

GUIDELINES FOR
**INTEGRATED MANAGEMENT
OF ACUTE MALNUTRITION**
IN UGANDA

JANUARY 2016



MINISTRY OF HEALTH

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FOREWORD

Malnutrition is a significant public health problem which is often neglected. The six-part Lancet series of 2013 on maternal and child under nutrition, documented the up-to-date evidence justifying the urgent prioritization of global and countrywide nutrition interventions.

Management of acute malnutrition drew attention in Uganda from 2003/2004 at the peak of the Lord's Resistance Army (LRA) insurgency in Northern Uganda. Over the years, improvement of nutritional status of Ugandans has gained priority at the Ministry of Health (MOH); and there has been development of successive standards, policies, and guidelines in this regard, in line with evidence-based global recommendations. In response to the need to standardize treatment guidelines, in 2006, Uganda, with support from UNICEF and VALID INTERNATIONAL, developed the first version of guidelines on the Integrated Management of Acute Malnutrition (IMAM) which combined existing guidelines with community therapeutic care (CTC) and integrated aspects of treatment of malnourished HIV/AIDS children and adults. The IMAM approach is a comprehensive strategy which combines and links inpatient treatment (severe with complications) with outpatient care (severe without complications), management of children with moderate acute malnutrition (where possible) and comprehensive community mobilization and involvement.

In March 2010, the MOH launched the Integrated Management of Acute Malnutrition (IMAM) guidelines that further incorporated treatment of malnourished adolescents, adults, pregnant and lactating women. These guidelines provided the framework for ensuring appropriate preventive interventions, early identification and treatment of the acutely malnourished. Since this publication, there have been various developments and lessons learnt through use of the guidelines for example: (a) Mid-Upper Arm Circumference is being increasingly used to assess wasting, (b) in November 2013, the World Health Organization (WHO) released new updates on the management of severe acute malnutrition to contribute to improved quality of care for nutrition and health of the severely malnourished (c) ready-to-use therapeutic foods (RUTF) are becoming more available through importation as well as local production and (d) admission criteria into supplementary feeding programme has been revised for pregnant women. As a result, more opportunities now exist for early identification and referral of the acutely malnourished for treatment. Similarly, there are increasing opportunities for early discharge of the severely malnourished from the health facility to continue receiving care in the community. This update takes into account these developments. This version of the IMAM guidelines was revised and updated through a consultative process involving international and national technical experts.

I call upon all stakeholders involved in the management of malnutrition to apply these revised and updated guidelines and integrate the recommendations into their programmes. However I would like to appeal to all Ugandans to be mindful of the requirement that only trained health workers should directly administer the instructions in these IMAM guidelines, as they are highly technical. Other stakeholders may refer to the guidelines for any other purpose other than to directly implement IMAM. . While some local adaptations may be made, these should be done in collaboration and with the consent of MoH. The MoH is committed to ensuring appropriate implementation of these guidelines.



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ACKNOWLEDGEMENTS

The Ministry of Health would like to very sincerely thank the following organisations: The United Nations Children's Fund (UNICEF), the World Health Organisation (WHO), the World Food Programme (WFP), the United States Agency for International Development (USAID), Family Health International (FHI 360- Food and Nutrition Technical Assistance (FANTAIII) Project, Action Against Hunger (ACF), Mwanamugimu Nutrition Unit Mulago Hospital, Mild May Uganda, Baylor Uganda and the International Baby Food Action Network (IBFAN-Uganda). These provided the technical and financial support which was so essential for the development of the Integrated Management of Acute Malnutrition (IMAM) guidelines.

Sincere gratitude is extended to all those on the list of contributors for their input throughout the entire consultative process. . Special recognition goes to all the members of the Maternal and Child Health Cluster, Senior Management Committee, Health Policy Advisory Committee and Top Management Committee of the Ministry of Health for their technical input in refining the guidelines.

Finally, the Ministry of Health wishes to thank all stakeholders not mentioned by name, who in one way or another, either individually or collectively, contributed to the production of this revised and updated IMAM guidelines.

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ACRONYMS AND ABBREVIATIONS

AFASS	Acceptable, feasible, affordable, sustainable and safe
AIDS	Acquired Immuno-Deficiency Syndrome
ANC	Antenatal Care
ART	Anti Retroviral Therapy
BMI	Body Mass Index
CBO	Community Based Organization
CCP	Critical Care Pathway
CHEWS	Community Health Extension Workers
CHW	Community Health Worker
CMV	Combined Minerals and Vitamins
CSB	Corn Soya Blend
DHO	District Health Officer
DHT	District Health Team
DNFP	District Nutrition Focal Person
DOTS	Directly Observed Treatments
ENR	Emergency Nutrition Response
EPI	Expanded Immunisation Programme
EPR	Emergency Preparedness and Response
F-100	Formula 100
F-75	Formula 75
FBF	Fortified Blended Foods
GAM	Global Acute Malnutrition
GFD	General Food Distribution
GFD	General Food Distribution
GMP	Growth and Monitoring Programme
Hb	Haemoglobin
HC	Health Centre
HIV	Human Immuno-deficiency Virus
HMIS	Health Management Information System
HSSP	Health Sector Strategic Plan
HSQI	Health Sector Quality Improvement Framework
ID	Identification Number
IEC	Information Education and Communication
IM	Intramuscular
IMAM	Integrated Management of Acute Malnutrition
IMCI	Integrated Management of Childhood Illnesses
INR	Integrated Nutrition Register
IPs	Implementing Partners
ITC	Inpatient Therapeutic Care

ITC	Inpatient Therapeutic Care
IV	Intravenous
IYCF	Infant Young Child Feeding
IYCF-E	Infant Young Child Feeding in Emergencies
LNS	Lipid based Nutrient Supplement
MAM	Moderate Acute Malnutrition
MCH	Maternal and Child Health
MoH	Ministry of Health
MUAC	Mid Upper Arm Circumference
NGO	Non-Governmental Organisation
NGT	Naso-gastric tube
NMS	National Medical Stores
OPD	Outpatient Department
OTC	Out-Patient Therapeutic Care
PCP	Pneumocysts carinii pneumonia
PMTCT	Prevention of Mother-to-child Transmission
QI	Quality Improvement
RCT	Routine Counselling and Testing
RNI	Recommended Nutrient Intake
ReSoMal	Rehydration Solution for the Malnourished
RUTF	Ready to Use Therapeutic Food
SAM	Severe Acute Malnutrition
SF	Supplementary Feeding
SFC	Supplementary Feeding Centre
SFP	Supplementary Feeding Programme
SST	Supplemental Suckling Technique
TB	Tuberculosis
THR:	Take Home Rations
TWG	Technical Working Group
UDHS	Uganda Demographic Health Survey
UNHCR	United Nations Commission for Refugees
UNICEF	United Nations Children's' Fund
UTI	Urinary Tract Infection
VHT	Village Health Team
W/L	Weight for length
WFH	Weight for height
WFP	World Food Programme
WHO	World Health Organisation
YCC	Young Child Clinic

GLOSSARY OF TERMS

TERM	DEFINITION
Client	Any individual, whether child or adult that is under any form of management for acute malnutrition. In some instances they are also referred to as patients.
Community Mobilisation	Community mobilisation includes community assessment, community sensitization and engagement, active case-finding and referral, and case follow-up.
Defaulted	Client is classified as defaulter on the third consecutive absence (i.e., three weeks absent) (for Supplementary feeding programme is two consecutive absences)
Died	Patient dies while in Care
Discharged Cured	Patient meets discharge cured criteria
Non-Cured	Patient does not reach discharge criteria after four months (16 weeks) in treatment (medical investigation previously done)
Oedema +/Grade 1 ++/Grade 2 +++/Grade 3	This is the reference for the classification of nutrition oedema. The grading of +/++/+++ or Grade 1, 2, 3 classifies the oedema ranging from moderate to severe.
Sachets of RUTF	The quantities of the Ready to Use Therapeutic Foods are usually measured in sachets. In some other instances, it has also been measured in packets
Shock	A dangerous condition presenting with severe weakness, lethargy or unconsciousness, cold extremities and a fast, weak pulse
The ABCD concept	Used for identifying serious illness or injury during triage i.e. airway, breathing, circulation/consciousness and dehydration
Transferred to more intensive care (i.e. from OTC to ITC)	Patient's condition is deteriorating (according to action protocol)
Triage	The word triage means sorting. Triage is the sorting out of patients into priority groups according to their needs and the resources available





CHAPTER ONE

INTRODUCTION

1.0 Overview of Malnutrition in Uganda

Malnutrition can be either under-nutrition or over-nutrition (obesity). This guideline will specifically deal with acute malnutrition as a form of under nutrition. Under nutrition is the result of deficiency of protein, energy, minerals as well as vitamins leading to loss of body fats and muscle tissues. It is of a major public health concern in Uganda that affects both children and adults. The statistics show that 300,000 children (5% nationally) are estimated to be acutely malnourished and nearly 120,000 (2%) of them have severe acute malnutrition (Uganda Demographic Health Survey, 2011). The HIV pandemic in the country has exacerbated the situation as more than 15% of acutely malnourished children presenting to inpatient facilities are HIV-positive. Malnutrition is a direct cause of 35-55% of all childhood deaths (WHO, 1999, SPHERE 2004) and hence the urgency to prevent and address the problem. Severe wasting in children under 5 years in particular is associated with a 9-fold increased odds of mortality compared to a healthy child.

1.1 Acute Malnutrition as a form of under-nutrition

Under-nutrition

Under nutrition is categorised as either acute (recent) or chronic (long term). It is caused by inadequate intake or poor absorption of nutrients in the body. There are four forms of under-nutrition: acute malnutrition, stunting, underweight and micronutrient deficiencies. The four forms can be categorised as either moderate or severe malnutrition and can appear isolated or in combination, but most often overlap in one client or population.

Under-nutrition is identified through anthropometry (body measurements), clinical signs and biochemical tests. These measurements are then compared to a reference value commonly referred to as nutrition indices.

Nutrition indicators are the classification of specific measures of nutrition indices based on cut-off points. They measure the clinical occurrence of under-nutrition and are used for making a judgment or assessment. There are four common nutrition anthropometric indicators : Mid Upper Arm Circumference (MUAC) which is used to assess wasting, weight- for- height (WFH) which is also used to assess wasting, height-for-age (HFA) which is used to assess stunting and weight-for-age (WFA) which is used to assess underweight.

Acute Malnutrition

Acute malnutrition is a rapid onset condition characterised by bilateral pitting oedema or sudden weight loss caused by a decrease in food consumption and/or illness.

Note: It is important to interpret adult oedema with caution as it may not be nutritional oedema but due to some underlying medical complaints.

There are two forms of acute malnutrition:

- **Severe acute malnutrition (SAM)** which is characterised by the presence of bilateral pitting oedema or severe wasting. A patient with SAM is highly vulnerable and has a high mortality risk.
- **Moderate acute malnutrition (MAM)** which is characterised by moderate wasting.

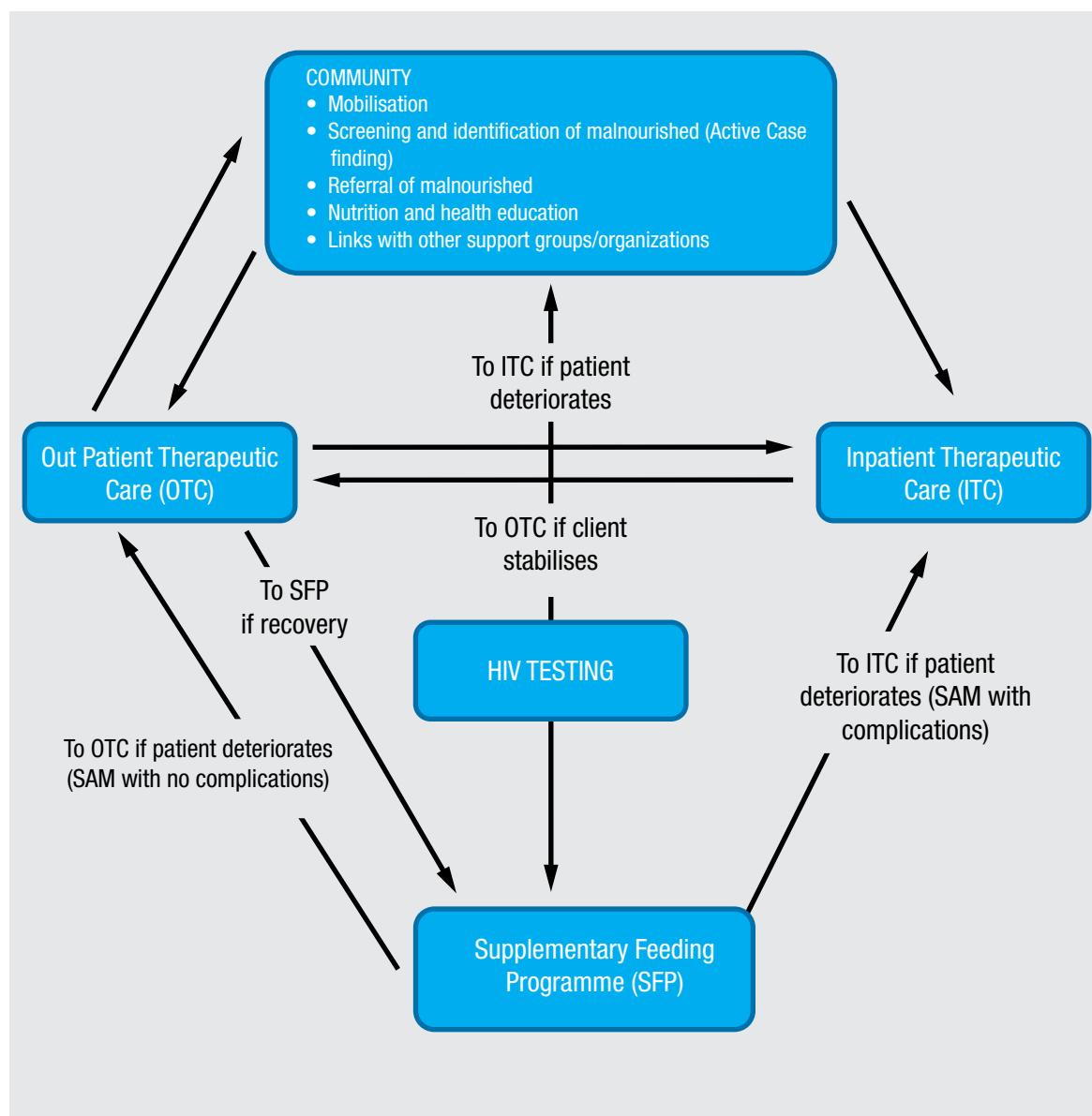
1.2 Components of Integrated Management of Acute Malnutrition (IMAM)

IMAM is an approach to address acute malnutrition and focuses on the *integration* of the management of acute malnutrition into the on-going routine health services at all levels.

In Uganda IMAM has four components: Community, Supplementary Feeding Programmes (SFP), Outpatient Therapeutic Care (OTC) and Inpatient Therapeutic Care (ITC) programmes. The Community services involve early identification, referral, and follow-up of the acutely malnourished at community level. SFP manages and treats MAM in children of 6-59 months and other vulnerable groups that include pregnant women, lactating women with infants less than 6 months, those with special needs such as the elderly. OTC provides home-based management and rehabilitation of SAM patients as well as MAM patients with HIV/TB who have an appetite and no medical complications. ITC is for the management of SAM with medical complications.

Good coordination and communication between community, SFP, OTC and ITC is essential to ensure that patients remain in the system during the treatment process for acute malnutrition (Figure 1 below).

