a blood or plasma transfusion; or with a diet high in sodium. It is important to differentiate heart failure from respiratory infection and septic shock.

Signs and Symptoms of Heart Failure

Heart failure is diagnosed when the child has a few of the following symptoms (do not wait for all symptoms to occur, as the child will continue to deteriorate):

- An increase in respiration rate:
 - An acute increase in respiration rate of more than 5 breaths per minute (particularly during rehydration treatment).
 - More than 50 breaths/minute in infants (0-12 months)
 - More than 40 breaths/minute in children 12 to 59 months old.

Figure 2.3: Differential diagnosis of respiratory distress



- Physical deterioration with a gain in weight.
- A sudden increase in liver size with tenderness developing over the liver. (The liver is marked before starting any infusion to determine change in size).
- Respiration that has or develops a “grunting” sound during each expiration.
- Crepitations or râles in the lungs.
- Prominent superficial and neck veins.
- Engorgement of the neck veins when the abdomen (liver) is pressed.
- Increasing oedema or reappearance of oedema during treatment.
- An acute fall in haemoglobin concentration. (Requires laboratory).

If heart failure progress, and the child further deteriorates, there is either:

Marked respiratory distress progressing to a rapid pulse, cold hands and feet, oedema and cyanosis; or sudden, unexpected death. This is known as cardiogenic shock. Severely malnourished children are fragile and can go from dehydration to over-hydration quickly after treatment has started. Children can be admitted with heart failure and it is important that it's differentiated from shock due to dehydration or sepsis because the treatment is quite different.

For children who have already been admitted, there is usually also weight gain. As heart failure usually starts after treatment, there is nearly always a record of the weight of the child that was taken before the onset of heart failure.

Heart failure and pneumonia are clinically similar, and very difficult to tell apart:

- If there is an increased respiratory rate and any gain in weight, then heart failure is the first diagnosis.
- If there is an increased respiratory rate with a loss of weight, then pneumonia is diagnosed.
- If there is no change in weight (fluid balance) then the differentiation has to be made using the other signs of heart failure.
- Pneumonia is **NOT** diagnosed if there has been any weight gain before the onset of respiratory distress.

Heart Failure and Oedema

- Children with oedema can go into heart failure without a gain in weight, when the expanded circulation is due to oedema fluid moving from the tissues to the vascular space.
- During the initial treatment of severe acute malnutrition, any fluid containing sodium that has been given will have to be safely excreted later. Initial over-treatment can lead to death from heart failure several days later, when intracellular sodium (marasmus and kwashiorkor) and oedema fluid are being mobilised.
- As oedema fluid is mobilised (kwashiorkor) and the sodium is coming out of the cells (both kwashiorkor and marasmus), the plasma volume expands and there is a fall in haemoglobin concentration. This dilutional anaemia¹³ happens to some extent in nearly all children as they recover. A substantial fall in haemoglobin, as a sign of an expanding circulation, is also a sign of impending or actual heart failure. These children should never be transfused.

Treatment of Heart Failure

When heart failure is diagnosed:

- Stop all intakes of oral or IV fluids. No fluid or food is given to the child until signs of heart failure are improved which may take 24 to 48 hours. Small amounts of sugar-water can be given orally to prevent hypoglycaemia.
- Administer frusemide (1mg/kg) stat, as a single dose.
- Digoxin can be given in a single dose of 5 micrograms/kg. Note that this is lower than the normal dose of digoxin. A loading dose is not given. Use the paediatric preparation and not small quantities of the adult preparation.
- If the heart failure is associated with severe anaemia, treatment of the heart failure takes precedence over the treatment of the anaemia.
- A child with heart failure should never be transfused (unless there are facilities and experience with exchange-transfusion).

Check and treat other infections

HIV

Children with SAM who are diagnosed with HIV and qualify for lifelong ART should be started on ART as soon as possible after stabilization of metabolic complications and sepsis.

- HIV infected children with SAM should receive the same ART regimen, in the same dose, as children with HIV and no SAM.

¹³ When the electrolyte balance is corrected in the body as a result of therapeutic feeding, the oedema fluid that is accumulated in the tissue space will come into circulation so that it is cleared through kidney. This increases the plasma volume (the amount of water within the blood), and creates thinning effect of the blood. Hence, dilutional Anaemia is an increase in blood volume while the number of red blood cells stay the same. The anemia will subside as the excess water in the blood is cleared through the kidney

- HIV infected children with SAM starting ART should be closely monitored in the first 12 weeks.
- HIV infected children with SAM should be managed with the same therapeutic feeds and same micronutrient supplementation as children with SAM who are HIV negative.
- HIV infected children with SAM and persistent diarrhoea which does not resolve with standard management; should be investigated to exclude intestinal parasitic infection and carbohydrate intolerance or other causes that may require different management (e.g. modification of fluid or feed intake, or antibiotics). Oral metronidazole may be helpful in these children.
- Prophylaxis with co-trimoxazole (septrin) should continue throughout the management of SAM.
- Children with HIV infection are at increased risk of TB and this should be actively sought out for diagnosis and treatment.

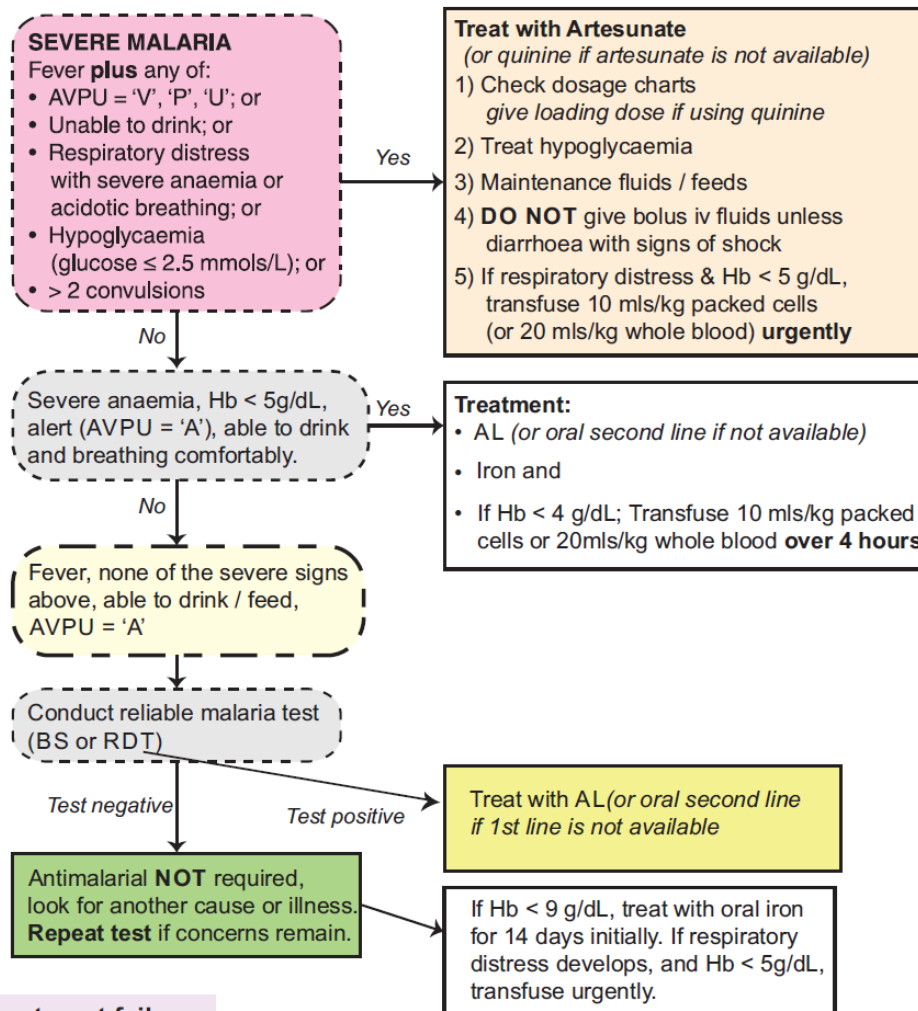
Malaria

Children with SAM should be diagnosed and treated for malaria in line with the national malaria guidelines.

- All children with fever or history of fever should be tested for malaria and only children who test positive should be treated for malaria. All children should also be assessed for other conditions that may cause fever and managed accordingly.
- The recommended first line treatment for uncomplicated malaria in Kenya is artemether-lumefantrine (AL) currently available as a co-formulated regular or child friendly dispersible tablet containing 20 mg of artemether and 120 mg of lumefantrine. This is administered as a 6-dose regimen given over three days.
- Children with malaria and HIV/AIDS should be managed according to the same regimen above.
- For children <24kg, dispersible tablets should be administered where available.
- Place the tablet in a cup or spoon, add a little water to it, wait a few minutes for tablets to disperse and then administer the resulting suspension to the child.

Figure 2.4: Treatment of Malaria

If a high quality blood slide is negative with signs of **SEVERE** malaria, start presumptive treatment **BUT REPEAT** testing and **STOP** treatment if test is negative



Treatment failure:

1. Consider other causes of illness / co-morbidity
2. A child on oral antimalarials who develops signs of severe malaria (Unable to sit or drink, AVPU=V,U or P and / or respiratory distress) at any stage should be changed to iv artesunate (or quinine if not available).
3. If a child on oral antimalarials has fever and a positive blood slide after 3 days (72 hours) then check compliance with therapy and if treatment failure proceed to second line treatment

Table 2.4: Dosing schedule for artemether-lumefantrine

Weight in kg	Age in years	Number of tablets per dose					
		Day 1		Day 2		Day 3	
		1st dose	8 hours	24 hours	36 hours	48 hours	60 hours
5 - 14	5 months ≤ 3years	1	1	1	1	1	1
15 - 24	3 - 7years	2	2	2	2	2	2
25 - 34	8 - 11years	3	3	3	3	3	3
above 34	≥ 12 years	4	4	4	4	4	4

Dermatosis

Dermatosis is common in severely malnourished children especially in children with oedematous malnutrition which often get superinfection. This is characterized by hypo- or hyperpigmentation, shedding of the skin in scales or sheets, and ulceration of the skin of the perineum, groin, limbs, behind the ears and armpits. There may be widespread weeping skin lesions which easily become infected. Spontaneous resolution occurs as nutrition improves. Atrophy of the skin in the perineum leads to severe diaper dermatitis, especially if the child has diarrhoea. The diaper area should be left uncovered. If the diaper area becomes colonized with *Candida* spp., it should be treated with nystatin ointment or cream (100 000 IU (1 g)) twice daily for 2 weeks and the child should be given oral nystatin (100 000 IU four times daily). In other affected areas, application of Zinc and castor oil ointment, petroleum jelly or paraffin gauze dressings helps to relieve pain and prevent infection. The Zinc supplement contained in the therapeutic food that comply with WHO specifications is particularly important in these children, as they are usually severely deficient.

Bathe the affected areas in 1% potassium permanganate solution for 10–15 minutes daily. This dries the lesions, helps to prevent loss of serum, and inhibits infection. Polyvidone iodine, 10% ointment, can also be used. It should be used sparingly, however, if the lesions are extensive, as there is significant systemic absorption. All children with SAM with or without kwashiorkor-related dermatosis should receive systemic antibiotics.

Monitor micronutrients and manage deficiency

Vitamin A

- F75, F100, RUTF and locally developed milk with CMV provide the adequate amount of Vitamin A to manage mild Vitamin A deficiency and to replace low liver stores of Vitamin A during treatment. **Do not give vitamin A routinely on admission or on discharge from in-patient therapeutic programme.** There is sufficient vitamin A in the RUTF to treat sub-clinical vitamin A deficiency. If F75, F100, RUTF and locally developed milk are not available then supplement with Vit A as per table 2.5 below.
- If the child has clinical signs of vitamin A deficiency, the condition of their eyes can deteriorate very rapidly and they should be treated according to the protocol on Table 2.5 below.

- If a child had recent measles (now or in past 3 months), give one dose of vitamin A. In case of a measles outbreak, vaccinate all children 6 months to 15 years of age¹⁴.

Table 2.5: Vitamin A dosage

Age	Vitamin A/IU orally on Day 1
6 to 11 months	1 blue capsule 100,000IU = 30,000ug
12 months and older	1 red or (2 blue capsules) 200,000IU = 60,000ug

Severe Anaemia

Diagnosis of Anaemia

If the haemoglobin concentration is less than 40g/l, or the packed-cell volume is less than 12% in the first 24 hours after admission, the child has very severe anaemia which can cause heart failure.

All children have a fall in Hb during the early phase of treatment. This ‘dilutional anaemia’ is due to the sodium coming off the cells and mobilization of oedema – it must not be treated.

Treatment of Anaemia

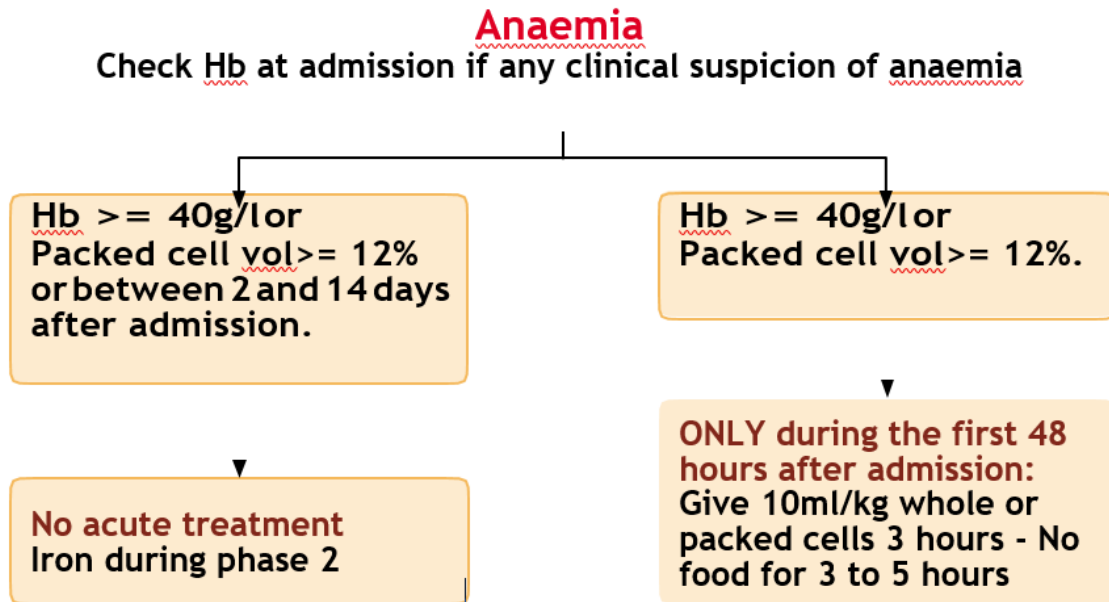
- Give 10ml/kg body weight of packed red cells or whole blood, slowly over three (3) hours.
- The child fasts during blood transfusion and for at least three (3) hours after blood transfusion.
- After the start of nutritional rehabilitation with F75, do **NOT** transfuse a child after 48 hours and up to 14 days.
- Do **NOT** give iron during Phase 1 and Transition Phase of treatment.
- If a special unit exist (e.g. neonatal unit), it is preferable to give an exchange transfusion to SAM children with severe anaemia.
- Provide nutrition and dietetics counselling to the caregiver.

If there is heart failure with very severe anaemia, transfer or refer the child to a centre with facilities that can offer exchange transfusion. Heart failure due to anaemia is clinically different from “normal” heart failure. With anaemia there is “high output” failure with an over-active circulation.

Increasing anaemia and heart failure or respiratory distress is a sign of fluid overload and an expanding plasma volume. The heart failure is not being “caused” by the anaemia; **these children should never be given a straight transfusion of blood or even packed cells.**

¹⁴ Make reference to measles guidelines.

Figure 2.5: Treatment for Anaemia



Folic Acid

There is sufficient folic acid in F75, F100 and RUTF to treat mild folate deficiency¹⁵ If a child shows clinical signs of anaemia give 5mgs of folic acid. Moderate anaemia is identified by palmer paler (very pale palms of the hands), and/or check conjunctiva colour. A very pale conjunctiva is a sign of moderate or severe anaemia.

Iron Supplementation

High-dose iron tablets are contraindicated as they can increase the risk of severe infection in severe acute malnourished children due to the presence of free iron in the blood.

If moderate anaemia is identified:

For in-patients receiving entire treatment of acute malnutrition in the in-patient health facility: Add iron to the F100 in Phase 2.

If severe anaemia is identified, treat as per the outlined guidelines in this section.

Osmotic diarrhoea

The possibility of therapeutic foods resulting in increased diarrhoea may be influenced by the severity of severe acute malnutrition in the child and may signal the need for additional care.

Children with severe acute malnutrition who have additional complications, including concurrent sepsis, and who are managed as inpatients, may be more susceptible to potential adverse effects of therapeutic diets. Children managed as outpatients who

¹⁵ A 10kg child taking maintenance amounts of RUTF will receive 400 micrograms of folic acid per day. The RDA (USA) for such a child is 80 micrograms per day.

develop a serious complication, such as watery diarrhoea with dehydration, or fail to respond to treatment should be transferred for inpatient care.

Note:

Children identified with SAM commonly have diarrhoea but **should not** be referred for oral rehydration therapy (ORT) to receive oral rehydration salt (ORS). Children with SAM and severe dehydration (diagnosis based on recent history of profuse watery diarrhoea and recent change in child's appearance) are referred to inpatient care and receive rehydration solution for malnutrition (ReSoMal) instead of ORS, which contains less sodium and more potassium than ORS. ReSoMal is always provided in controlled amounts and never given freely for use to the child and/or caregiver. ORS in a child with severe wasting will invoke sodium overload and enhance bilateral pitting oedema.

2.6.2 Nutrition Support: Diet and Frequency

Feeds in stabilization phase: F75

F75 is used for feeding severely malnourished children during the stabilization phase. It contains 75 kcal/100 ml

Breastfed children are always offered breast milk before the diet.

Safe and Hygienic Preparation of F75 Therapeutic Milk for Children with SAM

Hygienic preparation of F75 plays an important role in reducing the risk of children getting infection from feeds prepared in the inpatient setting. Milk based powders including therapeutic milk are not sterile; therefore, the preparation steps are designed to kill the bacteria that is in the therapeutic milk and to kill any bacteria that may have contaminated the feeds from sources within the hospital setting. Correct preparation and handling reduces the risk of illness. It is best to prepare fresh feeds and give to the children in the inpatient facility as soon as it is prepared and ready to drink and not longer, to ensure that it will not spoil. If there is access to a refrigerator, milk can be stored for a maximum of 12 hours¹⁶.

The guidance of consuming the milk within 2 hours of preparation must be followed correctly. This will prevent the bacteria from multiplying in the liquid feeds once it has been prepared.

Equipment needed:

- Preparation equipment:
 - o Cans of therapeutic milk
 - o Water for boiling and cleaning
 - o Cooking pot
 - o Kettle, stove or other means to boil water
 - o Pen and labels for recording information about the feed

¹⁶ It is better to organize the service so that 5 or 6 feeds are actually given, than to try to give 8 or more feeds per day and find that the night feeds are not supervised or not given at all. With staff shortages and junior staff at night, the latter strategy can lead to systematic underfeeding of the children and incorrect information recorded on the Multi-chart.

- Thermometer for use with hot liquid
 - Measuring jug and measuring cup.
 - Feeding cup
 - Spoon for stirring
 - Whisk for mixing large amounts of milk.
 - Clock/Timer
- Washing up equipment
 - Soap for hand washing
 - Bowl/basin and brush for washing up the utensils

Example 1: How to make 1 cup of F75 Therapeutic Milk
Weight of Child: 2.8 Kgs
No of feeds per day: 8 feeds

Ideally each feed should be prepared in an individual feeding cup.

- Clean and disinfect the surface where you will be preparing the feed and the equipment.
- Wash your hands thoroughly with soap and clean water and dry hands with clean cloth.
- Wash the feeding cups, utensils and thermometer in hot soapy water. All the equipment should be able to withstand hot liquids.



Step 1: How to sterilize equipment:

- Fill a large pan with water and completely submerge all washed feeding and preparation equipment.
- Cover the pan with a lid and bring the water to boil. Leave it to boil for at least 2 minutes.
- Carefully remove the equipment from the pan.
- Dry the utensils using a clean cloth.
- To prevent re-contamination, it is recommended to use the sterilized items just before they are needed. If they are not used immediately, cover them and store in a clean dry place.

Step 2: Making the feed

- Refer to the feed reference chart (Table 2.6 below) to see how much volume of therapeutic feed is needed per child.
- Boil sufficient volume of water. Make sure the water comes to a rolling boil.
- Once boiled, allow the water to cool slightly but not below 70°C.
- Take the temperature of the water using a sterile thermometer. If you do not have a thermometer, ensure that you are adding the therapeutic milk into the water in less than 3 – 5 minutes after the water has boiled.
- Pour the appropriate amount of boiled water into a clean and sterilized measuring cup. To accurately measure the water, read the water at eye level.
- Pour the 50 mls of hot water from the measuring cup into the clean feeding cup ready to mix with the therapeutic milk.
- Read the label of the container (or use table 2.6 below) to see the number of scoops of powder needed for 50mls water. Add the exact amount of milk powder as instructed on the label. For example, for 55mls of therapeutic milk we need 2 scoops of F75 powder.

- The reconstitution of therapeutic milk powder to milk for smaller amounts has been simplified; the F-75 in canisters now uses increments of 25ml of added water per scoop of therapeutic milk powder as per Table 2.6 below.

Table 2.6: Reconstitution of therapeutic milk powders

F-75		
Level of Scoop	Quantity of water (ml)	Approximate feed volume (ml)
1	25	28
2	50	56
4	100	112
8	200	224
10	250	280
20	500	560
Whole canister of 400g	2200	2480
24 canisters (9.6 kg net weight)	52.8 litres	59.5 litres

- Take the scoop and gently fill it with the powder. Do not press the scoop against the side of the canister as the scoop will become too tightly packed.
- Using the rim of the can or flat edge of a spoon or knife, level off the excess powder. **Adding more or less powder than instructed could make the children ill.**
- Make sure the scoop does not come into contact with water or moisture while preparing the milk.
- Replace the scoop back into the can and ensure the can is properly closed.
- Mix the powder and water thoroughly by stirring with a clean sterilized spoon.
- Cool the feed quickly to feeding temperature (<37°C). If you are using a bowl with cold water to cool the feed, fill the bowl with small amount of cold water so that the cup can sit flat in the bowl. Ensure the prepared feed does not come into contact with the water in the bowl.
- Give the feed to the child, and then **throw away any milk that is not consumed within 2 hours after preparation.**

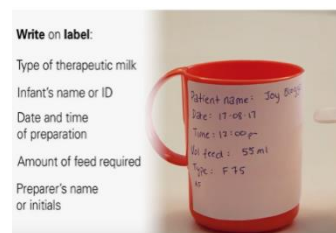
Step 3: Administering the milk

- Label the cup. Include on the label the type of feed, infant/child's name, time and date of preparation, volume of feed, and the name/initial of the staff who has prepared the milk. Adequate labeling ensures traceability of all feeds and helps to determine when the feeds need to be thrown away.
- Because very hot water is used to prepare the feeds, it is important to ensure the temperature is checked before giving to the child to avoid scalding them. To check the temperature of the feed; drop a small amount of the feed on to the wrist without placing the cup in contact with the skin. If it is room temperature, then it is ready to be offered to the child.

Example 2: How to Make a batch of feeds of F75 Therapeutic Milks (2.4 Lts of F75 Therapeutic Milk using 2.2 Lts of water and the whole can of F75).

Preparation of a large quantity of feeds for many severely malnourished children in the inpatient facility requires mixing batches of feed in large containers then transferring into individual feeding cups.

Therapeutic feeds prepared in large open containers are more susceptible to contamination. Also, large volumes of feed take longer time to cool down creating the condition for potential growth of harmful bacteria. To reduce the risks, the prepared milk should be served into cups immediately for faster cooling.



- Boil sufficient volume of clean water in a large pan. While the water is boiling, write the label needed for each feed including the name of the child, date, time of preparation of milk, volume of feed and the initials of the staff who has prepared the milk.
- Pour required amount of hot water that has cooled slightly but not below 70°C into a cleaned and sterilized measuring jug.
- Empty the whole can of F75 powder into the jug containing 2.2 lts of hot water.
- Stir the mixture immediately using a clean and sterilized spoon or whisk. Ensure that it is mixed evenly.
- Once the powder is blended with the water, pour into the individual cups. Ensure the feed is at room temperature before feeding the children. Feed must be consumed within 2 hours of preparation.

Table 2.7: Quantity of F75 or prepared milk to give during Phase 1, per kg of body weight

Class of Weight (kg)	8 feeds per day (ml for each feed)	6 feeds per day (ml for each feed)	5 feeds per day (ml for each feed)
2.0 to 2.1 kg	40 ml per feed	50 ml per feed	65 ml per feed
2.2 - 2.4	45	60	70
2.5 - 2.7	50	65	75
2.8 – 2.9	55	70	80
3.0 - 3.4	60	75	85

3.5 – 3.9	65	80	95
4.0 – 4.4	70	85	110
4.5 – 4.9	80	95	120
5.0 – 5.4	90	110	130
5.5 – 5.9	100	120	150
6 – 6.9	110	140	175
7 – 7.9	125	160	200
8 – 8.9	140	180	225
9 – 9.9	155	190	250
10 – 10.9	170	200	275
11 – 11.9	190	230	275
12 – 12.9	205	250	300
13 – 13.9	230	275	350
14 – 14.9	250	290	375
15 – 19.9	260	300	400
20 – 24.9	290	320	450
25 – 29.9	300	350	450
30 – 39.9	320	370	500
40 – 60	350	400	500

Feeding Technique for Severely Malnourished Children

Due to muscle weakness and slow swallowing, the risk of aspiration pneumonia is high for malnourished children. Therefore, great care must be taken while feeding them. The following information lessens the risk of aspiration pneumonia.

Figure 2.6 Feeding Technique



Sitting Position

The child sits straight up (vertical) on the mother's lap, leaning against her chest with one arm behind her back. The mother's arm encircles the child. She holds a saucer under the child's chin.

Appropriate Feeding

- The milk feed is given by cup. Any dribbles that fall into the saucer are returned to the cup.
- The child is never force fed, never has his/her nose pinched, and never lies back and has the milk poured into the mouth.
- Meal times are meant to be social. The mothers can sit together in a semi-circle around an assistant who encourages the mothers, talks to them, corrects any faulty feeding technique, and observes how the children are taking the milk.
- Caretakers do not take their meals beside the child. The child is likely to demand some of the mother's meal and this sharing is not recommended as the child's appetite will reduce and refuse the milk.

Naso-gastric Feeding

Naso-Gastric (NG) tube feeding is required **only** when a child is not taking a sufficient diet orally, which is **less than 75% of the prescribed diet per day**.

NG tube feeding is required when one or more of the following is true:

- The child takes less than 75% of the prescribed diet per 24 hours in Phase 1.
- The child presents with pneumonia with a rapid respiration rate.
- The child has painful lesions of the mouth.
- The child has a cleft palate or other physical deformity.
- The child is experiencing disturbances of consciousness.
- Each day try patiently to give the child F75 by mouth before using the NG tube. NG tube feeding should not exceed three days and is only used in Phase 1.

2.6.3 Routine Medication

Systematic Antibiotics

All severe acute malnourished children receive antibiotic treatment upon admission, regardless if they have clinical signs and symptoms of systemic infection or not. Nearly all these children have infections even if they are not symptomatic. Children who have a poor appetite and require admission to Phase 1 should be treated blindly for infections.

Small bowel bacterial over-growth occurs in all severe acute malnourished children (including those with moderate appetite and some with good appetite). Enteric bacteria are frequently the source of systemic infection by translocation across the bowel wall. This can also cause mal-absorption of nutrients and failure to eliminate the substances excreted in the bile, fatty liver, intestinal damage, and can cause chronic diarrhoea. The antibiotic administered for routine treatment must be active against small bowel bacterial overgrowth. Children with kwashiorkor have free iron in their blood: this can lead to bacteria that are not normally invasive, such as *Staphylococcus epidermidis*, and “exotic bacteria” to trans-locate and can cause systemic infection or septicaemia. Amoxicillin is identified in Kenya as the first line antibiotic to give systematically. If Amoxicillin is not available, then the doctor will decide on the most appropriate antibiotic to give instead. If staphylococcus is suspected, administer an antibiotic that is active against staphylococcus.

Antibiotic Regime

First line antibiotic treatment:

Oral Amoxicillin ¹⁷ is administered to all children with severe acute malnutrition.

Second line antibiotic treatment if there are medical complications:

- Penicillin (or Ampicillin, 50 mg/kg IV or IM every 6 hours for 2 days), followed by Amoxicillin, 15 mg/kg orally every 8 hours for 5 days. (If Amoxicillin is unavailable, give Ampicillin, 50 mg/kg orally every 6 hours over a total of 7 days) **AND** Gentamicin, 7.5 mg/kg IM or IV daily single dose for 7 days.

Third-line antibiotic treatment:

If the child fails to improve within 48 hours, add a second-line antibiotic

- Ceftriaxone, 100 mg/kg (or 50 mg/kg if infant < 2 kg) IV or IM daily single dose for 5 – 10 days.

If no response for the above medications, a senior clinician has to evaluate the child and provide individualized medication. In this case, the treatment is at the discretion of the medical doctor and is dependent on each child’s medical condition or complications. Frequently, a systemic anti-fungal (fluconazole) is added for children who have signs of severe sepsis or systemic candidiasis. Nystatin/Clotrimazole can be given for oral thrush. If staphylococcus is suspected, an antibiotic that is active against staphylococcus such as cloxacillin can be administered. For pus or ulceration in the eye Tetracycline Ointment (+ atropine drops) can be administered.

¹⁷ This is recommended as second-line antibiotic by IMNCI. It is given to grossly immuno-compromised patients who are severe enough to be admitted to a treatment programme. Amoxicillin is active against small bowel bacterial overgrowth in most patients. Where this is used as the first line antibiotic, metronidazole does not need to be given. WHO (Technical meeting, Geneva, June 2007) also recommends the use of Amoxicillin as first line systematic antibiotic therapy on admission for all SAM cases.

Important note: Co-trimoxazole is not active against small bowel bacterial overgrowth and is not adequate for the severely malnourished child. If Co-trimoxazole is administered as a prophylaxis against pneumocystis pneumonia in HIV-positive children, the above recommended antibiotics should be administered in addition.

Table 2.8: Dosage of Amoxicillin, Gentamycin

Child's Weight Range		Amoxicillin Dosage twice per day		Gentamycin Dosage once daily IM
Kg	In mg	cap/tab		In mg
<5kg	125mg	½ cap		5mg/kg IM daily
5 - 10kg	250mg	1cap		As above
10 – 20kg	500mg	2cap		As above

Note: Use the 20 mg ampoule of Gentamycin. It is most accurate for small doses for children with a low body weight.

Measles Vaccination

All children with SAM who are 6 months and older should receive measles vaccine as soon as their condition is stabilized in hospital. This protects other children in hospital from catching the disease associated with a high rate of mortality. A second dose of vaccine should be given before discharge. After stabilization, the child's immunization schedule should be completed.

If upon discharge, the infant is younger than 9 months, an appointment should be made for the infant to receive a second measles vaccination after the age of 9 months. With a recent history or current measles infection, a full treatment of Vitamin A supplementation according to age is started on day 1 and repeated on day 2 and after 2 weeks. There is no specific treatment for measles, disseminated herpes or other systemic viral infections. However, most children with these infections develop secondary systemic bacterial infections such as pneumonia, conjunctivitis, and septic shock, which should be treated as described in under "Treatment of Medical Complications".

If a child with SAM has high or persistent fever (body temperature greater than 39.5° C), antipyretics should be given. However, paracetamol should be used with caution in children with SAM for potential risk of hepatic damage at normal doses. Paracetamol should only be used in children with SAM when high fever is causing distress to the child.

- All children older than nine months who do not have a vaccination card are given a measles vaccine both on admission and after a month, or at discharge after Rehabilitation Phase (if this is after a month).
- Measles vaccine is given at six months for HIV exposed children and during an outbreak of measles.

Studies have shown a single dose of measles vaccine does not provide 100% immunity. Hence, the importance of >95% vaccination coverage. In addition, it is important that children 6- 59 months of age receive additional measles vaccines whenever the Ministry of Health undertakes such campaigns. Whether a child receives a second dose of measles upon discharge from in patient programme into the OTP programme will depend on the environment. For further guidance and direction on vaccination, please refer to the Ministry of Health, DVI department.

Table 2.9 below summarizes the routine medications for severely malnourished children. There are some differences between the in-patient and out-patient drug regime, but in general, they are very similar. The main difference is that iron is not administered to children who receive RUTF in the out-patient setting, as there is already sufficient iron in the diet.

Table 2.9: Summary of routine medication for in-patient treatment of severe acute malnutrition

	Direct admission to in-patient treatment
Amoxycillin	On admission, twice a day for five (5) days
Folic Acid	One (1) dose at admission, if there are definite signs of anaemia
Malaria	According to national protocol
Measles Six (6) months and older	<ol style="list-style-type: none"> 1. One (1) vaccine at admission if no vaccination card 2. One (1) vaccine at discharge (after a month if over 9 months, if under 9 months appoint for the next vaccination at 9 months).

2.6.7 Monitoring

Monitoring is recorded in the multichart shown in **Annex 6**.

Each Day:

- Take child's body temperature twice a day, 4 times a day for hypothermic or febrile cases.
- Weigh the child and record the weight. Plot weight on the Multi-chart.
- Assess and record the degree of oedema (0, +, ++, +++).
- Record the child's fluid intake and source (oral, NG tube or IV fluids). Record if the child is absent at mealtime, has refused diet or has vomited. Document the information in the multi-chart to monitor ongoing progress.
- Assess and note in the Multi-chart standard clinical signs (number of stools passed, vomiting, dehydration, cough, respiration, and liver size).

After seven days, MUAC is measured.

On admission and after 21 days (with each new Multi-chart), measure length for children who are less than 87cms, or height for children who are greater than or equal to 87cms.

2.6.8 Criteria for Transfer: Phase 1 to Transition Phase

The child must meet the following criteria to transfer from Phase 1 to Transition Phase:

- Appetite has improved and taking all prescribed quantity of milk.
- Oedema, if present, reduced from **severe +++ to moderate ++ or mild +**

Other criteria:

- Treatment for any medical complication has commenced and child is recovering.
- IV fluids and NG feeding completed, and cannula/tube removed.

2.7 TRANSITION PHASE TREATMENT

A child usually remains in Transition Phase for two to three days. In this phase the child begins to gain some weight slowly. The objective of Transition Phase is to gradually increase the amount of calorie intake, increasing from 100kcal/kg to 130kcal/kg. This is to prevent overload and its potential complications. Transition Phase prepares the child for Phase 2 treatment or, if an out-patient facility for treatment of acute malnutrition exists, for transfer to the Outpatient Therapeutic Care.

2.7.1 Feeds in Transition Phase

The **ONLY** change in the diet when transferring from Phase 1 to Transition Phase is that ***F75 is replaced by either F100 or ready to use therapeutic food (RUTF), or a combination of the two.*** The number of feeds, the timing, and the volume of the diet remains exactly the same in Transition Phase as in Phase 1 (130ml/kg/day).

The decision whether to give specialized milk or RUTF depends on the child's discharge plan and on availability of specialized foods. If there is only the in-patient option, then milk can be given alone or a combination of the milk and RUTF. Where the child will discharge to the OTP then the child takes RUTF during Transition Phase, in preparation for discharge.

RUTF can be given inter-changeably with F100 depending on the availability of RUTF and staffing levels. In the in-patient facility, F100 can be given during the day and RUTF given overnight or on weekends (especially during times staffing levels are low).

500ml of boiled cooled water will produce **600 ml of liquid milk**. Prepare enough milk for the next three hours, not longer, to ensure that it will not spoil. If there is access to a refrigerator, milk can be stored for a maximum of 12 hours.

Table 2.10: Quantity of F100 to give during Transition Phase, per kg of body weight

<i>Class of Weight (kg)</i>	<i>8 feeds per day</i>	<i>6 feeds per day</i>	<i>5 feeds per day</i>
4.0 – 4.4	70	85	110
4.5 – 4.9	80	95	120
5.0 – 5.4	90	110	130
5.5 – 5.9	100	120	150
6 – 6.9	110	140	175
7 – 7.9	125	160	200
8 – 8.9	140	180	225
9 – 9.9	155	190	250
10 – 10.9	170	200	275
11 – 11.9	190	230	275
12 – 12.9	205	250	300
13 – 13.9	230	275	350
14 – 14.9	250	290	375
15 – 19.9	260	300	400
20 – 24.9	290	320	450
25 – 29.9	300	350	450
30 – 39.9	320	370	500
40 – 60	350	400	500

Warning: F100 is never given out for use at home. It is always prepared and distributed in an in-patient unit.

F100 **Should not be kept** in liquid form at room temperature for more than three hours before it is consumed.

2.7.2 Plans for Eventual Out-Patient Care – Use of RUTF

If out-patient management of malnutrition is available, use RUTF in the Transition Phase. Initially, RUTF and F100 meals can alternate with RUTF given every other feed (**20g of RUTF**

is equivalent to 100ml of F100). If the RUTF is tolerated, the child’s diet changes to RUTF for the remainder of Transition Phase. Children may initially refuse RUTF. If this is the case, give the child the F100 diet and offer RUTF again the next day. Discharge to out-patient treatment of acute malnutrition is only advised when the **child tolerates at least 75% of the amount of RUTF** calculated for the individual child.

The daily amount of RUTF is given to the caregiver with directions to give small portions of feeds frequently. The quantity consumed by the child is checked regularly during the day. Table 2.11 outlines the quantities to give in Transition Phase based on the child’s body weight. Children who are not taking 75% RUTF are given F100 to make up any deficit in intake. No other food is given to the child during this period. Children should drink as much clean water as possible while taking and after consumption of RUTF.

Table 2.11: Quantity of RUTF to give during Transition phase, per kg of body weight

<i>Class of weight (kg)</i>	<i>RUTF (Plumpy’nut®)</i>	
	<i>sachet per day</i>	<i>sachets per week</i>
3.0 - 3.4	1 ¼	8
3.5 - 4.9	1 ½	10
5.0 - 6.9	2	15
7.0 - 9.9	3	20
10.0 - 14.9	4	30
15.0 - 19.9	5	35
20.0 - 29.9	6	40
30.0 - 39.9	7	50
40 - 60	8	55

Note: If both F100 and RUTF are being given they can be substituted on the basis that about 100ml of F100 = 20g of RUTF.¹⁸

2.7.3 Monitoring

The surveillance in Transition Phase is the same as surveillance in Phase 1. As the child is now taking more than maintenance amounts of food, weight gain is expected. It takes an average of about five (5) kcal to make one (1) gram of new tissue. Thus, if the child takes all food and there is not excessive mal absorption, the expected rate of weight gain for marasmic children during Transition Phase is about 6g/kg/day.

Each Day:

- Take child's body temperature twice a day.
- Weigh the child and record the weight. Plot weight on the Multi-chart. **(See Annex 6 for multi-chart).**
- Assess and record the degree of oedema (0 to +++).
- Record the child's fluid intake. Record if child is absent at mealtime, has refused diet or has vomited.
- Document the information in the multi-chart to monitor ongoing progress.
- Assess and note in the Multi-chart standard clinical signs (number of stools passed, vomiting, dehydration, cough, respiration and liver size).
- Take height every 21 days with each new multi chart.

After seven days, MUAC is measured.

2.7.4 Criteria for transfer: Transition Phase to Phase 2

If the child has a good appetite and is taking at least 75% of the RUTF or all F100 prescribed for Transition Phase, he/she may progress to Phase 2 in the in-patient facility or the out-patient therapeutic care. The daily ration of RUTF in Transition Phase is the same for a child of the same weight directly admitted to out-patient therapeutic care. Therefore, if they are eating at least 75% of the RUTF prescribed, it is a similar calorie amount as what is given when using F100 in the Transition Phase.

Oedematous children (kwashiorkor) discharged to the out-patient management of malnutrition remain in transition phase until there is definite and steady reduction of bilateral pitting oedema to moderate (+ +) or mild (+).

¹⁸ This is an acceptable approximation. If tables are to be constructed, then 100 ml of F100 = 18.5g of RUTF: 10g of RUTF = 54ml of F100 should be used and the resulting values rounded to the nearest 5 or 10 ml

2.7.5 Exceptions

In exceptional circumstances, children can remain in in-patient care for the rehabilitation phase. This applies to children that are abandoned by their families, where the home circumstances are impossible, where there is no caregiver, or the caregiver is incapable of managing the child and there is no alternative. These children do not need to occupy acute hospital beds. They can be accommodated in a local structure attached to the in-patient care facility. They remain until a “place of safety” (other relative found, foster care, orphanage etc.) is arranged. As soon as a placement is arranged, the fostering family or orphanage takes the child for out-patient therapeutic treatment.

2.7.6 Criteria for Return to Phase 1 from Transition Phase

Move the SAM child back to Phase 1 if any one of the following occurs:

- There is increasing oedema.
- A child who does not have oedema develops oedema.
- There is a rapid increase in the size of the liver.
- Any signs of fluid overload develop.
- Tense abdominal distension develops.
- The child gets significant re-feeding diarrhoea¹⁹ so that there is weight loss.
- A complication arises that necessitates an intravenous infusion.
- A need for feeding by NGT.
- Weight gain of more than 10 g/kg bodyweight/day in association with an increase in respiratory rate (indicative of excess fluid retention).

If a severe medical complication becomes apparent, such as hypothermia, hypoglycaemia, dehydration, septic shock, acute vomiting, acute diarrhoea with weight loss and possible reduced bowel sounds/abdominal distension or heart failure then transfer the child back to Phase 1.

It is common for some change in stool frequency when there is a change in diet. This does not need to be treated unless the children lose weight. Several loose stools without weight loss are not a criterion to move back to Phase 1.

Important Reminder

If there is deterioration during the transition or rehabilitation phase of treatment,

- Then the child should be returned to the stabilization phase.
- For children that are in the acute phase, reduce the diet to 50% of the recommended intake until all signs and symptoms disappear and then gradually increase the amount given.
- Check to make sure that there is sufficient potassium and magnesium in the diet. If the diet is not based on cow’s milk (or the mother is also giving cereals/pulses etc.) additional phosphorus should be given to prevent re-feeding syndrome.

¹⁹ As severe acute malnutrition results in atrophy of the intestinal mucosa, the absorptive capacity of the intestines is reduced. This results in malabsorption and osmotic diarrhea while the child is on therapeutic feeding.

2.8 PHASE TWO: REHABILITATION

In Phase 2, the main objective is to achieve catch-up growth and resolve micronutrient deficiencies. However, there are some variations in workload. As the children are recovering; the frequency of meals and some of the routine surveillance is less frequent than in Phase 1 and Transition Phase.

Children progressing to the rehabilitation phase and who are on an RUTF diet can be referred to the out-patient department (OPD) of the health facility and monitored weekly or every two weeks if there is no outpatient care site close to his/her community to return to.

2.8.1 Criteria for Transfer to Phase 2 from Transition Phase

- Good appetite (taking all diet in Transition Phase)
- Loss of oedema
- Medical complications have resolved

2.8.2 Feeds in Phase Two: Rehabilitation: Diet and Frequency

When children are transferred from Transition Phase to Phase 2, the main change in the regimen is an increase in the amount of F100 or made-up milk formulas. The volume of milk is gradually increased from 130ml/kg/day to 200ml/kg/day (equivalent to 200kcal/kg/day). The objective of Phase 2 is to achieve catch-up growth. Thus, if the child remains hungry after completing a feed, more milk can be offered. Either F100 or RUTF can be given, or a combination of both. Gradually introduce family foods.

F100 (100ml = 100 kcal)

Give five feeds of F100 per day to children who weigh less than 8kg (see Table 2.10 for F100 quantities to give for body weight).

RUTF

Can be used in the in-patient setting. 20g of RUTF is equivalent to approximately 100ml of F100.

Safe and Hygienic Preparation of F100 Therapeutic Milk for Children with SAM

Hygienic preparation of F100 plays an important role in reducing the risk of children getting infection from feeds prepared in the inpatient setting. Milk based powders including therapeutic milk are not sterile; therefore, the preparation steps are designed to kill the bacteria that is in the therapeutic milk and to kill any bacteria that may have contaminated the feeds from sources within the hospital setting. Correct preparation and handling reduces the risk of illness.

It is best to prepare fresh feeds and give to the children in the inpatient facility as soon as it is prepared and ready to drink and not longer, to assure that it will not spoil. If there is access to a refrigerator, milk can be stored for a maximum of 12 hours²⁰.

The guidance of consuming the milk within 2 hours of preparation must be followed correctly. This will prevent the bacteria from multiplying in the liquid feeds once it has been prepared.

Equipment needed:

- Preparation equipment:
 - Cans of therapeutic milk.
 - Water for boiling and cleaning
 - Cooking pot
 - Kettle, stove or other means to boil water
 - Pen and labels for recording information about the feed
 - Thermometer for use with hot liquid
 - Measuring jug and measuring cup.
 - Feeding cup
 - Spoon for stirring
 - Whisk for mixing large amounts of milk.
 - Clock/Timer

- Washing up equipment
 - Soap for hand washing
 - Bowl/basin and brush for washing up the utensils

Example 1: How to make 1 cup of feed for F100 Therapeutic Milk.

Weight of Child: 3.0 Kgs

No of feeds per day: 6 feeds

Ideally each feed should be prepared in an individual feeding cup.

- Clean and disinfect the surface where you will be preparing the feed and the equipment.
- Wash your hands thoroughly with soap and clean water and dry hands with clean cloth.
- Wash the feeding cups, utensils and thermometer in hot soapy water. All the equipment should be able to withstand hot liquids.

Step 1: How to sterilize equipment:

- Fill a large pan with water and completely submerge all washed feeding and preparation equipment.
- Cover the pan with a lid and bring the water to boil. Leave it to boil for at least 2 minutes
- Carefully remove the equipment from the pan.
- Dry the utensils using a clean cloth.



²⁰ It is better to organize the service so that 5 or 6 feeds are actually given, than to try to give 8 or more feeds per day and find that the night feeds are not supervised or not given at all. With staff shortages and junior staff at night, the latter strategy can lead to systematic underfeeding of the children and incorrect information recorded on the Multi-chart.

- To prevent re-contamination, it is recommended to use the sterilized items just before they are needed. If they are not used immediately, cover them and store in clean dry place

Step 2: Making the feed

- Refer to the feed reference chart (Table 2.12 below) to see how much volume of therapeutic feed is needed per child.
- Boil a sufficient volume of water. Make sure the water comes to a rolling boil.
- Once boiled, allow the water to cool slightly but not below 70°C.
- Take the temperature of the water using a sterile thermometer. If you do not have a thermometer, ensure that you are adding the therapeutic milk into the water in less than 3 – 5 minutes after the water has boiled.
- Pour the appropriate amount of boiled water into a clean and sterilized measuring cup. To accurately measure the water, read the water at eye level.
- Pour the 100 mls of hot water from the measuring cup into the clean feeding cup ready to mix with the therapeutic milk.
- Read the label of the container (or Table 2.12 below) to see the number of scoops of powder needed for 100mls water. Add the exact amount of milk powder as instructed on the label. For 117mls of therapeutic milk we need 4 scoops of F100 powder.
- The reconstitution of therapeutic milk powder to milk for smaller amounts has been simplified; the F-100 in canisters now use increments of 25ml of added water per scoop of therapeutic milk powder as per Table 2.12 below.

Table 2.12: Reconstruction of F100

F-100		
Level of Scoop	Quantity of water (ml)	Approximate feed volume (ml)
1	25	29
2	50	58
4	100	117
8	200	234
10	250	290
20	500	580
Whole canister of 400g	1850ml	2158
24 canisters (9.6 kg net weight)	44 litres	52 litres

- Take the scoop and gently fill it with the powder. Do not press the scoop against the side of the canister as the scoop will become too tightly packed.
- Using the rim of the can or flat edge of a spoon or knife level off the excess powder. **Adding more or less powder than instructed could make the children ill.**
- Make sure the scoop does not come into contact with water or moisture while preparing the milk.
- Replace the scoop back into the can and ensure the can is properly closed.
- Mix the powder and water thoroughly by stirring with a clean sterilized spoon.
- Cool the feed quickly to feeding temperature (<37°C). If you are using a bowl with cold water to cool the feed, fill the bowl with small amount of cold water so that the cup can sit flat in the bowl. Ensure the prepared feed does not come into contact with the water in the bowl.
- Give the feed to the child, and then **throw away any milk that is not consumed within 2 hours after preparation.**

Step 3: Administering the milk

- Label the cup. Include on the label the type of feed, infant/child's name, time and date of preparation, volume of feed, and the name/initial of the staff who has prepared the milk. Adequate labeling ensures traceability of all feeds and helps to determine when the feeds need to be thrown away.
- Because very hot water is used to prepare the feeds, it is important to ensure the temperature is checked before giving to the child to avoid scalding them. To check the temperature of the feed; drop a small amount of the feed on to the wrist without placing the cup in contact with the skin. If it is room temperature, then it is ready to be offered to the child.

Example 2: How to Make a batch of feeds of F100 Therapeutic Milks (2.16 Lts of F100 Therapeutic Milk using 1.85 Lts of water and the whole can of F100).

Preparation of a large quantity of feeds for many severely malnourished in the inpatient facility requires mixing batches of feed in large containers then transferring into individual feeding cups. Therapeutic feeds prepared in large open containers are more susceptible to contamination. Also, large volumes of feed take longer time to cool down creating condition for potential growth of harmful bacteria. To reduce the risks, the prepared milk should be served into cups immediately for faster cooling.

- Boil sufficient volume of clean water in a large pan. While water is boiling, write the label needed for each feed. Including the name of the child, date, time of preparation of milk, volume of feed and initial of the staff who has prepared the milk.
- Pour required amount of hot water that has cooled slightly but not below 70°C into a cleaned and sterilized measuring jug.
- Empty the whole can of F100 powder into jug containing 1.85 litres of hot water.
- Stir the mixture immediately using a clean and sterilized spoon or whisk. Ensure that it is mixed evenly.
- Once the powder is blended with the water, pour into the individual cups. Ensure the feed is at room temperature before feeding the children. Feed must be consumed within 2 hours of preparation.

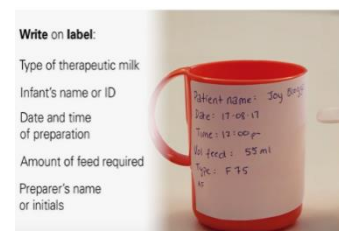


Table 2.13: Quantity of F100 to give during Phase 2, per kg body weight

<i>Class of weight (kg)</i>	<i>6 feeds/day F100 ml/feed</i>	<i>5 feeds/day F100 ml/feed</i>
<3 kg	Full strength F100 and RUTF not given to infants who weigh less than 3kg	
3.0 to 3.4	110	130
3.5 - 3.9	120	150
4.0- 4.9	150	180
5.0- 5.9	180	200

6.0- 6.9	210	250
7.0- 7.9	240	300
8.0- 8.9	270	330
9.0 - 9.9	300	360
10.0 – 11.9	350	420
12.0– 14.9	450	520
15.0– 19.9	550	650
20.0 - 24.9	650	780
25.0– 29.9	750	900
30.0 - 39.9	850	1000
40 - 60	1000	1200

2.8.3 Routine Medication

Iron

Iron is given to malnourished children in Phase 2. Daily iron supplementation of 3 mg/kg daily is provided. It is added to the F100 milk diet or locally made-up milk by mixing in an iron solution.

- Crush one (1) tablet of Ferrous Sulphate (200mg) and add to 4mls of water.
- Then add 1 ml out of this 4-ml Iron solution to the F100 milk
- If using locally made-up formulas add Iron solution as above to the milk.
- RUTF already contains the necessary Iron.

De-worming

Children who play outdoors are susceptible to worm infestation. Deworming is necessary for in-patient malnourished children but should be delayed until they are recovering in Phase 2 or discharged to OTP.

Children younger than one-year-old should not receive anthelmintics. New research by WHO indicates that all children older than one year can receive a full stat dose of either Albendazole or Mobendazole for treatment of worm infestation.

Table 2.14: Deworming Dosage, by age group

<i>Children less than one (1) year old</i>		<i>Children one year and above</i>
Albendazole 1 - 2 Years 200mg > 2 years 400mg	Not given	1 dose on admission to Phase 2
Mebendazole 500mgs	Not given	1 dose on admission to Phase 2

2.8.4 Monitoring

Child surveillance in Phase 2 is less intensive and less frequent than during Phase 1 and Transition Phase. However, it is important to routinely monitor progress. See Table 2.15 for surveillance duties and frequency.

Table 2.15: Phase 2 surveillance

<i>Surveillance Tasks</i>	<i>Frequency</i>
Check weight and oedema	Three (3) times per week
Measure height (length)	Every 21 days, with each new Multi-chart
Take body temperature	Every morning
Assess standard clinical signs (stool, vomiting)	Every day
Take MUAC	After every seven days
Record diet intake	Record daily all intake in Multi-Chart

2.9 Failure to Respond

2.9.1 Diagnosis for Failure to Respond

When the treatment guidelines in this manual are followed, a child with SAM should show definite signs of improvement within a few days and continue to improve thereafter. Failure to achieve initial improvement at the expected rate is called primary failure to respond, whereas deterioration of the child's condition when a satisfactory response has been established is called secondary failure to respond.

A child who meets any of the criteria in **Table 2.16** below should be diagnosed as failing to respond. When this diagnosis is made, it is essential to review practices in the treatment unit carefully and to re-evaluate the child thoroughly. The objective is to identify the cause of failure to respond and to correct the problem by making specific changes to care practices or to the child's treatment. Someone with clinical expertise trained to care for complicated cases should manage the child with the "failure to respond" diagnosis (e.g., liver cirrhosis is a medical condition that can cause abdominal distention. This distention could be misdiagnosed as severe nutritional oedema and treatment for failure to respond not managed appropriately). Treatment should never be changed blindly; this is more likely to be harmful than to help the child.

Table 2.16: Criteria for the diagnosis of failure to respond to treatment in in-patient care

Primary Failure to Respond	Time After Admission
Failure to regain appetite	Day 4
Failure to start to lose oedema	Day 4
Oedema still present	Day 10
Failure to gain at least 5g/kg/day of bodyweight	Day 10²¹
Clinical deterioration AFTER admission	At any time
Secondary Failure to Respond	
Failure to gain at least 5 g/kg/day of bodyweight	During Rehabilitation Phase for 3 successive days

Note: Day of admission is counted as Day 0, so that Day 1 is the day after admission.

Possible causes for further investigation of the failure to respond diagnosis to treatment in in-patient care

- Problems with care practices.
- Poor environment for malnourished children.
- Insufficient or inadequately trained staff, inaccurate anthropometric equipment and insufficient essential supplies.
- Inadequate detection of medical complications, infections and serious underlying conditions.
- Lack of compliance with specific and routine treatment protocols.
- Incorrect preparation or provision of therapeutic food.
- Inadequate individual case monitoring, quality improvement and quality performance monitoring.

²¹ In the stabilization phase the aim is not to gain weight. This criterion means that after child has entered transition or moved to rehabilitation, the child should gain at least 5g/kg/day. If not gaining that amount on day 10 after admission, then they can be diagnosed as failure to respond.

- Insufficient emotional and physical stimulation of the child.
- Inadequate counseling and psycho-social support to the mother or caregiver.
- Problems with the treatment of the child.
- Feeding: insufficient therapeutic food and/or fluid taken, insufficient vitamin or mineral supplementation, malabsorption of nutrients, rumination.
- Undetected or untreated medical complications, infections and/or serious underlying conditions.
- Drug toxicity (e.g., inappropriate dosage of drugs, or use of drugs not recommended in the severely malnourished child).
- Psychological trauma

2.9.2 Factors that could precipitate Failure to Respond

Poor environment

Failure to respond is more likely when infection control measures are not adequately taken into account especially as the children are managed within the pediatric ward. Cross infections are a major reason for delayed recovery. Proper care and management of this group is critical to ensure infection prevention and control. It is therefore important to put in place necessary measures for health workers, others/caregivers, children and bedding. A suitable environment is also crucial for the same. Refer to Kenya Infection Prevention Control Guideline, 2010 for further guidance on each of these components.

Staff

Experienced staff (including junior staff) who understand the needs of malnourished children and are familiar with the important details of their management are essential for a well-functioning treatment facility. It is important to avoid loss of experienced staff wherever possible. For this reason, staff of the treatment unit should not take part in the routine rotation of staff that is practiced in many hospitals. If staff must be changed, this should be done one person at a time to minimize disruption of routines in the unit and allow mentoring and learning for the new staff. Staff attitudes can determine whether treatment of the child will succeed or fail. If staff believe that a child is beyond help, they may give less attention to the child. Such children often fail to respond to treatment, which seems to confirm the opinion of the staff. This “clinical prejudice” may be difficult to correct, especially when it reflects the views of the most experienced staff. It is essential to remind staff frequently that each child’s well-being depends on their efforts and that every child must be given their full attention.

Equipment and supplies

Essential therapeutic equipment and supplies need to be secured for in-patient care. Any dysfunction or supply break will compromise quality of care and adherence to medical and dietary treatment protocols.

MUAC tapes must be available. Machines used for weighing children must be calibrated so they do not give misleading information on the progress of children in the facility. Infant weighing scales must measure weight accurately to within 20 g. All weighing machines must be checked and adjusted daily following a standard procedure. Records of daily checks should be kept. Height boards, weight-for-height and length charts and BMI-for-age tables must be accurate. Weighing machines used for preparing therapeutic food or for measuring the ingredients of the mineral and vitamin mix should be checked and adjusted weekly.

Underlying infections

Any failure to diagnose and immediately treat life-threatening and other medical complications, infections or serious underlying conditions (i.e., viral infections, bacterial infections resistant to the antibiotics being used, fungal infections, tuberculosis, HIV/AIDS, schistosomiasis, leishmaniasis, hepatitis, cirrhosis, congenital abnormalities, inborn errors of metabolism) can adversely affect treatment outcome by causing development of a more serious condition, delay in response, non-response, relapse or death. Sometimes as the immune and inflammatory system recovers there appears to be “reactivation” of an existing infection during recovery and this should be recognized quickly and treated accordingly as per specific treatment protocols used for medical complications in the severely malnourished child.

Adherence to treatment protocols

Treatment facilities should comply with medical treatment and fluid management protocols in managing medical complications in children with severe acute malnutrition. Children with SAM managed inappropriately, can have electrolyte imbalances causing fluid overload or re-feeding syndrome.

Food handling and preparation

The treatment facility kitchen should use standard hygiene practices when storing, preparing and handling F75 and F100. Staff should wash their hands with soap after use of toilets/ latrine and before handling the milk diet. If food is prepared in the same kitchen (for caregivers), then it should be thoroughly cooked and served promptly. Any cooked food that will be stored for more than 2 hours should be refrigerated (after allowing it to cool to room temperature) and re-heated until it is thoroughly hot and then allowed to cool before serving. People with infections on their hands should not handle the milk feeds or kitchen food.

All people involved in preparing the milk feed should be checked to ensure that they are following the correct procedures for weighing, measuring, mixing, cooking and storing the product. They should be observed making the feeds, and recipes should be checked to ensure they are correct, and all ingredients are added.

Some children may fail to respond when a limiting nutrient in the body has been “consumed” by the rapid growth and is not being supplied in adequate amounts by the diet. This is uncommon with diets prepared correctly using WHO standard products (i.e., F75, F100) but may well occur when these products are reconstituted incorrectly in the facility, where untried local recipes are introduced or sharing of the mother’s food is common practice.

Adherence to feeding schedule

Sufficient time must be allocated to feed each child, and adequate staff, day and night, should be allocated for this task. Feeding a malnourished child takes more time and patience than feeding a normal child. If children are fed inappropriately or without special care they can aspirate the milk feed into the lungs. If it takes about 15 minutes to feed each child and food is given every 3 hours, one person is needed, day and night, to feed 12 children. When food is given every 2 hours, more staff are needed. If there are not enough staff, treatment of a child may fail because insufficient time is taken for feeding. Having mothers help feed their children can relieve this situation. Mothers should be supported for correct feeding. All caregivers of severely malnourished children should be enabled to feed and care for their children during treatment through the provision of advice, demonstrations and health and nutrition information.

Inadequate individual case monitoring, quality improvement and quality performance monitoring

Failure to complete the multi-chart correctly and/or use of traditional hospital records can be a cause for failure to respond. **See Section 8: Programme Management** for more information on individual monitoring as well as supervision for quality control and improvement. Psychosocial support for mothers and children should be routinely included in both in-patient and out patient programmes for the treatment of SAM.

Actions required when failure to respond has been diagnosed

- Record on the multi-chart the diagnosis and refer the child to a more senior and experienced staff.
- Examine the child carefully, take a complete medical history and complete appropriate laboratory tests (i.e., chest x-ray, blood/urine/stool/cerebral spinal fluid/tracheal aspirate cultures and microscopy) and fill the clinical history and examination form.
- Refer children with chronic conditions (i.e., congenital heart disease, neural tube defects, cerebral palsy, broncho-pulmonary dysplasia, chronic renal failure) to the appropriate pediatric ward under the care of the pediatrician. These children are referred out of the programme and all further management decisions and treatment will be under the direction of another service.
- Systematically consider and address the common causes listed in the box above (e.g., Is the child receiving some other type of traditional medicine that may be causing toxicity?)

Are the scales re-calibrated appropriately? Are staff supervised adequately and given refresher trainings as needed?).

- If the above investigations are not immediately successful, then an external evaluation by someone experienced in managing a programme for the treatment of severe malnutrition should be requested.

2.10 Care of the Caregiver

Often times, caregivers are faced with the daunting task of leaving behind their day to day tasks to be admitted with the severely malnourished child for the required number of days until stabilization is achieved. Successful treatment outcomes also depend on the ability of the caregiver to adequately complement the medical team

“Successful treatment outcomes also depend on the ability of the caregiver to adequately complement the medical team interventions”

interventions and provide the additional care and support to the child while maintaining a relative sense of control over their own well-being. It is therefore important that during admission and while in the facility, care arrangements are discussed individually with the care giver to understand their situation and establish acceptable alternative options to accommodate their other responsibilities. Where both parents exist, the facility in charge should discuss the options available especially where other children have been left at home and need care from the mother who is the primary caregiver. Similarly, the facility should try and ensure it can accommodate the care giver, providing a space and place to sleep with the child and meals for the period of admission. These are factors that have often made caregivers uncomfortable with the option of admission. The facility staff should also ensure that they communicate in a respectful and supportive manner as opposed to being impersonal. They need to at all times engage with the caregiver, explain procedures, test results and progress of the child in a clear manner, this is more so important where negative outcomes are being noted. It is crucial that the caregiver’s role in the treatment is emphasized and supported. In situations where the caregiver’s psychological status is being questioned, it is then important, that they are supported through counselling or other available options.

2.11 Sensory stimulation and emotional support

Stimulation improves appetite and accelerates recovery (weight gain) in children with malnutrition (Nahar et al., 2009 & 2012), reduces maternal depression, which is responsible for 29% of cases of low growth (Surkan et al., 2012). Typically, stimulation is only included in the final stages of the recovery period prior to discharge. However, sensory and physical stimulation should be provided to the children throughout the period they are in inpatient care as soon as they have been stabilized and should continue at home after discharge. Such continued stimulation may buffer children against developmental delays that arise as a consequence of being severely malnourished. Therefore, it is important to ensure that a child is exposed to care and affective stimuli that favor complete recovery through the following;

- A cheerful, stimulating environment in the ward in which malnourished children receive treatment.

- Counselling on stimulation integrated into a nurse or other service provider's daily routine, where s/he models to the caregiver how to play and communicate with the child.
- Support for the caregiver to replicate stimulating activities modelled by the nurse or other service providers.
- Maternal involvement, when possible, for comforting, feeding, bathing, and playing with the child

2.11.1 The Environment

- The pediatric ward should have bright/vivid colors, with decorations that interest children (cheerful decorations).
- The atmosphere should be relaxed, cheerful, and welcoming.
- Do not restrict children's movement.

2.11.2 Play Activities

- The mother should engage with the child by talking, singing, playing simple games, massage, tickling, gentle movement of the child's limbs, and gazing into the child's eyes with a smile. For very young children or those that are extremely weak or early in the recovery phase, massage, touching, tickling, and gentle manipulation of limbs are recommended. 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 ward to keep them busy and stimulate them, as well.

Suggested Physical Activities

For children that are weak and early in the recovery process:

- Massage the child gently.
- Gently manipulate the child's limbs and apply gentle pressure on the child's palms, toes, fingers, and feet.
- Tickle the child.
- Allow the child to feel and touch different objects.

For children that are stronger or those that are further in the recovery process:

- 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.

Toy Kit in Pediatrics

- Colorful mobile hanging above the beds.
- Cloth or handkerchief with vivid colors.

- Rag dolls, plate, spoon, glass.
- A ball (can be recycled material).
- Stand/s to push and pull.
- Blocks or cups for stacking.
- Homemade rattles.
- Bottles with colorful springs or rings to stick and remove.
- Book/s, cutouts of drawings; material to draw.
- Puzzle/s with homemade parts 2-10.
- Caps of different colors (10-15) to group etc.
- Box or other container (put and take blocks etc)

2.12 Emotional and physical stimulation of children

Severely malnourished children have delayed mental and behavioral development which, if not treated, can become the most serious long-term result of malnutrition. Section 5.3 of the WHO 1999 guidelines²² recommends integrating both emotional and physical stimulation into the treatment of severely malnourished children to reduce the risk of permanent mental retardation and emotional impairment, to promote the development of the child's motor skills and to enhance growth in the rehabilitation phase. A summary of the recommendations in the guidelines are as follows:

- The mother/ caregiver is a key resource person and partner with the medical team and should remain with the malnourished child.
- Sensory deprivation should be avoided.
- Centers should be decorated with the interests of children in mind.
- The number of adults interacting with the child should be kept at a minimum and contacts should be warm and affectionate.
- Local toys should be available.
- There should be both informal group play and individual play activities.
- Physical activity should be encouraged.
- Parenting skills should be taught to help prevent malnutrition.
- The home should be visited by medical or paramedical personnel before discharge to prepare for the child's reintegration into the home.

The 2003 WHO "Guidelines for the In-patient Treatment of Severely Malnourished Children"²³ provide a much more comprehensive list of activities. Both of these guidelines suggest activities based on children staying in in-patient care throughout their treatment process, which is no longer the case for most children who are now transferred to out-patient therapeutic programmes. Health facility staff together with CHAs and CHVs should consider ways to adapt the above activities during weekly clinic visits, home visits or by setting up caregivers group sessions.

²²WHO. (1999) Management of severe malnutrition: a manual for physicians and other senior health workers. Geneva: World Health Organization.

²³WHO. (2003) Guidelines for the in-patient treatment of severely malnourished children. Report No.: ISBN: 92 4 154609 3.

2.14 Discharge

Discharge for in-patient care refers to the complete resolution of all medical complications, regained appetite, resolved oedema and subsequent referral or transfer of the child with acute malnutrition to outpatient care facilities. Where there is no outpatient facility, the child will stay in the in-patient facility until they are fully cured of malnutrition and medical complication.

2.14.1 Cured

Children with severe acute malnutrition should only be discharged from treatment as cured when their:

- Weight-for-height/length \geq -3 z-score and they have had no oedema for at least 2 weeks, or
- MUAC is \geq 11.5 cm and no oedema for at least 2 weeks
- Clinically well and alert
- Children admitted with only bilateral pitting oedema should be discharged from treatment based on whichever anthropometric indicator, MUAC or weight-for-height is routinely used in programmes and no oedema.

The same anthropometric indicator that is used to confirm severe acute malnutrition should also be used to assess if a child has reached nutritional recovery (i.e. if MUAC is used to identify a child with SAM, MUAC should be used to assess and confirm nutritional recovery. If WHZ is used identify a child WHZ should be used to assess and confirm nutritional recovery).

Other children that are discharged but did not meet the discharge cured criteria (thus did not recover) are children who:

- DEATH, died while in treatment
- DEFAULTER, or were absent for two days
- NON-RESPONSE did not recover or did not meet the discharge criteria after two months in treatment.

Most children should not be discharged from in-patient but should be transferred to OTP from transition phase. The following discharge criteria are used for those children who complete the full treatment in in-patient care due to exceptional circumstances such as the child cannot eat RUTF, RUTF is not available or a social reason.

Table 2.17: Discharge criteria for recovered children⁹

<i>The child is...</i>	<i>If the following exists...</i>
Cured	<ul style="list-style-type: none">• $>$ -3 Z-score²⁴• MUAC $>$ 11.5cm (6- 59 months) and• No oedema for at least two weeks

²⁴ Ideally, children should be referred for supplementary feeding once discharged from inpatient and outpatient therapeutic care.

2.14.2 Medications to Administer on Discharge

- Measles vaccine if the child is older than 6 months (this needs to be one month apart from the measles vaccine that was given on admission).

2.14.3 Discharge Procedures

The following elements should be addressed before the child is discharged:

- Provide feedback to the caregiver on the final outcome of treatment.
- Counsel caregiver on good feeding and care practices, including on providing and preparing appropriate complementary food.
- Ensure caregiver understands importance of follow-up care to prevent relapse (e.g., enrolment in supplementary feeding and other child health and nutrition programmes).
- Note discharge outcome in register and treatment card.
- Advise the caregiver to immediately go to the nearest health facility if child refuses to eat or has any of the following signs:
 - High fever
 - Frequent watery stools or stools with blood, diarrhoea lasting more than four days
 - Difficult or fast breathing
 - Vomiting
 - Not alert, very weak, unconscious, convulsions
 - Bilateral pitting oedema

Section Three:

Management of Severe Acute Malnutrition in Infants Less Than Six Months

3.1 Infants Less Than Six Months with a Prospect of Being Breastfed

3.1.1 Overview

Mothers should exclusively breastfeed their babies for the first six months of life. This means that the babies should not get any other milks, foods or liquids, not even sips of water. After six months' breast milk alone is not enough and therefore infants need to gradually start eating a variety of foods for optimal growth and development. Breast milk continues to be an important part of the diet until the baby is at least two years old.

Before six months of age, physiological processes including thermoregulation, and renal and gastrointestinal functions are relatively immature compared with older children and may require modified management approaches or clinical interventions. Clinical signs of infection and hydration status therefore may be more difficult to identify and interpret in the younger infant, and therefore the need for in-patient management with skilled health staff.

Mothers who are HIV-positive should breastfeed their infants exclusively for the first six months of life and start complementary feeding at six months with continued breastfeeding up to two years. However, the mother and infant should adhere to antiretroviral therapy and prophylaxis respectively as per the current national ART guidelines.²⁵

Infants less than six months who are malnourished are always treated in an in-patient unit. They should not be admitted to an out-patient treatment facility as RUTF is not suitable for infants less than six months.

Infants who are malnourished are weak and often do not suckle strongly enough to stimulate adequate production of breast milk. The mother often thinks she has insufficient breast milk and is apprehensive about her ability to adequately feed her child. Breast milk supply is demand-led, the more the baby breastfeeds, the more breast milk the mother will produce.

²⁵ Kenya National Policy: Maternal, Infant and Young Child Feeding, 2019

For children under the age of six months, the main admission criterion is; Weight for Age/Weight for Length (WFA/WFL \leq -3 z-score) and/or any clinical condition or medical complication, recent weight loss or failure to gain weight; failure of effective feeding (infant too weak to suckle); bilateral pitting oedema and the main discharge criterion is medical complication resolving and gaining weight on breast milk alone.

The objective of treatment of acute malnourished infants less than six months is to return them to full exclusive breastfeeding.

Table 3.1: Criteria of admission, Infants with a prospect of being breastfed

AGE	Admission Criteria
Infant less than 6 months	<ul style="list-style-type: none"> ● WFL/WFA, <-3 z scores ● Presence of bilateral pitting oedema ● The infant is too weak or feeble to suckle effectively ● Recent weight loss or failure to gain weight per WHO weight velocity standards

3.1.2 Nutrition Support: Diet, Frequency and Suckling Technique

The aim of nutrition rehabilitation is to stimulate breast-feeding and to supplement the breast milk until the breast milk alone is sufficient to allow the child to grow properly. Breast milk output is normally stimulated by the baby feeding at the breast. When the baby has not been feeding well and lactation has reduced, there is a need to support breastfeeding with the Supplemental Suckling (SS) technique as discussed in this section (See Figure 3.1).

Diet and Frequency

It is important to put the infant to the breast as often as possible.

- Breastfeed every three hours for at least 20 minutes, more often if the child cries or seems to want more.
- Between 30 minutes and one hour after a normal breastfeed, give maintenance amounts of F100 Diluted using the SS technique.
F100 Diluted: 130ml/kg/day (100kcal/kg/day), divided in eight meals (See Table 3.2).
- Infants should be nursed in a separate space in pediatric ward from the older malnourished children. It is important that these infants are not put at high risk of cross infection from older sick children.

There are no separate phases in the treatment of infants <6months with the SS technique. There is no need to start with F75 and then switch to F100 Diluted unless the infant has severe oedema

Preparation of F100 Diluted

Diluted F100 is used as one of the therapeutic diet strategies for infants under 6 months with severe acute malnutrition in inpatient care. It is critical that these infants receive F100 that is correctly diluted to reduce the risk of hypernatremia. Diluting F100 feeds reduces the renal solute load and helps the infants survive. In preparing diluted F100, follow instructions on the label first. (See details on preparation in this section).

If F100 Diluted is not readily available, the infant can be fed with the same quantities of age appropriate commercial infant formula, constituted according to the instructions on the tin. **However, infant formula is not designed to promote rapid catch up growth.**

Note: Unmodified powdered whole milk should not be used.

Quantity of F100 Diluted

It is important to feed these children often as they are small and will only take small quantities. Feed every three hours. The quantity of F100 diluted to give to a malnourished infant is calculated depending on the body weight (See Table 3.2). The quantity is NOT increased as the infant starts to gain weight.

Table 3.2: Quantity of F100 diluted to give to infants with a prospect of being breastfed, per kg of body weight.

Class of Weight (kg)	Mls of F100 diluted per feed (8 feeds/day)
Wt of Child (kgs)	Diluted F100
>=1.2 kg	25 ml per feed
1.3 to 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

Children less than six months **with oedema** are started on F75 and not on F100 Diluted. When the oedema has resolved and the child suckles strongly, he/she is changed to F100 Diluted or infant formula.

Note: F100 undiluted is never used for infants less than 3kg.

Regulating Quantity of F100 Diluted

The child's progress is monitored by his/her daily weight:

- If the child loses weight over three consecutive days yet seems hungry and is taking all the F100 Diluted, add 5mls to each feed²⁶
- In general, the supplementation is not increased during the stay in the center. If the child gains weight with the same quantity of milk, it means the quantity of breast milk is increasing.

²⁶ The Supplemental Suckling feed is giving maintenance amounts. If it is being taken and there is weight loss, either the maintenance requirement is higher than calculated or there is significant mal-absorption.

- If after some days, the child does not finish all the supplemental milk, but continues to gain weight, it means that the breast milk is increasing, and that the child has enough.
- Weigh the child daily with a scale graduated to within 10g or 20g.

When a baby is gaining weight at 20g per day (irrespective of his/her weight):

- Decrease the quantity of F100 Diluted to a half of the maintenance intake.
- If the weight gain is maintained (10g per day whatever his weight) then stop supplemental suckling completely.
- If the weight gain is not maintained, then increase the amount given to 75% of the maintenance amount for two to three days and then reduce it again if weight gain is maintained.
- If the mother is agreeable, it is advisable to keep the child in the center for a further few days on breast milk alone to make sure that s/he continues to gain weight. If the mother wishes to go home as soon as the child is taking the breast milk hungrily then they should be discharged.
- When it is certain that the child is gaining weight on breast milk alone s/he should be discharged, no matter what his current weight or weight-for-length.