FIGURE 1: COORDINATION AND COMMUNICATION BETWEEN IMAM COMPONENTS



1.3 Principles of IMAM

The core operating principles are:

- **Maximum coverage and access:** This aims to achieve the greatest possible coverage by making services accessible to the highest possible proportion of a population in need. It aims to reach the entire acutely malnourished population.
- **Timeliness:** This aims to begin case-finding and treatment before the prevalence of malnutrition escalates and additional medical complications occur.
- **Appropriate care:** Provision of simple, effective outpatient care for clients who can be treated at home and clinical care for those who need inpatient treatment.

- **Care for as long as it is needed:** Improving access to treatment ensures that clients can stay in the programme until they have recovered.
- Additionally, IMAM also needs to be effective and sustainable. By building local capacity and integrating the programme within existing structures and health services, IMAM also aims to ensure that effective treatment remains available for as long as acute malnutrition is present within the population.

1.4 Purpose of the IMAM guidelines

The IMAM guidelines specifically deal with the identification, treatment and management of acute malnutrition and are intended to be used by health and nutrition care providers working at all health care levels in Uganda. The guidelines can also be used by training institutions to standardise treatment of acute malnutrition with new graduates joining the health force. The guidelines will also help NGOs involved in nutrition rehabilitation during emergencies to guide and standardize treatment protocols established by Ministry of Health. The guidelines complement other nutrition materials developed by Ministry of Health.

The IMAM guidelines are aimed at contributing to improved standardised treatment, monitoring and reporting. They can also be used as a mobilising tool for addressing acute malnutrition and strengthening capacities. Compliance with the guidelines should contribute to the overall reduction of child mortality in Uganda.

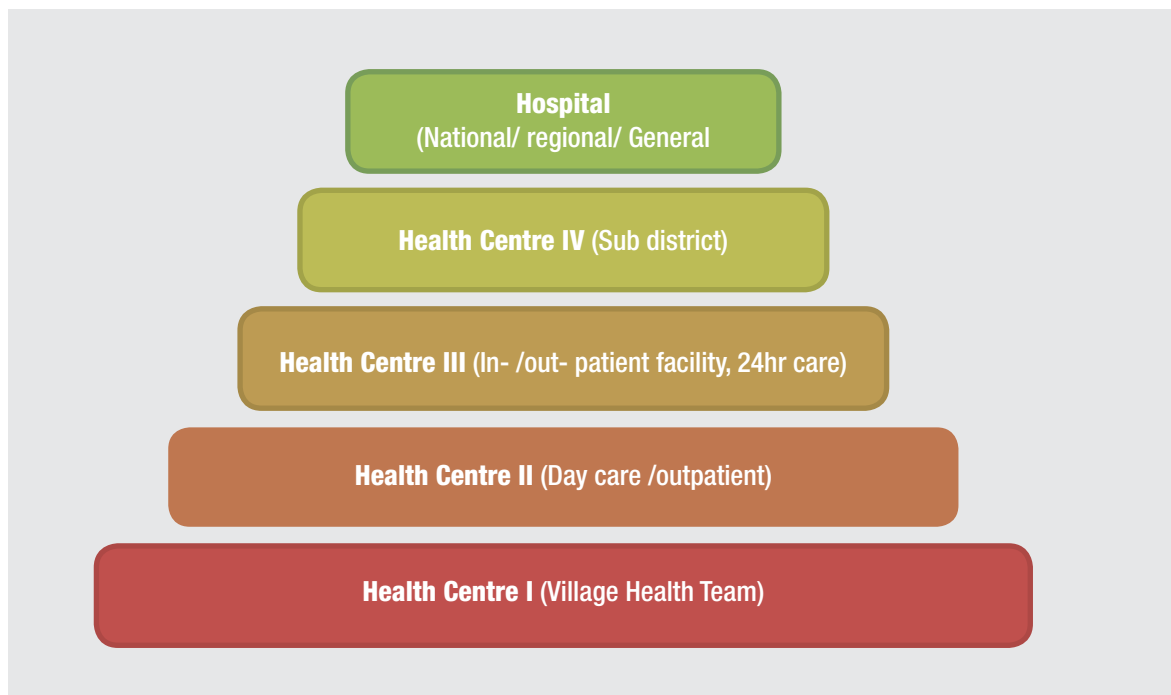
Although the guidelines will focus on children under five years, some information specific to older children, adolescents and adults is also included. There is no sufficient evidence based research on the treatment of adult acute malnutrition to go into elaborate detail, but as evidence becomes available, the guidelines will be updated.

1.5 Integrating IMAM into the Existing Health Structure of Uganda

The delivery of health services in Uganda is by both public and private health facilities with the Government of Uganda being the owner of most facilities. Public health services are delivered through VHTs, HC IIs, HC IIIs, HC IVs, General Hospitals, Regional Referral Hospitals and National Referral Hospitals (Figure 2).

Facilities up to HCIV have inpatient, outpatient and theatre facilities. The HC III is an outpatient department (OPD) facility with delivery and inpatient facilities while HC II is a day care facility. At the village level are the Village Health Teams (VHT) that are the link between the community and the health structure.

FIGURE 2: EXISTING HEALTH STRUCTURE IN UGANDA



Initially, management of acute malnutrition has been hospital-based with treatment integrated within the paediatric ward or within a separate nutrition rehabilitation unit affiliated to the paediatric ward. This has been done with minimal community mobilisation and/or involvement. The IMAM approach aims at broadening the scope of current management and decentralising management of acute malnutrition to lower levels (HCIII and HC II levels) depending on capacity within the individual facility. This will be combined with linking with the VHTs and other community-level figures as well as preventative programmes.



CHAPTER TWO

COMMUNITY INVOLVEMENT

2.0 Introduction

Community acute malnutrition services are a critical component of the Integrated Management of Acute Malnutrition (IMAM). These services should be integrated into on-going community services. The country is implementing a comprehensive Village Health Team (VHT) strategy which the IMAM approach builds upon. The VHT strategy requires that every village has VHT members who work together to mobilise communities for better health. The success of the IMAM depends on strong community mobilization and involvement to maximise access and coverage of health services.

Community mobilization is defined as a capacity building process through which individuals, groups or organizations plan, carry out and evaluate activities on a participatory and sustained basis to improve their health and other needs, either on their own initiative or stimulated by others (Grabman H. and Snetro, 2004)

Community involvement is defined as the active participation of people living together in some form of social organization and cohesion in the planning, operation and control of primary health care, using local, national and other resources. In community involvement, individuals and families assume responsibility for their communities' health and welfare, and develop the capacity to contribute to their own communities' development (WHO, 2004). The various sectors in community involvement will include but not limited to ministries of Health (MoH), Agriculture, Animal Industry and Fisheries (MAAIF), Gender, Labour and Social Development (MoGLSD) and Education and Sports (MoES). This will involve the staff from the various sectors who work at community levels e.g. Village Health Teams, agriculture extension workers, community development workers and other community resource persons.

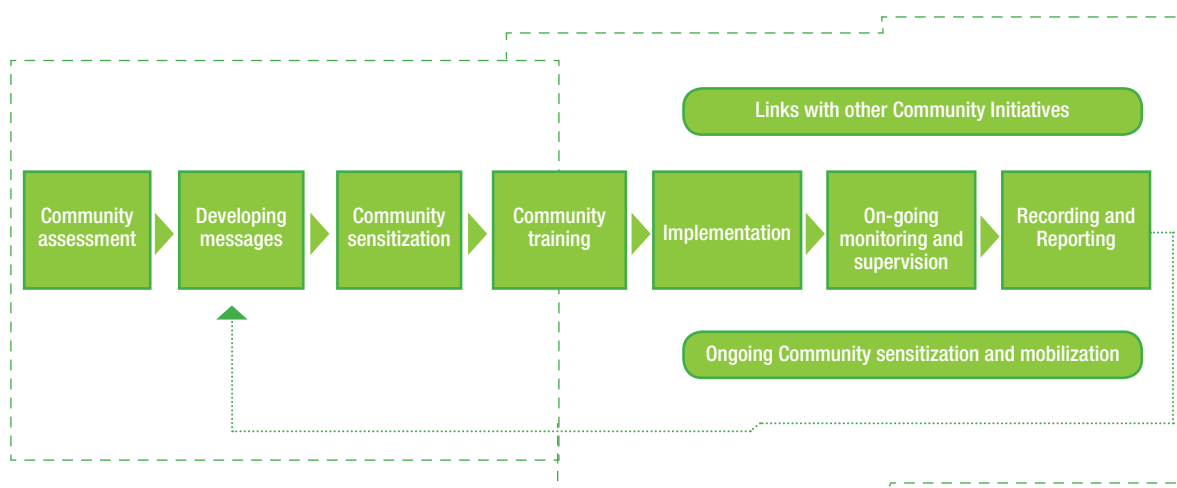
The main aims of community services for IMAM include:

- Empowering the community by increasing knowledge on acute malnutrition and IMAM
- Increasing community mobilization for access and service uptake (coverage) of IMAM
- Strengthening early case-finding and referral of new acute cases, and follow-up
- Providing health, nutrition education and counselling

2.1 Steps in community Mobilisation and Involvement

The summary of the steps in community mobilisation and involvement in IMAM are presented in Figure 3 below.

FIGURE 3: STEPS IN COMMUNITY MOBILISATION AND INVOLVEMENT



STEP 1: Community Assessment

The assessment is key in determining the factors that are likely to impact on both service delivery and demand for services. In community assessment, the following need to be identified:

- The key community persons, leaders and other influential people and organisations to help sensitise the communities on the components of the IMAM programme;
- Existing structures and community based organisations/groups
- Social and cultural characteristics related to nutrition.
- Formal and informal channels of communication that are known to be effective
- Attitudes and health seeking behaviours
- Other existing nutrition and health interventions in the community

The assessment is conducted by district health workers (community health nurse, VHT and members of the district health team (DHT).

STEP 2: Developing messages and materials

- Develop sensitisation messages for handbills or pamphlets, local radio as well as television. Meetings with the community and religious leaders provide essential information about the IMAM Service aims, methods and actors. (Table 19 can provide guidance on the messages).
- Develop a sensitisation plan detailing who and how to sensitise, based on the information gathered during community capacity assessment. Review message with influential persons in the community to check if it is culturally appropriate before disseminating it.

STEP 3: Community Sensitization

- Engage the community and other partners with community-based programmes to discuss the problem of malnutrition, causes and possible solutions.
- Introduce and negotiate on the adoption of IMAM as an approach to the management of acute malnutrition in their communities.
- Agree on what needs to be done; the relevant groups, organisations and structures to be involved in IMAM; and discuss clear roles as well as responsibilities.
- Once services for the management of SAM have started, continue the dialogue to address concerns, maintain changes in behaviour and share success stories.

STEP 4: Community Training

- The DHTs have a responsibility to ensure that the identified community volunteers are trained on identification, referral and how to disseminate messages effectively. Refer to the available training packages such as VHT Training Package.

STEP 5: Implementation

Case-Finding and Referral

- Active case-finding is important to ensure that clients with SAM are identified early before the development of severe medical complications. Identified clients are referred to the nearest health facility for further assessment and appropriate management.

The identified community health providers will:

- Screen for acute malnutrition at various contact points (house to house visits, community meetings, health facilities/outreach programmes, and at other opportunities) using the Mid-upper arm circumference (MUAC) and pitting oedema, for all client groups.
- Identify and refer malnourished clients appropriately.

Follow-up of Patients with Acute Malnutrition

Patients with acute malnutrition on treatment require follow-up as they are at an increased risk of disease and death. They should be monitored to ensure sustained improvement in their condition.

Follow up should ensure effective linkage between the community and health facilities. It should entail the following:

- Conducting home visits of malnourished clients for follow up as determined by the health provider
- Following up on absent or defaulting patients
- Giving feedback to health providers
- Linking clients/patients to livelihood/safety net programmes available in the community

STEP 6: On-going Community Sensitisation and Supervision

- This mainly involves constant dialogue, in which the communities periodically voice their views and suggest alternative courses of action. This entails regular meetings (monthly and/or quarterly) with key community representatives, health staff from the nearest health facility, beneficiaries and other partners to discuss different aspects of the programme such as:
 - Reviewing the selection and motivation of volunteers;
 - The community's perspective of the programme which may include identifying new barriers to access; and
 - Joint solutions to problems limiting the impact of the programme. This promotes community ownership of programme development and implementation.

STEP 8: Recording and Reporting

- One of the key responsibilities of the VHT members is to maintain records of screened and referred community members; the health education sessions conducted; as well as the analysis and submission to health facilities.





CHAPTER THREE

NUTRITION ASSESSMENT AND CLASSIFICATION OF ACUTE MALNUTRITION

3.0 Introduction

For early detection and management of acute malnutrition, nutrition assessment should be done at all contact points and special attention to communities with high risk of malnutrition including pregnant and lactating mothers, children, HIV/AIDS, TB, cancer, and other chronic conditions.

3.1 Where the assessment/screening should be done

Acute malnutrition can be identified through nutritional screening and/or assessment at different contact points.

Contact points at community level:

- Day-to-day or house-to-house
- During mass campaign days
- Integrated Child health days
- Integrated outreaches
- Schools and community programmes and others.

Contact points at health facility level:

- Immunisation centres
- Young Child clinics (YCC)
- HIV/AIDS/TB, cancer,
- Mother Baby Care Point / Antenatal Care (ANC) and post natal clinics.
- Outpatient departments
- Inpatient clinics or wards
- Other care and support clinics



BOX A

Measurements for acute malnutrition

The Mid Upper arm Circumference (**MUAC measurement**) and Weight-for-Height (**WFH index**) are used to assess wasting, a clinical manifestation of acute malnutrition, reflecting the client's current nutritional status. MUAC involves measuring the circumference of the client's left mid-upper arm. MUAC is a better indicator of mortality risk associated with acute malnutrition than WFH z-score (World Health Organisation [WHO] standards). MUAC assessment is used for children older than 6 months of age, pregnant and lactating women (6 months postpartum) and adults who cannot stand.

The **WFH index** shows how a child's weight compares to the weight of a child of the same height and sex in the WHO standards. A WFH standard deviation below -2 z-score

of the median (WFH < -2 z-score) of the WHO standards indicates wasting.

The **Body Mass Index** is used as a measure of acute malnutrition for adults (18 years and above) who are not pregnant or lactating (6 months postpartum). For pregnant and lactating women (and other adults who cannot stand) MUAC is used.

Bilateral pitting oedema is a clinical manifestation of acute malnutrition caused by an abnormal infiltration and excess accumulation of serous fluid in connective tissue or in a serous cavity. Bilateral pitting oedema (also called kwashiorkor) is verified when thumb pressure applied on top of both feet for three seconds leaves a pit (indentation) in the foot after the thumb is lifted.

3.2 Nutrition Assessment

Nutritional assessment is a comprehensive evaluation to determine the nutrition status of an individual. This can be done through taking anthropometry as well as taking medical and dietary history; performing clinical examination, and laboratory tests. It should be done by a skilled and knowledgeable worker in nutrition.

Anthropometry

This refers to the physical measurement of body parts in comparison to reference standards. It includes but not limited to the following measurements:

- Mid-Upper-Arm Circumference (MUAC) in cm;
- **Body Weight** in Kg and rounding off to the nearest 0.1kg (100g);
- **Length** (for children below 2years or less than 87.0 cm) or **height** (for children above 2years, or **87.0 cm or more**, adolescents and adults) in cm rounding off to the nearest 0.1 cm;

Steps in anthropometry

Conduct Triage (see annex 2) to fast track seriously ill patients.