Supplemental Suckling Technique

The supplementation is given using a tube the same size as n°8 NGT (a size n°5 tube can be used). Cut the tip of the NG tube back beyond side pores on the tube if these pores exist.

1. F100 Diluted or formula milk is put in a cup. The mother holds it.
2. The end of the tube is put in the cup.
3. The tip of the tube is put on the breast at the nipple and the infant is offered the breast in the normal way so that the infant attaches properly. Sometimes at the beginning the mothers find it better to attach the tube to the breast with a piece of tape.
4. When the infant suckles on the breast with the tube in his mouth, the milk from the cup is sucked up through the tube and taken by the infant. It is like taking a drink through a straw.
5. At first the health worker needs to help the mother by holding the cup and the tube in place. He/ She encourages the mother confidently. Later the mother nearly always manages to hold the cup and tube without assistance.
6. At first, the cup should be placed at about 5 to 10cm below the level of the nipple so the milk does not flow too quickly and distress the infant, and the weak infant does not have to suckle excessively to take the milk. As the infant becomes stronger the cup should be lowered progressively to about 30cm below the breast.
7. The mother holds the tube at the breast with one hand and uses the other for holding the cup.

Notes:

- It may take one or two days for the infant to get used to the tube and the taste of the mixture of milks, but it is important to persevere.
- By far the best person to show the mother the technique is another mother who is using the technique successfully. Once one mother is using the SS technique successfully the other mothers find it quite easy to copy her.
- The mother should be relaxed. Excessive or officious instructions about the correct positioning or attachment positions often inhibit the mother and make her think the technique is much more difficult than it is. Any way in which the mother is comfortable and finds that the technique works is satisfactory.

- If the formula diet (therapeutic milk or infant formula) is changed then the infant normally takes a few days to become used to the new taste. It is preferable to continue with the same supplementary diet throughout the treatment.
- Encourage the mother to talk and sing to her child while breastfeeding and to maintain eye contact.
- Encourage the mother to gently massage and tickle the child and manipulate her/his limbs.

Figure 3.1: Supplemental Suckling Technique



This infant is suckling the breast and also getting the F100 Diluted (130ml/ kg/day) by the Supplemental Suckling technique. Raising or lowering the cup determines the ease with which the infant gets the supplement: for very weak infants it can be at the level of the infant's mouth. If it is above this level the feed can go into the child by siphonage when there is a danger of aspiration

Cleaning the tube:

After feeding is completed the tube is flushed through with clean water using a syringe.

3.1.3 Routine Medication

Antibiotics:

The antibiotics should be given parenterally to treat possible sepsis and appropriate treatment for other medical complications. Use the **Current pediatrics protocol guidelines**

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

Second line if required: Gentamycin for severe infections (do not use Chloramphenicol in infants)

3.1.4 Daily Monitoring

Each day:

- These children must be seen by a health worker every day because they are vulnerable.
- Take child's body temperature twice a day.
- Weigh the child and record the weight. Plot weight on the Multi-chart. **(See Annex 6 for Multi-chart).**
- Assess and record the degree of oedema (0, +, ++, +++).
- Record the child's fluid intake and route (oral, NG tube or IV fluids). Record if child is absent at mealtime, has refused diet or has vomited. Document the information in the multi-chart to monitor ongoing progress.
- Assess and note in the Multi-chart standard clinical signs (number of stools passed, vomiting, dehydration, cough, respiration and liver size).

3.1.5 Care of the Mother

Psychological support must be offered to mothers who are breastfeeding, especially in stressful situations. The focus should be directed to the creation of conditions that will facilitate and increase breastfeeding such as the establishment of "safe corners of breastfeeding for mothers and babies, individual counselling and support among mothers. Traumatized and depressed women may have difficulty in breast-feeding their children and need emotional and mental support to encourage breastfeeding.

The aim is to return to full exclusive breastfeeding, the mothers' well-being is important and health workers should adequately support the mother. The following should also be ensured:

- Check mother's MUAC and the presence of oedema.
- Undertake psychosocial assessment and care of the mother as some women experience postpartum depression.
- Explain to the mother what the aim of treatment is and what is expected of her.
- Do not make the mother feel guilty for the state of her child or blame her for giving other foods.
- Strongly reassure the mother that the technique works and that she will produce enough milk to make her baby better.
- Be attentive to her and introduce her to the other mothers in the phase.
- She should drink at least two (2) litres of fluids per day.
- She must eat enough - about 2500kcal/day (three meals a day including two healthy snacks mid-morning and afternoon).

The length of stay in the in-patient facility should be as short as possible.

3.1.6 Discharge Criteria

Table 3.3 Discharge criteria, infants with a prospect of being breastfed

AGE	Discharge Criteria
Infant less than 6 months	<ul style="list-style-type: none"> ● It is clear that he/she is gaining weight on breast milk alone (20g/day) after the Supplementary Suckling technique has been stopped for 3 consecutive days. ● Infant clinically well and alert ● Infant has no medical problem and oedema is resolved completely.

Note: There are no anthropometric criteria for discharge of the fully breast-fed infant who is gaining weight.

3.1.7 Follow – Up

The follow-up for these children is very important. The mother should be enrolled for a supplementary feeding programme if it exists and receive high quality food ration to improve the quantity and quality of breast milk and psychosocial support system. It is also

important to monitor the infant’s progress, support exclusive breastfeeding and inform the mother on when to introduce appropriate complementary food at the age of six months.

3.2 Infants Less Than Six Months without Prospect of Being Breastfed

3.2.1 Overview

There are special circumstances where exclusive breastfeeding is not possible. These include abandonment, a child being orphaned, and medical conditions. When there is no prospect of being given breast milk, then severely malnourished less than six-month-old infants are treated according to the standard protocols of management of severe acute malnutrition in Phase 1, Transition and Phase 2 detailed in Section Two. However, the following dietary modifications explained here must be applied. The admission criteria are the same as the other malnourished infants; however, discharge criteria are different as explained below.

3.2.2 Admission Criteria

Table 3.4: Criteria of Admission²⁷, infants without a prospect of being breastfed

AGE	Admission Criteria
Infant less than 6 months with no prospect of being breast-fed	<ul style="list-style-type: none"> ● WFL/WFA <-3 z-score ● Presence of bilateral pitting oedema. ● The infant is too weak or feeble to feed. ● Recent weight loss or failure to gain weight per WHO weight velocity standards

3.2.3 Nutrition Support: Diet and frequency

Phase 1

- Wasted, marasmic infant less than six months old can be given F100 Diluted.
- Oedematous infants of less than six months are always given F75.

Table 3.5: Quantity of F100 diluted or F75 to give to infants without a prospect of being breastfed in Phase 1, per kg of body weight.

Class of Weight (kg)	MI of F100 per feed in Phase 1 (Feeds/ day: 8)
Wt of Infant	Diluted F100
=< 1.5 kg	30

²⁷ There are no standards for infants below 49cm and the increments to judge nutritional status require precise scales that are not generally available. The in-patient therapeutic unit is not appropriate for treating premature and low-birth-weight non-breast-fed infants below 49cm in length. These infants should be referred to the nursery and given infant formula

1.6 to 1.8 kg	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

Transition Phase

Children less than six months with oedema should be given F75 and not F100 Diluted

During Transition Phase, only F100 Diluted is used. The volume of the diet is increased by one third. These small infants are not treated with full-strength F100.

Phase 2

During Phase 2, double the volume of F100 Diluted that was given during Phase 1.

Table 3.6: Amount of F100 to give to infants without a prospect of being breastfed in Phase 2, per kg of body weight

Class of Weight (kg)	ml of F100 per feed in Phase 2 (8 feeds/day) diluted F100
=< 1.5 kg	60
1.6 to 1.8 kg	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

Preparation of F100 Diluted

Example: How to make F100 feed
Weight of Child: for a child with a weight for example of 4kgs:

Check Table 3.6 above to determine the volume of feed needed (140mls of F100).

- To make 140mls of F100 feed, see the instructions on the canister label - 4 scoops of F100 powder using 100 mls of water. This will make up 114ml of normally reconstituted F100
4 scoops of F100 + 100 mls water = 114 mls of normally reconstituted F100.
- Now that the F100 reconstituted is ready following the label instructions; add an extra 30% of water.
- To calculate how much the extra 30% water is; enter the amount of water for the usual preparation of F100. In this case it is 100 mls X 30% = 30 mls water of extra water added into the already made up F100.
- Add 30 Mls of hot water (temperatures above 70°C) into the prepared F100.
- Give the feed to the child and discard any milk that is not consumed within 2 hours after preparation.

3.2.4 Routine Medication

Routine medicine is the same as for infants under six months who are breastfed.

3.2.5 Daily Monitoring

Daily monitoring is the same as for Phase 1, inpatient care in Section Two.

3.2.6 Criteria for Discharge

Table 3.7: Discharge criteria, infants without a prospect of being breastfed

AGE	Discharge Criteria
Infant less than 6 months with no prospect of being breast-fed	The infant can be discharged once he or she is in phase 2 and meets the following; It is clear that he/she is gaining weight (20g/day) for 3 days consecutive days. <ul style="list-style-type: none">● Introduce infant formula● Infant clinically well and alert● Infant has no medical problem and oedema is resolved completely.

Note:

For orphaned, abandoned children link to social worker for further support

3.2.7 Follow - Up

Follow up of these children is very important and needs to be organized between the care giver and the health staff at the MCH clinic. With the absence of breastmilk, the infant should be introduced to infant formula to prevent relapse. Nutrition counselling for the mother or caregiver is essential. A child that has been exposed to HIV during the perinatal period, should be linked to timely HIV exposed Infant (HEI) interventions and Early Infant Diagnosis (EID) at six weeks of age through DNA Polymerase Chain Reaction (PCR) testing according to the PMTC guidelines. and receive close follow-up for prevention and growth monitoring, prophylaxis and early referral to assess the need for ART support.

Section four:

Out-patient Management of SAM without Medical Complications for children 6 to 59 months

4.1 Overview

Children with severe acute malnutrition can be treated as out-patients in the community and health facility. The objective of out-patient management of severe acute malnutrition is a more widespread access to treatment by establishing the appropriate facilities within or closer to more communities. Out-patient therapeutic care should be less than 5 kilometers from communities where malnutrition is commonly found. If health facilities are greater than 5 to 10 (maximum) kilometers from a community where acute malnutrition is commonly found, then an outreach site should be established and linked with the health facility. The distance and time that individuals have to travel is a major determinant of coverage, defaulting rate and reputation of the whole programme.

Community Health Volunteers (CHVs) must be trained to screen, monitor, follow-up and refer malnourished children in the community. Uncomplicated cases of severe malnutrition - children who have a good appetite; are free from medical complications; and do not have moderate/severe oedema - can be treated with routine drugs and the relevant quantity of ready to use therapeutic food (RUTF) at home.

Out-patients attend a health facility weekly for monitoring and to replenish RUTF supply. Health staff at the health facility must be trained on the treatment of severe acute malnutrition.

4.2 Admission Process

- ✓ Take the child's weight and height/length and calculate weight-for-height (Z-scores).
- ✓ Check for oedema.
- ✓ Measure and record MUAC in centimeters to the nearest tenth (cm)
- ✓ Assign a unique nutrition registration number and register in the registration book.
- ✓ Check immunization status as per schedule.
- ✓ Check HIV/TB status
- ✓ Give routine medications according to Table 4.3.

4.3 Requirements for Outpatient Therapeutic Care

4.3.1 Health Facility Requirements

- A health worker trained in the management and treatment of acute malnutrition in the community.
- The health staff at the health facility must have the capacity to conduct weekly assessment, monitoring, and treatment services for children with severe acute malnutrition.
- Availability of adequate medical and anthropometric equipment including weighing scales, height boards, weight-for-height reference charts, and MUAC tapes.
- Routine medicines including antibiotics, antihelminths and vitamin A. Medical equipment such as a thermometer and a stethoscope or clock to count respirations.
- OTP registration book (MoH 409), cards for recording the children information and monthly IMAM summary tool (MoH 713) and Commodity reporting tool (MoH 734).
- An adequate supply of ready-to-use therapeutic food (RUTF) (**See Annex 19** on units required per treatment to calculate monthly requirements depending on number of children).

4.3.2 Community Requirements

- Community members who are committed and who understand the risks of acute malnutrition; the importance of nutrition rehabilitation for malnourished children within the community; and the benefits of out-patient treatment of acute malnutrition in the community.
- Well-trained CHVs on screening and referral of malnourished children.

4.4 Admission Criteria

The anthropometric criteria as provided in Table 4.1.

- A good appetite (conduct the **Appetite Test, Annex 4**).
- No medical complications
- No severe oedema (do not have ++ or +++ oedema)
- In-patients who are recovering sufficiently and meet the above criteria may be transferred to out-patient therapeutic care after completing Transition Phase.

Table 4.1: Summary of criteria for admission to out-patient therapeutic care

<i>Criteria for admission</i>	<i>Out-patient therapeutic care</i>
Anthropometric criteria 6 months to 59 months	<ul style="list-style-type: none">● W/H < -3 Z-score● MUAC < 11.5cm (age >6 months)
Bi-lateral Oedema	Bi-lateral pitting oedema Grade 1 (+) only
Appetite Test	Passes appetite test
Home care situation	Reasonable home circumstances and a willing caregiver
Skin	No open skin lesions

Medical complications²⁸	Alert and no medical complications
Others	Visually emaciated second twin

4.5 Nutrition Support: Diet and Frequency

Nutrition rehabilitation in the **community** and health facility is effective when the child receives a weekly supply of take home Ready to Use Therapeutic Food (RUTF). This is a specialized food developed specifically for the recovery of severe malnutrition at home. It is an energy-dense, mineral/vitamin-enriched product that is equivalent to F100 with added iron. It contains the required energy and micronutrients to meet the nutritional needs of the severely malnourished child. RUTF is an oil-based, ready-to-use product that has a low risk of contamination. It provides approximately 543kcal per 100g. The ration given to a severely malnourished child is based on the intake requirement of between 150-200 kcal/kg/day. The amount of RUTF to be consumed per day is based on the weight of the child (See Table 4.2).

4.5.1 Preparation of RUTF

RUTF is pre-cooked thus does not require preparation. It can be eaten directly from the container or packet.

4.5.2 Quantity of RUTF

The caregiver is given a week's supply of RUTF at each weekly health facility visit. The caregiver is informed how much to give daily. See Table 4.2 for quantities of RUTF to feed for class of body weight. It is better to give the whole packet/sachet to the child rather than taking it out and putting on a plate or other container. Cut the top of the packet and the child can eat directly from the packet. This is safer and more hygienic. Encourage the child to take the RUTF slowly through the day and to drink plenty of water. If the child is still breast feeding, breastfeed before giving RUTF.

Table 4.2: Quantity of RUTF per class of body weight, daily and weekly

Class of weight (kg)	RUTF (Plumpy'nut®)		RUTF (BP - 100)	
	sachet per day	sachet per week	Bars per day	Bars per week
3.5 - 3.9	1.5	11	2	14
4.0 – 5.4	2	14	3	21
5.5 – 6.9	2.5	18	4	28
7.0 – 8.4	3	21	5	35
8.5 – 9.4	3	21	6	42
9.5– 10.4	3.5	25	7	49
10.5 – 11.9	4	28	8	56
≥ 12	4	28	9	63

**Table from Community-based Therapeutic Care, A Field Manual, first edition, 2006*

²⁸ Refer to medical complications in Section 2

4.6 Routine Medication

Give routine medication to all severe acutely malnourished children admitted to out-patient therapeutic care (See Table 4.3). Where possible, medications are given as a single-dose treatment so that the health worker can observe administration and avoid problems with compliance. The one exception is the first-line antibiotic (amoxicillin): the first dose should be given in front of the health worker who explains to the parent/caregiver how to continue treatment at home.

Additional medication may be prescribed to treat other medical problems as required.

4.6.1 Vitamin A

- **Do not give Vitamin A routinely on admission or on discharge from out-patient therapeutic programme** as there is sufficient vitamin A in the RUTF to treat sub-clinical vitamin A deficiency.
- Do not keep any child with clinical signs of vitamin A deficiency as an outpatient; the condition of their eyes can deteriorate very rapidly and they should always be

Do not give vitamin A routinely on admission or on discharge from in-patient therapeutic programme. There is sufficient vitamin A in the RUTF to treat sub-clinical vitamin A deficiency.

transferred for in-patient management.

4.6.2 Iron and Folic Acid

Not to be given routinely. Where anaemia is identified according to IMNCI guidelines, treatment should begin after 14 days' care and not before. It should be given according to National/WHO Guidelines. For severe anaemia, refer to inpatient care.

4.6.3 Antibiotic

First line choice is amoxicillin as it is effective against small bowel overgrowth associated with malnutrition. If a child is on cotrimoxazole prophylaxis, this should continue throughout at the same dose, while amoxicillin one-week-dose is added.

4.6.4 Measles

Give measles vaccine to children over the age of 9 months and without a vaccination card **during their 4th visit**; and give a second dose to those that have been given measles vaccine as in-patients when severely malnourished with complications (in stabilization phase). Do not give measles vaccine on admission to children directly admitted to OTP, they are unlikely to be incubating measles²⁹.

Note: Measles vaccine on admission to OTP is thus omitted except in the presence of a measles epidemic, because the antibody response is diminished or absent.

OTP children who develop acute diarrhoea should be referred to in patient treatment.

²⁹ If they are incubating measles they are likely to fail the appetite test.

Table 4.3: Drug regime for OTP children

<i>Direct admission to out-patient therapeutic care</i>	
Amoxicillin	Give first dose at the health facility and give remainder of treatment to the parent/caregiver with instructions to give twice daily for seven days at home.
Malaria	<p>Children with SAM should be diagnosed and treated for malaria in line with the national malaria guidelines.</p> <ul style="list-style-type: none"> • All children with fever or history of fever should be tested for malaria and only those who test positive should be treated for malaria. All children should also be assessed for other conditions that may cause fever and be managed accordingly. • The recommended first line treatment for uncomplicated malaria in Kenya is artemether-lumefantrine (AL) currently available as a co-formulated regular or child friendly dispersible tablet containing 20 mg of artemether and 120 mg of lumefantrine. This is administered as a 6-dose regimen given over three days. • Children with malaria and HIV/AIDS should be managed according to the same regimen above. • For children <24kg, dispersible tablets should be administered where available. • Place the tablet in a cup or spoon, add a little water to it, wait a few minutes for tablets to disperse and then administer the resulting suspension to the child. <p>See Section 2, Table 2.4 for dosage schedule.</p>
Measles (children 6 months and older)	1 vaccine on the fourth week (fourth visit)
Deworming (children >1-year-old)	1 dose (Mebendazole or Albendazole) on the second week (second visit)

4.7 Registration

All admission and discharges should be noted in the register (**MoH 409, See Annex 12**). The observation column should be used to add information about the home situation (e.g. orphan, twin, IDP) or additional medical information (e.g. HIV status, if on TB treatment). A unique registration number is given to each child when the child is first admitted for supplementary feeding, out-patient therapeutic care or inpatient therapeutic care. Each registration number is made of 3 parts, for example:

12345/003/OTP

- **12345(Master facility code):** refers to the code of the health facility (or site) where treatment is provided.
- **003:** is the number allocated to the child (this runs in sequence from the previous child registered at that health facility or site).

- **OTP:** refers to the programme component where the child entered. This could equally be Inpatient or SFP.

To ensure that the children can be tracked, the full number allocated when a child enters a programme is retained until the child is discharged.

To facilitate tracing and follow-up in the community, all registrations should follow this numbering system. It should be quoted on all records concerning the child i.e. OTP, SFP cards, registration books, ration cards, transfer slips and identity bracelets if any.

Returning defaulters retain the same number that they were first given, as they are still suffering from the same episode of malnutrition. Their treatment continues on the same monitoring card.

Readmissions after relapse are given a new number and a new card as they are suffering from a separate episode of malnutrition and therefore require full treatment again.

4.8 Weekly Monitoring

Table 4.4: Monitoring tasks and frequency

<i>Task</i>	<i>Frequency</i>
Child attends health facility	Weekly
Child receives replacement RUTF	Weekly
Health worker checks weight	Weekly
Health worker checks MUAC	Weekly
Health worker checks height	Monthly
Health worker checks vital signs: temperature, respiration rate	Weekly
Health worker conducts Appetite Test	Weekly
Health worker does medical check and history	Weekly
Health worker fills in OTP card and ration card	Weekly

Health professionals should also counsel the malnourished child's caregiver on age-appropriate stimulation, play, and communication and demonstrate how to develop playthings from locally available materials. For children that are very young or weak and early in the recovery process, such stimulation can take the form of gentle massage, touch, tickling, and manipulation of limbs, along with talking, singing, and making eye contact with the child. For older children or those who are further along the recovery process, stimulation can include the activities, games, and toys/playthings mentioned in **Annex 10**.

4.9 Discharge Criteria

Table 4.5: Discharge criteria

<i>The child is:</i>	<i>If:</i>
Cured	<ul style="list-style-type: none"> ● MUAC \geq 11.5cm and ● No oedema for two consecutive visits³⁰. ● W/H $>$ -3 Z-score

³⁰ This should be 14 days

Defaulted	Absent for three consecutive visits ³¹
Died	Died while registered in the out-patient therapeutic care
Non – Recovered	Has not achieved discharge criteria within four months. Link the child to other programmes e.g. IMNCI, OVC, HBC, ART Clinics, or targeted food distributions.

4.9.1 Discharge Procedures

- Give feedback to the parent/caregiver on the child's final outcome.
- Ensure the parent/caregiver understands importance of follow-up care (supplementary feeding or other programme).
- Give a final ration of seven (7) packets as a weaning off ration.
- Fill in date of discharge on the register.
- Advise parent/caregiver on good nutrition and cooking practices.
- Advise parent/caregiver to return to the health facility if child becomes sick or is losing weight again.
- Refer child to the nearest supplementary feeding programme if available.

4.10 Home Care for the Malnourished Child

4.10.1 The Role of the Parent or Caregiver

Discuss with the parent/caregiver the following points, and make sure they feel confident of their role.

- The quantity of RUTF to give the child daily.
- The severely malnourished child must eat the RUTF ration before other family food is offered.
- Wash child's hands and face with soap before giving RUTF.
- Each morning give a sachet of RUTF to the child and encourage child to take small amounts frequently during the day. Once the sachet is finished give the remainder of the quantity of RUTF prescribed for the day depending on the child's body weight. (See Table 4.2 for quantities of RUTF per kg of body weight.)
- Give plenty of safe drinking water to the child throughout the day (on demand).
- RUTF should never be shared with other members of the family.
- Seek the CHV if concerned with the child's condition (not eating, losing weight, vomiting, diarrhoea, sick, increasing oedema); or go directly to the health centre for medical review and advise.
- Give routine medicines as advised by the health worker.
- Attend the health centre weekly for monitoring and to receive more RUTF supplies.
- Return empty RUTF sachets weekly to replenish RUTF.
- Malnourished children need to be kept warm (ensure child wears plenty of clothes).
- Children with diarrhoea should continue to feed and drink plenty of water.
- Children require age-appropriate stimulation, play, and communication to help them recover faster and develop properly.

4.10.2 Role of Health Worker – General Reminders

- Look over the child's monitoring card with the assigned CHV and highlight areas that will require special attention during the home visits.
- Conduct group health/nutrition education with all the children attending weekly review and replacement food before seeing each individually.

³¹ This should be 21 days

- Link with other community-based support programmes.
- Promote RUTF as medicine and NOT as food to be shared.
- A child who has been in the programme for four weeks with no weight gain, or with weight fluctuating between small gains and losses should be investigated further for medical or social reasons. Special attention must be paid to these children during medical assessment. (See Table 4.6 “Failure to Respond”).
- If a child has any clinical signs that suggest HIV and AIDS, encourage the parent or caretaker to bring the child to early referral for VCT or TB screening.
- Check the child’s developmental milestones to note any notable developmental delays for further follow-up.
- Encourage the mother/caregiver to continue stimulating the child through age-appropriate play and communication even after returning home.

Note: If there is food insecurity in the area, or there is an emergency situation, a “protection” ration (usually CSB or UNIMIX-equivalent to a supplementary feeding ration) should be given to the severely malnourished child’s family. This is to assist the family and also minimize the risk that the RUTF is shared with other family members as well as the child. It is important that the family is registered for a general ration if present (in an emergency context). The parent/caretaker must be reminded that the general ration is not for the child but only for the rest of the family.

Criteria for Transfer: Out-Patient Therapeutic Care to In- Patient Phase 1

Children who develop any sign of a serious medical complication during out-patient therapeutic treatment should be transferred to in-patient Phase 1 until stabilized. Medical complications are listed in Section two, Table 2.1.

If the child develops any of the following, he/she is transferred to the in-patient facility:

- Failed appetite test.
- Increase or development of oedema.
- Development of re-feeding diarrhoea sufficient to lead to weight loss.
- Weight loss for three consecutive weighing, or two weeks.
- Weight loss of more than 5% of body weight at any visit.
- Static weight for three consecutive weighing.
- Fulfilling any of the criteria of “failure to respond” in Table 4.6.

Phase 1 protocol is followed when a child is transferred back to the in-patient unit (See Section 2).

Failure to Respond

For out-patient therapeutic care, a failure to respond diagnosis usually warrants referral to in-patient care for full assessment. If inadequate social circumstances are suspected as the cause, a home visit can be performed before transfer to the in-patient facility.

The CHV should discuss with the parent/caregiver the conditions of the home environment that may be affecting the child’s recovery progress. At each visit to the health facility, the health staff will routinely take vital signs (temperature, pulse and respiration rate) and weight and conduct the appetite test. They will note any issues and work to resolve problems.

A follow-up home visit is essential when:

- The caregiver/parent has refused admission to in-patient care despite advice.
- The caregiver/parent does not bring the child for scheduled appointments at the out-patient programme.

Table 4.6: Failure to respond: out-patient criteria

Out Patient Therapeutic Care	
Criteria for failure to respond	Time admitted
Primary failure to respond	
Failure to gain any weight (non-oedematous children)	3 weeks
Failure to start to lose oedema	3 weeks
Oedema still present	3 weeks
Weight loss since admission to programme (non-oedematous children)	2 weeks
Secondary failure to respond	
Failure of Appetite test	At any visit
Weightloss of 5% of body weight	At any visit
Weightloss for two successive visits	2 weeks

Primary Failure to Respond

For every unexplained primary failure to respond, a detailed history and examination is performed. In particular, check carefully for infection as follows:

1. Examine the child carefully. Re-measure all vital signs including the temperature and respiration rate for signs of infection or underlying medical conditions.
2. Depending on child's signs and symptoms of illness or disease, the following examinations can be considered as appropriate and where laboratory facilities exist: routine urinalysis and culture to examine urine for infection; hematology, blood, spinal fluid and/or sputum cultures for infection; screening sputum or tracheal aspirate for signs of TB; radiography and chest x-ray³². Further, with specific symptoms of enteric conditions, examination of the stool for blood, ova, parasites or culture for type of infection needs to be considered. Examine stool for blood, look for trophozoites or cysts of Giardia; culture stool for bacterial pathogens. Further, diagnostic counselling and testing (DCT) for HIV (or infantile diagnosis using DNA PCR testing), haematological screening for malaria should be considered with related clinical symptoms. HIV, Tuberculosis

Secondary Failure to Respond

Secondary failure to respond is considered when there is a deterioration in the child's condition after an initial response to recovery.

Common causes of a secondary failure to respond:

³²Gastric aspirates are very rarely positive in the malnourished child with active TB, particularly if there is overnight feeding; this test should not be relied on, is difficult to perform well and is traumatic for the child. If it is used, overnight feeds should not be given

- Inhalation of diet into the lungs. There is a poor neuro-muscular coordination between the muscles of the throat and the oesophagus in malnutrition. It is common for a child to inhale food into the lungs during recovery. An advantage to RUTF is that it is less likely to be force-fed and thus inhaled.
- An acute infection contracted or infections limiting food intake and nutrients absorption.
- Sometimes as the immune and inflammatory systems recover, there appears to be “reactivation” of infection during recovery. This means that initially the illness is asymptomatic, but as the child starts to recover these signs become present. This may present with increased temperature, fevers, increased respirations and increased pulse rate. In other words, an underlying infection is initially masked but becomes evident after starting a therapeutic diet. Malnourished children often do not have the same immune responses to disease until nutrition rehabilitation is in progress.
- A limiting nutrient in the body that has been “consumed” by the rapid growth and is not supplied in adequate amounts by the diet. This is not common with F100 or RUTF but may occur with home-made diets or with the introduction of other foods. Frequently, introduction of “family plate,” UNIMIX, or CSB will slow the recovery rate of a severely malnourished child. Recovery rate may slow if the child at home is given family food (the same food that the child was taking when malnutrition developed) or traditional complementary foods such as a watery porridge.
- For children in the out-patient setting, administering of traditional medicine or a change in home circumstances can significantly deter recovery.

It is important to systematically determine the cause of the child’s failure to recover from severe acute malnutrition. Table 4.7 is a checklist of possible reasons for failure to respond. When a child fails to respond to treatment, the common causes must be investigated first.

Table 4.7: Checklist: Possible causes for failure to respond

Out Patient Therapeutic Care
Inappropriate for child to go directly to out-patient therapeutic care
Poorly conducted appetite test
Inadequate instructions given to parent/caretaker
Inaccurate quantity of RUTF dispensed to children
Health facility long distance from child’s home thus they are unable to attend regularly (high rates of absence)
The child
Insufficient food received
Sharing RUTF with other siblings or caregiver
Sharing parent/caregiver’s food
Psychological trauma (particularly refugee situations and families living with HIV and AIDS)
Rumination

Infection, especially malaria, diarrhoea/enteric conditions, respiratory infections/conditions/pneumonia/ tuberculosis, HIV and AIDS, urinary infection/ otitis media, skin or oral conditions/lesions.

Other serious underlying disease: congenital abnormalities (e.g. down's syndrome), neurological damage (e.g. cerebral palsy), inborn errors of metabolism.

Unwilling parent/caregiver

Parent/caregiver overwhelmed with other work and responsibilities

Children who fail to respond to the out-patient therapeutic care are followed up at home to determine the family circumstances, and if there are concerns with the care or sharing of food. After three months of non-response to treatment, these children are referred for further medical review and laboratory tests as required. This will assist in diagnosing underlying illnesses if present. Discharged, non-recovered children must be sent for supplementary feeding, if available, or other support programmes. For children who are HIV positive, care and support for HIV and AIDS is an important part of recovery.

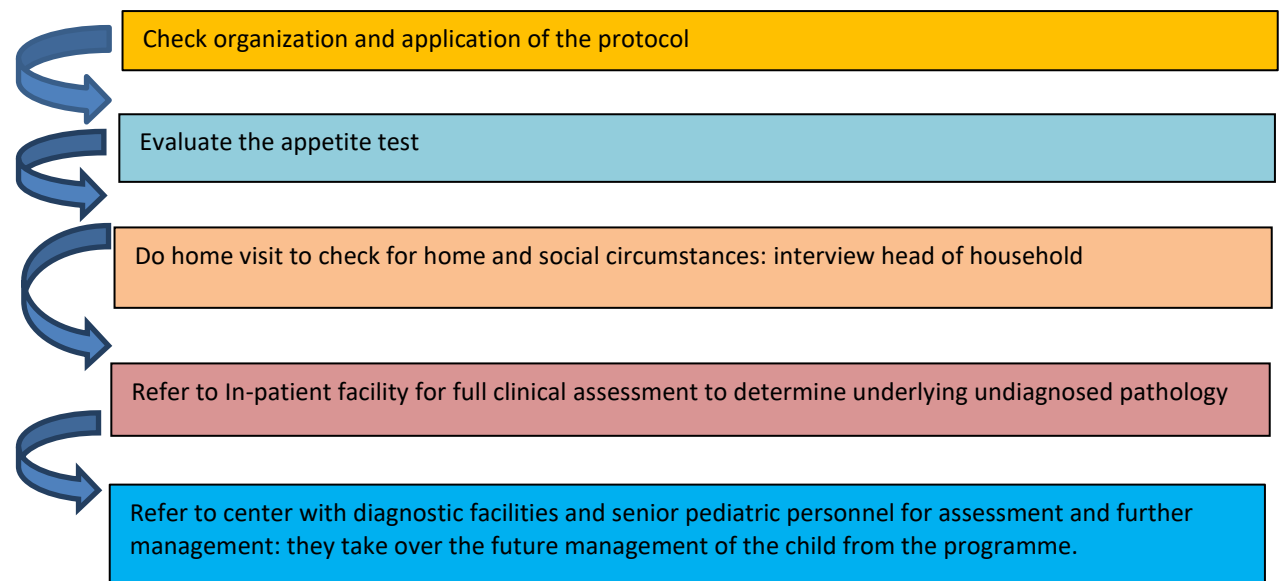
General Failure to Respond

When failure to respond is common among severe acute malnourished children in one health facility, the potential causes in Table 4.7 must be systematically examined to determine and rectify any sweeping problems.

- Review staff qualifications and conduct refresher training as required.
- Re-calibrate scales and length-boards.
- Visit centre to assess routine procedures carried out by staff.
- Monitor routine procedures such as taking weights and heights, giving medications and taking vital signs (temperature, pulse, respirations).
- Health workers should be aware of the possible co-existence of HIV, tuberculosis or, in some counties, Kala Azar, when assessing children and screen more systematically in areas of high prevalence.

Management of failure to respond to treatment

Figure 4.1: Schema to show the steps to be taken for children that fail to respond to treatment in OTP



Additional Note

Where the SAM programme exists without a MAM programme, the discharge criteria for inpatient and OTP should be WHZ >-2 and MUAC >12.5cm

Section Five:

Management of Moderate Acute Malnutrition

5.1 Overview

This section covers the implementation strategies to manage Moderate Acute Malnutrition (MAM) at the health facility and outreaches within the community. In Kenya, management of MAM strategies are incorporated into the Mother and Child Health programmes (MCH) which form part of the primary health-care infrastructure.

The main aim of management of moderate malnutrition is to meet nutritional needs and prevent further deterioration of nutritional status of infants, children, pregnant and lactating mothers. This is done through supplementary feeding, nutrition counselling, and treatment of common ailments at the health facility and outreaches

Programmes for managing acute malnutrition should be integrated and linked with community support groups. Mother to mother support groups for caregivers with malnourished children is an important component to consider when managing MAM. Individuals who present with MAM can be treated within a targeted supplementary feeding programme at the health facility (i.e., MCH clinic) or at an outreach center. Health workers take anthropometric measurements and make nutritional diagnosis, offer counselling and provide necessary nutritional and medical treatment for malnourished individuals. Nutritional support and care is also essential for people living with HIV, tuberculosis and/or other chronic illnesses presenting with MAM. They should be managed with the same supplementary feeds and micronutrient supplements as individuals who are HIV negative while admitted to the supplementary feeding programme.

This section focuses on the management of moderately malnourished children 6 to 59 months and pregnant/lactating women. Efforts should be made to link the individuals to existing community support systems as well as livelihood programmes.

Steps to Admission in Management of Moderate Acute Malnutrition Programme

- Triage for all children.
- Take the child's weight and height, calculate and record weight-for-height (Z-score).
- Check for oedema and record.
- Measure and record MUAC.
- Conduct medical assessment and record (medical history, immunization status, physical examination).
- Assign unique registration number and register in the registration book (MoH 410A).
- Give routine medication according to Table 5.3.

5.2 Requirements for Supplementary Feeding Programme

5.2.1 Health Facility and Outreaches Requirements

- A health worker trained in the management and treatment of acute malnutrition,
- The health staff at the health facility must have the capacity to conduct assessments every two-weeks, monitoring, and treatment services for patients with MAM.
- Medical and anthropometric equipment including weighing scales, height boards, MUAC tapes and weight for height Z-score reference charts.
- Routine medicines including antibiotics, antihelminth.
- MAM admission card, MAM registers, and monthly reporting forms (MOH 410A, MOH 410B, MOH 713, MOH 734).
- An adequate supply of ready-to-use supplementary food (RUSF) and fortified blended flours.
- Stock control cards and a commodity store

5.2.2 Community Requirements

- Community members who are committed and who understand the risks of acute malnutrition; the importance of nutrition rehabilitation for malnourished children.
- Well trained CHVs on screening and referral of malnourished children, defaulter tracing and health and nutrition education.

5.3 Admission Criteria

When an individual is identified with MAM, the health worker takes the necessary steps to enroll him/her in a supplementary feeding programme where he/she can receive nutrition support and care.

Table 5.1 and Table 5.5 gives a summary of admission and discharge criteria.

Table 5.1: Summary of criteria for admission to Supplementary feeding programme

Category	Admission
Children 6-59 months with MAM	WHZ Less -2 z-scores (<-2 z-score) to – 3 z-score <i>or</i> MUAC 11.5cm to 12.4cm And no Medical complications Note: Children with MAM based on MUAC or WFH who also have bilateral pitting oedema should be referred for treatment of SAM rather than into a targeted SFP. Children with medical complications should be referred for immediate medical care.
Pregnant and lactating women	Pregnant women MUAC <21.0 cm with a visible pregnancy

	Lactating women with infant < 6 months MUAC <21.0 cm
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5.4 Steps for Managing Moderate Acute Malnutrition

5.4.1 Registration

Register the child in the registration book.

All admission and discharges should be noted in the register (MoH 410A and 410B) (**See Annex 13 and 14**). The observation column should be used to add information about the home situation (e.g. orphan, twin, IDP) or additional medical information (e.g. HIV status, if on TB treatment).