Triage is the sorting out of patients into priority groups according to their needs and the resources available.

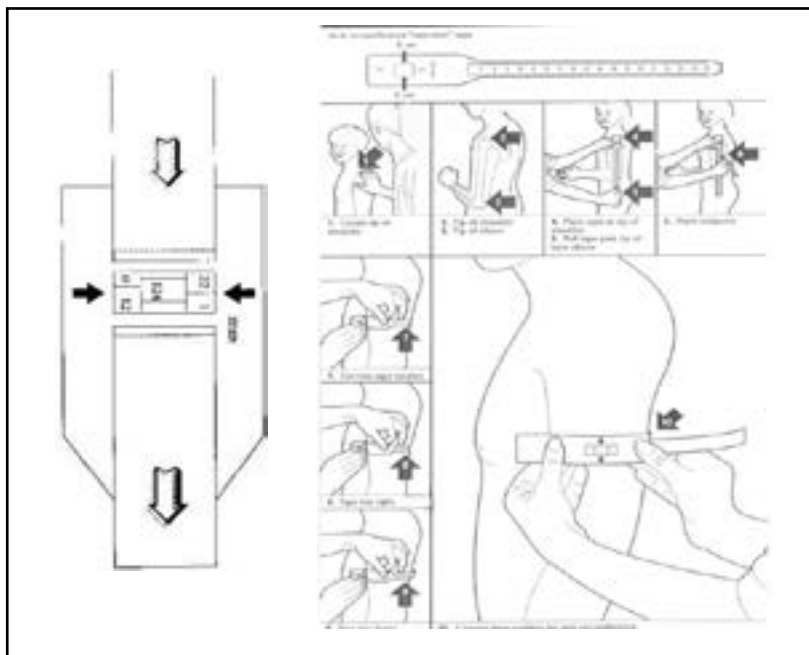
Determine age

Determine the patient's age from records such as the Child Health Card/Mother Child Passport or recall by the mother/caregiver.

Measure MUAC

- Rule out bilateral pitting oedema
- Measure the Mid Upper Arm Circumference on the less active arm (commonly left arm of the client). To locate the correct point for measurement, flex the client's elbow to 90°.
- Locate the tip of the shoulder (acromion) and elbow (olecranon) on the left flexed arm as shown in Figure 5.
- Determine the mid-point between the tip of the shoulder and the elbow
- Place the MUAC tape around the middle of the left upper arm (the arm should be hanging down the side of the body and relaxed).
- Read the measurement from the window of the MUAC tape without tightening or loosening it.
- Record the MUAC to the nearest 0.1 cm and the colour code (Green, Yellow, Red).
- Repeat the measurement to ensure accuracy

FIGURE 4: MEASURING MUAC



Measure weight

- Make sure the weighing scale is calibrated to Zero before each measurement is taken.
- Clients should be weighed with minimum of clothing and no jewellery.
- The weight reading should be done as soon as the indicator on the scale has stabilised.
- Weight is recorded to the nearest 0.1kg (100g).

Note: Weighing scales should be standardised after every 100 measurements using a known weight.

FIGURE 5: MEASURING WEIGHT IN DIFFERENT CIRCUMSTANCES

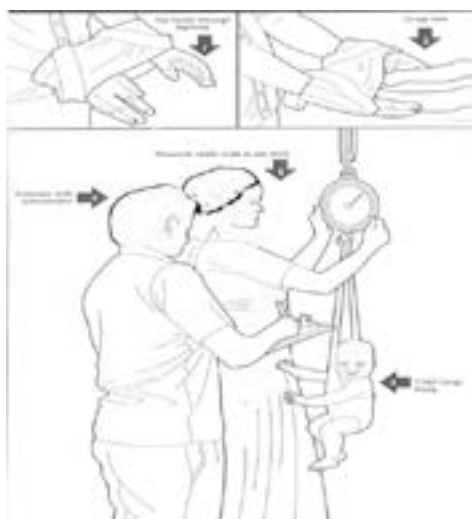


Figure 5_a: weighing a child up to 25kg



Figure 5_b: Weighing a child who can stand



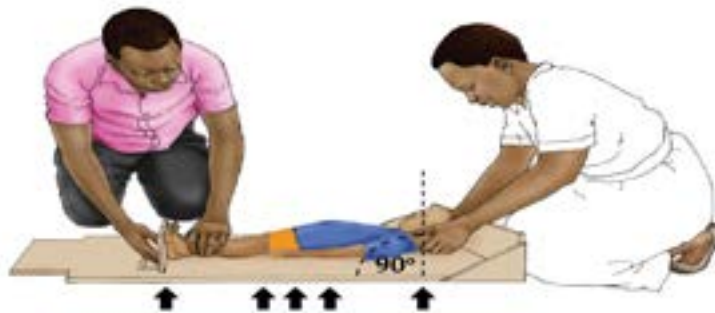
Figure 5_c: weighing a child who cannot stand

Measure Length/Height

- Children who are shorter than 87.0 cm (or less than 2 years) are measured while lying down; taller children (equal to or more than 87.0 cm or older than 2 years) are measured while standing.
- Make sure the child is barefoot and has no head gear
- Make sure shoulder blades, buttocks and heels touch the surface of the length/height board; knees should be fully straight and arms stretched on the sides; and neck should be straight with eyes looking straight ahead with the headpiece/foot piece placed firmly in position.
- The measurement is read to the nearest 0.1 cm.

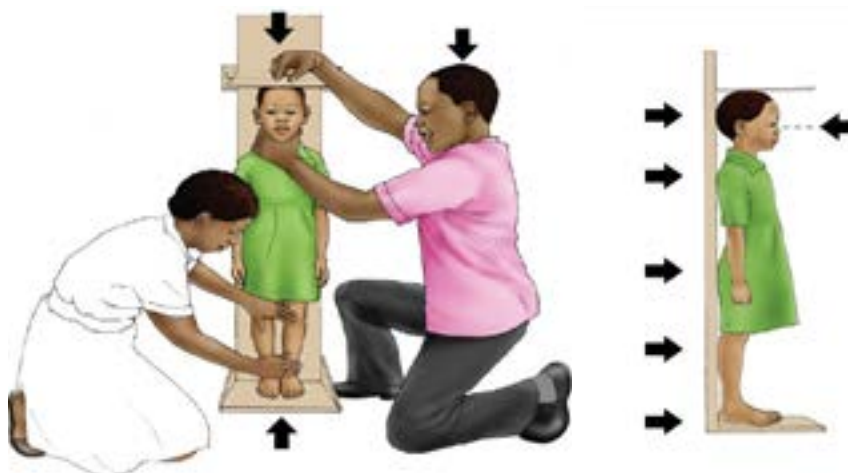
Note: If a child is less than 2 years old will not lie down for a measurement of length, measure the standing height and add 0.7 cm to convert it into length. If the child aged 2 years and older cannot stand measure the recumbent length and subtract 0.7 cm to convert it to height

FIGURE 6_A: MEASURING LENGTH



How to take length of children < 87cm

FIGURE 6_B: MEASURING HEIGHT



How to take height of children > 87cm standing

Take Medical and dietary history

- Obtain patient information including age, sex and possible recent alteration in body weight
- Check the patient's/client health record and ask the caregiver about any major health issues which can have nutritional implications
- Ask about feeding practices.

Perform Clinical Examination

This entails both the general as well as the systemic evaluation of the patient, from head to toe, with emphasis on signs of visible severe wasting, bilateral pitting oedema (Figure 7), and medical complications (hypothermia, hypoglycaemia, corneal ulcerations, very severe anaemia, dermatosis, heart failure, dehydration/shock, severe infections, shock and IMCI danger signs).

FIGURE 7: CHILDREN WITH CLINICAL SIGNS OF SEVERE ACUTE MALNUTRITION



a: child with visible signs of severe wasting



b: child with bilateral pitting oedema

Bilateral pitting oedema

Oedema is swelling from excess fluid in the tissues and can be seen in the feet, lower legs and arms. In severe cases it is generalized. Oedema caused by acute malnutrition often presents with special characteristics:

- It is bilateral pitting (leaves a depression on pressure applied for at least 3-5 seconds)
- Does not change with time of the day or posture

Note: If the swelling is only in one foot, it may just be a sore or infected foot

Oedema is commonly graded as shown in the table 1 below:

TABLE 1: GRADING OF BILATERAL PITTING OEDEMA

OBSERVATION	GRADE
No oedema	(0)
Bilateral pitting oedema in both feet (below the ankles)	+ / (Grade 1) mild
Bilateral pitting oedema in both feet and legs, (below the knees) hands or lower arms	++ / (Grade 2) moderate
Bilateral pitting oedema observed on both feet, legs, arms, face	+++ / (Grade 3) severe

Note: It is important to interpret oedema with caution as it may be a sign of underlying medical condition (e.g. nephritic syndrome, severe anaemia, high blood pressure, other renal or heart conditions) or physiological changes such as in pregnancy. A clinician should take detailed history, physical examination and where possible biochemical tests

Dermatosis

Dermatosis of the skin is common among children with oedema. Dermatitis can be categorized as:

- + Mild: discoloration or a few rough patches of skin
- ++ moderate: multiple patches on arms and/or legs
- +++ severe: flaking skin, raw skin, fissures (openings in the skin)

Eye signs

Children with severe malnutrition may have signs of eye infection and/or vitamin A deficiency.

- **Bitot's spots** – superficial foamy white spots on the conjunctiva (white part of the eye). These are associated with vitamin A deficiency.
- **Pus and inflammation** (redness) are signs of eye infection.
- **Corneal clouding** is seen as an opaque appearance of the cornea (the transparent layer that covers the pupil and iris). It is a sign of vitamin A deficiency.
- **Corneal ulceration** is a break in the surface of the cornea. It is a sign of severe vitamin A deficiency.

3.3 Classification of acute malnutrition

Acute malnutrition is categorized as moderate or severe. It can be classified using cut offs, z-scores and /or bilateral pitting oedema (Table 2 below)

TABLE 2: SUMMARY OF CLASSIFICATION OF ACUTE MALNUTRITION

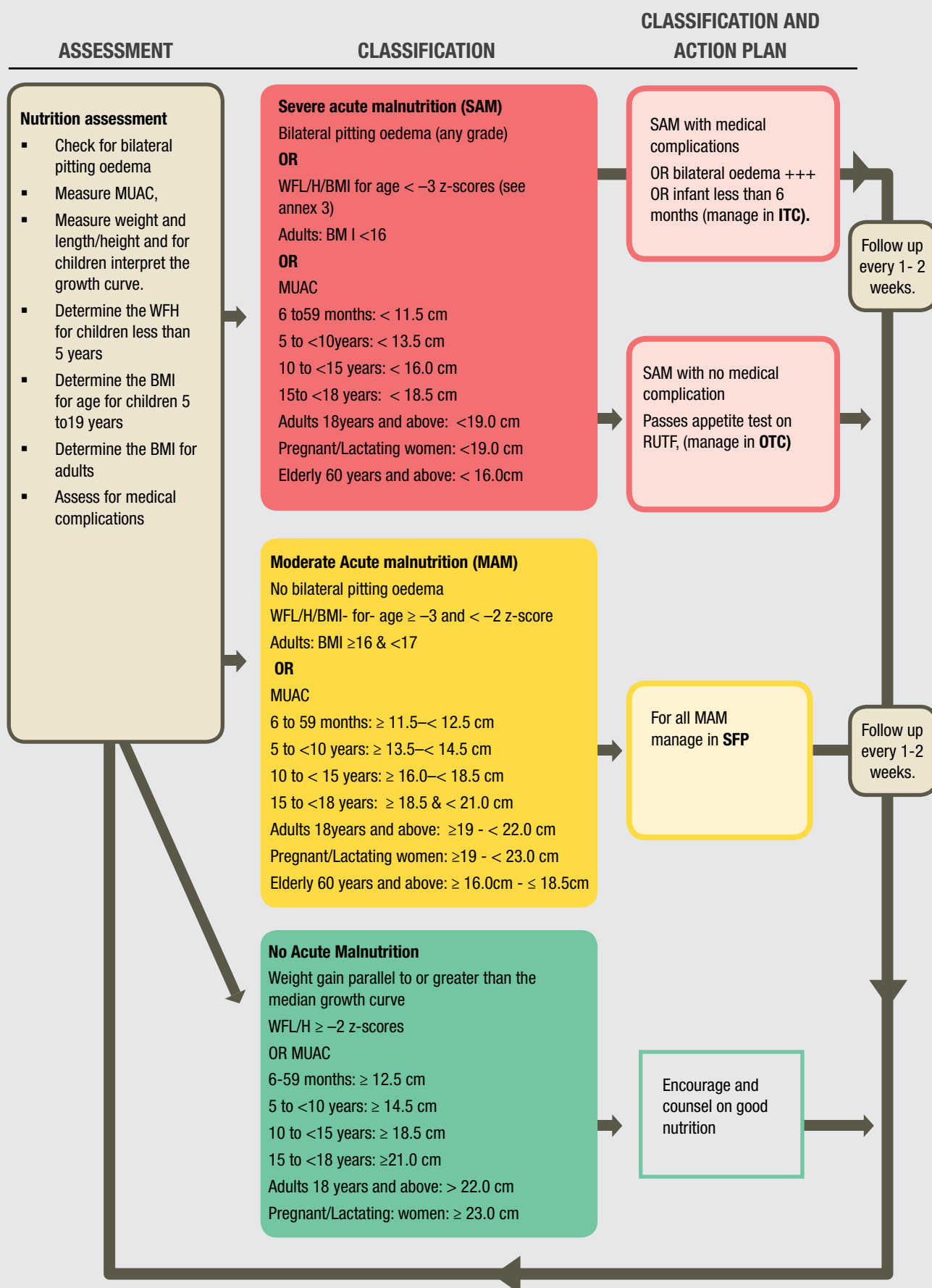
AGE CATEGORY	NUTRITIONAL INDICATOR	MODERATE ACUTE MALNUTRITION (MAM)	SEVERE ACUTE MALNUTRITION (SAM)
Infants less than six months	Weight for Length (WFL)	Greater or equal to -3 z-score and less than -2 z-score (≥ -3 SD & < -2 SD)	Less than -3 z-score (< -3 SD)
	Bilateral pitting oedema	No bilateral pitting oedema	Presence of bilateral pitting oedema
Children from 6 to 59 months	Weight for Length/Height (WFL/H)	Greater or equal to -3 z-score and less than -2 z-score (≥ -3 SD & < -2 SD)	Less than -3 z-score (< -3 SD)
	MUAC cut off	Greater or equal to 11.5cm and less than 12.5cm (≥ 11.5 cm & < 12.5 cm)	Less than 11.5cm (< 11.5 cm)
	Bilateral pitting oedema	No bilateral pitting oedema	Presence of bilateral pitting oedema
*Children and adolescents from 5 years to 19 years	BMI for age	Greater or equal to -3 z-score and less than -2 z-score (≥ -3 SD & < -2 SD)	Less than -3 z-score (< -3 SD)
	MUAC cut off	5 to less than 10 years Greater or equal to 13.5cm and less than 14.5cm (≥ 13.5 cm & < 14.5 cm)	Less than 13.5cm (< 13.5 cm)
		10 to less than 15 years Greater or equal to 16.0cm and less than 18.5cm (≥ 16.0 cm & < 18.5 cm)	Less than 16.0cm (< 16.0 cm)
		15 to less than 18 years Greater or equal to 18.5cm and less than 21.0cm (≥ 18.5 cm & < 21.0 cm)	Less than 18.5cm (< 18.5 cm)
	Bilateral pitting oedema	No bilateral pitting oedema	Presence of bilateral pitting oedema
*Adults	BMI	Greater or equal to 16 and less than 17 kg/m ² (≥ 16 and < 17 kg/m ²)	Less than 16 kg/m ² (< 16 kg/m ²)
	MUAC cut off	Greater or equal to 19.0cm and less than 22.0cm (≥ 19.0 cm & < 22.0 cm)	Less than 19.0cm (< 19.0 cm)

AGE CATEGORY	NUTRITIONAL INDICATOR	MODERATE ACUTE MALNUTRITION (MAM)	SEVERE ACUTE MALNUTRITION (SAM)
	Bilateral pitting oedema	No bilateral pitting oedema	Presence of bilateral pitting oedema (rule out medical causes)
*Pregnant women and lactating mothers with infant less than 6 months	MUAC cut off	Greater or equal to 19.0cm and less than 22.0cm ($\geq 19.0\text{cm}$ & $< 22.0\text{cm}$)	Less than 19.0cm ($<19.0\text{cm}$)
	Bilateral pitting oedema	No bilateral pitting oedema	Presence of bilateral pitting oedema (rule out physiological /medical causes)
*Elderly 60years and above	MUAC cut off	Greater or equal to 16.0 cm and less than or equal 18.5cm ($\geq 16.0\text{cm}$ & $\leq 18.5\text{cm}$)	Less than 16.0cm ($<16.0\text{cm}$)
	Bilateral pitting oedema	No bilateral pitting oedema	Presence of bilateral pitting oedema (rule out physiological /medical causes)

***Sphere 2011**

SAM can be uncomplicated or complicated. Uncomplicated SAM is for children 6 months and above, adolescents and adults who have no medical complications. Appetite test is essential and should be performed for SAM patients without medical complications because anorexia or poor appetite is considered to reflect severe disturbance of metabolism. The test will differentiate complicated from uncomplicated SAM for patients having SAM without medical complications (refer to chapter five-OTC for details).