A unique registration number is given to each child/pregnant and lactating woman when the child/pregnant and lactating woman is first admitted for supplementary feeding programme. Each registration number is made of 3 parts, for example:

12345/003/SFP

- **12345(Master facility code):** refers to the code of the health facility (or site) where treatment is provided.
 - **003:** is the number allocated to the child (this runs in sequence from the previous child registered at that health facility or site).
 - **SFP:** refers to the programme component where the child entered.
- To ensure that the children can be tracked, the full number allocated when a child enters a programme is retained until the child is discharged.
 - To facilitate tracing and follow-up in the community, all registrations should follow this numbering system. It should be quoted on all records concerning the child i.e. OTP, SFP cards, registration books, ration cards, transfer slips and identity bracelets if any.
 - Returning defaulters retain the same number that they were first given, as they are still suffering from the same episode of malnutrition. Their treatment continues on the same monitoring card.
 - Readmissions after relapse are given a new number and a new card as they are suffering from a separate episode of malnutrition and therefore require full treatment again.

5.4.2 Nutrition support

- Provide supplementary food rations
- The ideal dry ration for supplementary food provides 1000 to 1200 kcal; 35g to 45g of protein; and fat supplies 30% of required energy. The recommended amounts of each commodity are shown in Table 5.2.

Table 5.2: Food commodities and ration size per child/pregnant and lactating woman

Food items	Quantities per child <5 years old	Quantities per pregnant and lactating woman
Ready to use Supplementary Foods (RUSF)	1 sachet per day	
Fortified Blended Foods (FBF) eg Super cereals plus (CSB++) 1.5 Kg packet	215 grams (1 cup) per day	320 grams per day

For SFP, ration distributions are done bi-weekly. After allocating the correct amounts of rations to the child, explain when the next feed will be given.

- For those taking home dry ration based on FBF such as CSB ++, conduct a cooking demonstration (where possible) for new clients and caregivers. Explain how to make and serve the porridge. See **Figure 5.1: Preparation and use of Super Cereal Plus** for instructions.
- Remind clients and caregivers that the ration is only for the sick child/pregnant and lactating woman. Explain to them how long the ration should last (usually for two weeks, depending on the quantity).
- Follow-up visit: Carefully explain to the caregiver what is expected for the next visit. Weight or MUAC measurement will be taken and recorded in the register and in the MCH booklet at each visit. Height measurements will be taken monthly. Explain that this measurement will be taken in order to check nutritional progress.

5.5 Routine Medication

Supplementary feeding always covers medical protocols such as provision of anti-helminths (Albendazole or Mebendazole); iron and folic acid supplementation; and immunizations. Table 5.3 and 5.4 summarize routine medical treatment for children and pregnant and lactating women. Details regarding specific treatments can be obtained from the IMNCI guidelines.

Table 5.3: Summary of routine medical treatment for children under five

Name of Product	When	Age	Prescription	Dose
<i>Abendazole</i>	<i>At admission</i>	<i><1 year</i>	<i>Do not give***</i>	
		<i>1 year and above</i>	<i>400mgs</i>	<i>1 tab on admission</i>
<i>Mebendazole*</i>	<i>At admission</i>	<i><1 year</i>	<i>Do not give</i>	
		<i>1 year and above</i>	<i>500mg</i>	<i>Single dose on admission</i>
<i>Iron /folate</i>	<i>At admission</i>	<i>6 to 24 months (low birth weight and infants) **</i>	<i>12.5mg iron/50µg folic acid</i>	<i>Daily dose</i>
		<i>2 to 5years</i>	<i>20-30mg</i>	<i>Daily dose</i>
<i>Measles vaccination</i>	<i>Check vaccination status at admission</i>	<i>(children 6 months and older)</i>	<i>1 vaccine on the fourth week (fourth Visit)</i>	<i>Once</i>

**Dose can be given again after 3 months if signs of re-infection appear.*

*** Give one dose of 6mg/kg of iron daily for 14 days.*

**** Children less than 1 year old should not be dewormed.*

Vitamin A

- **Children 6-59 months:** Vitamin A on admission is not recommended because the ready to use supplementary food has adequate vitamin A.
- A child showing clinical signs of vitamin A deficiency should be treated immediately in the health facility..

Table 5.4: Dosage for mebendazole and iron/ folic acid for pregnant and lactating

women

Name of Product	When	Physiological status	Prescription	Dose
<i>Mebendazole</i>	<i>Second trimester</i>	<i>Pregnant</i>	<i>500mg</i>	<i>Single dose</i>
<i>Iron/ Folic acid (as per Antenatal care protocol)</i>	<i>On admission</i>	<i>During pregnancy and lactation</i>	<i>60mg iron/400µg folic acid</i>	<i>Daily dose</i>

Note: *Albendazole is not recommended in pregnant women*

Key Messages and Nutrition counselling on Admission to SFP

- Clients and caregivers should be instructed that the rations are provided for the target child and should not be shared with other family members. They should also be advised on how to use the commodity to ensure it lasts for the recommended days. After allocating the correct amounts of rations to the child, explain when the next distribution will occur. Instructions on how to prepare and store the commodity is detailed below:

Figure 5.1: Preparation and use of FBF

Preparation and Use of FBF

The FBF should be consumed as a porridge or gruel and should be prepared by mixing an appropriate proportion of flour and clean water (followed by a cooking time at simmering point for 10 minutes. A child is provided with 1 cup/day, and thus 3 kgs for a 14-day cycle. FBF already has vegetable oil, sugar and milk powder, and therefore does not require any premixing.

Method for Preparing FBF

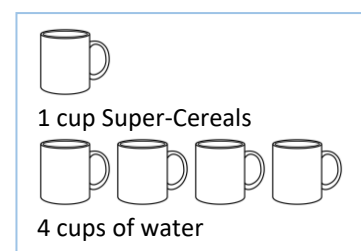
Ingredients

1 cup FBF

4 cups water

Method

1. Bring 3 cups of water to the boil.
2. Blend the FBF into a paste with the remaining one cup of water.
3. While stirring, add the paste to the boiling water, continue to stir until the mixture starts to thicken.
4. Reduce heat and cook for 10 minutes.
5. Cool and serve.



Preparation and Use of FBF

To increase the energy density and taste, oil and local nuts can be added.

FBF should be cooked for 5-10 minutes, but not longer. Before starting to cook, please ensure that the water which is used is safe before mixing into porridge and wash your hands thoroughly before preparing the porridge.

- The child or caregiver must receive adequate information about the cause of their malnutrition, and how to avoid a relapse.
- Some clients may require both nutrition counselling and food rations. Ensure that they receive both.
- Counsel the caregiver on age-appropriate stimulation, play, and communication activities.
- Check the child's developmental milestones to note any notable developmental delays for further follow-up.
- After counselling, ask caregiver or adult client to explain what they will do at home. This is to make sure they understand the new practices.
- Inform the community health volunteers about the counselling messages for follow-up purposes.

5.6 Follow-up

1. Make an appointment with the caregiver or pregnant/lactating woman for follow-up. Encourage caregivers or pregnant/lactating women to come to the next nutrition counselling and food ration allocation sessions.
2. Explain the expected progress from the child and likewise the adult clients e.g. increased weight gain, good appetite.
3. Make a plan for the caregiver to carry out the demonstrated age-appropriate stimulation, play, and communication activities at home.
4. Explain to the client or caregiver that a CHV is likely to visit his/her home for follow-up. Introduce the CHV if she/he is present.

5. Encourage the adult client or caregiver to refer friends, acquaintances, family, etc. with similar problems to the health facility.

Failure to Respond – Moderate Acute Malnutrition

It is essential to strictly apply the failure-to-respond criteria: children must not stay in the MAM programme for weeks or months without being identified and the cause of failure investigated and managed. A client who stays in MAM programme for more than four months is considered as non-response. This means failure to respond to treatment.

The reasons contributing to failure to respond must be addressed. They could include problems with the application of the protocol, nutritional deficiencies that are not being corrected by the diet supplied in the SFP, home/ social circumstances of the client or an underlying physical condition/ illness or other causes.

5.7 Discharge Criteria

When a child is identified as moderately malnourished, the health worker takes the necessary steps to enroll him/her in a programme where he/she can receive nutrition support and care. It is important that the health worker understands the discharge criteria while admitting the child. This will help the health worker determine the possible length of stay of the child in the programme. Table 5.5 gives a summary of the discharge criteria. Households with malnourished children should be linked to existing livelihood programmes.

Table 5.5: Summary of criteria for discharge to Supplementary feeding programme

Discharge criteria
<ul style="list-style-type: none">• Moderately malnourished children maintain a weight-for-height $> -2SD$ and/or MUAC $\geq 12.5\text{cm}$ for two consecutive visits³³.• Pregnant and lactating mothers attain a MUAC that is above 23cm.•

Where there is no MAM Programme

The health worker should counsel on selection and use of locally available foods to meet the nutritional needs of children with moderate acute malnutrition by emphasizing on feeding frequency, hygienic preparation of foods and to ensure age appropriate complementary feeding. The basic food mix should comprise of a cereal (not more than 2 staple foods), a legume and in addition an animal source food should be part of the mixture (refer to the complementary feeding guidelines). Households with malnourished children should be linked to existing livelihood programmes and social support systems in the community.

³³ That is the child comes for two visits following each other. The visits happen after every two weeks.

Section Six: Management of Acute Malnutrition in Older Children, Adolescents, Adults and Older Persons.

6.1 Overview

Acute malnutrition may occur in older children (5-9 years old), adolescents (10 – 17 years old) adults (18 – 59 years) and older persons (60 years and above) in conditions of extreme privation and famine. It may occur in situations of dependency, mental illness, emotional problems and eating disorders. Malnutrition in these groups is commonly associated with other illnesses, such as chronic infections, intestinal mal-absorption, alcohol and drug dependence, liver disease, endocrine and auto immune diseases, cancer, TB and HIV/AIDS. In such cases both the malnutrition and the underlying illness must be treated.

The principles of management of older children, adolescents' adults and older persons with acute malnutrition are the same as those in children under five. There are however differences in the classification of acute malnutrition, nutrition management and the routine medication. The main aim of management is to resolve the underlying cause of malnutrition and should entail working closely as a multidisciplinary team to try and address the issues in a holistic manner.

6.2 Classification of Malnutrition

6.2.1 Older children (5-9 years) and Adolescents (10-17 years)

Acute malnutrition in older children (5-9 years) and adolescents (10-17 years) is defined by body mass index (BMI)-for-age less than -3 Z-score and MAM BMI for age of between <-3 and < - 2 of the median WHO reference values (**See Annex 3: BMI-For-Age Tables**).

6.2.2 Adults (Non-Pregnant and 18 years to 59 years)

Acute malnutrition in adults is defined by thinness with recent weight loss in the past 4 weeks. The degree of thinness is assessed using the body mass index (BMI) or MUAC. Table 6.1 gives the BMI cut-off values for defining grades of Acute malnutrition in adults.

When an adult is too ill to stand or has a spinal deformity, the half arm span should be measured. This is the distance from the middle of the sternal notch to the tip of the middle finger with the arm held out horizontally to the side. Both sides should be measured. If there is a discrepancy, measurements should be repeated and the longest one is taken.

The height (in meters) can then be calculated as follows:

$$\text{Height} = (0.732 \times (2 \times \text{half arm span})) + 0.43$$

The BMI is then computed from the calculated height and measured weight.

Table 6.1: Classification of SAM in adults by body mass index³⁴

Body Mass Index	Nutritional Status
≥ 18.5	Normal
17.0 -18.49	Mild wasting
16.0 – 16.99	Moderate wasting
<16.0	Severe wasting

6.2.3 Older persons (60 years and above)

SAM in older persons should be assessed using MUAC with the following criteria:

- Contrary to BMI, the MUAC is not influenced by the body shape, and can be measured even when the person is bed ridden, or stooped, or has difficulties to stand. Therefore, MUAC is the best tool for assessing malnutrition in older persons.
- A MUAC <18.5cm is indicative of SAM³⁵

6.3 Management

The initial goal of management is to prevent further loss of tissue and correct nutritional imbalances and a restoration of body function.

Table 6.2 below should act as a guide in calculating the individual caloric requirements. The main commodity used for the management of acute malnutrition in this group is FBF with recommended amounts as indicated in the Table 6.3 below. Also refer to the Kenya National Clinical Nutrition Reference Manual for management.

Table 6.2: Dietary requirements for initial treatment of older children, adolescents, adults and older persons.³⁶

Age	Daily Energy Requirement
	Kcal/kg
7 -10	75
11- 14	60
15-18	50
19 – 75	40
Above 75	35

³⁴ For more information on cut off points see Section One, Table 1.5

³⁵ Help Age International, Nutrition interventions for older people in emergencies, 2013

³⁶ WHO 2009

Table 6.4: Dosage for iron/ folic acid for older children, adolescents and adults.

Micronutrient deficiencies have severe consequences for mental and physical health, their immune system and their functional abilities. Excessive intake of micronutrients can also be harmful. For example, goitre may develop in people who have either too little or too much iodine in their diet, and very high levels of iron can be lethal. Some of the most important micronutrients are calcium (to prevent osteoporosis), Vitamin B complex (to prevent anemia, depression and dementia-like symptoms), Vitamin A (to prevent blindness), Iron (to prevent anemia) and Vitamin C (to boost the immunity). Table 6.4 below provides the dosages for iron/folic for older children, adolescents and adults.

Section Seven:

Nutrition in Emergencies

7.1 Overview

An emergency is defined as "an extreme disruption that causes widespread human, material or environmental losses that exceed the ability of the affected society to cope using its existing resources" (International Committee of the Red Cross)³⁷. A humanitarian situation "is defined as any circumstance where humanitarian needs are sufficiently large and complex requiring significant external assistance and resources, and where a multi-sectoral response is needed, with the engagement of a wide range of international humanitarian actors." (IASC Guidance Note, 2006).

The Kenyan emergency context is characterized by protracted emergencies defined by recurrent multiple hazards that are either:

- **Rapid onset** (e.g. floods, displacement due to conflict or intercommunal violence terrorism, election related violence, disease epidemics (cholera, polio, measles).
- **Slow onset** - drought that are seasonal/cyclical/chronic e.g. drought-induced crop failure and refugee influx.

In emergency situations, deterioration in nutritional status is often possible and is characterized by high levels of acute malnutrition which is closely related to increased mortality rates and frequently associated with disease epidemics. Both rapid and slow onset emergencies can result in nutrition emergencies as a result of the impacts the events have on food security and livelihoods of affected people. Similarly, emergencies can affect how routine services are offered. For instance, floods can result in damage to health infrastructure meaning that other alternative ways of offering health services have to be sought. In arid areas where drought is most prevalent, communities often move in search of water and browse which affects their access to health and other essential services. Similarly, the effects of the emergencies are seen in how they can access food and other social services like water and sanitation. It is therefore important that there is an elaborate plan for provision of essential social services to protect the health and nutritional status of the affected populations during emergencies. The plan should have considerations that ensure that services are accessible, timely and appropriate, adjusted to address the contextual challenges that may arise. During this time, the diet should be adequate in both quality and quantity, providing the required amounts of macro-nutrients (carbohydrates, protein, fats) and micro-nutrients (vitamins, minerals, electrolytes) and meet the special

³⁷http://ble.lshtm.ac.uk/pluginfile.php/20037/mod_resource/content/7/OER/PNO101/sessions/S1S6/PNO101_S1S6_030_010.html

needs of vulnerable groups (pregnant and lactating women, infants and young children, etc).

The Government bears the highest responsibility in ensuring that food and nutrition security of vulnerable groups is sustained even in times of emergencies³⁸. As a result of the 2011 Horn of Africa crisis, there was a commitment to ensure an enabling environment for ending emergencies in Kenya. National Government frameworks for resilience programming have been institutionalized (i.e. Ending Drought Emergencies 2013- 2022) and there is coherence and new approaches to breaking the humanitarian/development silos thus paving the way for an urgent and 'new way of doing businesses with strong partnerships among agencies and Government. There is more deliberate effort to programme around resilience, with nutrition sector growing its focus on promotion of maternal, infant and young child nutrition care and feeding practices which is a critical determinant of how well the groups manage both acute and chronic shocks.

7.2 EMERGENCY NUTRITION PREPAREDNESS, RESPONSE AND RECOVERY ACTIONS

7.2.1 Emergency Nutrition Preparedness

Preparing for emergencies is essential given the impacts anticipated on nutritional and health status of populations. This strand is critical for programming as it ensures that the nutrition sector is in a position to effectively anticipate and manage any increase in acute malnutrition as well as plan for preventive measures. The Nutrition Sector in Kenya develops a biannual preparedness plan and prepares specific plans for certain events like elections, floods etc. The bi-annual plans target drought as the most frequent hazard that the country faces. The preparedness process paves way for contingency plan development as part of emergency preparedness where there are specific nationwide anticipated hazards. The contingency plan may never need to be activated if the scenarios developed do not occur. However, if the anticipated situation does arise as per a certain scenario, the plan will provide a basis for rapid and appropriate actions. These plans are institutionalized in the national and county annual planning with continuous review and modification to ensure that the plans remain flexible, realistic and appropriate.

Emergency preparedness aims to build the capacities needed to efficiently prepare and anticipate for any emergency, including minimum capacity for response and recovery in the event of an emergency.

Preparedness is largely supported and informed by a strong and functional early warning and surveillance.

Elements that support Emergency Preparedness include:

Element 1: Nutrition Surveillance

Nutrition Surveillance is the process of monitoring trends of the nutrition situation of a given population in certain area over time. The trends are useful especially for slow onset or chronic emergencies like drought whose intensity and impact is progressive with time.

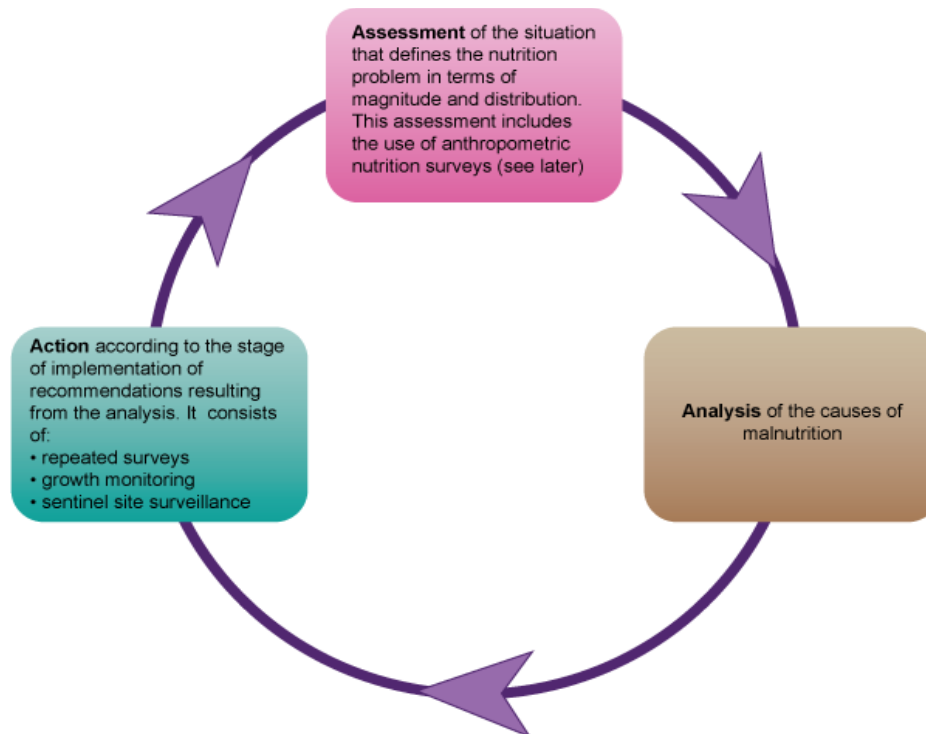
³⁸Kenya National Food Security and Nutrition Policy (NFSNP)

Indicators monitored closely relate to IMAM parameters (e.g. wasting) and give an inference on how the programme may be affected should the anticipated shock happen. Understanding how the nutrition situation of a population in a given locality is changing is critical as it enables the programme teams to apply mitigation, adaptation and or response strategies to prevent excess morbidity and or mortality amongst the most vulnerable groups. As a consequence of this, surveillance systems need to incorporate as much information from as many sources as possible to enable actors make crucial and timely decisions.

The main objectives of surveillance in relation to preparedness is to:

- Activate or intensify coordination efforts.
- Monitor the evolving nutrition situation to adjust targeted interventions accordingly.
- Activate capacity development initiatives.
- Resource mobilization.
- Provide information to prepare and activate response in case of rapid onset emergencies like floods.

Figure 7.1: The nutrition surveillance cycle



The key nutrition surveillance systems include drought early warning systems, seasonal assessments, health facility monitoring from the KHIS and IMAM surge approach as elaborated below.

1. The Drought Early Warning System

Drought early warning system is a surveillance system that is managed centrally by the National Drought Management Authority (NDMA). It helps monitor communities at risk of drought in 23 ASAL counties. Data is collected by field monitors every month from selected

sentinel sites from 30 households and five key informants in each of the 23 counties. Thereafter, the information is analysed at county level and used to classify drought status as either normal, alert, alarm or emergency. This information is available every month in the form of a bulletin and is useful in triangulation with other information available for decision making and identification of hotspots for quick response.

2. Seasonal Assessments

These are food security and nutrition assessments conducted twice a year after the Long Rains and Short Rains season by multi agency Kenya Food Security Steering Group (KFSSG) and County Steering Group. These assessments main objective is to determine the impact of the rain season on the communities' livelihoods as well as on other associated elements like household food and nutrition security. The assessment uses an internationally recognized methodology (Integrated Phase Classification (IPC)). The information is timely and is used in decision making both for response and resilience.

3. Health facility monitoring from the KHIS

This involves routinely reviewing IMAM data from the health facilities which is collected monthly and entered into the KHIS. Monitoring of the data in terms of admission trends helps in the detection of any spikes indicative of a deterioration in the overall nutrition situation of a given locality. Outcomes of the IMAM data are also monitored by comparing cure rates, death rates, default rates and non-recovery rates with the SPHERE standards³⁹. Corrective actions through priority activities e.g. active case finding, mass screening and integrated outreaches are then put in place to address the deteriorating situation.

4. IMAM surge approach

IMAM surge approach is a concept of strengthening IMAM services through provision of an early warning system leading to a timely response in cases of increased caseloads. The aim of this approach is to improve the resilience of health systems to better deliver services for treatment of acute malnutrition over time, particularly during periods of high demand when the potential to save lives is greatest. Health facilities develop thresholds based on their ability to manage caseloads and then monitor them in real time. Any time a threshold is surpassed, an agreed surge response action is activated, and this helps identify and treat cases in a timely manner. The approach develops health system resilience through an 8-step process that links participatory analysis of context and health system capacity to a set of simple and practical tools that help government health teams to better respond to surges and mitigate the negative impacts of shocks on the health system. The approach uses a Government-led participatory assessment of risks, capacity and needs at each level of the health system to agree on activities and capacity support required from within and outside the Government. The analysis allows the setting of context specific facility level thresholds which, when surpassed, trigger pre-agreed actions and capacity support. The triggering

³⁹ A set of principles and minimum humanitarian standards in four technical areas of humanitarian response.

process is based on real time analysis of health data. Action is triggered when the situation deteriorates and is deactivated as the situation normalizes.

5. Other forms of surveillance

Large scale national surveys, repeated small scale surveys and rapid nutrition assessments can be considered for purposes of surveillance.

Element 2: Contingency planning

Contingency Planning involves a set of (shelf) plans at national or county level for rapid reaction to an early warning and changes in the drought warning stages. It covers the necessary interventions based on the hazard together with a detailed budget for each activity. The plan should be a live document which is updated regularly and activated whenever the situation meets the threshold for response.

The Nutrition Sector contingency plans at National and County level are linked to other sectors and coordination mechanisms. For drought, the sector plan fits within the broader drought contingency plan that is led by National Drought Management Authority (NDMA), while for rapid onset disasters, election planning, the sector contingency plan fits into the national and sub national plan that is coordinated by National Disaster Operations Centre. Funds that sectors can draw from to implement key preparedness or early action activities have been set up. A good example is the NDMA National Drought Emergency Fund (NDEF) which provides resources to address early actions or mitigation actions once the alarm phase of drought is reached. NDMA also has a Drought Contingency Fund (DCF) that is activated for emergency response.

Element 3: Supply prepositioning

Pre-positioning of nutrition supplies is a mechanism aimed at increasing preparedness for emergencies. The locations and quantities of various types of supplies to be pre-positioned is reviewed regularly based on likelihood of an emergency occurring.

The government and Kenya Red Cross supports prepositioning of minimum stocks (mainly RUTF and MUAC tapes) located in the regional and county hubs across the country.

7.2.2 Emergency Nutrition Response

Nutrition response is intensified when certain thresholds are reached for the slow onset disasters and immediately after a rapid onset disaster, depending on magnitude. For slow onset, a lot of the work needs to happen at preparedness stage especially if the early warning systems information and other surveillance information pieces are being utilized fully. Response will require scale up of all nutrition programmes including IMAM, Micronutrients, Maternal Infant and Young Child Nutrition, to meet the increased needs occasioned by the emergency. For rapid onset emergencies where, elaborate contingency plans are often developed, the sector further develops a response plan that speaks to the most likely scenario that has been projected.

The following are key actions that will require strengthening to ensure that nutrition service delivery is well defined in the affected areas, with clear strategies to enhance access to quality and high impact interventions.

Action 1: Coordination: Leadership and management of coordination mechanisms.

Key result area seven defined in the Kenya National Nutrition Action Plan (2018- 2022). relates to emergency preparedness and response. It defines key costed actions that need to be implemented and provides solid guidance for the sector. The coordination mechanisms for emergency nutrition in Kenya are led by the Emergency Nutrition Advisory Committee (ENAC) which is led by a Government focal point based at Ministry of Health. The committee oversees the preparedness and response planning actions and ensure that the coordination forum reviews and puts in place mechanisms for adoption and harmonized implementation of response plans in consultation with partners and with the sub national teams. Standing agenda includes nutrition situation review of IMAM and other select nutrition programme indicators which enable the team offer technical and advisory support to the implementers. The forum aims to strengthen system-wide preparedness and technical capacity to respond to emergencies, through enhanced predictability, accountability, and partnership by ensuring better prioritization and defining roles and responsibilities of humanitarian organizations, information management and analysis.

ENAC interfaces with other existing humanitarian coordination mechanism in Kenya including the National Disaster Operation Centre (NDOC) that focuses on Disasters and Emergency Coordination; and The National Drought Management Authority (NDMA) which has been the focal point for coordinating preparedness and response planning for drought emergencies. At the governance level is also the Kenya Humanitarian Partnership Team (KHPT) that is chaired by the government and co-chaired by the UN Resident Representative. Nutrition sector interfaces with the KHPT through the inter sector working group that is convened by UN OCHA and brings all other sectors together monthly. At National level with the Ministry of Health, ENAC interfaces with the Department of Emergency, the National Nutrition Technical Forum and further links with the NDMA Ending Drought in Emergencies pillar forums where preparedness and resilience are key focus areas. At Sub National Level, ENAC provides technical support and liaises with the County Nutrition Technical Forums as well as the County Steering Groups.

Another key element to consider is having an elaborate communication and advocacy plan that the sector will deploy to ensure consistent and timely messaging on the emergency

FOR CONSIDERATION

During preparedness, coordination mechanisms should be regular: monthly at national level, quarterly at county and monthly at sub-county. Preparedness should be integrated as a standing agenda in the existing mechanisms.

During emergency response: coordination for emergency should be activated. Frequency will be informed by the scale and nature of emergency. However, for emergencies, coordination meetings could be held daily and then graduated to every two days, weekly and finally monthly as the sector transitions to recovery. Situation reports (Sitrep) and other communication products should be produced and shared regularly as per the communication protocol.

and its impacts in addition to the recommended actions and cost implications of the response that will be mounted.

Action 2: Assessments and monitoring: To gain an understanding of the extent to which an emergency is impacting nutrition and health; it is important to analyze data on the affected population and area. Data relating to nutrition and health can be collected, and existing evidence should be reviewed. The purpose of these assessments is to inform the most appropriate possible response.

There are 3 main types of information sources to be collected and/or used during an emergency:

- Nutrition surveillance
- Rapid nutrition assessments
- Standardized Monitoring and Assessment of Relief and Transition (SMART) nutrition surveys

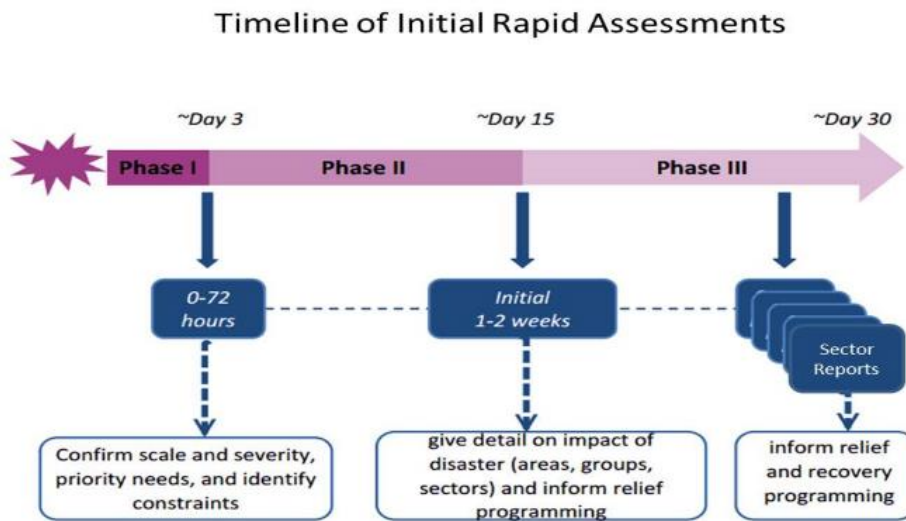
Secondary data review will be critical to understand the situation based on the above three information sources.

In a rapid-onset emergency the priority is to obtain a snapshot of the nutrition situation as quickly as possible and therefore **rapid nutrition assessments** are carried out. The information may not always be representative and thus not statistically valid, but the results from a rapid assessment can verify the existence or threat of a nutrition emergency, provide an estimate of the numbers affected and establish immediate needs. Rapid assessments are also done where there is very limited access.

In many contexts sub-optimal Infant and Young Child Nutrition (IYCN) practices, coupled with maternal malnutrition, continue to contribute to the global burden of malnutrition leading to childhood illness, death, and compromised child health and development. An Elaborate operational guidance for rapid MIYCN – E assessments for Kenya, October 2018⁴⁰ is available to provide guidance on how to conduct MIYCN-E rapid assessment and to obtain quality and credible data. The guideline provides information on the whole spectrum of MIYCN-E rapid assessment including objectives, methodologies, indicators, data collection tools and how to adapt this to different emergency situations.

⁴⁰ Operational guidance for rapid assessment for maternal infant and young child nutrition in emergencies (MIYCN-E) for Kenya.

Figure 7.2: Timeline of initial rapid assessments



The Nutrition Information Technical Working Group (NITWG) validates all nutrition assessments that are conducted.

Refer to nutrition assessment guidelines for details on when and how to undertake assessments.

Information from assessments should be routinely shared at the emergency coordination forums to enhance and allow for timely and strategic decision making. The results should communicate the coverage of essential nutrition services that includes IMAM, Micronutrients, MIYCN etc. to give inference on the kind of needs and scale of programming required in response to the situation. The Nutrition Information Technical Working Group has a standing agenda in the Emergency Advisory Committee meetings and also jointly undertakes the assessments with the committee in addition to ensuring there is capacity for the assessment at both national and sub-national level.

Action 3: Promote, Protect and Support Maternal Infant and Young Child Nutrition in Emergencies (MIYCN-E)

In emergencies, although the overall causes of death remain broadly the same as in non-emergency situations, mortality rates are often greatly elevated - up to 67 times higher than average. Published total mortality rates for children aged <12 months in emergencies range from 12% to 53%.

The consequences of inappropriate infant and young child practices are greater in most resource poor contexts. It is in these contexts that many emergencies take place, placing an additional burden on already vulnerable children and caregivers.

Optimal MIYCN practices including maternal nutrition; breastfeeding and safe, adequate, and appropriate complementary feeding in the context of emergency is central to reducing the high risk of under-nutrition during emergencies as it significantly contributes to

prevention of under-nutrition and mortality in children. However, these practices are often jeopardized during emergencies and require special attention.

To protect, promote and support optimal MIYCN practices in sudden or slow onset emergencies, the Government has developed an elaborate Kenya MIYCN-E Operational Guidance, 2019⁴¹ that aims to guide the implementation of multi-sectoral actions across the different phases of emergency (pre, during and post emergency) in a timely, consistent and coordinated manner. The guidance stipulates specific actions at each emergency stage and includes assessments and monitoring to increase efficiency and achieve successful management of MIYCN practices. The activities focus on infants, young children up to 59 months of age, pregnant and lactating women and caregivers of young children in an emergency setting.

Action 4: Mount capacity to detect and manage acute malnutrition at health facility and community levels.

In an emergency, especially rapid onset, there is a chance that the capacity to manage acute malnutrition is not in place or is generally insufficient. It is therefore important to ensure that stand by capacity by actors such as the Kenya Red Cross can be quickly sensitized and supported to offer the services. At community level, it is important to use the existing community health strategy (CHS) structures to identify individuals who can support the programme roll out through a participatory process. It is critical that accountability is also embedded in the actions to minimize the risk of pilferage, sale or misuse of programme supplies as well as to enhance the ability of community members to comply with the programme treatment protocols. This action could be part of what is done during preparedness phase and as part of the processes implemented when a contingency plan is activated.

Action 5: Provide appropriate nutritional supplies and equipment for management of acute malnutrition

Health facilities and regional hubs should have adequate nutrition supplies and equipment and should ensure efficient nutrition supply chain management up to the end user point. The national and county technical forums should regularly review the needs to avoid stock outs during response.

7.2.3 Nutrition Recovery Actions

Action 1: Continuous Service Delivery of High Impact Nutrition Interventions

All response plans should have a recovery phase that allows for a smooth transition of services back to normalcy. This means that measures are put in place right from the outset (preparedness phase) that have a sustainability outlook and can ensure that affected areas are not left without capacity once the intensity of the response wanes. Measures such as capacity building, equipping of facilities and inclusion of nutrition in essential medical supplies kits go a long way in maintaining a fairly good level of operations after response efforts are scaled down.

⁴¹ Kenya MIYCN-E Operational Guidance, 2019

Action 2: Continuous Surveillance

Surveillance should continue during this phase to establish whether there are any new emerging hot spots in addition to having performance reviews that give an indication on the efficiency and effectiveness of programmes post response. It will be important at this point to also strengthen the linkages between programmes to further reduce the incidence of acute malnutrition. This requires strong advocacy and negotiation and should be well planned towards ensuring a no harm approach is always promoted.

Other important elements of the programme like supply chain, monitoring and reporting need to be well thought out and tools available to ensure that this can continue uninterrupted. Capacity to plan for and cost for the service will also be very important

ADDITIONAL POINT

During emergencies, the Government, Kenya Red Cross Society (KRCS) and other non-governmental agencies could deploy a team of volunteers and emergency health personnel (including nutritionists), who provide immediate care in the event of a displacement. Upon stabilizing of the situation, the organizations should link with existing MOH facilities and where access allows, facilitate referrals for an interim period pending safe return of the displaced population. The transition with the MOH and partners is discussed at specially convened coordination meetings which occur in some instances weeks into the emergency when the MOH and partner staff are back on ground.

Deployment of surge support can also be undertaken in critical situations where health facilities are facing human resource gaps.

Section Eight: Programme Management

8.1 Monitoring and Reporting

8.1.1 Overview

A well-designed monitoring and reporting system is an essential component in nutrition. With well-informed monitoring data, aspects of the management of SAM and MAM that need improvement can be identified in a timely manner. Appropriate action can then be taken to improve on individual care, organization of care and overall quality of care.

The nutrition monitoring and reporting system encompasses individual monitoring of admission, treatment process, output and outcome. Service monitoring and reporting of community outreach, out-patient care, in-patient care and supplementary feeding programme sites individually, and of IMAM services combined involves timely collection of relevant information, aggregating and disaggregating at various levels of the system, and subsequent analysis and reporting. Monitoring is used to measure the monthly performance and report on effectiveness. Performance indicators of interest are recovery (cure rate), case fatality (death rate), defaulting (default rate), non-recovery, data quality, average consumption of commodity. Barriers to access for care and the degree of service uptake (coverage rate) indicate how well the service or programme is reaching the target population and meeting the service needs. The objective of monitoring is to compare service performance against a set of objectives, and to make adjustments to the service based on an analysis of routine data that is collected on a monthly basis. This analysis of routine data should not just be done at sub-county, county or national level but should specifically be done and reviewed at health facility level and community in order to understand and modify care and treatment practices on site. It is also important to interpret the findings in the broader health and nutrition information context obtained from secondary sources.

This section of the guideline presents the specific monitoring and reporting tools, describes the key indicators and provides guidance on support and supervision and minimal reporting.

8.1.2 Monitoring Tools

Standardized monitoring and reporting forms and tools are used to collect and aggregate community outreach, out-patient care (MOH 409), in-patient care (MOH 368) and supplementary feeding programme monitoring data (MOH 410A and MOH 410B). This will facilitate comparability of data across different sites as well as aggregate data at the various administrative levels.

Register Books

The health facility and outreach center will record admissions and follow-up information on each individual admitted in their **Register MOH 368, MOH 409 and MOH 410A and MOH 410B**).