FIGURE 8: SUMMARY OF THE NUTRITION ASSESSMENT AND CLASSIFICATION OF ACUTE MALNUTRITION ALGORITHM





Endiisa y'omwana wahansi yameezi 6. Kwonsya omwana otaine
kyona ekyorikumugaburira.





CHAPTER FOUR

SUPPLEMENTARY FEEDING PROGRAMME FOR MANAGEMENT OF MODERATE ACUTE MALNUTRITION

4.0 Introduction

Supplementary Feeding (SF) is the provision of nutritious food in addition to the regular meals to clients with or at risk of moderate acute malnutrition (MAM) in specified groups (particularly young children, pregnant women, breastfeeding mothers and the elderly) and for a specified period of time. Supplementary Feeding Program (SFP) involves the provision of nutritious food as well as other services (routine medication, nutrition and health education, HIV counselling and testing among others). SFP prevents deterioration of patients with MAM to SAM, provides a continuum of care to patients discharged from Inpatient Therapeutic Care (ITC) and Outpatient Therapeutic Care (OTC). SFP is particularly important in emergency situations.

There are two mechanisms through which food may be provided:

General Food Distribution (GFD) or Selective Feeding Programmes (SFPs)

- The General food rations in practice, rarely provide sufficient food to allow for catch-up weight gain for those already malnourished
- SFPs are therefore a “safety net” for those whose families cannot cope and are not sustained by the general ration

There are two types of SFP: blanket and targeted supplementary feeding.

Blanket SFP aims at providing supplementary food ration to all members of a specified at risk group for a defined period regardless of their nutritional status. Blanket supplementary feeding is provided when the prevalence of acute malnutrition is high (GAM rate >15% with the presence of aggravating factors) and general food distribution is inadequate. It aims at preventing further deterioration of the groups' nutritional status and reduces MAM.

Targeted SFP provides nutritional support to individuals of MAM. It generally targets children under five years, malnourished pregnant and breastfeeding mothers, and other nutritionally at risk individuals. It aims at treatment of MAM.

SFP may be implemented through a large number of decentralized sites. These are located at or near the sites for OTC, and should be within a day's walk (round trip) for the beneficiary. This helps facilitate referrals between SFP and OTC. SFP should have strong health/nutrition counselling and education activities as well as linkages to livelihood programmes (refer to Chapter Nine)

Supplementary food can be distributed as wet rations as on-site feeding or dry rations as take home.

Admission Criteria into SFP (see Table 3)

Patients who meet the following criteria should be admitted to SFP (Table 3)

TABLE 3: ADMISSION CRITERIA TO SFP

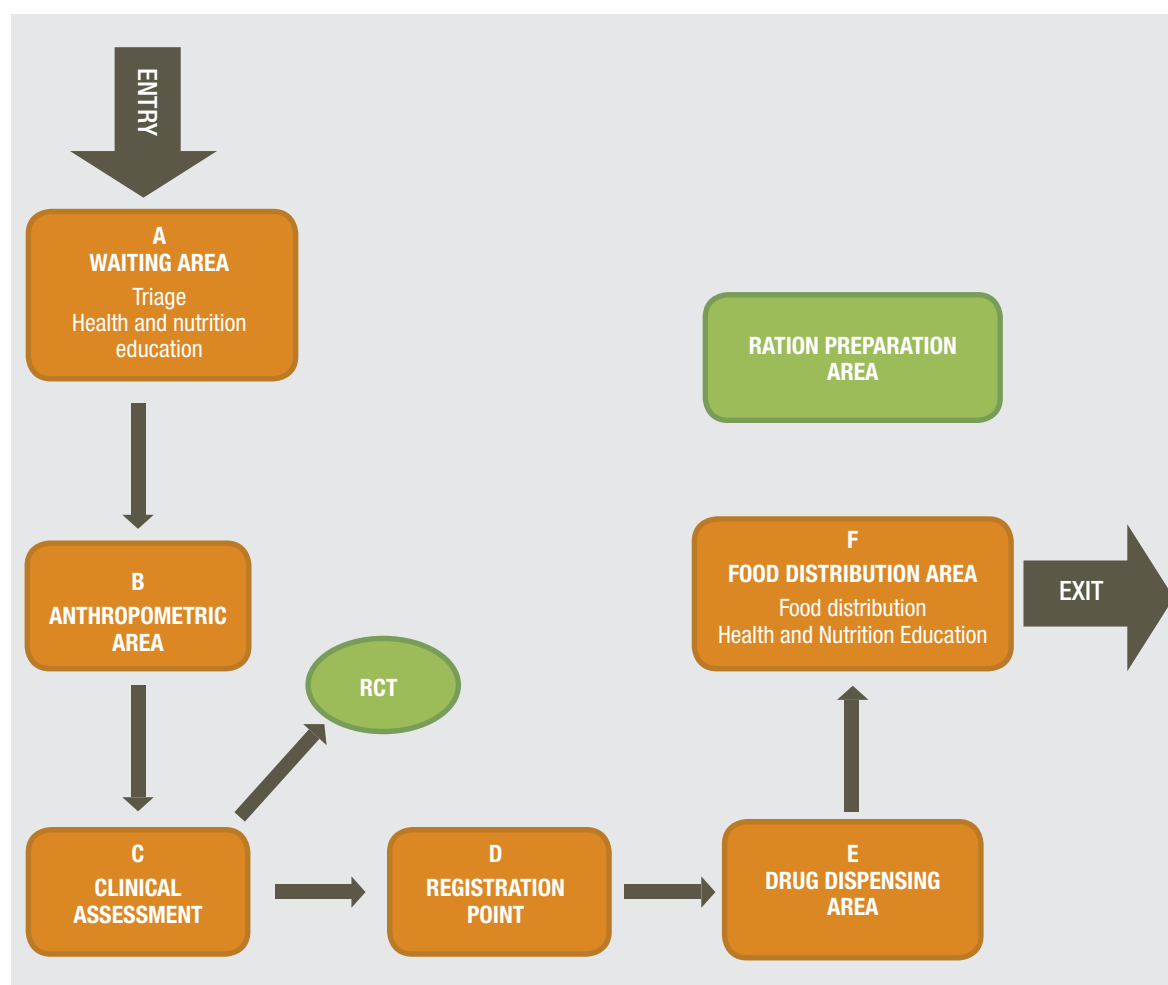
AGE CATEGORY	NUTRITIONAL INDICATOR	ADMISSION CRITERIA
Children from 6 to 59 months	Weight for Length/Height (WFL/H)	Greater or equal to -3 z-score and less than -2 z-score (≥ -3 SD & < -2 SD)
	MUAC cut off	Greater or equal to 11.5cm and less than 12.5cm (≥ 11.5 cm & < 12.5 cm)
	Bilateral pitting oedema	No bilateral pitting oedema
*Children and adolescents from 5years to 19 years	BMI for age	Greater or equal to -3 z-score and less than -2 z-score (≥ -3 SD & < -2 SD)
	MUAC cut off	5 to less than 10 years Greater or equal to 13.5cm and less than 14.5cm (≥ 13.5 cm & < 14.5 cm)
		10 to less than 15 years Greater or equal to 16.0cm and less than 18.5cm (≥ 16.0 cm & < 18.5 cm)
		15 to less than 18 years Greater or equal to 18.5cm and less than 21.0cm (≥ 18.5 cm & < 21.0 cm)
	Bilateral pitting oedema	No bilateral pitting oedema
*Adults	BMI	Greater or equal to 16 and less than 17 kg/m ² (≥ 16 and < 17 kg/m ²)

AGE CATEGORY	NUTRITIONAL INDICATOR	ADMISSION CRITERIA
	MUAC cut off	Greater or equal to 19.0cm and less than 22.0cm ($\geq 19.0\text{cm}$ & $< 22.0\text{cm}$)
	Bilateral pitting oedema	No bilateral pitting oedema
*Pregnant women and lactating mothers with infant less than 6 months	MUAC cut off	Greater or equal to 19.0cm and less than 23.0cm ($\geq 19.0\text{cm}$ & $< 23.0\text{cm}$)
	Bilateral pitting oedema	No bilateral pitting oedema
*Elderly 60years and above	MUAC cut off	Greater or equal to 16.0 cm and less than or equal 18.5cm ($\geq 16.0\text{cm}$ & $\leq 18.5\text{cm}$)
	Bilateral pitting oedema	No bilateral pitting oedema

Admission Process in SFP

The following steps are important during the admission for Supplementary feeding services.

FIGURE 9: STEPS AND FLOW OF ACTIVITIES AT AN SF SITE



STEP 1: Triage (see annex 2) and Nutrition/Health Education

- Conduct triage to fast-track seriously ill patients (see Annex 1 for details)
- Identify referred patients from the community, ITC, or SFP.
- Give sugar water solution (1 rounded teaspoon of glucose/sugar in 50 ml water =3 tablespoons of sugar water) or oral 10% dextrose (Refer to ITC on how it can be reconstituted) to any patients with SAM suspected to be at risk of hypoglycaemia and refer immediately to ITC
- Conduct health and nutrition education to caregivers/or patients not seriously ill.

STEP 2: Anthropometry

STEP 3: Clinical assessment

Note: Steps 2 and 3 will follow the same procedure as described in chapter three.

Assess all patients (new and follow-up) attending OTC. In addition, the clinician should:

- Review the previous treatment for patients referred/transferred from other clinics to avoid overdose of routine medicines (see section on treatment protocol)
- Ensure that they continue with the treatment started on earlier
- Patients on treatment for HIV/AIDS, TB should be counselled to continue with their medication.
- Those diagnosed after admission to SFP should be referred to appropriate programme/health facility for treatment, care and support.

STEP4: Explain to the patient that he/she is moderately acutely malnourished. Explain how the SFP intervention functions and when the patient should return to the health centre. Explain why the patient is being admitted in the SFP and when he/she will exit the programme.



BOX B

Preparation of ReSoMal from standard ORS:

- Water- 2 litres
- WHO-ORS one - 1 litre packet
- Sugar - 50 g
- 40ml Mineral mix solution* or Combined minerals and Vitamins (CMV) (20mls- 1 red scoop mixed in 18mls of boiled, colled safe water)

*The mineral mix solution may be prepared by the hospital pharmacy.

Alternatively, a commercial product, called *Combined Mineral Mix (CMV)*, may be used.

STEP 5: Register patient information in the Integrated Nutrition Register (INR) refer to Annex..... (Integrated Nutrition Register).

STEP 6: Fill out the integrated nutrition ration card. (Annex 18)

STEP 7: Dispense routine medications as shown in table 6

STEP 8: Conduct health and nutrition education and dispense food ration, including demonstration of food supplement preparation if required and give return date.

Step 9: Link patient to any existing livelihood programmes within the community

STEP 10: Compile, summarise and submit reports

Supplementary Foods and Ration Size

Supplementary foods must be energy dense, high in protein and rich in micronutrients, culturally appropriate, easily digestible and palatable.

Ready to use supplementary foods usually provide 500kcal per person per day on assumption that they do not share and are in small quantities.

The supplementary dry ration should provide from 1,000 - 1,200kcal per person per day and 35 – 45 grams of protein in order to account for sharing at home. It should be designed to provide 10-13% of the total energy from protein and 30-40% total energy from fat. Wet ration should provide 500-700Kcal and 15 - 25 grams of protein.²

These rations may be given on a weekly to monthly basis depending on the supplementary food type, program design and context.

There are specialized nutritious foods that can be used for the different target groups. These include:

- Fortified blended foods (Corn soy blend (CSB), super cereal plus and super cereal).
- Lipid based nutrient supplement (LNS) such as supplementary plumpy

Lipid Based Nutrient Supplement (LNS)

- Target group: Children 6-59 months
- Key ingredients include: Peanuts, sugar, whey, vegetable oil, milk, soy protein, cocoa, vitamins and minerals
- Nutrient profile (92g)
 - 500 kcal,
 - 13g protein (10%),
 - 31g fat (55%).
 - Contains essential fatty acids ,
 - Meets recommended nutrient intake (RNI) and protein digestibility corrected amino acid score (PDCAAS)

² WHO. Guideline: Updates on the management of severe acute malnutrition in infants and children. Geneva: World Health Organization; 2013.

³UNHCR, guidelines for selective feeding: United Nations High Commission for Refugees



Fortified Blended Foods

Super Cereal Plus

- Target group: Children 6-59 months
- Key ingredients include: Corn/wheat/rice, soya, milk powder, sugar, oil, vitamins and minerals
- Nutrient profile (200g -includes provision for sharing)
 - 787 kcal,
 - 33g protein (17%),
 - 20g fat (23%).
 - Contains essential fatty acids ,
 - Meets recommended nutrient intake (RNI) and protein digestibility corrected amino acid score (PDCAAS)

Corn Soy Blend CSB/Super Cereal

- Target group: Pregnant and Lactating Women, Malnourished individuals on ART/DOTS
- Key ingredients include: Corn/wheat/rice soya, vitamins and minerals
- Nutrient profile (200-250g -includes provision for sharing)
 - 752-939 kcal,
 - 31-38g protein (16%),
 - 16-20g fat (19%).
 - Contains essential fatty acids ,
 - Meets recommended nutrient intake (RNI) and protein digestibility corrected amino acid score (PDCAAS)

TABLE 4: SFP RATIONS AND THEIR NUTRITION VALUE

	TAKE-HOME RATIONS			ON-SITE RATIONS		
	Example THR 1	Example THR 2	Example THR 3	Example On-Site 1	Example On-Site 2	Example On-Site 3
FBF (g)	250	200			125	100
Soy-based RUSF (g)			92*			
Fortified Biscuits (g)				125		
Fortified Vegetable Oil (g)	25	20			10	10
Sugar (g)	20	15			10	10
NUTRITIONAL VALUES						
Energy (Kcal)	1300	1000	500	573	630	530
Protein (g)	45	36	13	18	23	18
Fat (g)	40	32	33	21	17.5	16

THR: Take Home Rations

Source: IMAM WFP-UNHCR-SFP guidelines, 2009

Both dry rations (take home) and wet rations (on-site feeding) have advantages and disadvantages as illustrated in table 5 below.

TABLE 5: ADVANTAGES AND DISADVANTAGES OF DRY AND WET RATION

TYPE OF RATION	ADVANTAGES	DISADVANTAGES
Dry ration	• Possibility for mothers to participate in meal preparation • Nutrition and health education possible • Able to check children and ensure they eat their meal (Sharing the ration and misuse of food is limited) • Training personnel in food preparation and hygiene is done • Bringing staff and beneficiaries together possible	• No guarantee that the beneficiary will eat the whole ration • Lack of monitoring of use of the ration in homes • Difficult to hold health education sessions and to have collective demonstrations • Large amount of food required
Wet ration	• Possibility for mothers to participate in meal preparation • Nutrition and health education possible • Able to check children and ensure they eat their meal (Sharing the ration and misuse of food is limited) • Training personnel in food preparation and hygiene is done • Bringing staff and beneficiaries together possible	• Disruption of family tasks due to daily presence at SFC • Increased risk of transmissible diseases • Large staff requirement • Large construction needs • Possibility that food taken at the SFC will be a substitute for that in the home

Treatment protocols in SFP

These include:

- Supplementation with vitamin A on admission* (only if they have come directly to SFP or if they have not received any Vitamin A supplementation in the last 30 days).
- Treatment of all children for worm infestation (Deworming)
- Measles vaccination for all children between nine months and fifteen years of age
- Supplementation of iron and folic acid on admission. These should be administered among patients with signs of anaemia and in pregnant women. **(Refer to Table 6)**

TABLE 6: ROUTINE MEDICATIONS FOR PATIENTS IN SFP

MEDICATION	WHEN	AGE	PRESCRIPTION	DOSE
Vitamin A*	On admission if not received in the preceding month	6 months to 1year	100 000IU	Single dose on admission
		<6months not breastfed	50 000IU	
		>1 year of age	200000IU	
Albendazole OR	On admission if not received in the preceding 6 months	<1 year	Do not give	Single dose on admission
		1-2years	200mg	
		>2years	400mg	
Mebendazole** (Given only if albendazole is not available)	On admission	<1 year	Do not give	Single dose on admission
		1-2 year	250mg	
		>2years	500mg	
Iron: Give only with signs of anaemia or diagnosed with anaemia	On each SFP visit	Children <10kg	30mg	½ tab daily
		Children ≥10kg	60mg	1tab daily
Folic Acid	On admission	Children <1year Children >1 year	2.5mg 5mg	Single dose daily
Measles**** vaccination	On admission if no record of receiving Previously	≥ 9 months and < 15 years	Vaccine	Once if not received the vaccination yet
Cotrimoxazole HIV-positive and exposed patients (Antibiotic cover for PCP prophylaxis)	Daily dose to continue	Dose dependant on body weight	Different strengths of Cotrimoxazole (Refer to Table 11	Once daily but continue indefinitely as prophylaxis.

***Do not give if patient received within the previous 6 months. However it can be provided if the patient has eye signs of Vit A deficiency, has/had measles in the last 3 months**

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

*****Pregnant and lactating women should attend the Antenatal Care / Post-Natal Care for Iron/folic Acid supplementation**

******Follow National immunization guidelines for measles vaccination**

Follow-Up of a Patient in SFP

The following should be done at each visit of the SFP

- Review the regularity of attendance and discuss with caregiver the reasons for any absence
- Anthropometry: Take weight, height/length and MUAC measurements to assess progress. Static weight or weight loss may require referral to OTC if admission criteria are met.
- Do a medical assessment and refer for treatment if required.
- Conduct group health and nutrition education.
- Assess the supply of the supplementary food
- Assess the readiness for discharge according to discharge criteria
- Link the patient to food security and livelihood programs

Exit Criteria from SFP

A patient can exit from SFP either as a discharge or transfer

Discharges include: cured, defaulters, non-respondents and deaths.

TABLE 7: TYPES OF EXITS FROM SFP

TYPE OF EXITS	DESCRIPTION
Transfer to OTC/ITC	Static weight for height or MUAC or weight loss for two consecutive visits) and/or medical complications (i.e. not responding to treatment)
Non response	For 3 months* and have not reached the target weight for height or MUAC without aggravating conditions like malaria, diarrhoea, etc
Defaulter	Patients missing two consecutive visits
Dead	Patients died while on the programme
Cured	Attained WFH or BMI for Age Z score >-2 SD, BMI for adults above 19 years >18.5 Kg ^m - ² or normal MUAC cut off for the respective age category. Refer to Table 8 for the cut offs for the various age groups.

TABLE 8: DISCHARGE CRITERIA FROM SFP

AGE CATEGORY	NUTRITIONAL INDICATOR	EXIT CRITERIA
Children from 6 to 59 months	Weight for Length/Height (WFL/H)	Greater or equal to -2 z-score (≥ -2 SD)
	MUAC cut off	Greater or equal 12.5cm (≥ 12.5 cm)
	Bilateral pitting oedema	No bilateral pitting oedema
*Children and adolescents from 5years to 19 years	BMI for age	Greater or equal to -2 z-score (≥ -2 SD)
	MUAC cut off	5 to less than 10 years Greater or equal to 14.5cm (≥ 14.5 cm)
		10 to less than 15 years Greater or equal to 18.5cm (≥ 18.5 cm)
		15 to less than 18 years Greater or equal to 21.0cm (≥ 21.0 cm)
	Bilateral pitting oedema	No bilateral pitting oedema
*Adults	BMI	Greater or equal to 17 kg/m ² (≥ 17 kg/m ²)
	MUAC cut off	Greater or equal to 22.0cm (≥ 22.0 cm)
	Bilateral pitting oedema	No bilateral pitting oedema
*Pregnant women and lactating mothers with infant less than 6 months	MUAC cut off	Greater or equal to 23.0cm (≥ 23.0 cm)
	Bilateral pitting oedema	No bilateral pitting oedema
*Elderly 60years and above	MUAC cut off	Greater or equal to 18.5cm (≥ 18.5 cm)
	Bilateral pitting oedema	No bilateral pitting oedema

*SPHERE 2011

4.1 Opening and Closing a Supplementary Feeding Programme

Opening a Supplementary Feeding Programme

A decision about whether to open SFPs should take into consideration; malnutrition rates, contextual factors, public health priorities, available human, material and financial resources and the objectives of the implementer as detailed in Table 9. The decision-making framework needs to be used relative to local circumstances.

TABLE 9: DECISION-MAKING FRAMEWORK FOR OPENING A SUPPLEMENTARY FEEDING PROGRAMME⁴

FINDING	ACTION REQUIRED
Malnutrition rate (GAM) $\geq 15\%$ or 10 – 14 % plus aggravating factors	Serious situation: • General rations (unless situation is limited to vulnerable groups) • Blanket supplementary feeding for all members of vulnerable groups, especially children, pregnant and lactating women • Therapeutic feeding programme for severely malnourished individuals
Malnutrition rate (GAM) 10–14 % or 5 – 9 % plus aggravating factors	Risky situation (alert): • No general rations, but • Targeted Supplementary feeding for individuals identified as malnourished in vulnerable groups • Therapeutic feeding programme for severely malnourished individuals
Food availability at household level < 2100 kcal per person per day	Unsatisfactory situation: • Improve general rations until local food availability and access can be made adequate
Malnutrition rate (GAM) under 10% with no aggravating factors	Acceptable situation: • No need for population interventions • Attention to malnourished individuals through regular community services

Aggravating factors can include:

- Worsening of the nutritional situation
- Food availability at household level less than the mean energy requirement of 2100 kcal/person/day
- The general food distribution (GFD) is below mean energy, protein and fat requirements
- Crude mortality rate more than 1 per 10 000 per day
- Epidemic of measles or whooping cough
- High prevalence of respiratory or diarrhoeal diseases.

4.2 Requirements and Process for Setting Up a Supplementary Feeding Site

The SFP can be implemented at a site within a health facility or community, provided the following requirements are in place:

- Trained service providers (refer to Box C)
- Functional anthropometric equipment
- Stock control systems
- Monitoring and Reporting (M&R) tools

⁴ WHO (2000). The Management of Nutrition in Major Emergencies, Geneva: WHO

- Information, Education and Communication materials and job aids for health/nutrition
- Continuous supply of supplementary food
- Safe and secure place for storing enough supplementary food to last at least two months
- Routine medications

When to Close a Supplementary Feeding Programme

The closure/*exit strategy* should be planned from the beginning of the programme. Steps taken and the final decision should always be made in consultation with all stakeholders. Population level assessment of nutrition status should be part of the decision to close a programme.

Criteria for closing blanket and targeted SFPs are summarized in Table 10

TABLE 10: GUIDANCE ON CRITERIA FOR CLOSING SFPs

BLANKET SFP	TARGETED SFPs
• General Food Distribution (GFD) is adequate and is meeting planned minimum nutritional requirements. The GFD should also have a specific food that meets the minimum nutritional requirements for young children. • Prevalence of acute malnutrition is <15% without aggravating factors. • Prevalence of acute malnutrition is <10% with aggravating factors. • Disease control measures are effective.	• GFD is adequate (meeting planned nutritional requirements). • Prevalence of acute malnutrition is <10% without aggravating factors. • Control measures for infectious diseases are effective. • Deterioration in nutritional situation is not anticipated, i.e. seasonal deterioration.

The duration of a blanket SFP depends on the scale and severity of the disaster, as well as the effectiveness of the initial response⁵. At the end of this period if the situation is still poor, either blanket feeding could be continued or targeted feeding could replace the programme to ensure that the most vulnerable are treated.

Targeted SFP can be closed when the programme has less than 30 beneficiaries and these should complete treatment while the new cases should be referred to other services such as health centres or hospitals and/or livelihood programmes. In unstable and insecure situations the programme may be maintained as a 'safety net'.

When feasible and appropriate, a gradual process of handover and integration into local primary health services, community health programmes like safe motherhood, HIV/ AIDS, PD Hearth, immunization, integrated management of childhood illnesses (IMCI) should be undertaken.

NOTE

- *In a non emergency situation where there is no SFP, there should be routine nutrition and health education, routine practical food demonstrations, routine medications, HIV counselling and testing and follow ups to prevent deterioration of MAM to SAM.*
- *Link to food security and livelihood programmes*

⁵ Initial planning timeframes generally anticipate a duration of 3 months for a blanket SFP.



BOX C

The following are the requirements that should be put into consideration when setting up a SFP.

(i) Key Staff

- In-charge of the centre
- Records Assistant
- Nurse/Public Health Nurse
- Nutritionist
- Domestic Assistant
- Store Keeper
- Social Worker
- Support staff (Security guards and cleaners)

(ii) Location

- Presence of a water source: The water source should be nearby for hand washing, cleaning equipment and the water should be safe for drinking.
- Close to a health facility: The walking distance should be 2 hours or less on foot;
- Capacity of the site: The number of beneficiaries should not be too large

(iii) Structure

- A suitable existing structure, preferably at a health facility or, existing structures such as a house, school, church, under a tree etc. If none of these is available, construct a simple fenced structure big enough to contain room for registration, and taking anthropometric

measurements, 1 shelter for waiting where health education sessions could also be held and a distribution room

- Toilet or latrines with a water source nearby for hand washing

(iv) Equipment and basic supplies

Basic equipment: Weighing scales for children and adults, Height board, MUAC tapes (child and adult), Calculator, furniture, source of heat, cooking equipment, mixing equipment such as bowls, spoons and ladles.

Basic supplies/items: Integrated Nutrition Ration card, Referral forms, Daily screening tools, Integrated Nutrition Register (INR), stock cards, Register for Growth Promotion Monitoring (at community and health facility levels), List of Outpatient and inpatient treatment sites, Essential medicines as required in the routine medical protocol for SFP, Thermometer, Time watch, Scissors, Food rations, Hygiene and sanitation supplies, Information, Education and Communication materials for health/nutrition education, dozing charts, ration distribution charts and job aids (Weight for Height z-score tables, BMI for age z-score tables)



(v). Storage facilities

- A solid structure with concrete and cemented floor, well ventilated and protected from dampness, rodents and pests and secure from theft
- The storage capacity has to be suitable for the quantity to be stored i.e. 1 tonne of foodstuff to about 2m³ of space
- The facilities should be easily accessible to trucks at all times
- Food items should be stacked on pallets.

(vi). Determining quantity and frequency of delivery of supplies

This will depend on:

- Type of supplementary ration to be given
- Number of beneficiaries
- Distance between the central warehouse and the supplementary feeding centre
- Availability of vehicle(s), fuel and driver(s)
- Type of vehicle (truck, pick-up); and
- Weather and terrain

(vii). Security measures and procedures in place for transporting logistics and supplies.

1. Loading the vehicle at the central warehouse

- The quantities necessary for each centre should be established in advance, based on the stock remaining in the centre and the estimated needs of the period.
- The storekeeper should record the quantity requested for, sign it, and so should the driver when the vehicle is loaded. This should also be recorded on the stock cards for the central warehouse

2. Destination to the centre

- A trusted driver and a safe route should be used for this task in order to avoid theft

3. Delivery to the centre

- The foods delivered (quantities, state of the sacks, etc.) should be noted in a delivery note and signed by the driver and the supervisor of the centre
- The delivery note should then be checked by the supervisory team, then compared with that of the warehouse
- The delivery must be done in the presence of the supervisor of the centre.



CHAPTER FIVE

OUTPATIENT THERAPEUTIC CARE FOR THE MANAGEMENT OF ACUTE MALNUTRITION WITH NO MEDICAL COMPLICATIONS

5.0 Introduction

Outpatient therapeutic care (OTC) is aimed at providing home-based treatment and rehabilitation for Severe Acute Malnutrition (SAM) patients who have an appetite and no medical complications. OTC also aims at timely detection of acute malnutrition, referral, and early treatment before onset of medical complications. Follow-up of the enrolled patients is also a crucial part of management.

OTC can function either as a static or mobile service. Static OTC services should be conducted in as many health facilities as possible (with sufficient capacity in place) and should be integrated into routine service delivery. Similarly, mobile OTC services should be integrated into routine outreach services e.g., in emergency situations and otherwise. This ensures good access and coverage so that as many acutely malnourished patients as possible can access treatment within a day's walk from and back to their homes.

A fully functional OTC should have the following in place:

- Service providers trained in IMAM
- Up-to-date IMAM guidelines
- Functional anthropometric equipment (weighing scales, height boards, MUAC tapes), monitoring and reporting tools.
- Appropriate Information, Education and Communication materials for example counselling tools, and IMAM Job Aids for health/nutrition education.
- Adequate supply of RUTF
- Routine medications
- Services to screen for HIV and TB.

Requirements for OTC are listed in Box F.

5.1 Admission Criteria for OTC

All patients who meet the following criteria should be admitted and treated in OTC (see Box D and Table 2)

- SAM with no medical complications, clinically well and alert, and with appetite (ability to eat the Ready to Use Therapeutic Food [RUTF])
- Discharges for ITC irrespective of their anthropometry

Note: For the success of the IMAM services, the home conditions or environment should be conducive⁶ and caregiver willing to treat at home.

⁶ May include Good Water, Sanitation and Hygiene, (WASH) practices, child caring practices, and food security



BOX D

Definition of SAM without medical complications

The patient has appetite for RUTF, clinically well and alert.