Basic admission and follow-up information is recorded on each register. Specific instructions on how to fill out each register can be found on the inside front cover of each register. The following is an example of the instructions found inside the cover:

Inpatient Nutrition Care Health Facility Register – MOH 368

- Unique Nutrition Registration number (see details below).
- Admission Date - Record the day the client visits your health facility (*recorded as DD:MM: YY*).
- Client's Name – Record at least **THREE** names of the client.
- Physical Address/Phone Number - This refers to client's residential village/state/any physical land mark as well as telephone numbers for the client or closest person to enable tracing or follow-up.
- Age (months) - Record the actual stated age of the client expressed in figures/ numbers. Age must be indicated in months and NOT 'U5' or 'Under Five'.
- Sex (M/F) - This should be recorded as M for male and F for female.
- In household food security programme - General Food Distribution, Food/Cash for assets, unconditional cash transfers, or any other household support programme available in the programme area.
- Admission Criteria –
 - Enter '1' in this column if client is admitted based on oedema criteria (+, ++, +++)
 - Enter '2' if client is admitted based on a WHZ criteria
 - Enter '3' if client was admitted based on a MUAC criteria
 - Enter '4' for OLD CASES which could be a referral from in-patient care, out-patient care or supplementary feeding programme or a returned defaulter (e.g., children who left the service before ending the treatment and return to continue their treatment -same episode).
- Type of Admission –
 - Enter '1' for New cases, '2' for Re-admission, '3' for Re-lapse, '4' for transfers from out-patient care or supplementary feeding programme, '5' for transfers from another in-patient care, '6' for a returned defaulter.
- Sero-status – HIV status can be entered as 'S1-Known Positive', 'S0-Negative', S2-exposed or 'S3-Unknown'.
- TB Status – Tuberculosis status can be entered as 'T0' for Negative, 'T1' for Positive or 'T2' for Unknown.
- Height/Length (cm) - Record the client's actual height or length in centimeters to the nearest tenth.
- Weight (kg) – Record the client's actual weight in kilograms to the nearest tenth.
- MUAC (cm) - Record the client's Mid-Upper Arm Circumference in centimeters to the nearest tenth.
- Weight (kg) / MUAC (cm) Monitoring – Record the weight and MUAC of the client every seven days while in treatment in the in-patient center.

- Discharge Measurements – Record the weight (kg) and MUAC (cm) of the client on the day of discharge.
- Exit Date (DD/MM/YY) - Record the day the client is discharged from your health facility.
- Length of Stay in Days - Record the number of days from the admission date to the exit date. This only applies to clients who exit the programme as cured.
- Exit Outcome – Enter ‘1’ for Cured, ‘2’ for Defaulter (absent for 2 days in in-patient care), ‘3’ for Died, ‘4’ for Transfer to another in-patient (indicate center) or out-patient (indicate center) or ‘5’ for Non-respondent/Non-recovered (did not reach the exit criteria after 2 months of treatment in in-patient care).
- Observations/Comments - Any comments for the individual client (e.g., client referred, advised to return for review).

Registration

All new admissions receive a **Unique Nutrition Registration Number** that is maintained, even if a child is referred to another health facility or site. It helps in tracking a child across different services and for sharing of information. The unique registration number should be used on all monitoring and referral forms pertaining to the child. It can be recorded at the bottom of page 20 on the mother & child health booklet - MOH 216 that is provided to all children accessing health services.

The standard numbering system for unique nutrition registration numbers is organized per health facility (site) and uses the following format:

- The first set of numbers refers to the **code of the health facility** (or site) where treatment is provided. A master list of all health facilities in Kenya and their codes is available at <http://www.ehealth.or.ke/facilities/downloads.aspx>
- The second and third set of numbers refers to the **Child Welfare Clinic number** allocated to the child in Section B, Page 20 of their MCH booklet. This number is made up of the sequence of the child admission to the clinic plus the year of admission. If the mother or child does not have an MCH booklet, then attempt to procure one or assign a number based on the sequence of arrival at the health facility.
- The fourth set of letters refers to the **programme component where the child enrolled**; Out-patient Programme (OTP), Stabilization Center (SC) or Supplementary Feeding Programme (SFP).

An example of a unique nutrition registration number

A child is admitted to the out-patient therapeutic programme at the Isiolo County Hospital – the code for this health facility is 12094. This child is the 11th child to be admitted in this health centre in 2013. The unique nutrition registration number for this child is **12094/011/13/OTP**

To ensure that a child can be tracked, the full number allocated when a child enters a programme is retained until the child is discharged. To facilitate tracing and follow-up in the community, all registrations should follow this numbering system. It should be quoted on all records concerning the child (i.e., in-patient therapeutic feeding card (Multi-chart), OTP admission cards, OTP follow up cards, OTP ration cards, SFP ration cards, register books, mother & child booklet - MOH 216, transfer forms) and identity bracelets, if any. Returning defaulters retain the same number that they were first given, as they are still suffering from the same episode of malnutrition. Their treatment continues on the same monitoring card. Readmissions after relapse are given a new number and a new card as they are suffering from a separate episode of malnutrition and therefore require full treatment again.

A system of coding all health facilities per county exists and the details can be accessed from the County Health Records Information Officer (CHRIO).

8.1.3 Individual Monitoring

Individual monitoring information of the child's health and nutrition condition is recorded on the **Multi-Chart (Annex 6)**, **Supplemental Suckling Technique In-patient Card** for in-patient care, the **Admission Card for Out-Patient Therapeutic Care**, **Follow-Up Card for Out-patient Therapeutic Care** and **Outpatient Ration Card** and/or the **Supplementary Feeding Ration Card**.

Individual monitoring of the child's health and nutrition condition is important in determining the progress of the treatment, and, in case of a sudden deterioration, responding with a life-saving intervention. Intensive daily monitoring is needed for the child with SAM in in-patient care. In outpatient care, the child with SAM is in a better condition, does not need the same level of health monitoring and is therefore monitored weekly. In SFP, the child or PLW with MAM also needs to be monitored but this can be done every two weeks. At community level, the CHV and CHA follow up at household level using MOH forms 513, 514, and 515 on a monthly basis and as well a standardized home visit checklist (**See Annex 22: Home Visit Checklist**) can be used to specifically address key areas for follow-up from the health facility.

Analysis of the individual treatment/ration cards helps to identify and highlight problems which might contribute to failure to respond to treatment. Also, it is important to

systematically review the individual cards during supervision visits to ensure that proper treatment and routine medication is given and that protocols are being adhered to.

Transfer forms

If the child with SAM is transferred from in-patient care to out-patient care or vice versa, the caregiver is given a **transfer form** together with instructions on how and where to go. If a transfer form is not available, then all information regarding transfer and/or referral can be recorded in the clinical notes section on page 38 of the Mother & Child Health Booklet – MOH 216.

These referrals are not counted as a new admission or discharged as they were already in treatment elsewhere in the sub-county or county for SAM. They temporarily exit the current health facility to be referred to another health facility for continued treatment because their condition deteriorated, or they did not respond to treatment. Upon return, they re-enter the site as a referral.

Filing System

A filing system for treatment cards is kept at the health facility or site. A first file is for treatment cards of all those currently in treatment, including in a separate section the cards of the children referred for investigation. A second file is for treatment cards of those children who have been discharged, with separate sections for the cards of children who were cured, died, defaulted or non-recovered.

8.1.4 Service Monitoring

Monthly Summary Sheet

The **Integrated management of acute malnutrition summary tool (MOH 713)** is completed monthly per health facility with inputs from the registers. The disaggregated report provides a summary of quantitative information to assess performance, monitor trends and identify areas that require investigation at the health facility level:

- Total number in treatment at the beginning of the month
- Admissions as new cases
- Old Admissions – relapses
- Old Admissions – readmissions (i.e., returned defaulters)
- Old Admissions – transfer from other OTP/SC⁴²
- Discharge Cured
- Discharge Death
- Discharge Defaulters
- Discharge Non-Recovered
- Transfer out to SC
- Transfer to other OTP sites

⁴² For the SFP Summary Sheet, the transfers in and out are referring to transfers from other SFP sites and also transfers from in-patient/OTP programmes.

- Under GFD Programme
- Average Length of Stay in Days – Nutrition
- Recovery Rate, Defaulter Rate, Death Rate

See annex 17 for summary of entry and exit

Total Discharges

Total discharges are all clients that leave the site as **cured, died, defaulted or non-recovered**. The number of total discharges is used as a denominator to calculate performance indicators for the cured, death, defaulter and non-recovery rates. It should be noted that **transfers out** are not part of the denominator in calculating performance.

Total Exits

Total exits is a number that indicates all clients that exit the facility or site that month and includes all clients who are discharged (as cured, died, defaulted or non-response) and those leaving the site as transfers.

Total Number in Treatment (Current caseloads)

Total number in treatment at the respective site is calculated and used for site planning. It also provides the start number for the next month's tally column.

Gender

Gender is tallied for all clients who enter as new admissions. This information can help identify differences in affected gender, age groups and trends.

Beneficiaries who received commodities

Beneficiaries are the number of clients who actually consumed the supplies in the course of the month. In SFP it is expected that the beneficiaries will have received the supplies twice in the month while in OTP they are expected to receive the supplies four times in a month.

Additional Information

Monthly site reporting sheets are regularly checked by a supervisor for accuracy. All health facilities should remain with the copies of the forms and send the originals to the Sub-County Health Records Information Officer (HRIO) by the 5th day of the following month.

8.1.5 Monthly Sub-County Reports

The **sub-county reports** are completed monthly with inputs from each facility⁴³ via the **Integrated management of acute malnutrition summary tool (MOH 713)**. These sheets are digitally entered into the Kenya Health Information System (KHIS) by the 15th of the following month per facility. A hard copy should be filed. Once they are entered into the system at this level, the information can be disaggregated or aggregated accordingly by the

⁴³ Private and Public health facilities are entered into the KHIS.

functionalities within the system. Reports or records are not entered at any other point upwards in the system (i.e. county or national level).

The aggregated report provides a summary of quantitative information to assess performance and monitor trends at the county/sub-county level as follows:

- Total number in treatment at the beginning of the month
- Admissions as new cases (New admissions)
- Admissions old cases (Relapse, Readmission and Transfers in)
- Total admissions of the month
- Exits (Cured, Death, Defaulter, Non-response, Transfers out)
- Total Exits
- Total number in treatment at the end of the month
- Average Length of Stay
- Number of individuals in programme currently in a General Food Distribution Programme
- Outcome (Recovery Rate, Death Rate, Defaulter Rate).
- Gender distribution for children 6 – 59 months

Note:

For the SFP monthly reporting summary there is an additional column within the transfer in and transfers out section. Pregnant women admitted to the SFP programme with MAM transfer within the same programme after delivery until the infant is 6 months of age if they did not meet the discharge criteria for SFP while pregnant.

IMAM reporting and referral in the community units.

CHVs are supervised by CHAs and collect data from the community using:

1. **Community Health Volunteers Service Delivery Log Book – MOH 514** which is a diary used to collect information from the household while offering a health service and/or health messages. This Log Book is submitted monthly to the CHA at facility level. The below table indicates the relevant columns in the log book directly corresponding to acute malnourished children with instructions for recording information.

Table 8.1: CHVs Service Delivery Log Book – MOH 514 - Columns ‘N’, ‘O’ and ‘P’

N	Children 6 – 59 months old with MUAC indicating severe acute malnutrition	Record the number of children 6 – 59 months old with severe acute malnutrition – mid-upper arm circumference is red (< 11.5 cm)
O	Children 6 – 59 months old with MUAC indicating moderate acute malnutrition	Record the number of children 6 – 59 months old with moderate acute malnutrition- mid-upper arm circumference is yellow (11.5 – 12.4 cm)
P	Children <5 years with malnutrition referred	Record the number of children under 5 years with severe and moderate acute malnutrition referred for management

2. The **Community Health Information System Household Register – MOH 513** is a record where CHVs record major household events or services and is updated monthly from the log book and submitted to the CHA every six months. The below table indicates the relevant columns in the register directly corresponding to acute malnourished children with instructions for recording information.

Table 8.2: CHIS Household Register- MOH 513- Column ‘S’ and ‘T’

S	Severely malnourished (v)	Record by marking a tick (v) when the household child mid-upper arm circumference is red (< 11.5cm) and leave blank when the child in the household has a mid-upper arm circumference that is not red .
T	Moderately malnourished (v)	Record by marking a tick (v) when the household child mid-upper arm circumference is yellow (11.5 – 12.4 cm) and leave blank when the child in the household has a mid-upper arm circumference that is not yellow or red.

From these CHV reports, the **CHA summary – MOH 515** is compiled monthly. This report summarizes activities of the community outreach based on routine monitoring at the community level. The below table indicates the relevant columns in the register directly corresponding to acute malnourished children with instructions for recording information.

Table 8.3: Indicators for CHV to Report

Number of severe malnutrition cases referred	Record the total number of children 6 – 59 months old identified by CHVs from the household level with severe or RED color using MUAC and referred for specialized care.
Number of moderate malnutrition cases referred	Record the total number of children 6 – 59 months old identified by CHVs from the household level with Moderate or Yellow color using MUAC and referred for specialized care.

In addition to the above indicators a CHA **may** collect and report on the following:

- Key indicators:
 - o Human resources: number of community health extension workers and community health volunteers.
 - o Training: number of CHAs and CHVs trained and active; number of community representatives oriented.
 - o Community mobilization: number of communities targeted and involved; number of communities’ meetings.

- o Community outreach activities: number of community screening sessions conducted; number of follow-up visits for defaulters or non-responders from SC, OTP, SFP; number of community health and nutrition education sessions held.

In a context where some more information is needed to clarify or explain the prevailing nutrition situation; the following additional information will need to be provided

- o Barriers to access in IMAM services
- o Reasons why areas are not covered
- o Reasons for absentees and defaulting
- o Reasons for non-response to treatment
- o Causes of death
- o Success stories
- o Identified problems
- o Planned activities

The report is handed over to the Health Records Information Officer who eventually enters it monthly into KHIS.

Annex 17 provides an overview of the summary information on entry and exit categories for individual and service monitoring of clients treated in IMAM.

Narrative Report

The narrative report provides a summary of key information and analysis based on the quantitative data compiled at health facility level in the In-Patient, OTP & SFP Facility Summary Sheet (MOH 713) as well as the Monthly Sub-County/County reports. This report should be prepared quarterly and on 'a need' basis by the County Nutrition Coordinator (CNC) and will support the seasonal assessment. The CNC should present this quarterly report to the County Steering Group and the County Nutrition Technical Forum and as well use the data/information for making key decisions to improve IMAM services. Information included in the narrative report is as follows:

- Scale of the service
- Key performance indicators.
- Discussion on performance, including:
 - Analysis of high and/or low performing sites
 - Barriers to access
 - Reasons for absentees, default, non-response to treatment and relapse
 - Common causes of death
- Contextual information as appropriate, including context changes in relevant sectors such as food security, water and sanitation, health, and insecurity that may have an influence on service operation or performance.
- Success stories.
- Action plan for next month and support needed/planned to be given.

- Quantitative information can be presented in figures if the capacity exists.

Practical Example:

A narrative report may need to be submitted on an “as needed” basis to explain a sharp increase in the number of SAM cases defaulting from a specific area within the county, where the defaulter cases had been low before.

8.1.6 Performance Indicators

There are three basic sets of indicators for measuring the performance of IMAM services for children 6-59 months, > 5 years, PLW as described in the following sections:

- **Output indicators** measure whether an IMAM service has completed the planned activities needed to achieve the established objectives. They are measured as numbers.
- **Process indicators** directly measure the performance of key processes, which in this case relates to the IMAM treatment process.
- **Outcome indicators** measure whether an IMAM service has achieved its objectives and planned outcomes. They are measured as percentages.

Indicators Measuring Output

A. Monthly output indicators available at all level:

- Total number of new admissions.
- Total number of children and pregnant and lactating women under treatment.
- Report on use of F75, F100, RUTF, ReSoMal and CMV, RUSF, CSB/OIL (IMAM Consumption and Requests).

B. Health facility and County Level

- Number of functioning in-patient care, out-patient care sites and/or SFP sites (or number of health facilities with in-patient care, out-patient care and/or SFP sites).
- Number of health care workers trained in IMAM and referral based on action protocol (plus gender distribution).
- Number of community health extension workers and community health volunteers trained in community outreach (plus gender distribution).

Indicators Measuring Process

The following are process indicators that are measured monthly and/or periodically depending on capacity.

- **Barriers to Access and Utilization**

Assessing this information can help identify problems with knowledge, attitudes and practice (KAP) on malnutrition and health service utilization, and determine where strengthened support, training and mobilization might be needed. It can also refine key messages on social and behavior change and communication.

- **Cause of Death**

Assessing and compiling this information can help identify problems with treatment and use of action protocols, and determine where strengthened support, training and supervision might be needed.

- **Reasons for Absentees, Defaulting and Non-Response to Treatment**

Compilation of this information can help identify common reasons for default or non-response to treatment. Reasons for non-response might include a high prevalence of TB and/or HIV, the sharing of food in the household or poor access to water and sanitation. This information might indicate a need for stronger service linkages with other sectors. It is also important to understand the reasons for defaulting, barriers to accessing services and/or unrecorded death.

- **Readmission after Discharge (or Relapse)**

This can help service planners understand situations outside of the service. Interventions might be needed at the household level to avoid high readmission rates. High readmission rates might also indicate children are discharged too soon. Relapse is recorded on the child's treatment card and can be tallied monthly or periodically from the treatment cards.

- **Average Length of stay (LOS) of Discharged Cured**

Length of stay (LOS) is the period in number of days that a child spends in treatment for SAM from admission to discharge. LOS in outpatient care is normally long and can take up to 60 days but is expected to be shorter in inpatient care. Also, one child can cover both services. Average length of stay in SFP is usually less than 3 months.

Average LOS reflects effectiveness of the IMAM services and is best disaggregated per use of service (i.e., outpatient care only, inpatient care only, both outpatient care and inpatient care). A long average LOS might be the result of, e.g., a high proportion of children who do not respond to treatment (non-response), frequent absence, default, sharing of RUTF and/or unresolved illness. A short average LOS might indicate that children are discharged too soon. If there is a high relapse rate, this might be a possible cause.

Average LOS is calculated on cured discharges for each program separately, as the sum of LOS divided by number of cards in the sample.

Calculation:

$$\text{Average LOS} = \frac{\text{sum of LOS}}{\text{Number of clients discharged as cured}}$$

- **Average weight gain (AWG) of Discharged Cured**

Average weight gain (AWG) for SAM cases in outpatient care is expected to be greater than 4 g/kg bodyweight/day. For inpatient care this could be better as feeds are monitored and there is a reduced chance of sharing or eating other foods that may interfere with the dietary treatment. A low AWG may indicate, e.g., high absence,

default, ineffective treatment, sharing of RUTF and/or non-compliance to the treatment protocol.

AWG is calculated on a sample of cured discharges for kwashiorkor and marasmus separately, as the sum of weight gains divided by number of cards in the sample.

Calculation:

Daily weight gain (g/kg bodyweight/day)
= [discharge weight in g minus minimum weight in g] divided by
[minimum weight in kg multiplied by the number of days between
minimum weight and discharge day]

Average daily weight gain
= sum of weight gains (g/kg bodyweight/day) divided by number of
cards in sample⁴⁴

- **Referral Rate**

Children are referred from out-patient care to inpatient care per the action protocol in outpatient care (**See Annex 11: Action Protocol in Outpatient Care**) or from in-patient care to a higher level of care when their condition deteriorates or when the child is not responding to treatment. After treatment for the medical complication, the child returns to in-patient care and/or outpatient care to continue treatment for SAM. The child was not discharged from the SAM treatment, but had temporarily exited the respective SAM treatment site. A referral rate can also be calculated for children or PLW referred from SFP to OTP or in-patient care. The referral rate provides information on severity of cases that are admitted and/or non-response to treatment and hence highlights weaknesses in the care system (e.g., late presentation of cases, quality of care, endemic patterns).

Calculation:

Referral rate = Number of children referred per number of children in
treatment during the time period of reporting

Indicators Measuring Outcome

Monthly Outcome Indicators

- % discharged cured (cure rate)

⁴⁴ A reasonable randomised sample of treatment cards of discharged cured cases is 20. If lower numbers have been discharged cured during the period of reporting, take all treatment cards. If there are no treatment cards at the site, then a randomised sample of cases can be obtained from the registers.

$$= \frac{\text{Number of **children** discharged cured}}{\text{Total number of discharges} *} \times 100$$

- % discharged died (death rate) =

$$= \frac{\text{Number of children who died while on treatment}}{\text{Total number of discharges} *} \times 100$$

- % discharged defaulted (default rate)

$$= \frac{\text{Number of children who default (absent for 3rd consecutive appointment)}}{\text{Total number of discharges} *} \times 100$$

- % discharged non-response (non-response rate) =

- = $\frac{\text{Number of children who are classified as non respondents}}{\text{Total number of discharges} *} \times 100$

* Total number of discharges = cured + died + defaulted + non-response

Practical Example

A total of 42 children 6 to 59 Months exited the out-patient therapeutic care of Mamboleo Health Centre at the end of September. The discharge criteria of the 42 children were as follows;

- 32 children cured, 4 defaulted, 3 died, 1 non-response, 2 Transfer out

Calculating outcomes-

Total number of discharges = Cured + Defaulters+ Deaths +Non respondents= 32+4+3+1=40.

Transfer out are excluded since their outcome is not known

To calculate the % discharged cured (cure rate)

Then using the formula

$$\text{Cure Rate} = \frac{\text{Number of children cured}}{\text{Total number of discharges} *} \times 100 = \frac{32}{40} \times 100 = 80\%$$

$$\text{Death rate} = \frac{\text{Number of children who died while on treatment}}{\text{Total number of discharges} *} \times 100 = \frac{3}{40} \times 100 = 7.5\%$$

$$\text{Default rate} = \frac{\text{Number of children who default}}{\text{Total number of discharges} *} \times 100 = \frac{4}{40} \times 100 = 10\%$$

$$\begin{aligned} \text{Non response rate} &= \frac{\text{Number of children who are classified as non respondents}}{\text{Total number of discharges} *} \times 100 \\ &= \frac{1}{40} \times 100 = 2.5\% \end{aligned}$$

Note: Monthly outcome indicators are calculated for IMAM for children 6-59 months and pregnant and lactating women. Inpatient care site reports only calculate these indicators if children 6-59 months remain in the IMAM inpatient care service until full recovery (large number of special cases or no outpatient care available).

Coverage

Coverage is an indicator expressing service availability, access and uptake. It indicates how well a service is accessed and utilized. Currently, different methods exist to measure coverage for IMAM. The methods are being refined and adapted for routine implementation and measuring coverage of IMAM as an integrated service into national health systems. If coverage information is available, it is important to specify the methods used for estimating the service coverage (e.g., SQUEAC).

Supportive Supervision

As part of the monitoring and reporting system, it is important to have focused attention on having a continuous quality improvement system in place. Supportive supervision of county and sub-county health managers and health facility care providers in data collection, analysis and reporting; helps to ensure accurate information at prescribed periods of time, and to ascertain both the quality of information and its usage to strengthen the quality of IMAM services.

Supervisors should perform regular supportive supervision visits and use a standardized checklist to systematically cover specific job functions to assess and address service performance (refer to **On-Job Training Guide for High Impact Nutrition Interventions version 2, November 2012 available from the MoH**). At the same time, the supervisor is a mentor and he/she should use the opportunity to provide support to health facility workers and community health volunteers based on their identified needs and observed needs and strengthen capacities for improving quality.

Supervision for improving quality of protocol implementation entails monitoring admission and discharge trends and adherence to protocols. Accurate recording and compilation of information regarding admissions, re-admissions and referrals, and discharges from IMAM sites is important. Analysis of the IMAM data is essential for both supervisor and implementer as it provides important information about the performance of individual sites and can be used to ensure actions be taken to improve service quality.

8.1.7 Supervision of Services

Focus Area of Management of Severe Acute Malnutrition (See page 22 in the On-Job Training Guide for High Impact Nutrition Interventions)

Supervisors should assess that the health facility has the capacity to:

- Conduct Triage.
- Diagnose and Treat medical complications appropriately.
- Schedule routine medication for all phases as per IMAM guidelines.
- Prepare and administer F-75, F-100, RUTF and glucose water.

- Transfer SAM clients from one phase to another within the inpatient care unit and know when to do so.
- Provide accurate monthly programme performance indicators and stock report.

Focus Area of Management of Severe Acute Malnutrition for infants < 6 months (See page 23 in the On-Job Training Guide for High Impact Nutrition Interventions)

- Provide nutrition support for breastfed and non-breastfed infants.
- To prepare diluted F100 and how to perform supplemental suckling technique.
- Correctly dispense routine medication.
- Follow admission and discharge criteria.

Focus Area of Management of Severe Acute Malnutrition – Out-Patient (See page 24 in the On-Job Training Guide for High Impact Nutrition Interventions)

- Correctly conduct triage for severely malnourished children.
- Correctly apply treatment protocols for IMAM.
- Correctly keep records for OTP.
- Provide accurate monthly programme performance indicators and stock report.
- Apply an appropriate community referral system.

Focus Area of Management of Moderate Acute Malnutrition - (See page 25 in the On-Job Training Guide for High Impact Nutrition Interventions)

- Correctly conduct triage for MAM client.
- Apply proper screening and referral criteria.
- Take accurate anthropometric measurements and determine Z scores.
- Correctly provide routine medication immunization and micronutrient supplements as per guideline.
- Provides correct rations for MAM if available and nutrition counseling as per guidelines.
- Provide accurate monthly programme performance indicators and stock report.

Focus Area of Management of Growth Monitoring and Promotion- (See page 26 in the On-Job Training Guide for High Impact Nutrition Interventions)

- Accurately take weight.
- Accurately take height.
- Accurately chart the weight and height on the child health booklet.
- Interpret the growth curve on the child health booklet.
- Conduct nutrition counseling on growth monitoring and promotion.

Focus Area of Management of Community Interventions for Management of Acute Malnutrition- (See page 27 in the On-Job Training Guide for High Impact Nutrition Interventions)

- Do active case finding.
- Screen and refer malnourished children accurately.
- Conduct nutrition counseling in an appropriate way.
- Disseminate key messages consistently.
- Trace defaulters.
- Correctly keep records for case findings and defaulter tracing (for CHVs).

Regularly reviewing treatment cards, particularly of those children under treatment and of those who have defaulted, died, who did not respond to treatment or did not recover, can identify weaknesses in community outreach, the management of individual cases, or service delivery. Treatment cards and site reports reveal if admissions and discharges are carried out according to these guidelines, routine medicine and dietary treatments are administered correctly, and bilateral pitting oedema is properly assessed. They highlight if deterioration in the condition of the child is identified and acted upon according to the action protocol and whether these children who are not thriving are referred for medical investigation before they are discharged as non-recovered. Review findings should be discussed with implementing health facility workers so that necessary improvements can be made.

Supervision of Operational Management of Sites

Supervisors should also review the following:

- Organizational structure of service delivery.
- Crowd management.
- Supply flow and stock management for medicines, therapeutic foods and supplementary foods.
- Organization of human resources.
- Quality of health and nutrition group sessions at the health facility and in the communities.
- Links with community outreach.
- Links with other community services.

Feedback of Information

Health facility workers and supervisors at out-patient care, in-patient care and supplementary feeding sites and those involved in community outreach should hold regular meetings to discuss performance using the monitoring data at all levels of the health system i.e. community, facility, sub county, county and National.

Nutrition Commodity reporting

Nutrition commodities are issued to the clients based on the treatment protocols and recorded in the client registers (MOH 368, MOH 409, MOH 410A and MOH 410B).

At the end of the month the Nutrition commodities consumed by each facility is recorded in the Facility Consumption Data Reporting and Request (FCDRR) tool, MOH 734, and sent to the sub county for entry into the LMIS and KHIS.

The elements of the FCDRR are included in **Annex 10**

8.2 Supply Chain management

8.2.1 Overview

Nutrition commodities and equipment are a key component of the prevention and management of malnutrition along the life course. A healthy nutrition supply chain is a critical component of IMAM. Regardless of the numbers of malnourished individuals requiring treatment, it is important to have a solid plan for supplies to be used in their management. The plan is critical for effective resource allocation and eventually contribute to the good performance of the programme.

An effective and efficient supply chain system includes accurate forecasting and quantification, procurement, timely ordering, warehousing and distribution, reporting and monitoring (including monitoring at beneficiary level). Other key requirements include the safety and the security of the supplies, capacity of the health care providers and availability of data collection and reporting tools.

This part details the various aspects of nutrition supply chain system for an effective IMAM programme.

8.2.2 Forecasting and Quantification

Forecasting and quantification of nutrition supplies is a key component of IMAM programme. Quantification is the process of estimating the quantities and costs of the products required for the programme and determining when the products should be delivered while forecasting is the process of estimating the quantities of products that will be dispensed or used.

The process ensures data on specific commodity requirements and costs is available for the government's annual budget allocations. It also informs funding requirements, advocates for resource mobilization for commodity procurement and assesses stock status of the supply pipeline to identify and correct supply imbalances in addition to providing estimates of commodity procurement, storage, and distribution costs.

In planning a programme and organizing supplies for IMAM services, detailed information about all the health facilities in the sub-county and county is key. The required information includes: **the population by catchment of the health facility (disaggregated by age and sex); staffing positions; storage space, available modes of transportation and road conditions; supply chain for immunizations, routine medications, food commodities and documentation of all intervention processes.**

Estimating the number of expected clients also helps to plan for resources accordingly, and aids with supply distribution equitably within the health facilities. It is possible to estimate

the expected number of severely and moderately acute malnourished clients by using the nutritional data recorded at each health facility to calculate average client loads expected per health facility. It is therefore important that each health facility maintains good records for malnourished clients.

How to Calculate Quantity of Required Supplies

An accurate estimate of supplies is essential to avoid supply shortages or over-supply that can result in wastage. While calculating the actual amount of food and drugs required, it should be noted that:

1. The total amount of food required is calculated as follows: Quantity per person per day x No. of beneficiaries to be covered x Expected duration in days = Total supplies required.
2. Facility level resupply calculation-FCDRR.
3. Each month, the number of children should be adjusted accordingly.
4. Care should be taken that the total supplies are presented in correct reference units.
5. Additional estimates need to be made as buffer to cater for any unforeseen needs.
6. The list should not be used as a reference document for drugs.

Calculation of Nutrition Commodities Quantities to be resupplied to health facilities

An accurate estimate of resupply of nutrition commodities to the health facilities is essential to avoid supply shortages or over-supply. It is paramount that health facilities have 3 months' supplies at any one time, (2 months of stocks and 1 month of buffer stocks).

Calculation:

Quantity for resupply = Quantity dispensed × 3 – physical count (in reference to FCDRR/MOH 734).

Procurement

Procurement of nutrition commodities is predominantly done by the Kenya Medical Supplies Authority (KEMSA) which is a state corporation under the Ministry of Health established under the KEMSA Act 2013. The sourcing and procurement of supplies should be channeled through the MoH supply chain system unless an emergency arises, and other actors must source and distribute the commodities.

The list of specialized nutrition commodities tested and approved for use in Kenya is available in **Annex 17** and the indicative price for key IMAM commodities is also available in **Annex 21**. The indicative prices do not include the costs and risks in transport and external transport rates (overland or ocean rates) which must be considered as well. A 5 – 10 percent of commodity value is usually added to cover for the transport.

If it is not possible to procure through the MoH supply chain systems and supplies must be procured elsewhere, refer to National Food Safety Guidelines for guidance. The supplies to be procured must also comply with the **MoH Nutrition Programme Technical Specification for Nutrition Commodities**.

Before commodities are purchased (whether on the international, regional or local markets), a proposal/decision is made on the procurement type, to ensure a comprehensive and meaningful comparison and to make the best decision. The prices at

the above-mentioned markets need to be estimated and the technical specifications must meet the standards set in the MoH Technical Specifications for Nutrition Commodities document.

8.2.3 Commodity Reporting and Monitoring through the Logistics Management Information System (LMIS)

The Logistics Management Information Systems (LMIS) is an online/ web-based system facilitated by KEMSA to ensure availability of medical commodities to all clients in line with the national health policy. LMIS automatically calculates the resupply quantities of various nutrition supplies for each health facility based on the data provided. The LMIS has facilitated KEMSA to aggregate, analyze, validate and display data that can be used to make logistical decisions and manage the supply chain.

All staff in health facilities implementing IMAM services should be trained on facility consumption data report and request (FCDRR) to ensure adequate knowledge and skills in accurate ordering and reporting. The County and Sub-County Health Management Teams must also be sensitized on Logistics Management Information System for timely, accurate and consistent reporting on monthly basis. 100 percent FCDRR reports for all facilities implementing IMAM services is expected on a monthly basis for rationalization and timely resupply.

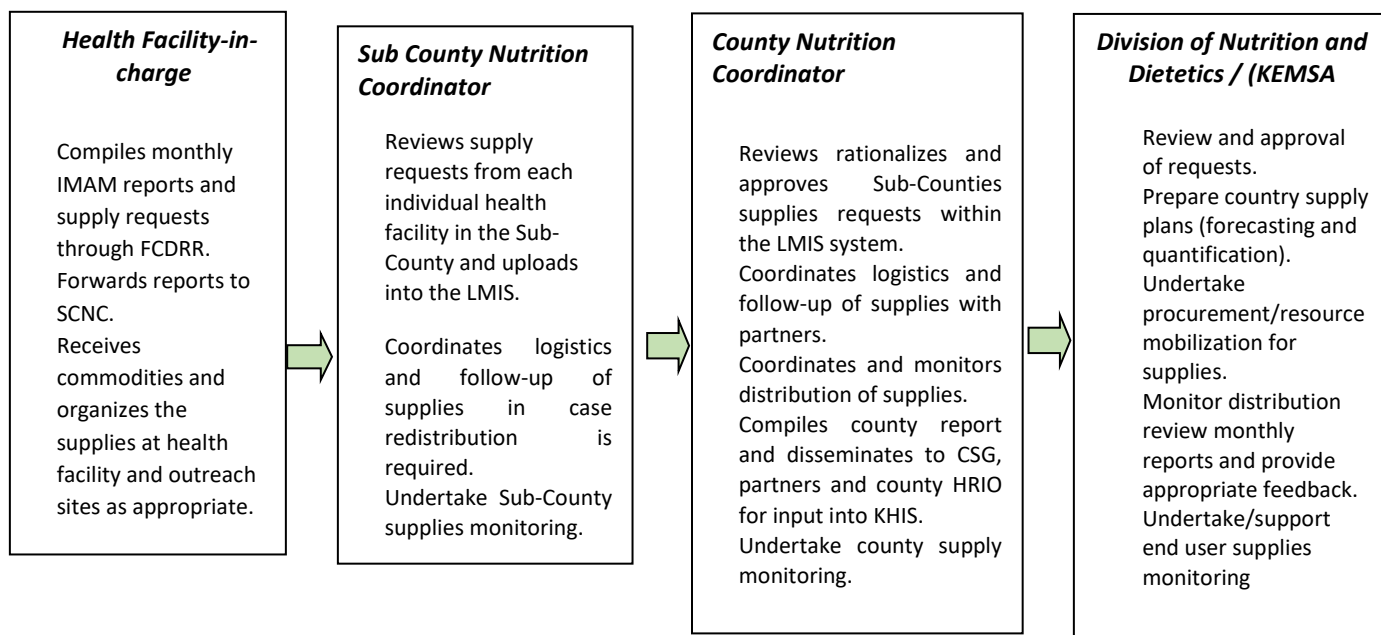
Refer to **Annex 19** for instructions on completing the Facility Consumption Data report and Request (FCDRR) tool for nutrition commodities for satellite sites.

Feedback on quality and timeliness of LMIS reports is shared on a monthly basis for reflection and utilization through evidence-based decision making for all the counties. LMIS system is accessed through <https://lmis.kemsa.co.ke>.

Features of the LMIS system

- 1) Multiple facility consumption Data Report and Request (FCDRR) uploading functionality for the Sub-County Teams. Upload in 1 minute for more than 30 Facilities FCDRRs, hence very efficient.
- 2) Better user experience in preparation of reports during data entry and uploading.
- 3) More Lite and improved performance (improved speed).
- 4) Validations incorporated at the initial stage of data entry and uploading to check data quality.
- 5) Self-service Password Management System for right based individualized login into account.
- 6) Ability to generate National, County, Sub-County, Facility Programme Workbooks and Reports for evidence-based decision making.
- 7) Approval by CNCs (System based), forward FCDRRs to KEMSA customer service analyst who generates monthly orders and share with national programmes for rationalization and final approval.

Figure 8.1: Flow Chart of MoH Nutrition commodities request and reporting system



Note: Where procurement is being undertaken directly by counties, the Division of Nutrition and dietetics (DND) in consultation with the counties will provide support on commodities specifications, quality and safety of commodities. DND can also undertake procurement during emergency situations

8.2.4 Supply Storage and Handling

Proper handling of supplies is of utmost importance as damage leads to waste/losses. The CNC should ensure that adequate storage is available at each health facility before requests are fulfilled.

Warehousing, transportation and delivery of nutrition commodities to health facilities is undertaken by KEMSA;

- KEMSA provides centralized warehousing facilities to Ministry of Health and partners supporting MoH e.g. UNICEF, WFP, etc.
- KEMSA provide inventory tracking and order management.
- KEMSA Customer Service Analysts, upon receipt of the orders from the counties generate order reports, share for approval by DND and other relevant partners.
- Upon approval, KEMSA processes, picks and delivers orders to the doorstep of health facilities in all IMAM facilities in various counties.
- Health facilities staff verify and confirm quantities resupplied against delivery note/waybills and upon confirmation they sign and stamp delivery note.

Storage⁴⁵

Selecting a good store for nutrition commodities

⁴⁵WHO 2000. The Management of Nutrition in Major Emergencies

Before an existing building – whether originally designed for food storage or otherwise – is accepted for storage of nutrition commodities, the following aspects should be considered, and appropriate action taken:

Security; The buildings must be secure against theft, with strong locks on all doors and all other openings secured.

Site; The area should be assessed for any risk of contamination from industrial pollution and rodent infestation. There should be no large trees near the store and the vegetation should be cleared. The site should be free from risk of flooding and drainage should be adequate.

Roof; The roof should be inspected for leaks. This is most easily achieved during or just after rain.

Floors; Concrete floors are preferable, but an earth or sand floor will suffice in emergencies. If there are rodent entry points the floor should be covered with 100 mm of concrete. Dunnage must be used on floors where ground moisture can penetrate.

Walls; These should be rodent proof, with all known entry points well sealed. Any windows should be covered with at least 12-mm thick wooden planks or welded metal for security.

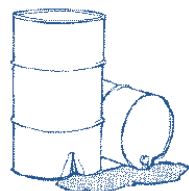
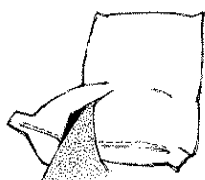
Hygiene; There will need to be sanitary facilities for staff, and provisions for the disposal of waste materials from the store.