AND

For Children

Bilateral pitting oedema (+/Grade 1 or ++/Grade 2)

OR

WFL/H or BMI for age < -3 z-scores OR MUAC

6 to 59 months: < 11.5 cm

5 to <10 years: < 13.5 cm

10 to <15 years: < 16.0 cm

15 to <18 years: < 18.5 cm

For adults

Bilateral pitting oedema (+ or ++)

OR

BMI <16

OR MUAC < 19.0 cm

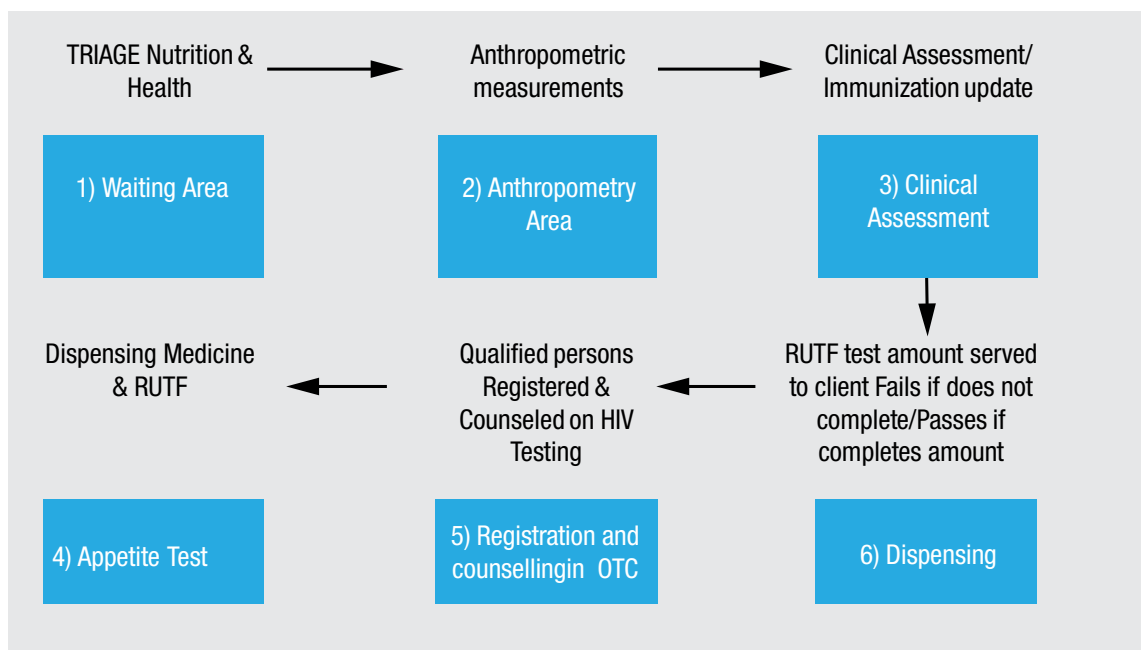
Pregnant and Lactating Women with an Infant less than six months

MUAC <19.0cm

5.2 Admission process and activities in OTC

The layout of the OTC area should be well planned to ensure a steady flow of patients as well as organised provision of comprehensive health and nutrition services (**Figure 10**).

FIGURE 10: LAYOUT OF THE OTC AREA



Note: This layout is for a stand alone OTC. However, these activities can be integrated into existing outpatient clinics e.g., OPD, YCC, MCH, TB clinics, HIV/ART clinics, , etc.

STEP 1: Triage (Refer to annex 2)

- Conduct triage to fast-track seriously ill patients
- Identify referred clients/patients from the community, ITC, or SFP.
- Give 50mls of 10% glucose or sugar solution (1 teaspoon of glucose or sugar in 50ml of safe water) to any patients with SAM₂ suspected to be at risk of hypoglycaemia
- Conduct health and nutrition education to caregivers of/or patients not seriously ill.

Steps 2 and 3 will follow the same procedure as described in *chapter three*. Assess all patients (new and follow-up) attending OTC. In addition, the clinician should:

- Review the previous treatment for patients referred/transferred from other clinics to avoid overdose of routine medicines (Table 11)
- Ensure that they continue with the treatment started earlier.

Patients on treatment for HIV/AIDS, TB should be counselled to continue with the medication. Those diagnosed after admission to OTC should be referred to appropriate programme/health facility for treatment, care and support.

TABLE 11: ROUTINE DRUGS AND SUPPLEMENTS IN OTC

CONDITION TO BE MANAGED	DRUG/SUPPLEMENT	WHEN/FREQUENCY
Hypoglycaemia	10% glucose/sugar solution	Once, at the triage
Bacterial infections	Amoxicillin	Twice daily for 5 - 7 days (according to body weight) First dose to be started on admission under supervision of the health worker. Explain how to complete treatment at home.
Measles (check Child Health card: If not already vaccinated)	Vaccinate if ≥ 9 months up to 5 years	On admission single dose
Malaria (do Blood Smear or RDT)	Anti-malarials	Treat according to national protocols if found to be have malaria parasites.
Vitamin A deficiency (Check for signs of vitamin A deficiency as the condition of eyes can deteriorate very rapidly. If corneal ulceration is present, refer to ITC - Do not give Vitamin A to pregnant women - Do not give vitamin A routinely to lactating mothers except where there is clinical deficiency (see chapter 9) - Do not give vitamin A routinely to any patient on RUTF	Vitamin A capsule 0-6months-50,000IU 6-12 months -100,000IU > 12 months -200,000 IU	Should be given only once at <u>discharge</u> from OTC and under supervision of the health provider.
Anaemia (check for signs of anaemia and do relevant investigations)	Iron and Folic Acid - 5 mg	Treat according to cause.
Helminthic infection (worm infestation)	Mebendazole: 1-2 years: 250 mg > 2 years: 500 mg OR Albendazole: 1-2 years : 200 mg > 2 years:400 mg	At second visit

STEP 4: Perform the appetite test with RUTF

Ensure that mother/caregiver and child wash hands with clean water and soap. Assess patient's appetite by giving a small amount of RUTF (Table 12). Malnourished children may refuse to take RUTF because they are in an unfamiliar/strange environment. If so, the mother/caregiver and health worker should move the child to a comfortable setting and slowly encourage the child to eat the RUTF. Provide enough safe drinking water for the patient. Patients who pass the appetite test should be considered for admission to OTC.

Patients who fail the appetite test should be sent back to the clinician for reassessment.

TABLE 12: APPETITE TEST FOR RUTF

WEIGHT (KG)	SACHETS OF RUTF
<4	$<\frac{1}{4}$
4.0 – 6.9	$>\frac{1}{4}$
7.0 – 9.9	$\frac{1}{2}$
10.0 – 14.9	$\frac{1}{2} - \frac{3}{4}$
15.0 – 29.9	$\frac{3}{4} - 1$
≥ 30.0	>1

STEP 5: Registration and Counselling in OTC

- Record the patient in the Integrated Nutrition Register (INR) as per patient category (e.g. new admissions, relapses,)
- Explain the reasons and purpose for admission to the OTC and expected treatment, care and support.
- Calculate the amount of RUTF to be given to the patient (Refer to dosing chart for RUTF in Annex: 8) and record on the integrated nutrition ration card.
- Counsel caregivers/ patients on key messages (Refer to Box E)
- Link caregivers/ patients to other primary health care services or initiatives (e.g., YCC or growth monitoring programme, HIV/TB, VHT, livelihood programmes, etc.) as may be needed or required.
- Counsel caregivers/patients to return for scheduled follow-up visits to enable monitoring of progress. Depending on the OTC site's schedule and the ability of the patient to return or caregiver to bring in the child, weekly or bi-weekly follow-up sessions should be scheduled.
- Ask the caregiver/or patient to return for each OTC follow-up session, and the importance of compliance with this is explained.



BOX E

Key Messages at First Visit

1. RUTF is both a food and medicine for severely malnourished patients only. It should not be shared
2. Give small regular meals of RUTF and encourage the patient to eat often (if possible eight meals a day)
3. Never mix the RUTF with other foods. Most cereals and beans contain anti-nutrients and inhibitors of absorption that make the special nutrients in the RUTF that the child needs to recover unavailable for the child. If other foods are given they should be given at a separate time from the RUTF
4. For children who are still breastfeeding, always breastfeed before offering RUTF. Continue to breastfeed regularly
5. Always offer the patient plenty of safe water to drink while taking RUTF.
6. Ensure the patient's hands are washed with clean water and soap before eating.
7. Keep food clean and covered, including sachets of RUTF which should be rolled up from the opened end and kept in a clean covered container
8. If a patient has diarrhoea, continue to feed with RUTF. Offer frequent meals in small quantities if the patient's appetite is reduced
9. Malnourished patients get cold quickly. Therefore, always keep them covered and warm
10. If the patient develops a reaction to RUTF, discontinue use and take to the nearest health facility for treatment.

Step 6: Dispense medication and RUTF

Dispensing of RUTF and OTC medications should be integrated within the facility dispensing system.

Patients admitted to the OTC should receive the prescribed RUTF as well as routine and appropriate medication (Table 11)

RUTF in Management of Severe Acute Malnutrition in OTC

RUTF is an energy and nutrient-dense pre-packed paste designed for the treatment of acute malnutrition. The ration given to a patient is based on his/her weight and the intake requirement of between 175 and 200 kcal/kg/day. RUTF is dose-related and should be given on prescription.

Composition of RUTF

- Has a caloric value of 500 kilocalories (kcal) per 92 g of product
- Contains 25% peanut butter, 26% milk powder, 20% oil, 27% sugar, 2% combined minerals and vitamins (CMV).

Benefits of using lipid based RUTF

- It is easy to calculate the quantity required for each beneficiary based on weight
- It does not require preparation or cooking
- Patient can just open sachet and eat directly
- Does not need to be diluted with water. This eliminates the risk of contamination.
- Can be used at home with supervision from the health facility
- Reduces on the number of staff necessary or needed for preparation and distribution of therapeutic food
- It reduces the need for ITC admission
- RUTF has a long shelf life
- It does not require refrigeration

Nutrient Composition of RUTF (plumpy' nut)

The energy and Nutrient Composition of Guidelines for Integrated Management of Acute Malnutrition in Uganda

Plumpy' nut is shown in Table 13 .

TABLE13: ENERGY AND NUTRIENT COMPOSITION OF RUTF (PLUMPY' NUT)

NUTRIENT	PER 92G SACHET	NUTRIENT	PER SACHET 92G
Energy	500 kcal	Vitamin A	840 mcg
Proteins	12.5 g	Vitamin D	15 mcg
Lipids	32.86 g	Vitamin E	18.4 mg
Calcium	276 mg	Vitamin C	49 mg
Phosphorus	276 mg	Vitamin B1	0.55 mg
Potassium	1022 mg	Vitamin B2	1.66 mg
Magnesium	84.6 mg	Vitamin B6	0.55 mg
Zinc	12.9 mg	Vitamin B12	1.7 mcg
Copper	1.6 mg	Vitamin K	19.3 mcg
Iron	10.6 mg	Biotin	60 mcg
Iodine	92 mcg	Folic acid	193 mcg
Selenium	27.6 mcg	Pantothenic acid	2.85 mg
Sodium	<267 mg	Niacin	4.88 mg

How to Administer RUTF

- Wash hands with clean running water and soap
- The RUTF should be given to the patient in small amounts and frequently (e.g. ½ sachet * 8 times per day) provided that the daily amount is according to prescription.
- Always have safe drinking water nearby whenever the patient is eating RUTF.
- Make sure that the patient consumes and finishes the recommended RUTF. RUTF should not be given at the same sitting with the family pot .
- A nutritious meal made from locally available foods can gradually be introduced as the patient's health improves.
- Children should be supervised while they consume their RUTF and meals.

Allergic Reactions to RUTF:

Although it is unlikely, there is a minimal risk of a patient having an allergic reaction to the peanut butter in RUTF. It is important to ask for history of allergy to the RUTF ingredients.

The allergy may cause reactions in the form of:

- Skin changes: hives, Rashes
- Body swelling,
- Shortness of breath,
- Anaphylactic shock.

If the patient develops any of these symptoms, discontinue administering RUTF. The patient should be treated for allergic reaction at the nearest health facility immediately and pharmaco – vigilance form filled appropriately.

Exit Process and Discharge Criteria

The patient can exit as cured, non-respondent, dead, transferred and defaulted. Table 14 shows the categories and criteria for exit from OTC.

TABLE 14: TYPES AND CRITERIA FOR EXIT FROM OTC

CATEGORY OF DISCHARGE	DISCHARGE CRITERIA	ACTION
Cured*	- WFL/H or ≥ -2 z-scores (6-59 months) - BMI-for-age ≥ -2 z-scores (5-19years) - BMI $>18\text{kg/m}^2$ (adults $>18\text{years}$) - AND - No bilateral pitting oedema for 2 weeks - Clinically well and alert OR MUAC: ≥ 12.5 cm (6 months to $<5\text{years}$) $\geq 14.5\text{cm}$ (5 to <10 years) $\geq 18.5\text{cm}$ (10 to <15 years) $\geq 21.0\text{cm}$ (15 to <18 years) >22.0 cm (pregnant and lactating women with infant less than 6 months) ≥ 22.0 cm (Adults) AND - No bilateral pitting oedema for 2 weeks - Clinically well and alert	- Record in INR as "Cured". - Link caregivers/ patients to other primary health care services or initiatives at Facility/or community: - YCC or Growth Monitoring & Promotion (GMP) programme - SFP or other Livelihood programmes where available - HIV/AIDS/TB care and treatment services
Non-Respondent	Has not reached discharge criteria after three months (four months for the HIV/TB patients)	- Refer to ITC for re-evaluation If HIV/TB status is known: - Assess on a case-by-case basis and take action after discussion with the patient's HIV/TB treatment provider
Defaulted	Absent (not reported or followed-up in the community) for 2 consecutive visits	- Make a follow-up home visit to assess situation to support the family in monitoring the patient progress - On return, the patient may re-enter OTC if he meets the admission criteria

CATEGORY OF DISCHARGE	DISCHARGE CRITERIA	ACTION
		Follow the criteria for registering the patient as a re-admission using the number previously given
Transferred to ITC	- Condition has deteriorated and requires ITC - Not responding to treatment	- Fill a referral slip with information (including medicines) and the reason for transfer - Record in INR as “transferred to ITC”
Transfer to other medical services	If patient’s condition deteriorates needing attention for other medical services	- Fill a referral slip with information including medicines and the reason for transfer - Record in INR as “transferred to other medical services”
Transfer to other OTC	Patient transferred to other nearby OTCs or as requested by caregiver	- Use a referral form and state reasons for transfer to another OTC - Record in INR as “transferred to other OTC”
Died	Died while on programme	Record in INR as “died”

*Note: *If the patient meets the above criteria and has spent a minimum of four weeks in the programme (a minimum of three visits to OTC including the initial visit) and a maximum of 90 days*

5.3 Discharge Procedures

- Thank the caregiver/or patient on the role she has played on ensuring recovery of the patient
- When the client has attained the appropriate exit criteria, discharge on last ration (at least 1 weeks supply) and link to livelihood program and complementary nutrition services (Table 14) where there is no SFP or transfer to SFP if available.
- Record the discharge outcome in the INR and the integrated nutrition ration card.
- Advise the caregiver/or patient on good nutrition and caring practices.
- Advise the caregiver/or patient to immediately go to the nearest health facility if patient has inability to eat or has any of the following signs and symptoms:
 - No appetite
 - Vomiting
 - Lethargic or unconscious
 - Convulsions
 - Bilateral pitting oedema
 - Losing weight
 - High fever
 - Diarrhoea or frequent watery stools or stools with blood
 - Difficult or fast breathing

5.4 Process and Requirements for Setting-up an OTC

Process for Setting-up an OTC

- Identify the need for setting-up an OTC (for example, high GAM and SAM rates, aggravating factors) through conducting a needs assessment
- Identify other stakeholders including partners
- Mobilize resources including financial, human (knowledgeable and skilled), space, equipments, supplies, and tools
- Mobilize, sensitize and involve the community
- Selection of OTC site
- Make the OTC functional
- Creating linkages within IMAM network
- Monitoring, reporting, supervision and evaluation of the program using existing structures.

Requirements for setting-up an OTC

Location

- OTC services should be integrated within the existing Health Facility infrastructure
- Mobile OTC should be integrated within other outreach programmes.
- The site should have the following:
 - A shade and adequate space to serve as a waiting area for the beneficiaries to seat (Triage, Health and nutrition education)
 - Clean water and soap for hand washing
 - Safe drinking water for conducting appetite test

Human resource

These include:

- An In-charge, nutritionist, dispenser, records assistant, three nurses, one health educator, one health assistant, one porter, security guard, store keeper, and medical social worker depending on the level of the health facility.
- These personnel should have been trained on integrated management of acute malnutrition package. Some of these staff may be already employed at the health facilities and if so, there is no need for recruiting more. However, where all positions cannot be filled then there should be task shifting.

Equipment and supplies

- Equipment and supplies for OTC are described in Box F.
- The equipment should be functional to ensure accuracy of the measurements
- Some of the equipment should be routinely calibrated and standardized according to the manufacturer's instructions.

- Supplies should be ordered through routine supply chain management system
- Good supply chain management practices such as timely ordering and accurate forecasting of supplies should be observed to prevent stock-outs and overstocking that may lead to losses such as expiry of supplies, damages among others

Storage facility

The storage period for nutrition commodities is usually less than three months and not more than 12 months

The basic facility requirements should include:

- Adequate storage space with spacious walk-ways
- Adequate lighting and ventilation
- Protection from insects and rodents
- Clean, dry and rain proof storage room
- Secured storage area, with lock and key and access to only authorized persons
- First- expiry first- out (FEFO) and first-in first-out (FIFO) principle observed
- Free from direct sun-heat
- Medicines and supplies stored on pallets away from floors and walls

Data collection tools and Job aids

The tools include:

- INR, integrated nutrition ration cards, tally sheets, HMIS reporting forms (Monthly and quarterly)

Job aids may include:

- Counselling cards, RUTF dosing and appetite test chart, admission and discharge criteria chart, routine medication charts, WFL/H and BMI for- age-z-score reference charts, BMI reference charts

Guidelines and IEC Materials

OTC should have the most updated version of the following guidelines for purposes of reference:

- Integrated Management of Acute Malnutrition (IMAM)
- Infant and Young Child Feeding (IYCF)
- Integrated Management of Childhood Illnesses (IMCI)
- Micronutrient supplementation
- Maternal nutrition and
- Growth Monitoring and Promotion (GMP)

Similarly, IEC materials should be harmonized with the guidelines.

Staff should be continuously updated on the use of these guidelines and IEC materials.



BOX E

Basic equipment and supplies for OTC

Basic equipment

- Salter/hanging scale and weighing pants
- Electronic standing scale
- MUAC tapes (child and adult)
- Height board
- Calculator
- Thermometer
- Clock
- Scissors

Basic supplies

- Integrated Nutrition Register
- Integrated Nutrition Ration cards,
- Tally sheets
- Report forms/books,
- Community referral slip
- HMIS 032 health facility referral note
- Routine medications for OTC
- RUTF
- IMAM guidelines
- Safe water
- Sugar or glucose
- Weight for length/height z-score charts
- BMI charts/wheels
- BMI for age z-score charts
- Job Aids (RUTF Appetite test, Dosing charts, MUAC and BMI cut-offs, list of inpatient and outpatient treatment sites)
- IEC materials
- Folder files
- RUTF
- Clean water and soap for hand washing
- Jug and cups
- Jerry cans for storage of drinking water
- Waste disposal bins
- Benches/chairs and tables
- RCT kit for HIV testing
- RDT strips for malaria
- Food and cooking demonstration materials



CHAPTER SIX

INPATIENT THERAPEUTIC CARE FOR MANAGEMENT OF ACUTE MALNUTRITION WITH MEDICAL COMPLICATIONS

6.0 Introduction

In-patient Therapeutic Care (ITC) is for management of Severe Acute Malnutrition (SAM) with medical complications. It can be provided in a specialised unit in a health facility or in a children's ward at a health facility with 24-hour care. The purpose of ITC is to concurrently provide medical and nutritional therapy, in addition to other forms of care (psychosocial, stimulation, play therapy and involving the mother/caregiver in care). (refer to annex 4 on Protocol for ITC) ITC consists of two phases; stabilisation (phase 1) and transition and rehabilitation (phase 2).

6.1 Admission Criteria

All patients under the circumstances below should be admitted and treated in ITC.

- Patients with SAM with any of the following medical complications:
 - Hypoglycaemia
 - Hypothermia (< 35° C axillary and 35.5°C rectal)
 - Infections
 - Severe dehydration
 - Shock
 - Very severe anaemia
 - Cardiac failure
 - Severe Dermatitis
 - Corneal ulceration

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

6.2 Admission Process

STEP 1: Triage (Refer to Annex 2)

- Conduct triage and fast-track seriously ill patients for assessment and care
- Identify referred patients from the community, OTC, other ITC, or SFP and other contact points
- Give sugar water solution (1 rounded teaspoon of glucose/sugar in 50 ml water (3 tablespoons of water) or oral 10% dextrose to any patients with SAM, suspected to be at risk of hypoglycaemia
- Explain the admission process to the mother or care taker of patients with complicated SAM and comfort them
- Advise the mother or caregiver to handle the patient gently

STEP 2: Re assess to confirm referred cases

- Determine age of the patient basing on Patient Health Card/Mother Child Passport or recall of the caregiver.
- Check for the presence of bilateral pitting oedema
- Measure MUAC for children 6 months and above, adults including pregnant women and patients who cannot stand
- Take weight of the child
- Take length measurement for children less than 2 years (<87.0cm) or height measurement for children older than 2 years (>87.0cm), adolescents and adults.
- Classify the nutrition status (see Figure 8).

STEP 3: Clinical Assessment

- Assess the patient's medical condition through history taking and physical examination to identify any medical complications that may require inpatient care. This entails:
 - Taking relevant medical history (current and past illnesses, drugs, medications etc).
 - Taking dietary history/feeding practices in terms of variety, amount and frequency, preparation, hygiene practices, active/passive feeding
 - Conducting a physical examination (both general and systemic).

- Conducting basic relevant investigations (Hb, blood sample for malaria, stool analysis, urinalysis, chest x-ray (absence of these investigations should not delay admission)).
- HIV testing should be done in all patients according to Provider Initiated Testing and counselling
- Recording all the findings

Management Process

On admission the patient should be managed in the stabilisation phase and transferred to rehabilitation/OTC when the medical complications have improved.

The General Principles for Routine Care (The 10 steps)

Step 1: Treat/prevent hypoglycaemia

Step 2: Treat/prevent hypothermia

Step 3: Treat/prevent dehydration

Step 4: Correct electrolyte imbalance

Step 5: Treat/prevent infections

Step 6: Correct micronutrient deficiencies

Step 7: Start cautious feeding

Step 8: Achieve catch up growth

Step 9: Provide sensory stimulation and emotional support

Step 10: Prepare for discharge / transfer to OTC

Figure 11 shows the phases and timeframe for management of SAM patients in ITC.

FIGURE 11: WHO TEN STEPS FOR THE MANAGEMENT OF SAM (WHO 2003)

10 Steps	Stabilization Phase Days 1-2	Transition Days 3-7	Rehabilitation Phase/ OTC Week 2-6
1. Treat/Prevent Hypoglycaemia	→		
2. Treat/Prevent Hypothermia	→		
3. Treat/Prevent Dehydration	→		
4. Correct Electrolytes	→		
5. Treat/Prevent Infections	→		
6. Correct Micronutrients	→	→	+/- Iron*
7. Start Cautious feeding	→	→	
8. Achieve catch up growth			→
9. Provide sensory stimulation and emotional support	→	→	→
10. Prepare for discharge/transfer to OTC**			→

*Iron is given after 2 days on F100, if patient is taking RUTF, iron should not be given

**Prepare to transfer to OTC during transition if OTC services are available or discharge after rehabilitation phase

6.2 Stabilisation Phase / Phase 1

Managing medical complications is critical during the first 48 hours of admission in ITC. If not prevented or treated appropriately and promptly this can lead to a high death rate. The common medical complications are hypoglycaemia, hypothermia, infections, severe dehydration, shock, cardiac failure, severe dermatosis and very severe anaemia.

If feasible, children in the stabilisation phase should be physically separated from the children in the transition and rehabilitation phases and from children with other diseases. Adults can be managed on the parent wards (e.g. TB, cancer wards etc)

Treatment and Prevention of hypoglycaemia

Hypoglycaemia is blood glucose less than 3mmol/l or 54mg/dl. Perform a blood glucose test (Dextrostix, Glucostix or lab test) on admission before giving glucose or feeding if possible.

Causes of hypoglycaemia

Inadequate intake of food: malnourished children may arrive at the hospital hypoglycaemic if they have been vomiting, too sick to eat or if they have had a long journey without food, waiting too long for admission or if they are not being fed regularly.

Signs of hypoglycaemia:

- Lethargy, limpness, loss of consciousness or convulsions
- Semiconscious with the eyes partly opened
- Drowsiness (the only sign before death)
- Hypothermia (axillary temp < 35 °C, rectal <35.5° C)

Treatment of hypoglycaemia

If blood glucose is low or hypoglycaemia is suspected, take immediate action;

- If patient is conscious:
 - Give 50ml of 10% glucose or sugar solution (1 rounded teaspoon of glucose/sugar in 50 ml safe water=(3 table spoons of safe water), orally or by nasogastric tube (NGT)
 - Then feed F75 every 30 minutes for two hours giving one-quarter of the two-hour feed each time (Refer to Annex 8 for the amount to give). Provide the two-hourly feeds day and night.
 - Always give feeds throughout the night
- If patient is lethargic, unconscious, or convulsing,:
 - Give intravenous (IV) sterile 10 % glucose (5 ml/kg), followed by 50 ml of 10 % glucose or sucrose by NGT, then give F75 as above (two-hour feeds, day and night). If only 50% glucose solution is available, dilute one part to four parts sterile boiled water or one part of 50% glucose to 9 parts of 5% glucose to make a 10% solution
 - Take another blood sample after 2 hours and check the patient's blood glucose again.
 - If blood glucose is 3 mmol/l or higher, change to 2 hourly feeds of F75.
 - If blood glucose is still below 3 mmol/l, ensure antibiotics have been given and continue to give F75 every half hour.
 - Continue to monitor the level of consciousness and blood glucose level.

Prevention of hypoglycaemia

If a patient's glucose is not low and patient has no clinical signs;

- Feed children straight away with F75 and then every 2-3 hours day and night.
- Encourage mothers/caregivers to watch for any deterioration, help feed and keep patient warm

Treatment and prevention of hypothermia

Hypothermia is low body temperature of below 35°C (axillary). Severely malnourished children are at greater risk of hypothermia than other children and need to be kept warm. The hypothermic patient has not had enough calories to warm the body. If the patient is hypothermic he is probably also hypoglycaemic. Both hypothermia and hypoglycaemia are signs that the patient has a serious systemic infection. All hypothermic children should be treated for hypoglycaemia and for infection as well.

Treatment of hypothermia

- Keep warm: use indirect heat (not too close to the body).
- Have the mother hold the child by putting the child on the mother's /caregiver's bare chest (Kangaroo technique/skin to skin contact).
- Keep the patient covered including his head.
- Feed F75 2 hourly

- Monitor and record the temperature every 30 minutes during the first hour, then every hour until improvement is registered.
- Keep the room warm especially at night

Note: Do not use hot water bottles due to the danger of burning fragile skin.

Prevention of hypothermia

- Keep warm by clothing, cover the head and legs as well), covering with a warm/ survival blanket, and or putting the child on the mother's /caregiver's bare chest (Kangaroo technique/skin to skin) and covering both of them.
- The care provider or care giver should warm their hands before touching the patient
- Avoid exposure during examination and bathing
- Keep the patient dry. e.g. promptly change patient's clothes and bedding and child's wet nappies, and dry the patient thoroughly after bathing and avoid prolonged medical examination and weighing
- Maintain room temperature at 25° C to 36.5° C and avoid draughts as well as keep patients away from windows and doors

Monitoring for hypothermia

- Take body temperature every 2 hours. Stop re-warming when it rises > 36.5°C (take temperature half hourly if heater is used).
- Ensuring the patient is covered at all times, especially at night
- Check blood glucose level i.e. check for hypoglycaemia whenever hypothermia is found

Note: If a low-reading thermometer is unavailable and the patient's temperature is too low to register on an ordinary thermometer, the healthcare provider should assume the patient has hypothermia.

FIGURE 12: KEEPING THE PATIENT WARMLY COVERED, ESPECIALLY AT NIGHT.



Treatment/ Prevention of Dehydration

Dehydration occurs when a patient uses or loses more fluid than what is taken in such that the body does not have enough water and other fluids to carry on its normal functions. It is caused mostly by diarrhoea, vomiting, excessive sweating and inability to drink.

Signs of dehydration

It is often difficult to determine dehydration status in a patient with SAM as the usual signs of dehydration such as lethargy, sunken eyes/ anterior fontanel, may be present and yet the patient may not be dehydrated. Dehydration tends to be over diagnosed and its severity over-estimated in children with SAM. This is because it is difficult to estimate accurately the dehydration status of children with SAM using clinical signs alone. Therefore, healthcare providers should ask the mother or caregiver if the patient has had recent and frequent **watery diarrhoea** or **vomiting** rather than small mucoid stools commonly found in severe malnutrition but which do not cause dehydration. If so, assume dehydration and give ReSoMal.

ReSoMal is Rehydration Solution for Malnutrition. It is a modification of the standard Oral Rehydration Solution (ORS) recommended by WHO. ReSoMal contains less sodium, more sugar, and more potassium than standard ORS and is intended for severely malnourished patients with diarrhoea, except if profuse liquid diarrhoea (e.g. cholera). It should be given by mouth or by nasogastric tube. ReSoMal is available commercially in some places, but it may also be prepared from standard ORS and some additional ingredients (See Box G)

Note: Do not give standard ORS to severely malnourished children, except in case of profuse liquid diarrhoea.

It is useful to look for the usual signs of rehydration (Refer to Table 15) as they can be used to detect improvement during rehydration.



BOX F

Preparation of f ReSoMal from standard ORS:

- Water- 2 litres
- WHO-ORS one - 1 litre packet
- Sugar - 50 g
- 40ml Mineral mix solution* or Combined minerals and Vitamins (CMV) (20mls- 1 red scoop mixed in 18mls of boiled, cooled safe water)

*The mineral mix solution may be prepared by the hospital pharmacy.

Alternatively, a commercial product, called *Combined Mineral Mix (CMV)*, may be used.