Existing buildings should be thoroughly cleaned before use as food stores; dirty buildings need only be rejected if they cannot be cleaned.

Storage of nutrition commodities:

- The store should be cleaned before the arrival of the food commodities.
- When receiving the commodities, check the waybill before offloading to confirm whether the commodities have been delivered to the right place.
- Check to see the type of commodities and the quantity to enable you to layout the store.
- Check to see the commodities are in good condition and tally them one by one noting all the inconsistencies.

Figure 8.2: Check for spillage or leakages



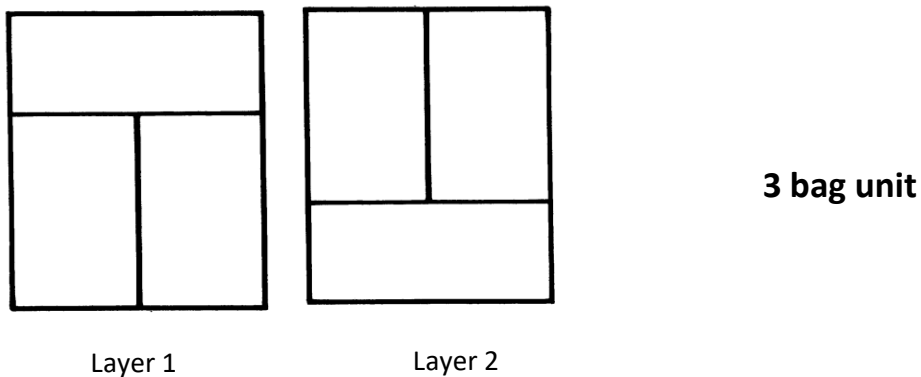
Check for spillage or leakages

- Record all inconsistencies and acknowledge receipt.
- Products are kept at least 1 m away from the walls and 20 cm off the floor to allow access

all round for inspection, pest control and physical audit, and to permit free circulation of air.

- All commodities should not be stacked directly on the floor because there is risk of moisture from the ground rising into the stack. They should be stacked on a moisture-proof floor cover, such as polythene sheeting, or wooden pallets. If pallets are not available, use of improvised ones from poles can do.
- Damaged bags/boxes must be kept apart from the undamaged (possibly in a separate area); a reserve of good empty bags should be kept so that goods from damaged bags can be repacked.
- The most common stacking method is the same layer method as illustrated in the figure below;

Figure 8.3: Common stacking methods



- Stacks should be no higher than two meters (2m). This makes handling easier and reduces the risk of stacks falling. It is also important to always check on the stacking instruction on packages. Some commodities have specific layer allowed to stack and cannot go beyond some height to avoid damages on those stacked below.

Figure 8.4: Correct and wrong stacking methods



- Each product is stored separately depending on the type, packaging, expiry and 'Best

Use 'Before' date. Every stack must have a stock card/ bin card to register all stock movement to and from the stack.

- Access to the warehouse is limited to a few authorized individuals. The store must have a lock that the responsible person keeps. Routine inspection should be done to check for damages by pests, king and mouldings, theft, leakages, etc.
- In higher level health facilities where dedicated pharmacy staff are available, nutrition commodities should be stored at the pharmacy and dispensed at the pharmacy or the service delivery point in coordination with the pharmacist.
- Records of receipts and dispatches, together with a daily record of stock balance, are the minimum documentation requirements for normal management of a store. The balance on the stock cards should be checked periodically by counting the actual number of items in the store. The stock/bin card should be updated alongside stock movement.
- The store should be maintained clean by sweeping daily. Empty packaging materials, chemicals and other NFIs should be kept outside the store.
- Stocks should be rotated based on first expiry, first-out. New deliveries are not to be stacked on top or in front of old stock. Old stocks should be issued before new supplies.

The health facility in charge must confirm and only receive supplies labeled for their facility. Before signing the waybill, the health facility in charge must confirm the quantities and note any discrepancies in the comments section of the waybill.

8.2.5 Inventory Management

Inventory management refers to the process of requesting for, receiving, storing, and issuing of health commodities to various sites or service dispensing points.

An inventory control system informs the storekeeper when to order or issue, how much to order or issue, and how to maintain an appropriate stock level of all products to avoid shortages and oversupply. The worst—and most preventable—thing is for your health facility to have a stock out (i.e. you run out of stock). The best way to ensure that you do not have a stock out in a health facility is to establish an inventory control system.

An inventory control system informs the storekeeper when to order or issue, how much to order or issue, and how to maintain an appropriate stock level of all products to avoid shortages and oversupply.

8.3 Coordination

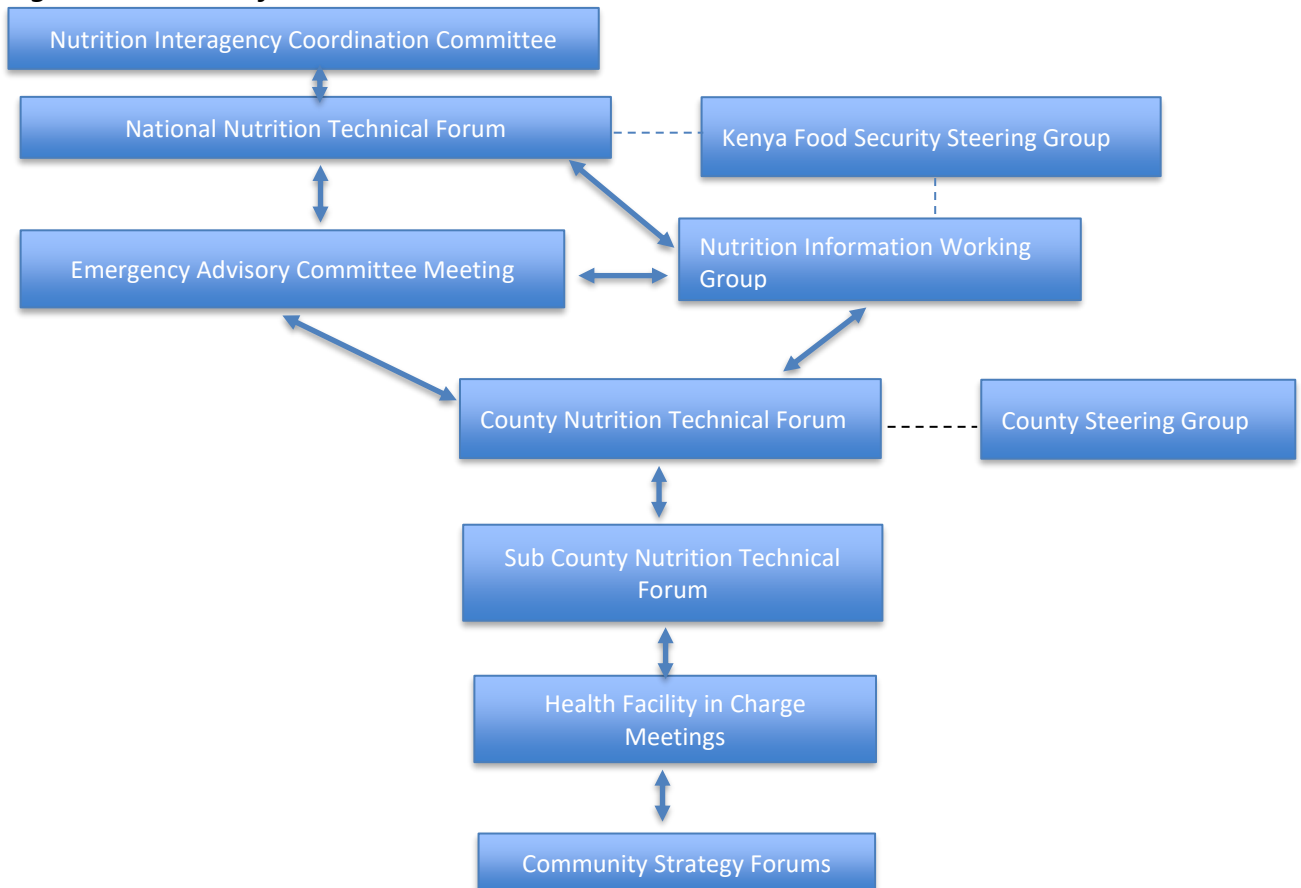
This is a critical element that supports and enables programme management processes. Coordination forums should be instituted with clear Terms of Reference (TOR) that facilitate a deep interrogation into the IMAM programme. The TOR should bring partners and government as well as other key stakeholders who can support the IMAM programme and related processes together at a minimum, once a month. The chair of the forum should ideally be government with a suitable co - chair who has requisite capacity in IMAM. Other relevant health departments like Community Strategy, TB, HIV should also be members as IMAM cuts across the morbidities. The Health Records and M&E representation is also extremely crucial to ensure programme data is managed and reported on time as well as having opportunities to conduct coverage assessments and other assessments that give

better inference to programme coverage. Actors in supply chain for IMAM need to be mobilized to be part of the forum as theirs is a key enabler role without which the programme cannot function. Efforts should be made to further diversify membership based on the gaps that need to be addressed e.g. automation of data may need people in ICT to be mobilized to give insight on use of technology (initiatives like mHealth).

Coordination should enable the team interrogate service delivery, capacity, advocacy and resource mobilization as well as enable the team take strategic decisions. At national level, the IMAM programme is covered within the Emergency Nutrition Advisory Committee (ENAC) with dedicated forums dubbed “Deep Dives” “Clinics” being organized to delve deeper into the programme issues given the extensive ToR of the committee. Further discussions should be held with the county implementing groups, complemented by joint monitoring missions. Minutes of the forums with clear resolutions should be made available to the group at national and county level.

At county level, the teams should leverage the County Nutrition Technical Forum and ensure IMAM discussions are well discussed, trickling from the facilities, sub-county all the way to the county to enable the team take strategic decisions. The facility level meetings should delve into deeper, routine issues focusing on the processes that have a bearing on the programme outcomes. They should also bring together the community level considerations which is the lowest level of service delivery and of contact with those attending the programme.

Figure 8.5: Levels of coordination



Key outputs from the coordination process include

- Annual work plans: detailing out the programme scope for the year.
- Capacity support plan: indicates what capacity elements are needed e.g. support supervision, trainings etc. for the programme to be able to perform to per.
- Quality improvement plan: this will detail out what elements need to be addressed for redress and how they will be addressed e.g. high defaulting.
- Supply chain and logistics plan for IMAM commodities.
- Minutes of the forums with key action points included.
- Advocacy and resource mobilization plan for the programme.

Annexes




Annex 1: Weight for Length Reference Tables

Weight-for-Length BOYS Birth to 2years (z-scores)							cm	Weight-for-Length GIRLS Birth to 2years (z-scores)						
-3SD	-2SD	-1SD	Median	1SD	2SD	3SD		-3SD	-2SD	-1SD	Median	1SD	2SD	3SD
1.9	2.0	2.2	2.4	2.7	3.0	3.3	45.0	1.9	2.1	2.3	2.5	2.7	3.0	3.3
1.9	2.1	2.3	2.5	2.8	3.1	3.4	45.5	2.0	2.1	2.3	2.5	2.8	3.1	3.4
2.0	2.2	2.4	2.6	2.9	3.1	3.5	46.0	2.0	2.2	2.4	2.6	2.9	3.2	3.5
2.1	2.3	2.5	2.7	3.0	3.2	3.6	46.5	2.1	2.3	2.5	2.7	3.0	3.3	3.6
2.1	2.3	2.5	2.8	3.0	3.3	3.7	47.0	2.2	2.4	2.6	2.8	3.1	3.4	3.7
2.2	2.4	2.6	2.9	3.1	3.4	3.8	47.5	2.2	2.4	2.6	2.9	3.2	3.5	3.8
2.3	2.5	2.7	2.9	3.2	3.6	3.9	48.0	2.3	2.5	2.7	3.0	3.3	3.6	4.0
2.3	2.6	2.8	3.0	3.3	3.7	4.0	48.5	2.4	2.6	2.8	3.1	3.4	3.7	4.1
2.4	2.6	2.9	3.1	3.4	3.8	4.2	49.0	2.4	2.6	2.9	3.2	3.5	3.8	4.2
2.5	2.7	3.0	3.2	3.5	3.9	4.3	49.5	2.5	2.7	3.0	3.3	3.6	3.9	4.3
2.6	2.8	3.0	3.3	3.6	4.0	4.4	50.0	2.6	2.8	3.1	3.4	3.7	4.0	4.5
2.7	2.9	3.1	3.4	3.8	4.1	4.5	50.5	2.7	2.9	3.2	3.5	3.8	4.2	4.6
2.7	3.0	3.2	3.5	3.9	4.2	4.7	51.0	2.8	3.0	3.3	3.6	3.9	4.3	4.8
2.8	3.1	3.3	3.6	4.0	4.4	4.8	51.5	2.8	3.1	3.4	3.7	4.0	4.4	4.9
2.9	3.2	3.5	3.8	4.1	4.5	5.0	52.0	2.9	3.2	3.5	3.8	4.2	4.6	5.1
3.0	3.3	3.6	3.9	4.2	4.6	5.1	52.5	3.0	3.3	3.6	3.9	4.3	4.7	5.2
3.1	3.4	3.7	4.0	4.4	4.8	5.3	53.0	3.1	3.4	3.7	4.0	4.4	4.9	5.4
3.2	3.5	3.8	4.1	4.5	4.9	5.4	53.5	3.2	3.5	3.8	4.2	4.6	5.0	5.5
3.3	3.6	3.9	4.3	4.7	5.1	5.6	54.0	3.3	3.6	3.9	4.3	4.7	5.2	5.7
3.4	3.7	4.0	4.4	4.8	5.3	5.8	54.5	3.4	3.7	4.0	4.4	4.8	5.3	5.9
3.6	3.8	4.2	4.5	5.0	5.4	6.0	55.0	3.5	3.8	4.2	4.5	5.0	5.5	6.1
3.7	4.0	4.3	4.7	5.1	5.6	6.1	55.5	3.6	3.9	4.3	4.7	5.1	5.7	6.3
3.8	4.1	4.4	4.8	5.3	5.8	6.3	56.0	3.7	4.0	4.4	4.8	5.3	5.8	6.4
3.9	4.2	4.6	5.0	5.4	5.9	6.5	56.5	3.8	4.1	4.5	5.0	5.4	6.0	6.6
4.0	4.3	4.7	5.1	5.6	6.1	6.7	57.0	3.9	4.3	4.6	5.1	5.6	6.1	6.8
4.1	4.5	4.9	5.3	5.7	6.3	6.9	57.5	4.0	4.4	4.8	5.2	5.7	6.3	7.0
4.3	4.6	5.0	5.4	5.9	6.4	7.1	58.0	4.1	4.5	4.9	5.4	5.9	6.5	7.1
4.4	4.7	5.1	5.6	6.1	6.6	7.2	58.5	4.2	4.6	5.0	5.5	6.0	6.6	7.3
4.5	4.8	5.3	5.7	6.2	6.8	7.4	59.0	4.3	4.7	5.1	5.6	6.2	6.8	7.5
4.6	5.0	5.4	5.9	6.4	7.0	7.6	59.5	4.4	4.8	5.3	5.7	6.3	6.9	7.7
4.7	5.1	5.5	6.0	6.5	7.1	7.8	60.0	4.5	4.9	5.4	5.9	6.4	7.1	7.8
4.8	5.2	5.6	6.1	6.7	7.3	8.0	60.5	4.6	5.0	5.5	6.0	6.6	7.3	8.0
4.9	5.3	5.8	6.3	6.8	7.4	8.1	61.0	4.7	5.1	5.6	6.1	6.7	7.4	8.2
5.0	5.4	5.9	6.4	7.0	7.6	8.3	61.5	4.8	5.2	5.7	6.3	6.9	7.6	8.4
5.1	5.6	6.0	6.5	7.1	7.7	8.5	62.0	4.9	5.3	5.8	6.4	7.0	7.7	8.5
5.2	5.7	6.1	6.7	7.2	7.9	8.6	62.5	5.0	5.4	5.9	6.5	7.1	7.8	8.7
5.3	5.8	6.2	6.8	7.4	8.0	8.8	63.0	5.1	5.5	6.0	6.6	7.3	8.0	8.8
5.4	5.9	6.4	6.9	7.5	8.2	8.9	63.5	5.2	5.6	6.2	6.7	7.4	8.1	9.0
5.5	6.0	6.5	7.0	7.6	8.3	9.1	64.0	5.3	5.7	6.3	6.9	7.5	8.3	9.1
5.6	6.1	6.6	7.1	7.8	8.5	9.3	64.5	5.4	5.8	6.4	7.0	7.6	8.4	9.3


5.7	6.2	6.7	7.3	7.9	8.6	9.4	65.0	5.5	5.9	6.5	7.1	7.8	8.6	9.5
5.8	6.3	6.8	7.4	8.0	8.7	9.6	65.5	5.5	6.0	6.6	7.2	7.9	8.7	9.6
5.9	6.4	6.9	7.5	8.2	8.9	9.7	66.0	5.6	6.1	6.7	7.3	8.0	8.8	9.8
6.0	6.5	7.0	7.6	8.3	9.0	9.9	66.5	5.7	6.2	6.8	7.4	8.1	9.0	9.9
6.1	6.6	7.1	7.7	8.4	9.2	10.0	67.0	5.8	6.3	6.9	7.5	8.3	9.1	10.0
6.2	6.7	7.2	7.9	8.5	9.3	10.2	67.5	5.9	6.4	7.0	7.6	8.4	9.2	10.2
6.3	6.8	7.3	8.0	8.7	9.4	10.3	68.0	6.0	6.5	7.1	7.7	8.5	9.4	10.3
6.4	6.9	7.5	8.1	8.8	9.6	10.5	68.5	6.1	6.6	7.2	7.9	8.6	9.5	10.5
6.5	7.0	7.6	8.2	8.9	9.7	10.6	69.0	6.1	6.7	7.3	8.0	8.7	9.6	10.6
6.6	7.1	7.7	8.3	9.0	9.8	10.8	69.5	6.2	6.8	7.4	8.1	8.8	9.7	10.7
6.6	7.2	7.8	8.4	9.2	10.0	10.9	70.0	6.3	6.9	7.5	8.2	9.0	9.9	10.9
6.7	7.3	7.9	8.5	9.3	10.1	11.1	70.5	6.4	6.9	7.6	8.3	9.1	10.0	11.0
6.8	7.4	8.0	8.6	9.4	10.2	11.2	71.0	6.5	7.0	7.7	8.4	9.2	10.1	11.1
6.9	7.5	8.1	8.8	9.5	10.4	11.3	71.5	6.5	7.1	7.7	8.5	9.3	10.2	11.3
7.0	7.6	8.2	8.9	9.6	10.5	11.5	72.0	6.6	7.2	7.8	8.6	9.4	10.3	11.4
7.1	7.6	8.3	9.0	9.8	10.6	11.6	72.5	6.7	7.3	7.9	8.7	9.5	10.5	11.5
7.2	7.7	8.4	9.1	9.9	10.8	11.8	73.0	6.8	7.4	8.0	8.8	9.6	10.6	11.7
7.2	7.8	8.5	9.2	10.0	10.9	11.9	73.5	6.9	7.4	8.1	8.9	9.7	10.7	11.8
7.3	7.9	8.6	9.3	10.1	11.0	12.1	74.0	6.9	7.5	8.2	9.0	9.8	10.8	11.9
7.4	8.0	8.7	9.4	10.2	11.2	12.2	74.5	7.0	7.6	8.3	9.1	9.9	10.9	12.0
7.5	8.1	8.8	9.5	10.3	11.3	12.3	75.0	7.1	7.7	8.4	9.1	10.0	11.0	12.2
12.3	11.1	10.1	9.2	8.5	7.8	12.5	75.5	7.6	8.2	8.8	9.6	10.4	11.4	12.5
12.4	11.2	10.2	9.3	8.5	7.8	12.6	76.0	7.6	8.3	8.9	9.7	10.6	11.5	12.6
12.5	11.4	10.3	9.4	8.6	7.9	12.7	76.5	7.7	8.3	9.0	9.8	10.7	11.6	12.7
12.6	11.5	10.4	9.5	8.7	8.0	12.8	77.0	7.8	8.4	9.1	9.9	10.8	11.7	12.8
12.8	11.6	10.5	9.6	8.8	8.1	13.0	77.5	7.9	8.5	9.2	10.0	10.9	11.9	13.0
12.9	11.7	10.6	9.7	8.9	8.2	13.1	78.0	7.9	8.6	9.3	10.1	11.0	12.0	13.1
13.0	11.8	10.7	9.8	9.0	8.2	13.2	78.5	8.0	8.7	9.4	10.2	11.1	12.1	13.2
13.1	11.9	10.8	9.9	9.1	8.3	13.3	79.0	8.1	8.7	9.5	10.3	11.2	12.2	13.3
13.3	12.0	10.9	10.0	9.1	8.4	13.4	79.5	8.2	8.8	9.5	10.4	11.3	12.3	13.4
13.4	12.1	11.0	10.1	9.2	8.5	13.6	80.0	8.2	8.9	9.6	10.4	11.4	12.4	13.6
13.5	12.3	11.2	10.2	9.3	8.6	13.7	80.5	8.3	9.0	9.7	10.5	11.5	12.5	13.7
13.7	12.4	11.3	10.3	9.4	8.7	13.8	81.0	8.4	9.1	9.8	10.6	11.6	12.6	13.8
13.8	12.5	11.4	10.4	9.5	8.8	13.9	81.5	8.5	9.1	9.9	10.7	11.7	12.7	13.9
13.9	12.6	11.5	10.5	9.6	8.8	14.0	82.0	8.5	9.2	10.0	10.8	11.8	12.8	14.0
14.1	12.8	11.6	10.6	9.7	8.9	14.2	82.5	8.6	9.3	10.1	10.9	11.9	13.0	14.2
14.2	12.9	11.8	10.7	9.8	9.0	14.3	83.0	8.7	9.4	10.2	11.0	12.0	13.1	14.3
14.4	13.1	11.9	10.9	9.9	9.1	14.4	83.5	8.8	9.5	10.3	11.2	12.1	13.2	14.4
14.5	13.2	12.0	11.0	10.1	9.2	14.6	84.0	8.9	9.6	10.4	11.3	12.2	13.3	14.6
14.7	13.3	12.1	11.1	10.2	9.3	14.7	84.5	9.0	9.7	10.5	11.4	12.4	13.5	14.7
14.9	13.5	12.3	11.2	10.3	9.4	14.9	85.0	9.1	9.8	10.6	11.5	12.5	13.6	14.9
15.0	13.6	12.4	11.3	10.4	9.5	15.0	85.5	9.2	9.9	10.7	11.6	12.6	13.7	15.0
15.2	13.8	12.6	11.5	10.5	9.7	15.2	86.0	9.3	10.0	10.8	11.7	12.8	13.9	15.2
15.4	13.9	12.7	11.6	10.6	9.8	15.3	86.5	9.4	10.1	11.0	11.9	12.9	14.0	15.3
15.5	14.1	12.8	11.7	10.7	9.9	15.5	87.0	9.5	10.2	11.1	12.0	13.0	14.2	15.5
15.7	14.2	13.0	11.8	10.9	10.0	15.6	87.5	9.6	10.4	11.2	12.1	13.2	14.3	15.6
15.9	14.4	13.1	12.0	11.0	10.1	15.8	88.0	9.7	10.5	11.3	12.2	13.3	14.5	15.8

16.0	14.5	13.2	12.1	11.1	10.2	15.9	88.5	9.8	10.6	11.4	12.4	13.4	14.6	15.9
16.2	14.7	13.4	12.2	11.2	10.3	16.1	89.0	9.9	10.7	11.5	12.5	13.5	14.7	16.1
16.4	14.8	13.5	12.3	11.3	10.4	16.2	89.5	10.0	10.8	11.6	12.6	13.7	14.9	16.2
16.5	15.0	13.7	12.5	11.4	10.5	16.4	90.0	10.1	10.9	11.8	12.7	13.8	15.0	16.4
16.7	15.1	13.8	12.6	11.5	10.6	16.5	90.5	10.2	11.0	11.9	12.8	13.9	15.1	16.5
10.3	11.1	12.0	13.0	14.1	15.3	16.7	91.0	9.9	10.7	11.7	12.7	13.9	15.3	16.9
10.4	11.2	12.1	13.1	14.2	15.4	16.8	91.5	10.0	10.8	11.8	12.8	14.1	15.5	17.0
10.5	11.3	12.2	13.2	14.3	15.6	17.0	92.0	10.1	10.9	11.9	13.0	14.2	15.6	17.2
10.6	11.4	12.3	13.3	14.4	15.7	17.1	92.5	10.1	11.0	12.0	13.1	14.3	15.8	17.4
10.7	11.5	12.4	13.4	14.6	15.8	17.3	93.0	10.2	11.1	12.1	13.2	14.5	15.9	17.5
10.7	11.6	12.5	13.5	14.7	16.0	17.4	93.5	10.3	11.2	12.2	13.3	14.6	16.1	17.7
10.8	11.7	12.6	13.7	14.8	16.1	17.6	94.0	10.4	11.3	12.3	13.5	14.7	16.2	17.9
10.9	11.8	12.7	13.8	14.9	16.3	17.7	94.5	10.5	11.4	12.4	13.6	14.9	16.4	18.0
11.0	11.9	12.8	13.9	15.1	16.4	17.9	95.0	10.6	11.5	12.6	13.7	15.0	16.5	18.2
11.1	12.0	12.9	14.0	15.2	16.5	18.0	95.5	10.7	11.6	12.7	13.8	15.2	16.7	18.4
11.2	12.1	13.1	14.1	15.3	16.7	18.2	96.0	10.8	11.7	12.8	14.0	15.3	16.8	18.6
11.3	12.2	13.2	14.3	15.5	16.8	18.4	96.5	10.9	11.8	12.9	14.1	15.4	17.0	18.7
11.4	12.3	13.3	14.4	15.6	17.0	18.5	97.0	11.0	12.0	13.0	14.2	15.6	17.1	18.9
11.5	12.4	13.4	14.5	15.7	17.1	18.7	97.5	11.1	12.1	13.1	14.4	15.7	17.3	19.1
11.6	12.5	13.5	14.6	15.9	17.3	18.9	98.0	11.2	12.2	13.3	14.5	15.9	17.5	19.3
11.7	12.6	13.6	14.8	16.0	17.5	19.1	98.5	11.3	12.3	13.4	14.6	16.0	17.6	19.5
11.8	12.7	13.7	14.9	16.2	17.6	19.2	99.0	11.4	12.4	13.5	14.8	16.2	17.8	19.6
11.9	12.8	13.9	15.0	16.3	17.8	19.4	99.5	11.5	12.5	13.6	14.9	16.3	18.0	19.8
12.0	12.9	14.0	15.2	16.5	18.0	19.6	100.0	11.6	12.6	13.7	15.0	16.5	18.1	20.0
12.1	13.0	14.1	15.3	16.6	18.1	19.8	100.5	11.7	12.7	13.9	15.2	16.6	18.3	20.2
12.2	13.2	14.2	15.4	16.8	18.3	20.0	101.0	11.8	12.8	14.8	15.3	16.8	18.5	20.4
12.3	13.3	14.4	15.6	16.9	18.5	20.2	101.5	11.9	13.0	14.1	15.5	17.0	18.7	20.6
12.4	13.4	14.5	15.7	17.1	18.7	20.4	102.0	12.0	13.1	14.3	15.6	17.1	18.9	20.8
12.5	13.5	14.6	15.9	17.3	18.8	20.6	102.5	12.1	13.2	14.4	15.8	17.3	19.0	21.0
12.6	13.6	14.8	16.0	17.4	19.0	20.8	103.0	12.3	13.3	14.5	15.9	17.5	19.2	21.3
12.7	13.7	14.9	16.2	17.6	19.2	21.0	103.5	12.4	13.5	14.7	16.1	17.6	19.4	21.5
12.8	13.9	15.0	16.3	17.8	19.4	21.2	104.0	12.5	13.6	14.8	16.2	17.8	19.6	21.7
12.9	14.0	15.2	16.5	17.9	19.6	21.5	104.5	12.6	13.7	15.0	16.4	18.0	19.8	21.9
13.0	14.1	15.3	16.6	18.1	19.8	21.7	105.0	12.7	13.8	15.1	16.5	18.2	20.0	22.2
13.2	14.2	15.4	16.8	18.3	20.0	21.9	105.5	12.8	14.0	15.3	16.7	18.4	20.2	22.4
13.2	14.4	15.6	16.9	18.5	20.2	22.1	106.0	13.0	14.1	15.4	16.9	18.5	20.5	22.6
13.4	14.5	15.7	17.1	18.6	20.4	22.4	106.5	13.1	14.3	15.6	17.1	18.7	20.7	22.9
13.5	14.6	15.9	17.3	18.8	20.6	22.6	107.0	13.2	14.4	15.7	17.2	18.9	20.9	23.1
13.6	14.7	16.0	17.4	19.0	20.8	22.8	107.5	13.3	14.5	15.9	17.4	19.1	21.1	23.4
13.7	14.9	16.2	17.6	19.2	21.0	23.1	108.0	13.5	14.7	16.0	17.6	19.3	21.3	23.6
13.8	15.0	16.3	17.8	19.4	21.2	23.3	108.5	13.6	14.8	16.2	17.8	19.5	21.6	23.9
14.0	15.1	16.5	17.9	19.6	21.4	23.6	109.0	13.7	15.0	16.4	18.0	19.7	21.8	24.2
14.1	15.3	16.6	18.1	19.8	21.7	23.8	109.5	13.9	15.1	16.5	18.1	20.0	22.0	24.4
14.2	15.4	16.8	18.3	20.0	21.9	24.1	110.0	14.0	15.3	16.7	18.3	20.2	22.3	24.7


Weight for Height Reference tables.

Weight-for-height BOYS 2 to 5 years (z-scores)							cm	Weight-for-height GIRLS 2 to 5 years (z-scores)							 World Health Organization
-3SD	-2SD	-1SD	Median	1SD	2SD	3SD		-3SD	-2SD	-1SD	Median	1SD	2SD	3SD	
5.9	6.3	6.9	7.4	8.1	8.8	9.6	65.0	5.6	6.1	6.6	7.2	7.9	8.7	9.7	
6.0	6.4	7.0	7.6	8.2	8.9	9.8	65.5	5.7	6.2	6.7	7.4	8.1	8.9	9.8	
6.1	6.5	7.1	7.7	8.3	9.1	9.9	66.0	5.8	6.3	6.8	7.5	8.2	9.0	10.0	
6.1	6.6	7.2	7.8	8.5	9.2	10.1	66.5	5.8	6.4	6.9	7.6	8.3	9.1	10.1	
6.2	6.7	7.3	7.9	8.6	9.4	10.2	67.0	5.9	6.4	7.0	7.7	8.4	9.3	10.2	
6.3	6.8	7.4	8.0	8.7	9.5	10.4	67.5	6.0	6.5	7.1	7.8	8.5	9.4	10.4	
6.4	6.9	7.5	8.1	8.8	9.6	10.5	68.0	6.1	6.6	7.2	7.9	8.7	9.5	10.5	
6.5	7.0	7.6	8.2	9.0	9.8	10.7	68.5	6.2	6.7	7.3	8.0	8.8	9.7	10.7	
6.6	7.1	7.7	8.4	9.1	9.9	10.8	69.0	6.3	6.8	7.4	8.1	8.9	9.8	10.8	
6.7	7.2	7.8	8.5	9.2	10.0	11.0	69.5	6.3	6.9	7.5	8.2	9.0	9.9	10.9	
6.8	7.3	7.9	8.6	9.3	10.2	11.1	70.0	6.4	7.0	7.6	8.3	9.1	10.0	11.1	
6.9	7.4	8.0	8.7	9.5	10.3	11.3	70.5	6.5	7.1	7.7	8.4	9.2	10.1	11.2	
6.9	7.5	8.1	8.8	9.6	10.4	11.4	71.0	6.6	7.1	7.8	8.5	9.3	10.3	11.3	
7.0	7.6	8.2	8.9	9.7	10.6	11.6	71.5	6.7	7.2	7.9	8.6	9.4	10.4	11.5	
7.1	7.7	8.3	9.0	9.8	10.7	11.7	72.0	6.7	7.3	8.0	8.7	9.5	10.5	11.6	
7.2	7.8	8.4	9.1	9.9	10.8	11.8	72.5	6.8	7.4	8.1	8.8	9.7	10.6	11.7	
7.3	7.9	8.5	9.2	10.0	11.0	12.0	73.0	6.9	7.5	8.1	8.9	9.8	10.7	11.8	
7.4	7.9	8.6	9.3	10.2	11.1	12.1	73.5	7.0	7.6	8.2	9.0	9.9	10.8	12.0	
7.4	8.0	8.7	9.4	10.3	11.2	12.2	74.0	7.0	7.6	8.3	9.1	10.0	11.0	12.1	
7.5	8.1	8.8	9.5	10.4	11.3	12.4	74.5	7.1	7.7	8.4	9.2	10.1	11.1	12.2	
7.6	8.2	8.9	9.6	10.5	11.4	12.5	75.0	7.2	7.8	8.5	9.3	10.2	11.2	12.3	
7.7	8.3	9.0	9.7	10.6	11.6	12.6	75.5	7.2	7.9	8.6	9.4	10.3	11.3	12.5	
7.7	8.4	9.1	9.8	10.7	11.7	12.8	76.0	7.3	8.0	8.7	9.5	10.4	11.4	12.6	
7.8	8.5	9.2	9.9	10.8	11.8	12.9	76.5	7.4	8.0	8.7	9.6	10.5	11.5	12.7	
7.9	8.5	9.2	10.0	10.9	11.9	13.0	77.0	7.5	8.1	8.8	9.6	10.6	11.6	12.8	
8.0	8.6	9.3	10.1	11.0	12.0	13.1	77.5	7.5	8.2	8.9	9.7	10.7	11.7	12.9	
8.0	8.7	9.4	10.2	11.1	12.1	13.3	78.0	7.6	8.3	9.0	9.8	10.8	11.8	13.1	


8.1	8.8	9.5	10.3	11.2	12.2	13.4	78.5	7.7	8.4	9.1	9.9	10.9	12.0	13.2
8.2	8.8	9.6	10.4	11.3	12.3	13.5	79.0	7.8	8.4	9.2	10.0	11.0	12.1	13.3
8.3	8.9	9.7	10.5	11.4	12.4	13.6	79.5	7.8	8.5	9.3	10.1	11.1	12.2	13.4

Weight-for-height BOYS 2 to 5 years (z-scores)							cm	Weight-for-height GIRLS 2 to 5 years (z-scores)							
-3SD	-2SD	-1SD	Median	1SD	2SD	3SD		-3SD	-2SD	-1SD	Median	1SD	2SD	3SD	
8.3	9.0	9.7	10.6	11.5	12.6	13.7	80.0	7.9	8.6	9.4	10.2	11.2	12.3	13.6	
8.4	9.1	9.8	10.7	11.6	12.7	13.8	80.5	8.0	8.7	9.5	10.3	11.3	12.4	13.7	
8.5	9.2	9.9	10.8	11.7	12.8	14.0	81.0	8.1	8.8	9.6	10.4	11.4	12.6	13.9	
8.6	9.3	10.0	10.9	11.8	12.9	14.1	81.5	8.2	8.9	9.7	10.6	11.6	12.7	14.0	
8.7	9.3	10.1	11.0	11.9	13.0	14.2	82.0	8.3	9.0	9.8	10.7	11.7	12.8	14.1	
8.7	9.4	10.2	11.1	12.1	13.1	14.4	82.5	8.4	9.1	9.9	10.8	11.8	13.0	14.3	
8.8	9.5	10.3	11.2	12.2	13.3	14.5	83.0	8.5	9.2	10.0	10.9	11.9	13.1	14.5	
8.9	9.6	10.4	11.3	12.3	13.4	14.6	83.5	8.5	9.3	10.1	11.0	12.1	13.3	14.6	
9.0	9.7	10.5	11.4	12.4	13.5	14.8	84.0	8.6	9.4	10.2	11.1	12.2	13.4	14.8	
9.1	9.9	10.7	11.5	12.5	13.7	14.9	84.5	8.7	9.5	10.3	11.3	12.3	13.5	14.9	
9.2	10.0	10.8	11.7	12.7	13.8	15.1	85.0	8.8	9.6	10.4	11.4	12.5	13.7	15.1	
9.3	10.1	10.9	11.8	12.8	13.9	15.2	85.5	8.9	9.7	10.6	11.5	12.6	13.8	15.3	
9.4	10.2	11.0	11.9	12.9	14.1	15.4	86.0	9.0	9.8	10.7	11.6	12.7	14.0	15.4	
9.5	10.3	11.1	12.0	13.1	14.2	15.5	86.5	9.1	9.9	10.8	11.8	12.9	14.2	15.6	
9.6	10.4	11.2	12.2	13.2	14.4	15.7	87.0	9.2	10.0	10.9	11.9	13.0	14.3	15.8	
9.7	10.5	11.3	12.3	13.3	14.5	15.8	87.5	9.3	10.1	11.0	12.0	13.2	14.5	15.9	
9.8	10.6	11.5	12.4	13.5	14.7	16.0	88.0	9.4	10.2	11.1	12.1	13.3	14.6	16.1	
9.9	10.7	11.6	12.5	13.6	14.8	16.1	88.5	9.5	10.3	11.2	12.3	13.4	14.8	16.3	
10.0	10.8	11.7	12.6	13.7	14.9	16.3	89.0	9.6	10.4	11.4	12.4	13.6	14.9	16.4	
10.1	10.9	11.8	12.8	13.9	15.1	16.4	89.5	9.7	10.5	11.5	12.5	13.7	15.1	16.6	
10.2	11.0	11.9	12.9	14.0	15.2	16.6	90.0	9.8	10.6	11.6	12.6	13.8	15.2	16.8	
10.3	11.1	12.0	13.0	14.1	15.3	16.7	90.5	9.9	10.7	11.7	12.8	14.0	15.4	16.9	
10.4	11.2	12.1	13.1	14.2	15.5	16.9	91.0	10.0	10.9	11.8	12.9	14.1	15.5	17.1	
10.5	11.3	12.2	13.2	14.4	15.6	17.0	91.5	10.1	11.0	11.9	13.0	14.3	15.7	17.3	
10.6	11.4	12.3	13.4	14.5	15.8	17.2	92.0	10.2	11.1	12.0	13.1	14.4	15.8	17.4	

10.7	11.5	12.4	13.5	14.6	15.9	17.3	92.5	10.3	11.2	12.1	13.3	14.5	16.0	17.6
10.8	11.6	12.6	13.6	14.7	16.0	17.5	93.0	10.4	11.3	12.3	13.4	14.7	16.1	17.8
10.9	11.7	12.7	13.7	14.9	16.2	17.6	93.5	10.5	11.4	12.4	13.5	14.8	16.3	17.9
11.0	11.8	12.8	13.8	15.0	16.3	17.8	94.0	10.6	11.5	12.5	13.6	14.9	16.4	18.1
11.1	11.9	12.9	13.9	15.1	16.5	17.9	94.5	10.7	11.6	12.6	13.8	15.1	16.6	18.3
11.1	12.0	13.0	14.1	15.3	16.6	18.1	95.0	10.8	11.7	12.7	13.9	15.2	16.7	18.5

Weight-for-height BOYS 2 to 5 years (z-scores)							cm	Weight-for-height GIRLS 2 to 5 years (z-scores)							
-3SD	-2SD	-1SD	Median	1SD	2SD	3SD		-3SD	-2SD	-1SD	Median	1SD	2SD	3SD	
11.2	12.1	13.1	14.2	15.4	16.7	18.3	95.5	10.8	11.8	12.8	14.0	15.4	16.9	18.6	
11.3	12.2	13.2	14.3	15.5	16.9	18.4	96.0	10.9	11.9	12.9	14.1	15.5	17.0	18.8	
11.4	12.3	13.3	14.4	15.7	17.0	18.6	96.5	11.0	12.0	13.1	14.3	15.6	17.2	19.0	
11.5	12.4	13.4	14.6	15.8	17.2	18.8	97.0	11.1	12.1	13.2	14.4	15.8	17.4	19.2	
11.6	12.5	13.6	14.7	15.9	17.4	18.9	97.5	11.2	12.2	13.3	14.5	15.9	17.5	19.3	
11.7	12.6	13.7	14.8	16.1	17.5	19.1	98.0	11.3	12.3	13.4	14.7	16.1	17.7	19.5	
11.8	12.8	13.8	14.9	16.2	17.7	19.3	98.5	11.4	12.4	13.5	14.8	16.2	17.9	19.7	
11.9	12.9	13.9	15.1	16.4	17.9	19.5	99.0	11.5	12.5	13.7	14.9	16.4	18.0	19.9	
12.0	13.0	14.0	15.2	16.5	18.0	19.7	99.5	11.6	12.7	13.8	15.1	16.5	18.2	20.1	
12.1	13.1	14.2	15.4	16.7	18.2	19.9	100.0	11.7	12.8	13.9	15.2	16.7	18.4	20.3	
12.2	13.2	14.3	15.5	16.9	18.4	20.1	100.5	11.9	12.9	14.1	15.4	16.9	18.6	20.5	
12.3	13.3	14.4	15.6	17.0	18.5	20.3	101.0	12.0	13.0	14.2	15.5	17.0	18.7	20.7	
12.4	13.4	14.5	15.8	17.2	18.7	20.5	101.5	12.1	13.1	14.3	15.7	17.2	18.9	20.9	
12.5	13.6	14.7	15.9	17.3	18.9	20.7	102.0	12.2	13.3	14.5	15.8	17.4	19.1	21.1	

5														
12.6	13.7	14.8	16.1	17.5	19.1	20.9	102.5	12.3	13.4	14.6	16.0	17.5	19.3	21.4
12.8	13.8	14.9	16.2	17.7	19.3	21.1	103.0	12.4	13.5	14.7	16.1	17.7	19.5	21.6
12.9	13.9	15.1	16.4	17.8	19.5	21.3	103.5	12.5	13.6	14.9	16.3	17.9	19.7	21.8
13.0	14.0	15.2	16.5	18.0	19.7	21.6	104.0	12.6	13.8	15.0	16.4	18.1	19.9	22.0
13.1	14.2	15.4	16.7	18.2	19.9	21.8	104.5	12.8	13.9	15.2	16.6	18.2	20.1	22.3
13.2	14.3	15.5	16.8	18.4	20.1	22.0	105.0	12.9	14.0	15.3	16.8	18.4	20.3	22.5
13.3	14.4	15.6	17.0	18.5	20.3	22.2	105.5	13.0	14.2	15.5	16.9	18.6	20.5	22.7
13.4	14.5	15.8	17.2	18.7	20.5	22.5	106.0	13.1	14.3	15.6	17.1	18.8	20.8	23.0
13.5	14.7	15.9	17.3	18.9	20.7	22.7	106.5	13.3	14.5	15.8	17.3	19.0	21.0	23.2
13.7	14.8	16.1	17.5	19.1	20.9	22.9	107.0	13.4	14.6	15.9	17.5	19.2	21.2	23.5
13.8	14.9	16.2	17.7	19.3	21.1	23.2	107.5	13.5	14.7	16.1	17.7	19.4	21.4	23.7
13.9	15.1	16.4	17.8	19.5	21.3	23.4	108.0	13.7	14.9	16.3	17.8	19.6	21.7	24.0
14.0	15.2	16.5	18.0	19.7	21.5	23.7	108.5	13.8	15.0	16.4	18.0	19.8	21.9	24.3
14.1	15.3	16.7	18.2	19.8	21.8	23.9	109.0	13.9	15.2	16.6	18.2	20.0	22.1	24.5
14.3	15.5	16.8	18.3	20.0	22.0	24.2	109.5	14.1	15.4	16.8	18.4	20.3	22.4	24.8
14.4	15.6	17.0	18.5	20.2	22.2	24.4	110.0	14.2	15.5	17.0	18.6	20.5	22.6	25.1
14.5	15.8	17.1	18.7	20.4	22.4	24.7	110.5	14.4	15.7	17.1	18.8	20.7	22.9	25.4

Weight-for-height BOYS 2 to 5 years (z-scores)							cm	Weight-for-height GIRLS 2 to 5 years (z-scores)							 World Health Organization
-3SD	-2SD	-1SD	Median	1SD	2SD	3SD		-3SD	-	-1SD	Median	1SD	2SD	3SD	

									2SD					
14.6	15.9	17.3	18.9	20.7	22.7	25.0	111.0	14.5	15.8	17.3	19.0	20.9	23.1	25.7
14.8	16.0	17.5	19.1	20.9	22.9	25.2	111.5	14.7	16.0	17.5	19.2	21.2	23.4	26.0
14.9	16.2	17.6	19.2	21.1	23.1	25.5	112.0	14.8	16.2	17.7	19.4	21.4	23.6	26.2
15.0	16.3	17.8	19.4	21.3	23.4	25.8	112.5	15.0	16.3	17.9	19.6	21.6	23.9	26.5
15.2	16.5	18.0	19.6	21.5	23.6	26.0	113.0	15.1	16.5	18.0	19.8	21.8	24.2	26.8
15.3	16.6	18.1	19.8	21.7	23.9	26.3	113.5	15.3	16.7	18.2	20.0	22.1	24.4	27.1
15.4	16.8	18.3	20.0	21.9	24.1	26.6	114.0	15.4	16.8	18.4	20.2	22.3	24.7	27.4
15.6	16.9	18.5	20.2	22.1	24.4	26.9	114.5	15.6	17.0	18.6	20.5	22.6	25.0	27.8
15.7	17.1	18.6	20.4	22.4	24.6	27.2	115.0	15.7	17.2	18.8	20.7	22.8	25.2	28.1
15.8	17.2	18.8	20.6	22.6	24.9	27.5	115.5	15.9	17.3	19.0	20.9	23.0	25.5	28.4
16.0	17.4	19.0	20.8	22.8	25.1	27.8	116.0	16.0	17.5	19.2	21.1	23.3	25.8	28.7
16.1	17.5	19.2	21.0	23.0	25.4	28.0	116.5	16.2	17.7	19.4	21.3	23.5	26.1	29.0
16.2	17.7	19.3	21.2	23.3	25.6	28.3	117.0	16.3	17.8	19.6	21.5	23.8	26.3	29.3
16.4	17.9	19.5	21.4	23.5	25.9	28.6	117.5	16.5	18.0	19.8	21.7	24.0	26.6	29.6
16.5	18.0	19.7	21.6	23.7	26.1	28.9	118.0	16.6	18.2	19.9	22.0	24.2	26.9	29.9
16.7	18.2	19.9	21.8	23.9	26.4	29.2	118.5	16.8	18.4	20.1	22.2	24.5	27.2	30.3
16.8	18.3	20.0	22.0	24.1	26.6	29.5	119.0	16.9	18.5	20.3	22.4	24.7	27.4	30.6
16.9	18.5	20.2	22.2	24.4	26.9	29.8	119.5	17.1	18.7	20.5	22.6	25.0	27.7	30.9
17.1	18.6	20.4	22.4	24.6	27.2	30.1	120.0	17.3	18.9	20.7	22.8	25.2	28.0	31.2

WHO Child Growth Standards

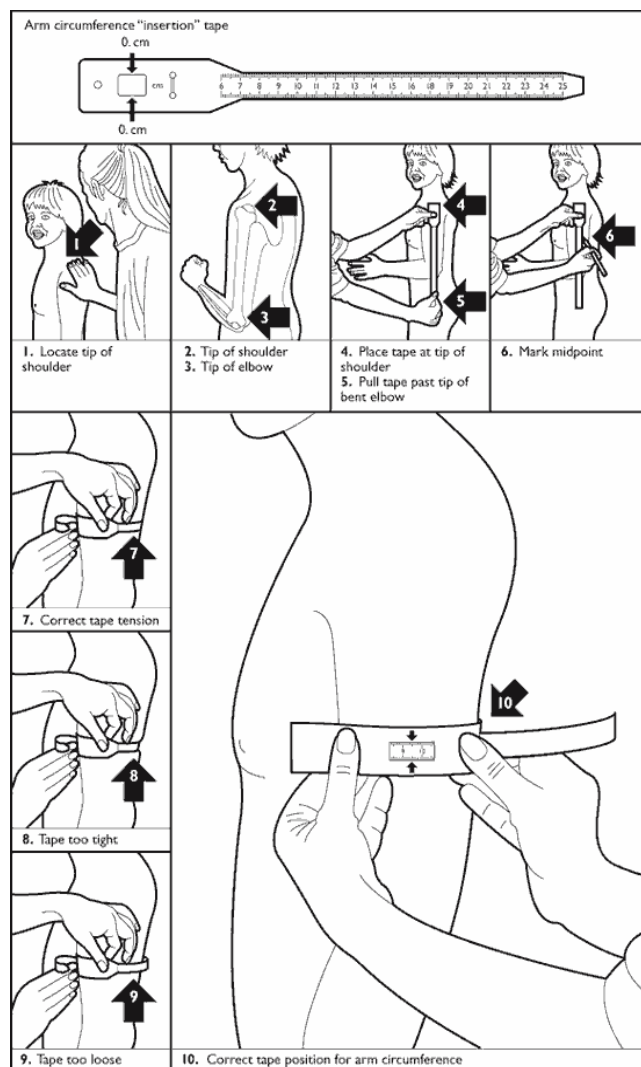
Annex 2: Taking Anthropometric Measurements

Mid-Upper Arm Circumference (MUAC)

MUAC is used for children 6-59 months, pregnant and lactating women and adults. For children, it is essential to use the age cut-off of 6 months for MUAC. It is not recommended to use a height cut-off as proxy for 6 months of age; in a stunted population many infants 6 months or older will have a height less than 65 centimetres (cm). If the birth date is unconfirmed, use the recall of the mother/caregiver to estimate the infant's age.

How to Measure MUAC

1. Ask the mother to remove any clothing covering the child's left arm.
2. Calculate the midpoint of the child's left upper arm: first locate the tip of the child's shoulder (arrows 1 and 2 in diagram below) with your fingertips.
3. Bend the child's elbow to make the right angle (arrow 3).
4. Place the tape at zero, which is indicated by two arrows, on the tip of the shoulder (arrow 4) and pull the tape straight down past the tip of the elbow (arrow 5).
5. Read the number at the tip of the elbow to the nearest centimeter. Divide this number by two to estimate the midpoint. As an alternative, use a piece of string and bend it in the middle to estimate the midpoint.
6. Mark the midpoint with a pen on the arm (arrow 6).
7. Straighten the child's arm so that it is relaxed, falling alongside his/her body and wrap the tape around the arm at the midpoint. Make sure the numbers are right side up. Make sure the tape is flat around the skin (arrow 7).
8. Inspect the tension of the tape on the child's arm. Make sure the tape has the proper tension (arrow 7) and is not too tight or too loose (arrows 8 and 9). Repeat any step as necessary
9. When the tape is in the correct position on the arm with correct tension, read and call out the measurement to the nearest 0.1 cm (arrow 10).
10. Immediately record the measurement.



Source: How to Weigh and Measure Children: Assessing the Nutritional Status of Young Children, United Nations, 1986.

Weight

To increase accuracy and precision, two people are always needed to measure weight. Weight can be measured using a Salter-type hanging spring scale or an electronic scale

such as the United Nations Children's Fund (UNICEF) UNISCALE, which is more precise and allows a child to be measured in the mother/caregiver's arms.

Hanging Spring (Salter) Scale

Children are weighted with a 25 kg hanging spring scale, graduated to 0.100 kg. Do not forget to re-adjust the scale to zero before each weighing.

A plastic wash basin should be supported by four ropes that attach (are knotted) underneath the basin. The basin is close to the ground in case the child falls out and to make the child feel secure during weighing. If the basin is soiled, first clean it with disinfectant. The basin is more comfortable and familiar for the child, can be used for ill children, and is easily cleaned. In the absence of a basin, weighing pants can be used although are sometimes inappropriate for very sick children. When the pants are soiled, it should be cleaned and disinfected to reduce the risk of passing an infection to the next child. When the child is steady in the basin or pants, record the measurement to the nearest 100 grams, recording with the frame of the scale at eye level.

How to use the Salter Scale:

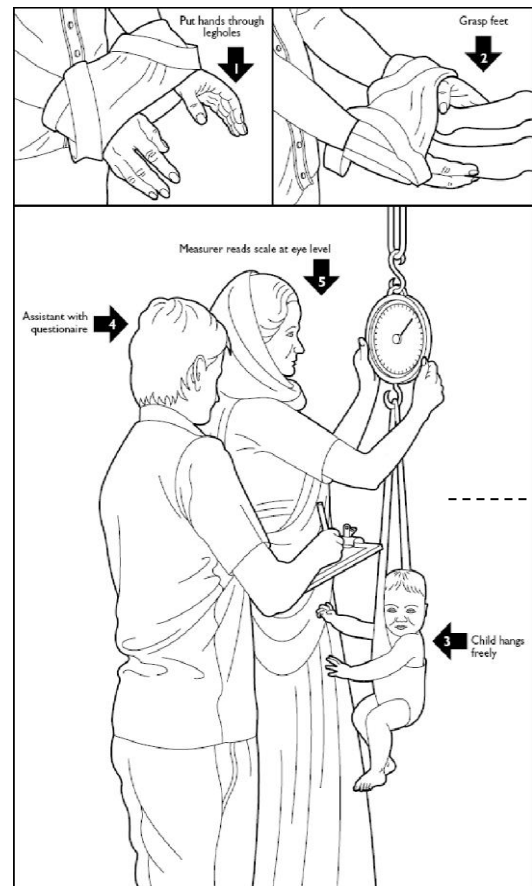
1. Before weighing the child, take all his/her clothes off.
2. Zero the weighing scales (i.e., make sure the arrow is on 0).
3. Ensure that the weighing scale is at eye level.
4. Place the child in the weighing basin.
5. Make sure the child is not holding onto anything.
6. Read the child's weight. The arrow must be steady.
7. Record the weight in kg and to the nearest 100 grams (g) (e.g., 6.6 kg).

Weighing an Infant Using a Hanging Spring (Salter) Scale:

Considerations:

- Make sure the child is safely in the weighing pants or hammock with one arm in front and one arm behind the straps to help maintain balance.
- In cold climates or in certain cultures, it might be impossible or impractical to

- undress a child completely. The average weight of the clothes should be estimated and deducted from the measure. It is helpful to retain similar clothing for girls and boys during weighing to help to standardize weight deductions.
- When the child is steady and settled, the weight is recorded in kg to the nearest 100 g. If the child is moving and the needle does not stabilize, the weight should be estimated by recording the value at the midpoint of the range of oscillations. The



measurer reads the value on the scale aloud, and the assistant repeats it for verification and records it on the treatment card. The child is then dressed.

- The scale should be checked daily against a known weight. To do this, set the scale to zero and weigh objects of known weight (e.g., 5.0 kg, 10.0 kg, 15.0 kg). If the measure does not match the weight to within 10 grams, the springs must be changed, or the scale should be replaced.

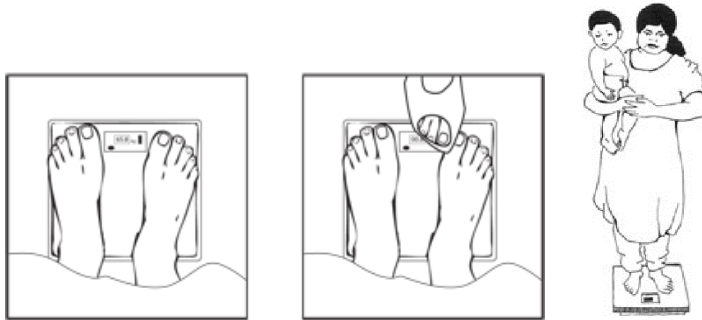
Weighing an Infant Using an Electronic Scale for “Tared Weighing”

“Tared weighing” means that the scale can be re-set to zero (“tared”) with the person just weighed still on it.

Explain the tared weighing procedure to the mother as follows. 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. Since the scale is solar powered, there must be enough light to operate the scale.

Weighing an infant using an electronic scale for tared weighing



Mother's weight alone. Taring the scale . Baby's weight appears on display.

Taking a child's Weight using Electronic Scale



- To turn on the scale, press on the start button or 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 baby wrapped in a 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 or solar panel.
- 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.

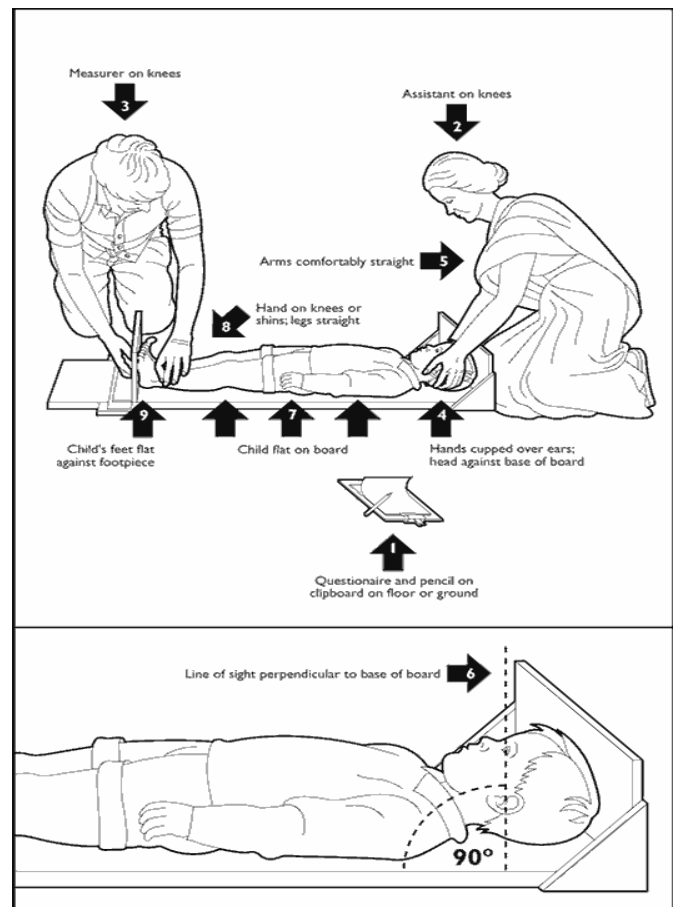
- The baby's weight will appear on the display. Record the weight. Be careful to read the numbers in the correct order (as though you were viewing while standing on the scale rather than standing in front of the scale).

If the child is 2 years or older, you will weigh the child alone if the child will stand still.

Length

To increase accuracy and precision, two people are always needed to measure length and height.

1. For children less than 87 cm the measuring board is placed on the ground.
2. The child's shoes are removed
3. The child is placed lying down along the middle of the board.
4. The assistant holds the sides of the child's head and positions the head until it firmly touches the fixed headboard with the hair compressed.
5. The measurer places her hands on the child's legs, gently stretches the child and then keeps one hand on the thighs to prevent flexion.
6. While positioning the child's legs, the sliding foot-plate is pushed firmly against the bottom of the child's feet.
7. To read the length measurement, the foot-plate must be perpendicular to the axis of the board and vertical.
8. The length is read to the nearest 0.1cm.



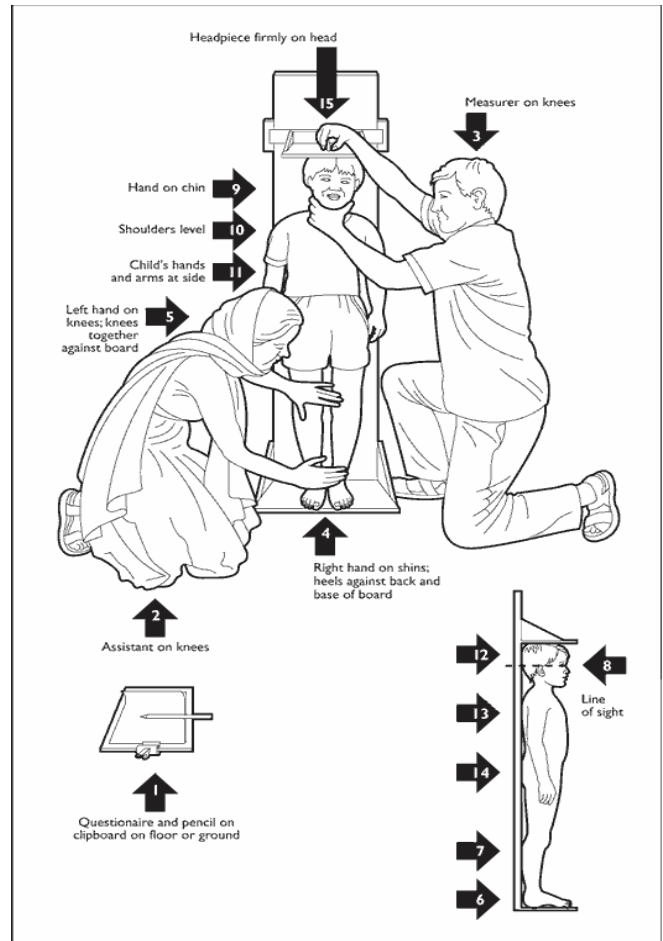
Source: How to Weigh and Measure Children: Assessing the Nutritional Status of Young Children, UN 1986.

Taking a child's length

Height

For children taller than 87 cm the measuring board is fixed upright on level ground.

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 measurer positions the head and the cursor.
4. The height is read to the nearest 0.1 cm.
5. Measurement is recorded immediately.



Source: How to Weigh and Measure Children: Assessing the Nutritional Status of Young Children, UN 1986.

Taking a child's height

BODY MASS INDEX (BMI)

BMI is based on a weight-to-height ratio that is considered a good index of body fat and protein stores. Body stores are of interest because they reflect the stores needed to cope with physiological stress due to reduced intake and increased demands due to increased activity, pregnancy and diseases. Adults who have a healthy nutritional status would be expected to have body stores or BMI within a certain range.

The formula is:

$$\text{BMI} = \frac{\text{Weight (kg)}}{\text{Height (m)}^2}$$

Example: An adult weighing 80kg, and with a height of 165cm (1.65m) BMI calculation: $80 \div (1.65 \times 1.65) = 29.38\text{Kg/m}^2$

When an adult is too ill to stand or has a spinal deformity, the half-arm span should be measured to estimate the height. This is the distance from the middle of the sternal notch to the tip of the middle finger with the arm held out horizontally to the side. Both sides should be measured. If there is a discrepancy, the measurements should be repeated and the longest one taken. The BMI is then computed from the calculated height and measured weight. The height (in m) can then be calculated as follows:

$$\text{Height} = [0.73 \times (2 \times \text{half arm span})] + 0.43$$

The WHO classification of malnutrition in adults by BMI is as follows:⁴⁶

The WHO classification of malnutrition in adults by BMI

Nutritional Status	BMI (kg/m ²)
Normal	18.5 – 24.99
At risk for Malnutrition	17.0 – 18.49
Moderate malnutrition	16.0 – 16.99
Severe malnutrition	< 16.0

While these categories are suggested, there is difficulty in using them to compare across populations due to 1) a lack of understanding of the functional significance of these categories and 2) the influence of body shape to interpreting BMI. The BMI look-up table is found in **Annex 3- BMI for age**.

BMI-for-Age

The release of the WHO 2006 child growth standards (WHO Standards) prompted the development of the WHO 2007 growth reference for school-aged children and adolescents 5-17 years (WHO Reference).

The new reference indicator for wasting for school-aged children and adolescents 5-17 years is BMI-for-age (WHO Reference).

⁴⁶WHO. 1999. Management of severe malnutrition: A manual for physicians and other senior health workers. Geneva: WHO.

The BMI-for-age indicator for severe wasting is expressed in a z-score below 3 standard deviations (SD) of the median and for moderate wasting below 2 SD of the median (WHO Reference). The BMI-for-age look-up tables for boys and girls are found in **Annex 3: BMI-for-Age**.

Calculating Weight-for-Height

Example 1: A child (boy) is 63 cm tall and weighs 6.8 kg.

- Look in the table's first column for the figure 63 (the height).
- Take a ruler or a piece of card, place it under the figure 63 and look across to the other figures on the same line.
- Find the figure corresponding to the weight of the child, in this case 6.8kg.
- Look to see what column this figure is in. In this case it is in the "Weight Normal" column. In this example the child's weight is normal in relation to his height. He therefore has an appropriate weight for height.

Example 2: A child (boy) is 78 cm tall and weighs 8.2 kg.

This child's weight is between the -3SD and -2SD column. He is too thin in relation to his height. He is moderately malnourished.

NOTE: It may be that the weight or the height is not a whole number.

Example 3: A child (boy) is 80.4 cm tall and weighs 7.9 kg. These exact figures are not in the table.

For the height: The height measurement has to be rounded to the nearest 0.5cm, see example below.

<i>Height in cm</i>	80.0	<i>80.0 cm is used for 80.1 and 80.2cm</i>
80.1		
80.2		
80.3		
80.4		
80.5		
80.6		
80.7		
80.8		
80.9		
81.0		
81.1		
81.2		

80.5 cm is used for 80.6 and 80.7cm

80.5cm is used for 80.3 and 80.4cm.

81.0cm is used for 80.8, 80.9cm as well as 81.1 and 81.2 cm

For the weight: Looking at the chart, for a height of 80.5 cm the weight is 7.9 kg, this is below 8.3 kg. The child is severely malnourished.

Annex 3: BMI for Age

BMI-for-age BOYS

5 to 19 years (z-scores)



Year: Month	Month	L	M	S	-3SD	-2SD	-1SD	Median	1SD	2SD	3SD
5: 1	61	-0.7387	15.2641	0.08390	12.1	13.0	14.1	15.3	16.6	18.3	20.2
5: 2	62	-0.7621	15.2616	0.08414	12.1	13.0	14.1	15.3	16.6	18.3	20.2
5: 3	63	-0.7856	15.2604	0.08439	12.1	13.0	14.1	15.3	16.7	18.3	20.2
5: 4	64	-0.8089	15.2605	0.08464	12.1	13.0	14.1	15.3	16.7	18.3	20.3
5: 5	65	-0.8322	15.2619	0.08490	12.1	13.0	14.1	15.3	16.7	18.3	20.3
5: 6	66	-0.8554	15.2645	0.08516	12.1	13.0	14.1	15.3	16.7	18.4	20.4
5: 7	67	-0.8785	15.2684	0.08543	12.1	13.0	14.1	15.3	16.7	18.4	20.4
5: 8	68	-0.9015	15.2737	0.08570	12.1	13.0	14.1	15.3	16.7	18.4	20.5
5: 9	69	-0.9243	15.2801	0.08597	12.1	13.0	14.1	15.3	16.7	18.4	20.5
5:10	70	-0.9471	15.2877	0.08625	12.1	13.0	14.1	15.3	16.7	18.5	20.6
5:11	71	-0.9697	15.2965	0.08653	12.1	13.0	14.1	15.3	16.7	18.5	20.6
6: 0	72	-0.9921	15.3062	0.08682	12.1	13.0	14.1	15.3	16.8	18.5	20.7
6: 1	73	-1.0144	15.3169	0.08711	12.1	13.0	14.1	15.3	16.8	18.6	20.8
6: 2	74	-1.0365	15.3285	0.08741	12.2	13.1	14.1	15.3	16.8	18.6	20.8
6: 3	75	-1.0584	15.3408	0.08771	12.2	13.1	14.1	15.3	16.8	18.6	20.9
6: 4	76	-1.0801	15.3540	0.08802	12.2	13.1	14.1	15.4	16.8	18.7	21.0
6: 5	77	-1.1017	15.3679	0.08833	12.2	13.1	14.1	15.4	16.9	18.7	21.0
6: 6	78	-1.1230	15.3825	0.08865	12.2	13.1	14.1	15.4	16.9	18.7	21.1
6: 7	79	-1.1441	15.3978	0.08898	12.2	13.1	14.1	15.4	16.9	18.8	21.2
6: 8	80	-1.1649	15.4137	0.08931	12.2	13.1	14.2	15.4	16.9	18.8	21.3
6: 9	81	-1.1856	15.4302	0.08964	12.2	13.1	14.2	15.4	17.0	18.9	21.3
6:10	82	-1.2060	15.4473	0.08998	12.2	13.1	14.2	15.4	17.0	18.9	21.4
6:11	83	-1.2261	15.4650	0.09033	12.2	13.1	14.2	15.5	17.0	19.0	21.5
7: 0	84	-1.2460	15.4832	0.09068	12.3	13.1	14.2	15.5	17.0	19.0	21.6
7: 1	85	-1.2656	15.5019	0.09103	12.3	13.2	14.2	15.5	17.1	19.1	21.7
7: 2	86	-1.2849	15.5210	0.09139	12.3	13.2	14.2	15.5	17.1	19.1	21.8

2007 WHO Reference

BMI-for-age GIRLS

5 to 19 years (z-scores)



Year: Month	Month	L	M	S	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
5: 1	61	-0.8886	15.2441	0.09692	11.8	12.7	13.9	15.2	16.9	18.9	21.3
5: 2	62	-0.9068	15.2434	0.09738	11.8	12.7	13.9	15.2	16.9	18.9	21.4
5: 3	63	-0.9248	15.2433	0.09783	11.8	12.7	13.9	15.2	16.9	18.9	21.5
5: 4	64	-0.9427	15.2438	0.09829	11.8	12.7	13.9	15.2	16.9	18.9	21.5
5: 5	65	-0.9605	15.2448	0.09875	11.7	12.7	13.9	15.2	16.9	19.0	21.6
5: 6	66	-0.9780	15.2464	0.09920	11.7	12.7	13.9	15.2	16.9	19.0	21.7
5: 7	67	-0.9954	15.2487	0.09966	11.7	12.7	13.9	15.2	16.9	19.0	21.7
5: 8	68	-1.0126	15.2516	0.10012	11.7	12.7	13.9	15.3	17.0	19.1	21.8
5: 9	69	-1.0296	15.2551	0.10058	11.7	12.7	13.9	15.3	17.0	19.1	21.9
5:10	70	-1.0464	15.2592	0.10104	11.7	12.7	13.9	15.3	17.0	19.1	22.0
5:11	71	-1.0630	15.2641	0.10149	11.7	12.7	13.9	15.3	17.0	19.2	22.1
6: 0	72	-1.0794	15.2697	0.10195	11.7	12.7	13.9	15.3	17.0	19.2	22.1
6: 1	73	-1.0956	15.2760	0.10241	11.7	12.7	13.9	15.3	17.0	19.3	22.2
6: 2	74	-1.1115	15.2831	0.10287	11.7	12.7	13.9	15.3	17.0	19.3	22.3
6: 3	75	-1.1272	15.2911	0.10333	11.7	12.7	13.9	15.3	17.1	19.3	22.4
6: 4	76	-1.1427	15.2998	0.10379	11.7	12.7	13.9	15.3	17.1	19.4	22.5
6: 5	77	-1.1579	15.3095	0.10425	11.7	12.7	13.9	15.3	17.1	19.4	22.6
6: 6	78	-1.1728	15.3200	0.10471	11.7	12.7	13.9	15.3	17.1	19.5	22.7
6: 7	79	-1.1875	15.3314	0.10517	11.7	12.7	13.9	15.3	17.2	19.5	22.8
6: 8	80	-1.2019	15.3439	0.10562	11.7	12.7	13.9	15.3	17.2	19.6	22.9
6: 9	81	-1.2160	15.3572	0.10608	11.7	12.7	13.9	15.4	17.2	19.6	23.0
6:10	82	-1.2298	15.3717	0.10654	11.7	12.7	13.9	15.4	17.2	19.7	23.1
6:11	83	-1.2433	15.3871	0.10700	11.7	12.7	13.9	15.4	17.3	19.7	23.2
7: 0	84	-1.2565	15.4036	0.10746	11.8	12.7	13.9	15.4	17.3	19.8	23.3
7: 1	85	-1.2693	15.4211	0.10792	11.8	12.7	13.9	15.4	17.3	19.8	23.4
7: 2	86	-1.2819	15.4397	0.10837	11.8	12.8	14.0	15.4	17.4	19.9	23.5

2007 WHO Reference

Annex 4: Appetite Test

Why do the appetite test?

- Malnutrition changes the way infections and other diseases express themselves. Children who are malnourished and severely affected by a classical childhood illness will frequently show no signs of disease. However, major medical complications lead to a loss of appetite.
- Even though the definition and identification of the severely malnourished is by anthropometric measurements, there is not a perfect correlation between anthropometric and metabolic malnutrition. It is mainly metabolic malnutrition that causes death. Often the only sign of severe metabolic malnutrition is a reduction in appetite. By far the most important criterion to decide if a child should be sent to in- or out-patient management is the Appetite Test.
- A poor appetite means that the child has a significant infection or a major metabolic abnormality such as liver dysfunction, electrolyte imbalance, and cell membrane damage or damaged biochemical pathways. These children are at immediate risk of death. A child with a poor appetite will not take the diet at home and will continue to deteriorate or die. As the child does not eat the special therapeutic food (RUTF) the family will take the surplus and become habituated to sharing.

How to conduct the Appetite Test

- The appetite test should be conducted in a separate quiet area.
- Explain to the caregiver the purpose of the Appetite Test and how it will be carried out.
- The caregiver washes her hands, and the child's hands and face, with soap and water.
- The caregiver sits comfortably with the child on her lap and either offers the RUTF from the packet or puts a small amount on her finger and gives it to the child.
- The caregiver offers the child the RUTF gently, encouraging the child all the time. If the child refuses, the caregiver continues to quietly encourage the child and takes time over the test.
- The child needs to be offered plenty of water to drink from a cup while he/she is taking the RUTF.

Note: Appetite test usually takes a short time but may take up to one hour. The child must not be forced to take the RUTF.

Results of the Appetite Test

Pass:

- A child who takes at least the minimum amount for their weight in the table below passes the appetite test.
- The child is now seen by the nurse to determine any major medical complication (e.g. pneumonia, acute watery diarrhoea, etc.). If there is no medical complication, no open skin lesions, no oedema ++ or +++ (moderate or severe oedema) or wasting and oedema together, then the child is normally treated as an outpatient if an out-patient community nutrition rehabilitation is available.

- Explain to the caregiver the choices of treatment options and decide with the caregiver whether the child should be treated as an out-patient or in-patient (nearly all caregivers will opt for out-patient treatment).
- Start admission process and treatment appropriate for out-patient therapeutic care (See Section four).

Minimum amount of Plumpy'nut per kg of body weight required to pass the Appetite test

Body weight (Kg)	Sachets
Less than 4 kg	1/8 to 1/4
4 – 6.9	1/4 to 1/3
7 – 9.9	1/3 to 1/2
10 – 14.9	1/2 to 3/4
15 – 29	3/4 to 1
Over 30 kg	>1

Fail:

- A child that does not take at least the amount of RUTF in the table above is referred for in- patient care.
- Explain to the caregiver the choices of treatment options and the reasons for recommending in-patient care.
- Refer the child to the nearest paediatric unit for Phase 1 management.
- Start the admission process and treatment of Phase 1 and address medical complications appropriate for in-patients.

Notes

- Even if the caregiver and health worker thinks the child is not taking the RUTF because of the taste or is frightened, the child still needs to be referred to in-patient care for at least a short time. If later the child takes sufficient RUTF to pass the appetite test, then he can be immediately transferred to the community out-patient treatment.
- The appetite test is always performed carefully. Children who fail the appetite test are always offered treatment as in-patients. If there is any doubt, then the child should be referred for in-patient treatment until the appetite returns (this is also the main criterion for an in-patient to continue treatment as an out-patient).
- Ideally, if there is a small weighing scale (the sort used in a domestic kitchen to weigh portions of food) then the sachet of RUTF is weighed before given to the malnourished child to check for appetite. At the end of the appetite test the RUTF package is weighed again to calculate how much the child has eaten. When a weighing scale is not available and commercial RUTF is being used, the amount taken from the package can be estimated despite risk of inaccuracies.
- The appetite test must be carried out at each visit for children treated in the community.
- Failure of an appetite test at any time is an indication for full evaluation and probably transfers for in-patient assessment and treatment.
- If the appetite is “good” during the appetite test and the rate of weight gain at home is poor, then a home visit should be arranged. It may be necessary to bring a child into

in-patient care to do a simple “trial of feeding” in order to differentiate a metabolic problem with the child from a difficulty with the home environment. A trial of feeding can be the first step to help determine a failure to respond to treatment.

Annex 5: Checklist to Identify Reasons for Acute Malnutrition

Checklist to Identify Reasons for Acute Malnutrition

Child Name: _____

Child Age: _____

Illness:

Has the child been sick in the past week? Yes No

If Yes:

What was the sickness? _____

Did the child go for treatment for the illness? Yes No

If Yes:

Where did the child go for treatment?

What treatment did the child receive?

Nutrition

1. Is the child still breastfeeding? Yes No

If No, when did the breastfeeding stop?

If yes:

Has there been a change in breastfeeding pattern in the last 2 weeks?

Feeding less because the child is not interested in breast milk?

Mother has been away from the home so breast milk not available?

List any other reasons: -

2. Has the child commenced complementary feeding Yes No

If yes, how often did you feed the child yesterday:

1 time 2 times 3 times More frequently

3. List the foods given yesterday at each meal:

Meal 1: _____

Meal 2: _____

Meal 3: _____

Other meals: _____

4. Does the child eat from own plate? Yes No

5. Has the feeding pattern of the child changed in the last 1-2 weeks? Yes No

If yes how has it changed? _____

Why has it changed? _____

Family Illness

Has any other member of the family been ill in the last month? Yes No

If Yes, who was sick? _____

What was the illness? _____

Environment

What is your water source? _____

Piped water/river/stream/pond/deep well/shallow well/other (circle)

Do you have a latrine or access to latrine/toilet? Yes No

Economic Issues

Who is the main income generator? _____

How does this person make an income? _____

Has access to work changed in the last month? Yes No

In what ways has it changed? _____

Is there less money for basic foods? Yes No

Do you plant anything at home? Yes No

If yes, list what you plant:

When is it harvested?

Do you have any domestic animals? Yes No (cows, goats, sheep, camels)

If Yes, how many of each animal:

- Number of Cattle? _____
- Number of goats? _____
- Number of sheep? _____
- Number of camels? _____

Analysis

What is the main reason for malnutrition for this child?

Annex 6: Inpatient therapeutic feeding card

INPATIENT THERAPEUTIC FEEDING CARD														
 Ministry of Health	Hospital											REG.Nº		
	Name											Referred from		
Date of Admission				Age			Sex	M	F	Admission criteria				
		1	2	3	4	5	6	7	8	9	10	11	12	
MEASUREMENTS	DATE													
	Height (cm)													
	Weight (kg)													
	WHZ / WHM													
	MUAC (cm)													
	Oedema (+ ++ +++)													
WEIGHT CHART														
		ADMISSION WT =>												
MEAL TIMES & FOOD INTAKE	Milk/RUTF													
	Amount per meal													
	Total per day													
	1													
	A=absent													
	V=vomit													
	4													
	R=refuse													
	ng=tube													
6														
INDICATE IF ReSoMal or other fluids given														
7														
8														
	PORRIDGE (Y/N)													

Annex 8: 24-Hour Food Intake Chart

24 HOUR FOOD INTAKE CHART
Complete one chart for every 24-hour period

Name: _____ Hospital ID number: _____ Admission weight (kg): _____
 _____ Today's weight (kg): _____

DATE:		TYPE OF FEED:		GIVE: _____ feeds of _____	
Time	a. Amount offered (ml)	b. Amount left in cup (ml)	c. Amount taken orally (a – b)	d. Amount taken by NG, if needed	e. Estimated vomited (ml)
Column totals			c.	d.	e.
Total volume taken over 24 hours = amount taken orally (c) + amount taken by NG (d) - total amount vomited (e)					

Annex 9 Developmental Milestones

ASSESS

CHECK FOR CHILD'S DEVELOPMENTAL MILESTONES

0-2 MONTHS

- Social smile (baby smiles back)
- Baby follows a colourful object dangled before their eyes

2-4 MONTHS

- Holds the head upright
- Follows the object or face with their eyes
- Turns the head or responds in anyother way to sound
- Smiles when you speak

4-6 MONTHS

- Rolls over
- Reaches for and grasps objects with hand
- Takes objects to her mouth
- Babbles (makes sounds)

6-9 MONTHS

- Sits without support
- Moves object from one hand to the other
- Repeats syllables (bababa, mamama)
- Plays peek-a-boo (hide and seek)

9-12 MONTHS

- Takes steps with support
- Picks up small object or string with 2 fingers
- Says 2-3 words
- Imitates simple gestures (claps hands, bye)

12 - 18 MONTHS

- Walks without support
- Drinks from a cup
- Says 7-10 words
- Points to some body parts on request

18 - 24 MONTHS

- Kicks a ball
- Builds tower with 3 blocks or small boxes
- Points at pictures on request
- Speaks in short sentences

24 MONTHS AND OLDER

- Jumps
- Undresses and dresses themselves
- Says first name, tells short story
- Interested in playing with other children

CLASSIFY FOR DEVELOPMENTAL MILESTONES

CLASSIFY

<p>Absence of one or more milestones from current age group</p> <p>AND</p> <ul style="list-style-type: none"> • Absence of one or more milestones from earlier age group <p>OR</p> <ul style="list-style-type: none"> • Regression of milestones 	<p>DEVELOPMENTAL MILESTONE/S DELAY</p>	<ul style="list-style-type: none"> • Cour • Refe • Scre and and
<ul style="list-style-type: none"> • Absence of one or more milestones from current age group 	<p>DEVELOPMENTAL MILESTONE/S ALERT</p>	<ul style="list-style-type: none"> • Prais • Cour home comr • Advis • Scre
<ul style="list-style-type: none"> • All milestones for the current age group are present 	<p>DEVELOPMENTAL MILESTONE/S NORMAL</p>	<ul style="list-style-type: none"> • Prais • Enco the n • Advis

Annex 10: Stimulating activities appropriate for Age

RECOMMENDATIONS FOR CARE FOR CHILD DEVELOPMENT

BEFORE BIRTH	BIRTH TO 2 MONTHS	2 TO 6 MONTHS	6 TO 9 MONTHS	9 TO 12 MONTHS	12 MONTHS TO 2 YEARS	2 TO 5 YEARS
<p>Your child begins to learn in the womb.</p> <p>Hello, my baby...</p>	<p>Bicycle, bicycle.</p>			<p>What are you building?</p>	<p>Give me a large shirt, please</p>	
<p>Airplane going up!</p>			<p>What is there below the cloth?</p>	<p>Blue, red...</p>		
<p>I can feel you, my dear!</p>	<p>Abab...</p> <p>Bwab...</p>	<p>Where is the shaker.</p>	<p>Clap your hands like mama!</p>	<p>Bye bye.</p>	<p>Where is your nose?</p>	<p>Once upon a time...</p>
<p>Does this feel sore?</p>	<p>Mama, you like the milk...</p>	<p>Is it sweet? Some more?</p>	<p>Caa, caa...</p>	<p>Yes, it's a red car!</p>	<p>What sound does the lion make?</p>	<p>Who has a dog like this one?</p>

1. ASK THE CAREGIVER HOW SHE/HE PLAYS AND TALKS WITH THE CHILD AT HOME.
2. OBSERVE HOW THE CAREGIVER RESPONDS TO THE CHILD'S SIGNS.
3. PRAISE THE CAREGIVER.
4. DEMONSTRATE AN ACTIVITY AND HELP THE CAREGIVER PRACTICE.
5. EXPLAIN THE IMPORTANCE OF PLAY.
6. HELP THE CAREGIVER MAKE A PLAN FOR HOME.

Annex 11: Action Protocol in Outpatient Care

Sign	Referral to Inpatient Care	Home Visit
SEVERE Respiratory DISTRESS	An acute increase in respiration rate of more than 5 breaths per minute.	
	More than 50 respirations/minute for infants 0 – 12 months	
	More than 40 breaths/minute for children one to five years of age	
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	Low level of blood glucose (< 3 mmol/l, < 54 mg/dl), low body temperature, lethargy or limpness, possible loss of consciousness	
HYPOTHERMIA	Axillary temperature < 35° C, rectal temperature < 35.5° C taking into consideration the ambient temperature	
ANAEMIA	Palmer pallor or unusual paleness of skin	
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	
VOMITING	Intractable vomiting	
HIGH FEVER	Axillary temperature ≥ 38.5° C, rectal temperature ≥ 39° C taking into consideration the ambient temperature	
EYE SIGNS OF VITAMIN A DEFICIENCY	Night blindness, conjunctival xerosis with Bitot’s spots, corneal xerosis, ulceration or keratomalacia	
SKIN LESION	Broken skin, fissures, flaking of skin	
ANOREXIA	Poor appetite or unable to eat – Failed appetite test	
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	
SUPERFICIAL INFECTION	Any infection requiring intramuscular antibiotic treatment	
WEIGHT CHANGES	Below admission weight on week 3	
	Weight loss for three consecutive visits	
	Static weight for three 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.	

Annex 15: MOH 734B Nutrition Commodity Request and Reporting Tool

MOH 734 B



September 2017 version

FACILITY CONSUMPTION DATA REPORT AND REQUEST (F-CDRR) FOR NUTRITION COMMODITIES

NAME OF FACILITY _____ FACILITY MFL CODE _____ COUNTY _____ SUB COUNTY _____
 Period of Reporting: Beginning (Day/Month/Year) _____ Ending (Day/Month/Year) _____

Section A Commodities

Commodity Name	Unit of Issue	Beginning Balance	Quantity Received this Month	Total Quantity Dispensed	Losses (damages, expiries, missing)	Positive Adjustments (borrowed from out to other facilities)	Negative Adjustments (Issued out to other facilities)	Physical count	Commodities with less than 6 months to expiry		Days out of Stock this month	Quantity Required for Re-Supply
		A	B	C	D	E	F		Quantity	Expiry Date		
Therapeutic Food Products:												
Therapeutic diet milk (F-75) 75kcal/100ml	102.5g sachet											
Therapeutic diet milk (F-75) 75kcal/100ml	400g Tin											
Therapeutic diet milk (F-100) 100kcal/100ml	114g sachet											
Therapeutic diet milk (F-100) 100kcal/100ml	400g Tin											
Ready to use therapeutic food (RUTF) paste 500kcal/92g	92g Sachet											
Ready to use therapeutic food (RUTF) bar 500kcal/100g	100g bar											
Resomal	Sachets											
Supplemental Food Products:												
Ready to use supplemental food (RUSF) paste 500kcal/92g	92g Sachet											
Fort Corn Soya Blend (Unimix) 25kg; 1000kcal/250g	Kg											
Vegetable Oil 221Kcal/25gms	Kg											
Fortified Blended Food (FBF) Hour 415kcal/100g [for Children aged 6 months - 9 years]	200g Sachet											
Fortified Blended Food (FBF) Hour 435kcal/100g [for Adults and Adolescents (10-17 years)]	300g Sachet											
Fortified Blended Food (FBF) Hour 450kcal/100g [for Pregnant Women and Post-partum mothers]	300g Sachet											
Super Cereals Plus (CSB++) 1.5kg Packet	1.5 Kg packet											
Super Cereals Plus (CSB++) 300grams Sachet	Sachets											
Multiple Micronutrients:												
Micronutrient powder (Vitamin and mineral powder)	1g Sachet											
Multiple Vitamin and Mineral mix (tablets/capsules)	Sachets											
Therapeutic Vitamin A 50 000 IU	Capsules (50,000 iu)											
Combined Iron (60mg) Folic Acid (400µg)	1 Tablet/ capsule											
Others:												
Point of use Water treatment solution (1.2% Sodium hypochlorite[NaOCl])	150ml bottle											

Section B Clients

Code	Client Category	No of Clients who Received	Data Source
N001	Clients (<=5 Years) on F-75		MOH368,MOH407A/B
N002	Clients (<=5 Years) on F-100		MOH368,MOH407A/B
N003	Clients (<=5 Years) on RUTF		MOH409,MOH407A/B
N004	Clients (<=5 Years) on Resomal		MOH368,MOH407A/B
N005	Clients (<=5 Years) on RUSF		MOH410A,MOH407A/B
N006	Clients (<=5 Years) on FBF		MOH407A/B
N007	Clients (6-23 Months) on MNP		MOH704
N008	Clients (<=5 Years) on Vit A (Therapeutic)		MOH407A/B
N009	Clients (5-9 Years) on F-75		MOH409,MOH407A/B
N010	Clients (5-9 Years) on F-100		MOH409,MOH407A/B
N011	Clients (5-9 Years) on RUTF		MOH409,MOH407A/B
N012	Clients (5-9 Years) on RUSF		MOH409,MOH407A/B
N013	Clients (5-9 Years) on FBF		MOH409,MOH407A/B
N032	Clients (5-9 Years) on CSB		MOH409,MOH407A/B
N033	Clients (5-9 Years) on Veg Oil		MOH409,MOH407A/B
N015	Clients (10-17 Years) on F-75		MOH409,MOH407A/B
N016	Clients (10-17 Years) on F-100		MOH409,MOH407A/B
N017	Clients (10-17 Years) on RUTF		MOH409,MOH407A/B
N018	Clients (10-17 Years) on RUSF		MOH409,MOH407A/B
N019	Clients (10-17 Years) on FBF		MOH409,MOH407A/B
N034	Clients (10-17 Years) on CSB		MOH409,MOH407A/B
N035	Clients (10-17 Years) on Veg Oil		MOH409,MOH407A/B
N021	Clients (18 and above) on F-75		MOH409,MOH407A/B
N022	Clients (18 and above) on CSB++ (Packet)		MOH409,MOH407A/B
N023	Clients (18 and above) on CSB++ (Sachet)		MOH409,MOH407A/B
N024	Clients (18 and above) on F-100		MOH409,MOH407A/B
N025	Clients (18 and above) on RUTF		MOH409,MOH407A/B
N036	Clients (18 and above) on RUSF		MOH409,MOH407A/B
N037	Clients (18 and above) on FBF		MOH409,MOH407A/B
N028	Clients (18 and above) on CSB		MOH409,MOH407A/B
N029	Clients (18 and above) on Veg Oil		MOH409,MOH407A/B
N030	Pregnant & Postpartum on RUTF		MOH409,MOH407A/B
N031	Pregnant & Postpartum on RUSF		MOH409,MOH407A/B
N038	Pregnant & Postpartum on CSB		MOH409,MOH410B,MOH407A/B
N039	Pregnant & Postpartum on FBF		MOH409,MOH410B,MOH407A/B
N040	Pregnant & Postpartum on Veg Oil		MOH409,MOH410B,MOH407A/B

ORDER FOR ADDITIONAL TOOLS

Order for extra LMB & Service Data collection tools:-

- (1) Daily Activity Register for Nutrition commodities MOH 409 (2) F-CDRR for Nutrition commodities MOH 734 (Satellite sites): (3) Facility Prescription form for Nutrition Commodities MOH 732
 (4) Nutrition Services Register (Adult) MOH 407A (5) Nutrition Services Register (Children) MOH 407B (6) In Patient Nutrition Register (MOH 368)
 (7) Outpatient Therapeutic Register MOH 409 (8) Supplementary feeding program Register for children 6 to 59 months MOH 410A (9) Supplementary feeding program Register for PLWs MOH 410B

To be requested only when your Data collection or reporting Tools are nearly full. Indicate quantity required for each tool type.

Comments (on Commodity logistics and clinical issues, including explanation of Losses & Adjustments):

Report prepared by: _____ Designation: _____ Contact Tel: _____ Signature: _____
 Report approved by: _____ Designation: _____ Contact Tel: _____ Signature: _____
 Date report sent to Sub county (dd/mm/yyyy) _____ / _____ / _____

Annex 16: MOH 713 IMAM Summary Tool



MINISTRY OF HEALTH

INTERGRATED MANAGEMENT OF ACUTE MULNUTRITION (IMAM) SUMMARY TOOL

MOH 713

COUNTY _____ FACILITY CODE _____

SUB COUNTY _____ YEAR _____

HEALTH FACILITY/SITE _____ MONTH _____

Data element	SECTION A				SECTION B				SECTION C				
	Inpatient register				Outpatient register				Supplementary register				
	Under 6 months (A)	(Male 6-59 Months) (B)	(Female 6-59 Months) (C)	Total (D)= (A+B+C)	(Male 6-59 Months) (E)	(Female 6-59 Months) (F)	(> 5 years) (G)	Total H=(E+F+G)	(Male 6-59 Months) (I)	(Female 6-59 Months) (J)	(> 5 years) (K)	(Pregnant & Lactating mothers) (L)	Total M= (I+J+K+L)
Beneficiaries at the beginning of the month													
New admission cases													
Old Admission relapses													
Old Admission return defaulters													
Old Admission transfer from other OTP/SC													
Total admissions													
Discharge Cured													
Discharge Death													
Discharge Defaulters													
Discharge Non Recovered													
Transfer out to OTP/SFP/SC													
Transfer to other OTP/SFP/SC sites													
Total Exits													
Total clients at the end of the month (current caseloads)													
OBD (Cumulative number of days for all Patients)- Nutrition													
Average Length of Stay in Days - Nutrition													
In household food security Programme													
Recovery rate %													
Death rate %													
Default rate %													
Non response rate %													
Beneficiaries who Received CSB/Unimix													
Beneficiaries who Received veg Oil													
Beneficiaries who Received RUSF Sachet													
Beneficiaries who Received RUTF Sachet													
Beneficiaries who Received F-100 Sachet													
Beneficiaries who Received F-75 Sachet													

Section D: Nutrition Logistics Management

Commodity	(Beginning Balance)	(Stock Received)	(Issued/Dispensed)	(Losses)	(Positive Adjustment (Receipt from other HF))	(Negative Adjustment (Issued to Other HF))	(Ending Balance)	(Quantity Needed/ Requested)
F-75 (Sachets)								
Resamol (Sachet)								
RUSF (Sachets)								
RUTF (Sachets) [Stock]								
Oil (lit)								
CSB/UNIMIX (kg)								
F-100 (Sachets)								
Multiple Micro nutrients powders								

REPORTING OFFICER _____ DESIGNATION _____ CELL PHONE _____
SIGNATURE _____ DATE _____

Formula for computing average length of stay

ALOS= sum of total number of days for cured client divided by total number of cured clients.

Formula for computing outcomes

RECOVERY RATE = Number Cured/(Total exits -Transfer outs)*100

DEATH RATE = Number Died/(Total exits -Transfer outs)*100

DEFAULTER RATE = Number Defaulted /(Total exits -Transfer outs)*100

NON RESPONSE RATE = Number Non cured/(Total exits -Transfer outs)*100

	Inpatients	OTP	SFP
Recovery rate		>75%	>75%
Death rate	<10%	<10%	<3%
Default rate		<15%	<15%

Annex 17: Summary Entry and Exit Categories for Individual and Service Monitoring

Inpatient Care	Outpatient Care
ENTRY CATEGORIES	
<p><i>1. New admission:</i> New case of child 6-59 months who meets the admission criteria -- including <i>relapse</i> after cure</p> <p><i>2. Other new admissions:</i> New case: infants (<6 months), child (≥ 5 years), adolescent, adult who needs treatment of SAM in inpatient care</p> <p><i>3. Referral from outpatient care:</i> Condition of child deteriorated in outpatient care (according to action protocol) and child needs inpatient care Or <i>Returned</i> after defaulting (<i>or Moved</i> from other inpatient care site) *</p>	<p><i>1. New admission:</i> New case of child 6-59 months who meets the admission criteria -- including <i>relapse</i> after cure</p> <p><i>2. Other new admissions:</i> New case who does not meet pre-set admission criteria, needs treatment of SAM in outpatient care (specified based on decision of supervisor)</p> <p><i>3. Referral from inpatient care:</i> Case of child 6-59 months referred from inpatient care for stabilization and continues treatment in outpatient care Or <i>Returned</i> after defaulting (<i>or Moved</i> from other outpatient care site) *</p>
EXIT CATEGORIES	
<p><i>1. Discharged cured:</i> Child 6-59 months who meets discharge criteria, i.e., special cases that were not referred to outpatient care earlier</p> <p><i>2. Discharged died:</i> Child 6-59 months who dies while in inpatient care</p> <p><i>3. Discharged defaulted:</i> Child 6-59 months who is absent for two days</p> <p><i>4. Discharged non-response:</i> Child 6-59 months who remained in inpatient care does not reach discharge criteria after two weeks in treatment</p> <p><i>5. Referred to outpatient care:</i> Condition of child has stabilized, child's appetite has returned, the medical complication is resolving, and the child is referred to outpatient care to continue treatment</p>	<p><i>1. Discharged cured:</i> Child 6-59 months who meets discharge criteria</p> <p><i>2. Discharged died:</i> Child 6-59 months who dies while in outpatient care</p> <p><i>3. Discharged defaulted:</i> Child 6-59 months who is absent for three consecutive days</p> <p><i>4. Discharged non-recovered:</i> Child 6-59 months who does not reach discharge criteria after four months in treatment</p> <p><i>5. Referred to inpatient care:</i> Condition of child has deteriorated, or child is not responding to treatment (per the action protocol), and child is referred to inpatient care</p>

Annex 18: Outpatient Care Treatment Card

ADMISSION INFORMATION

Name				Reg. N°	/ /		
Age (months)		Sex	Male	Female	Date of admission		
Community, District				Time to travel to site			
House location				Father alive	Yes/ No	Mother alive	Yes/ No
Name of carer				Total number in household		Twin	Yes/ No
Admission	Direct from community	Referred from health facility	Referred from inpatient care	Readmission (relapse)	Yes / No		

Admission anthropometry

MUAC (mm)		Weight (kg)		Height (cm)		WFH z-score	
Admission criteria	Bilateral pitting oedema	MUAC < 115 mm	WFH < - 3 z-score	Other, specify		Target weight (kg) based on 15% weight gain (oedema free)	

Medical history

Diarrhoea	Yes	No		# Stools/day	1-3	4-5	>5
Vomiting	Yes	No		Passing urine	Yes	No	
Cough	Yes	No		If oedema, since how long?			
Appetite	Good	Poor	None	Breastfeeding	Yes	No	
Additional information							

Physical examination

Appetite Test	Passed	Failed						
Respiratory rate (# per min)	<30	30 – 39	40 – 49	50-59	60 +	Chest Indrawing	Yes	No
Temperature (axillary)	°C					Palmer Pallor	Normal	Pale
Eyes	Normal	Sunken	Discharge	Conjunctiva/ Cornea	Dehydration based on history	None	Moderate	Severe
Ears	Normal	Discharge			Mouth	Normal	Sores	Candida
Enlarged lymph nodes	None	Neck	Axilla	Groin	Hands & feet	Normal	Cold	
Skin changes	None	Scabies	Peeling	Ulcers / Abscesses	Disability	Yes	No	
Additional information								

Routine medicines

<u>ADMISSION:</u> Amoxicillin	Dosage:		Date:		Malaria test	Positive / Negative	Date	
<u>WEEK TWO:</u> Anthelmintic	Yes	No	Malaria symptoms	Yes	No			
<u>WEEK FOUR:</u> Measles vaccination	Yes	No	Malaria treatment	Drug/Dosage:		Date:		
Vitamin A	Yes	No	Fully immunised	Yes	No			

Other medicines

Drug	Date	Dosage	Drug	Date	Dosage

MONITORING INFORMATION

Weeks in treatment	ADM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Date																	

Anthropometry

15% Target Weight																	
Bilateral Pitting Oedema (+ ++ +++)																	
MUAC (mm)																	
Weight (kg)																	
Weight loss * (Y/N)				*													

If no weight gain or losing weight do a home visit

If below admission weight after 3 weeks* or weight loss for 2 weeks, or static weight for 3 weeks refer to inpatient care

Medical history

Diarrhoea (# days)																	
Vomiting (# days)																	
Fever (# days)																	
Cough (# days)																	

Physical examination

Temperature (°C)																	
Respiratory rate (# /min)																	
Dehydrated (Y/N)																	
Anaemia / palmer pallor (Y/N)																	
Skin lesion (Y/N)																	

Appetite check / feeding

RUTF test Passed/Failed																	
RUTF (# units given)																	

Action / follow up

ACTION NEEDED (Y/N) (note below)																	
Other medication (see card front)																	
Name examiner																	
OUTCOME **																	

** OK=Continue Treatment A=Absent D=Defaulted (after 2 consecutive absences) R=Referral RR=Refused Referral C=Cured X=Died NR=Non-Recovered HV= Home Visit

Action taken during home visit (include date)

Name Community Outreach Worker

Annex 19 INSTRUCTIONS FOR COMPLETING THE FACILITY CONSUMPTION DATA REPORT AND REQUEST (FCDRR) FOR NUTRITION COMMODITIES FOR SATELLITE SITES

This reporting tool is used by the **satellite sites/facility to report their consumption and request for re-supply**. It is to be filled by the person in charge of aggregating consumption and reporting on nutrition commodities for the entire health facility as designated by the facility in-charge.

When to Fill: This is to be filled at the end of every calendar MONTH. (First to last day of the month).

To be filled on the cover page of the FCDRR book:

Facility name: Write the name of your health facility

Facility's MFL code: Write the Master Facility List (MFL) code for your health facility.

Sub-County: Write the sub-county where the facility is located.

Region: Write the region where the facility is located.

County: Write the county where the facility is located.

To be filled on each report:

Facility name: Write the name of your health facility.

Facility's MFL code: Write your Master Facility List (MFL) code

Sub-county: Write the sub-county where the facility is located.

County: Write the county where the facility is located.

Point of service Delivery: Indicate (tick) the location where nutrition services are provided in your facility, i.e. CCC, MCH, in-patient, other. If other location, please specify the details.

Period of Reporting: Beginning, Ending: Write the day, month and year (in format dd-mm-yyyy) for which the report is being prepared (indicating both the beginning date and ending date).

Commodity name /Unit of issue: The commodity name and its unit of issue are pre-printed on the report. If the commodity name is not pre-printed, write the name and unit of issue in the additional blank rows provided. The minimum quantity dispensed, and minimum quantity issued for each of the commodities is shown on the table below. This table assists in conversion of minimum quantities issued from storage area to minimum quantities dispensed. ALL nutrition commodity resupply quantities must appear in minimum quantity dispensed units.

Use the source data tools i.e. DAR and Bin card to fill the following: -

Beginning Balance (A): The total Quantity (in units) of each usable⁴⁷ commodity on hand in the facility on the last day of the previous reporting period.

⁴⁷ Usable implies commodities that are not damaged or expired

The Beginning balance should be equal to the Physical count at the end of the previous reporting period. If it is not, indicate the loss or adjustment in the respective columns of this F-CDRR and explain in the *Comments* section.

Quantity Received this period (B): Enter the sum Total Quantity in units (e.g. sachets, tins, etc) of each usable nutrition commodity received by your health facility from the central site.

If no stock was received at the facility during the period, enter a zero (“0”) in this column.

The quantities of each commodity received by the facility can be found in the *Quantity Received* column of the Bin card.

Quantity Dispensed this period (C): Record the total quantity in units (e.g. sachets, tins, etc.) of commodities dispensed to the clients / patients within the reporting period.

If no quantities of a commodity were dispensed to clients / patients during the month, enter “0” in the *Quantity dispensed this period* column for that commodity. This information is obtained from the **DAR for nutrition commodities** from all the points of nutrition service delivery in the facility.

The total quantities of each commodity dispensed to clients/patients are obtained from the Page Total of Quantity Dispensed (D) row of the DAR from all the dispensing areas and the monitoring section of the IMAM registers (MOH 368, MOH 409 and MOH 410A&B).

If several pages of the DAR have been used over the month, be sure to aggregate the figures in this across all the pages used that month for each commodity.

Losses (D): Enter the quantity (in units) of any loss of stock of the commodity at the facility. *Losses include defective, damaged, missing or expired commodities* and should be separated from the usable stock. In the *Comments* section, indicate the actual number of units lost and explain the reason for the loss.

Adjustments (E, F): An **adjustment** refers to transfer of stock from one health facility to another (an adjustment is positive when your facility has received the stock, and negative when your facility has issued the stock). Adjustments are recorded in the Bin card when they occur.

If the adjustment is **positive (E)**, write a plus (+) sign next to the number, e.g. +30. If the adjustment is **negative (F)**, write a negative (-) sign next to the number, e.g. -30.

The reason for the adjustment should be written in the “*Comments*” section

Note: Excess quantities counted when stock-taking are also a positive adjustment while quantities of stock found to be missing when stock-taking are indicated as a negative adjustment.

ANY MISSING OR UNACCOUNTED-FOR COMMODITY SHOULD BE DOCUMENTED AND IF THEFT IS SUSPECTED THIS SHOULD BE INVESTIGATED AND DUE PROCESS OF THE LAW FOLLOWED.

Physical Count (G): Enter the total sum (in units) of usable commodity **counted physically** in the facility. This should be done at the close of business on the last day of the month and should include quantities from all the dispensing areas in the facility.

The Physical count for each commodity should be equal to the expected Ending balance obtained by the calculation:

$$G = (A+B+E) - (C+D+F)$$

Where:

<p>A = Beginning balance B = Quantity received this month</p>	<p>C = Total quantity dispensed this month by the facility (sum of quantities dispensed in all dispensing points)</p>	<p>D = Losses (damages, expiries, missing) E = Positive adjustments (borrowed from out to other facilities) F = Negative adjustments (Issued out to other facilities)</p>
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Write the Physical count and report any differences between the Physical count and the expected Ending balance from the calculation as Adjustments or Losses.

Commodities with less than 6 months to expiry – Quantity, Expiry Date: During the physical count, note and record for each commodity, the quantity that will expire in less than six months, and write the expiry date (in the format mm/yyyy). Should there be several short expiry batches, record the dates of each.

Days out of stock this month: Enter the total number of days that the facility was stocked out of any commodity – only during the month being reported on, e.g. if the commodity was out-of-stock for the full month of March, indicate 31 days. This information is obtained from the facility Bin cards.

Quantity required for Re-supply (H): Write the amount of each commodity (in units) required for re-supply of clients / patients.

This is determined as follows:

Multiply the current month’s consumption by the **Maximum months of stock (3 Months)** as set by Nutrition Commodities Steering Committee (NDU), and then subtract from it the Physical count, i.e.

For a Satellite site

Where:

H = Quantity Required for Re-supply

C = Quantity dispensed this month

G = Physical count

Note: A request for a new commodity for the health facility should be made in the *Comments* section with the required quantities indicated on the relevant row under the *Quantity required for resupply* column.

Order for extra data collection tools: Use this section to request for additional reporting and data collection tools. Indicate quantity required for each type of tool.

Comments: Use this space to provide any explanations or details on losses or adjustments and any other issues, e.g. need for re-distribution of stocks, request for new commodities.

Report prepared by: The person(s) responsible for preparing this report should write their full name, designation and date of signing, and then sign.

Report approved by: After reviewing the report, the Facility in-charge (or other authorised person, e.g. Nutritionist in-charge / Pharmacist / Programme Manager/Department Head) should write his/her full name, designation, contact telephone, sign and write the date of signing. The signature of the Programme Manager or other authorised health worker confirms that the report has been reviewed and is valid.

SUBMITTING THE MONTHLY REPORT

This report is in duplicate:

Copy 1 – Central Site/ Sub-County/ LMIS




Copy 2 – Book copy

Submit your facility's monthly report to the Central site/ Sub-County/ LMIS to reach by the 5th day of every month.

Retain the duplicate / book copy in the facility for your records.

A photocopy may be made for the sub-county if required.

Annex 20: Specialized Nutrition commodities for use in Treatment of Acute Malnutrition

Objective	Treatment of Severe Acute	Treatment of Moderate Acute Malnutrition	
Generic Term	Ready - To - Use – Therapeutic – Foods (RUTF)	Lipid Based Nutrient Supplements (LNS) High Quality	Fortified Blended Foods
Brands			
Target Group	6-59 months Older children and adults including HIV+	6-59 months <i>Others pregnant and lactating women including HIV+ adults</i> Products such as Plumpy'Sup™, eeZeeRUSf and Achamum belong to the RUSF group of products. This list is not an exhaustive list and additional product (s) may be included after validation	<i>SuperCereal Plus: 6-59 months, Others including PLW, HIV+ adults:</i> <i>SuperCereal: adults and children above five years</i>
Energy /nutrient per 100g	500 kcal 12.5g protein 32.9g fat	500 kcal 12.5g protein 32.9g fat	840kcal 32gprotein 18g fat
Packaging	Sachet = 92g	Sachet = 100g	SuperCereal(SC): 25 kg bag SuperCereal Plus: 1.5kg bag
Shelf Life	24 months	24 months	SC: 12 months SC+:18
Ration/ dose	According to weight: 6-59m: 200kcal/kg/day	One sachet/day 100g/day	App 200g/day (may vary by programme)
Cost/dose/ day (USD)	0.36/sachet	0.29/day	Super Cereal: 0.11 -16 / day Super Cereal Plus 0.24/day

Annex 21: Unit Costs for Key of IMAM Commodities

Items	No of unit per treatment/person	Package	Unit Cost (USD)	Unit Cost (KSH)
Supplementary Foods				
Super cereal Plus (CSB++)/BAG-1,5KG	36 Kgs	Bag of 1.5 Kgs	1.49	149.00
Ready to Use Supplementary foods (100g/sachet)	120 sachets	Carton of 150 sachets	40.00	4,000
Therapeutic Foods				
Therapeutic spread, sachet 92g/CAR-150	150 sachets	Carton of 150 sachets	45.00	4,500.00
Therapeutic Milk				
F-75 Therap. milk CAN 400g/CAR-24	3.08 tins	Carton of 24 Tins	61.20	6,120.00
F-100 Therap. milk CAN 400g/CAR-24	1.14 tins	Carton of 24 Tins	70.80	7,080.00
Rehydration Solution for Malnutrition				
ReSoMal,42g sachet for 1 litre/CAR-100	0.4 sachets	Carton of 100 Sachets	18.25	1,825.00
Micronutrients				
Retinol 100,000IU soft gel.caps/PAC-100		Pac of 100 capsules	1.56	156.00
Retinol 200,000IU soft gel.caps/PAC-500		Pac of 500 capsules	11.12	1,112.00
Iron 60mg+Folic ac.400mcg tab/PAC (10x10)		Pac of 10 x 10	1.47	147.00
Multiple micronutrient powder, sach. /PAC-30		Pac of 30	0.66	66.00
Dewormers				
Albendazole 400mg chewable tabs/PAC-100		Pac of 100 tabs	2.45	245.00
Mebendazole 100mg chewable tabs/PAC-100		Pac of 100 tabs	1.32	132.00
Anthropometric Equipment				
MUAC,Child 11.5 Red/PAC-50		Pac of 50	3.78	378.00
MUAC, Adult, without colour code/PAC-50		Pac of 50	9.13	913.00
Portable baby/child Length-height Measuring System (SET-2)		Set of 2	178.71	17,871.00
Scale, baby, electronic, 10 kg, <5>		Piece	77.36	7,736.00
Scale, electronic, mother/child,150kgx100g		Piece	123.10	12,310.00
Scale, infant, spring type, 25kg x 100g		Piece	13.13	1,313.00
Weighing trousers/PAC-5		Pac of 5	11.73	1,173.00
IMAM Registers				
IMAM reporting Tools (Inpatient Nutrition Care Register)		Each	2.80	2,800.00

Items	No of unit per treatment/person	Package	Unit Cost (USD)	Unit Cost (KSH)
IMAM reporting Tools (OTP health facility registration Book)		Each	3.63	3,630.00
IMAM reporting Tools (Supplementary Feeding Program for children 6 - 59 months Health facility Register)		Each	3.01	3,010.00
IMAM reporting Tools (Supplementary Feeding Program for Pregnant and Lactating women Health facility register)		Each	3.01	3,010.00
IMAM reporting Tools (IMAM Monthly Facility Summary Tool)		Each	5.50	5,500.00

Annex 22: Home Visit Checklist

Home Visit Checklist

The following are issues to focus on during a home visit.

1. Feeding

- Is the RUSF/RUTF eaten only by the sick child? Yes No
- Is food other than RUSF/RUTF given to the sick child? Yes No

If yes, what food?

- Is RUSF/RUTF finished before other food is given? Yes No
- How is the RUSF/RUTF given to the child? (E.g. mixed with other food, with water)

- How much RUSF/RUTF does the child eat each day?

- How many times per day is the sick child given food/RUTF to eat? (E.g. Twice)

- How do you encourage/help the sick child to eat?

- What does the parent/caregiver do if the sick child does not want to eat?

CHV to Observe child eating one meal of RUSF/RUTF.

Notes:

2. Caring

- Does the parent/caregiver feel that their child is improving? Yes No .

If no, why not?

- Where are you seeking care for the sick child?

- Who cares for the sick child during the day? _____

- CHV to observe if the sick child clean? _____

Notes:

- Is anyone in the household sick? Yes No
- Has anyone in the household recently died? Yes No

If yes, how does this affect the caring of the child?

- Is there any other household circumstances that affect the caring of the child? Yes No

If yes, which one(s)

3. Health

- What is the household's main source of water?

- Do they use soap in the household? Yes No

- Does the parent or caregiver and the sick child wash hands during the 4 critical times (before feeding, after visiting the toilet, before cooking and after changing the baby)?

Yes No

- Is RUSF/RUTF, other food and water covered and free from flies? Yes No
- Does the parent or caregiver know what causes diarrhoea? Yes No
- What action does the parent or caregiver take when the child suffers from diarrhoea?
(Include any action involving foods, medicines, fluids)

- If any medicines have been prescribed, are they being given correctly? Yes No
- CHV Observation of diarrhoea or vomiting.

Notes:

4. Food Security

- What is the main source of food for the household?

- What is the main source of income for the household?

- Is the household currently enrolled in any social protection programme? Yes No
- If yes, which one?

If yes, who is the target?

Annex 23: List of Contributors

1	Dancliff Mbura	Action Against Hunger
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