TABLE 15: SIGNS OF DEHYDRATION

LETHARGIC	A lethargic patient is not awake and alert when he should be. He is drowsy and does not show interest in what is happening around him.
RESTLESS, IRRITABLE	The patient is restless and irritable all the time, or whenever he is touched or handled.
ABSENCE OF TEARS	Observe whether the patient has tears when he cries.
SUNKEN EYES	The eyes of a severely malnourished patient may always appear sunken, regardless of the patient's hydration status. Ask the mother if the patient's eyes appear unusual. Photographs 6, 30, and 31 (in the <i>Photographs</i> booklet) show sunken eyes.
DRY MOUTH AND TONGUE	Feel the patient's tongue and the inside of the mouth with a clean, dry finger to determine if they are dry.
THIRSTY	See if the patient reaches out for the cup when you offer ReSoMal. When it is taken away, see if the patient wants more.
SKIN PINCH GOES BACK SLOWLY	Using your thumb and first finger, pinch the skin on the patient's abdomen halfway between the umbilicus and the side of the abdomen. Place your hand so that the fold of skin will be in a line up and down the patient's body, not across the body. Firmly pick up all the layers of skin and tissue under them. Pinch the skin for one second and then release. If the skin stays folded for a brief time after you release it, the skin pinch goes back slowly. (<i>Note: The skin pinch may always go back slowly in a wasted patient.</i>)

Note:

- *A non-oedematous patient can present with some signs of dehydration that would normally be found in dehydrated non-malnourished patient, e.g. sunken eyes, slow skin pinch, etc. It is important to take history and determine if there has been recent fluid loss (recent diarrhoea or vomiting)*
- *A non-oedematous patient with very visible veins is not dehydrated*
- *In very rare circumstances an oedematous patient with recent frequent watery diarrhoea or vomiting may become dehydrated- be extremely careful when diagnosing this.*
- *A patient with loose mucoid non watery diarrhoea is NOT likely to be dehydrated and does NOT need rehydration therapy*
- *Although patients with oedema have a high body fluid volume they may be dehydrated as a result of further loss of fluid from the intravascular space.*

Treatment of dehydration

In both the oedematous and non-oedematous SAM, the margin of safety between dehydration and over-hydration is very NARROW. Hence, care and caution must be taken in making a decision on how to avoid over-hydration and cardiac failure.

A decision must be taken on:

- How to rehydrate (route, choice of solution, amount, rate of rehydration)
- What to monitor during rehydration

Fluid management should be done cautiously. It is important to determine the patient's target weight(see annex 5) before giving ReSoMal as follows:

If known, use the weight of the patient before episode of diarrhoea as target weight

If not known, take the patient's weight before giving ReSoMal. Calculate the minimum at 2% and maximum at 5% of that weight. Add the figure obtained to the weight of the patient and use that as target weight

- If the child is breastfeeding, encourage the caregiver to continue.
- Give ReSoMal slowly, since too much fluid too quickly can cause heart failure. The best way of giving ReSoMal is by cup. NGT can be used for giving ReSoMal at the same rate if a patient is too weak to take orally. NGT should be used in weaker or exhausted patients, those who vomit, have fast breathing or painful mouth sores. IV fluids should not be used to treat dehydration except in shock. The oral route is preferred as, the patient's thirsty helps to regulate the amount given.
- It is essential to stop giving ReSoMal when the patient reaches the target weight. For children, start with ReSoMal 5 ml/kg every 30 minutes for two hours, orally or by NGT, then ReSoMal 5-10 ml/kg/hour for the next four-to-10 hours, alternating with F75 every hour.

a) Monitoring patients on ReSoMal

- Monitor all patients taking ReSoMal for signs of hydration (improvement), over-hydration (complication) and shock (worsening), every 30 minutes for the first two hours; then hourly until he/she improves.
- Closely monitor for signs of over-hydration. The signs of excess fluid (over-hydration) include increasing respiratory and pulse rates, increasing oedema and puffy eyelids. If these signs occur, stop fluids immediately and reassess after one hour. Monitor the progress of rehydration: Observe the patient every 30 minutes for two hours, then hourly for the next three-to-10 hours, recording:
 - Pulse rate (slowing rate)
 - Respiratory rate (slowing rate)
 - Feeling of thirst (less thirst if rehydration working)
 - Passing urine and urine frequency
 - Stool/vomit frequency
 - Less lethargic and more alert

- Signs of improving hydration status
 - Less lethargic
 - Less thirsty
 - Skin pinch not as slow
 - Slowing of rapid respiration and pulse rates
 - Passing urine

***Note:** Although these changes indicate that rehydration is proceeding, many severely malnourished children will not show these changes even when fully rehydrated.*

If a patient has three or more of the above signs of improving hydration status, stop giving ReSoMal routinely in alternate hours, instead offer ReSoMal after each loose stool as described below:

- For children less than 2 years, give 30-50ml after each loose stool, children 2 years and older, give 100ml after each loose stool.

At the same time as the patient gains on weight during rehydration, there must be an improvement in clinical signs and signs of dehydration should disappear. If that is not the case, then diagnosis of dehydration was false and ReSoMal must be stopped

Prevention of dehydration

A patient with continuing watery diarrhoea should be fed with F75. The approximate volume of stool losses should be replaced with ReSoMal. As a guide, give 30-50 ml of ReSoMal if a patient is aged less than 2 years or 100mls if aged 2 years or older after each watery stool.

***Note:** It is common for patients with SAM to pass many small unformed stools. These should not be confused with watery stools and do not require fluid replacement.)*

Case with profuse liquid diarrhoea

In case of profuse liquid diarrhoea (e.g. cholera), ReSoMal should not be given and should be replaced by WHO low osmolarity ORS without changing the amount and frequency.

Management of shock

Shock is a dangerous condition presenting with severe weakness, lethargy or unconsciousness, cold extremities and a fast, weak pulse. It is caused by diarrhoea with severe dehydration, severe haemorrhage, burns, cardiac failure or septicaemia. There is a decrease in tissue perfusion and oxygen delivery due to severe infection and sepsis.

A patient with SAM is considered to have shock if he/she is lethargic or unconscious and has cold hands as well as either:

- Slow capillary refill (> 3 seconds);
- Weak or fast pulse; or
- Absence of signs of heart failure (refer to Section below on cardiac failure)

Septic shock

In septic shock, superficial veins, such as the external jugular and scalp veins are dilated rather than constricted. As shock worsens the patient develops kidney, liver, intestinal or cardiac failure. When a patient reaches this stage, survival is unlikely.

Shock from dehydration and sepsis are likely to co-exist in patients with SAM. They are difficult to differentiate on clinical signs alone. Children with dehydration will respond to IV fluids, whereas those with septic shock and no dehydration will not respond.

If the patient meets the criteria of shock described above, apply the following:

- Give oxygen.
- Give sterile 10% glucose 5 ml/kg by IV
- Keep warm
- Give one of the IV fluids as described below (15ml/kg over 1 hour).
 - Half-strength Darrow's solution with 5% glucose (dextrose)
 - Ringer's lactate solution with 5% glucose*
 - 0.45% (half-normal) saline with 5% glucose*

Note: **If either of these is used, add sterile potassium chloride (20mmol/l)*

- If respiratory and pulse rates are slower after one hour, the patient is improving. Repeat the same amount of fluid for one hour and continue to check respiratory and pulse rate every ten minutes.
- If respiratory and pulse rates increase, stop the IV. Then assume that the patient has septic shock. Maintain the IV line with fluid at 4ml/kg/hr while waiting for blood.
- Give blood transfusion. Before giving blood, stop the IV fluids and any oral feeds. Give a diuretic (Frusemide 1mg/kg). Give whole fresh blood at 10ml/kg slowly over three hours. In case of signs of heart failure, give packed cells instead of whole blood as these have a smaller volume.
- Give broad spectrum antibiotics (see details in section of antibiotics)
- Reduce physical disturbance; NEVER transfer patient as stress leads to dramatic deterioration)

Manage very severe anaemia

Anaemia is a low concentration of haemoglobin in the blood. Very severe anaemia is a haemoglobin concentration of < 4g/dl (or packed cell volume <12%). Very severe anaemia can cause heart failure and must be treated with a blood transfusion. As malnutrition is usually not the only cause of very severe anaemia, it is important to investigate other possible causes such as malaria and intestinal parasites (for example, hookworm).

If it is not possible to test haemoglobin, rely on clinical judgment. For example, judge based on paleness of gums, palms, lips and inner eyelids.

Transfusing a patient with severe acute malnutrition with very severe anaemia (Hb <4.0 g/dl)

1. Look for signs of congestive heart failure such as fast breathing, respiratory distress, rapid pulse, engorgement of the jugular vein, cold hands and feet, cyanosis of the fingertips and under the tongue.
2. Get blood ready. If there are no signs of congestive heart failure, give 10 ml/kg whole fresh blood. If there are signs of congestive heart failure, give packed cells (5 – 7 ml/kg) instead of whole blood.
3. Transfuse slowly over 3 hours
4. Stop all oral intake and IV fluids during the transfusion.
5. Give a diuretic to make room for the blood. Frusemide (1 mg/kg, given by IV) is the most appropriate choice.

Cardiac Failure

Cardiac failure is the inability of the heart to pump sufficiently to maintain blood flow to meet the needs of the body. The common cause of cardiac failure leading to sudden death is hypervolemia due to over-hydration, over-feeding, blood transfusion and high sodium diet. Severe malnutrition, severe anaemia, and severe pneumonia are among other causes.

It is therefore important to watch out for signs of cardiac failure during stabilisation and transition. These include:

- Clinical signs of deterioration with increasing weight gain
- Increasing or reappearance of oedema
- Sudden difficulty in breathing
- Fast breathing is 50 breaths/min in 2 – 12 months old, 40 breaths/min if above 1 year
- Acute increase in respiratory rate by ≥ 5 breath/min, especially during rehydration
- Increasing pulse rates of 25 beats/min along with confirmed increase respiratory rate
- Prominent superficial and neck veins
- Cold hands and feet
- Cyanosis (blue discolouration of fingers , toes and under the tongue)
- Tenderness developing over the liver
- Acute fall in haemoglobin concentration
- Severe palm pallor.

Note: Heart failure and Pneumonia are clinically similar and can be difficult to differentiate.

If the patient gains weight before the onset of respiratory distress, diagnose heart failure

b) Treating Congestive Cardiac Failure

- Position the individual to an upright sitting position
- Give oxygen
- Stop all fluids and feeds until cardiac function improves
- Administer diuretic (Frusemide 1 mg/Kg). This is to reduce fluid and leave way for blood, and
- Digoxin and cardio tonics not often advised due to the state of hypokalaemia.

c) Monitoring a patient in cardiac failure

Close monitoring of a patient in cardiac failure is essential during treatment. Important parameters should be taken frequently and recorded in the Critical Care Pathway Form (Annex 16)

These include:

- Pulse rates every 30 minutes
- Respiratory rates every 30 minutes
- An assessment of the engorgement of the neck vein
- An assessment of the liver size and tenderness
- Oxygen flowing

d) Preventing congestive cardiac failure in severe malnutrition

- Feed cautiously , only give the prescribed amount of feeds
- Avoid blood transfusion and only transfuse if patient is very severely anaemic (Hb < 4 g/dl) as described above.
- Rehydrate cautiously
 - Give IV fluids only in case of shock
 - Change to oral rehydration as soon as patient regains consciousness (See description for IV fluids above)
 - Give appropriate solution (ReSoMal) that contains low sodium content and high potassium, and give appropriate amounts

Manage Acute Abdomen (paralytic ileus)

Septic shock can complicate other systems including the gut, causing gastric dilatation that present with sudden abdominal distension, absent bowel sounds and intestinal splash. Paralytic ileus can occur as a result of autonomic disruption, concomitant ischaemia or as a result of a complication of hypokalaemia, abdominal trauma or sepsis.

Management of acute abdomen associated with shock

- Keep the patient on nil by mouth
- Give oxygen
- Give IV fluids
- Pass NGT if in danger of aspiration
- Aspirate contents of stomach and rinse with isotonic clear fluid (5% dextrose or 10% sucrose- 50 ml into stomach and gently aspirate all back again. Repeat until the fluid is clear.
- Introduce sugar water (10% sucrose) into the stomach at 5 ml/kg. Leave it in for one hour.
- Aspirate and measure the volume. If it is less than the amount previously introduced, return to the stomach.
- Give Broad Spectrum Antibiotics (Intra muscular (IM) or IV)
- Stop all drugs that may be causing toxicity (e.g. metronidazole)
- Give single dose of Magnesium sulphate (2ml of 50% solution).
- Give fluconazole or oral Nystatin to clear gastric and oesophageal candidiasis
- Keep patient warm.

NOTE: If patient is unconscious, give IV glucose and monitor carefully for 3 hours without any other treatment

Signs of improvement include a change in intestinal function, decrease in abdominal distension, visible peristalsis, return of bowel sounds and decreasing volume of gastric aspirate. If patient improves, start giving small volume (half the amount) of F 75 by NGT.

If no improvement is **recorded after 3 hours**, put up IV infusion with fluid containing adequate potassium.

You can add Sterile Potassium (20 mmol/L) to IV solutions that have no potassium.

Give Antibiotics

Give all severely malnourished children antibiotics for presumed infection. Give the first dose of antibiotics while other initial treatments are going on, as soon as possible.

Antibiotic recommendations would be based on the local patterns of resistance. The important principle is that all severely malnourished children should be given appropriate antibiotics.

Select antibiotics and prescribe regimen

Selection of antibiotics depends on the presence or absence of complications as previously described (see summary table below for details and annex 6 (antibiotic reference card))

TABLE 16: SUMMARY OF ANTIBIOTICS FOR SEVERELY MALNOURISHED CHILDREN

IF:	GIVE:	
NO COMPLICATIONS	Amoxicillin oral: 25 mg/kg every 12 hours for 5 days or until referral for outpatient care.	
WITH COMPLICATIONS (shock, hypoglycaemia, hypothermia, dermatosis with raw skin/fissures, respiratory or urinary tract infections, or lethargic/sickly appearance etc)	Gentamicin ¹ IV or IM (5 mg/kg), once daily for 7 days, plus:	
	Ampicillin IV or IM (50 mg/kg), every 6 hours for 2 days	Followed by: Amoxicillin Oral: 25 mg/kg, every 12 hours for 5 days
If resistance to amoxicillin and ampicillin, and presence of medical complications:	See details of drug use below the drug kit (support material): In the case of sepsis or septic shock: IM cefotaxime (For children /infants beyond one month: 50 mg / kg every 8 to 12 hours) + oral ciprofloxacin (5 to 15 mg / kg 2 times per day). If suspected staphylococcal infections: Add: cloxacillin (12.5 to 50 mg / kg / dose four times a day, depending on the severity of the infection).	
If a specific infection requires an additional antibiotic, ALSO GIVE:	Specific antibiotic are directed on the drug kit (see support materials). Refer to the notes of the drug kit for severe acute malnutrition with medical complications.	

¹If the patient is not passing urine, gentamicin may accumulate in the body and cause deafness. Do not give the second dose until the patient is passing urine.

²If amoxicillin is not available, give ampicillin, 50 mg/kg orally every 6 hours for 5 days.

Manage Corneal Ulceration

Corneal ulceration is a break in the surface of the cornea (eye's surface). The eye may be extremely red or bleeding, or the patient may keep the eye shut. Corneal ulceration is very dangerous. If there is an opening in the cornea, the lens of the eye can extrude (push out) and cause blindness.

Check for corneal ulceration.

Touch the eyes extremely gently and as little as possible. If the eyes are closed, wait until the patient opens his eyes to check them.

If the patient has corneal ulceration, give vitamin A and instill one drop of atropine (1%) eye drops immediately.

Treat also with high dose of vitamin A (see section below) if the patient has:

- Visible clinical signs of vitamin A deficiency (bitot's spots, corneal clouding, xerosis)
- Signs of eye infection (pus inflammation) or
- Measles now or in the past three months

For eye infection give gentamicin (0.3%) eye drops

Manage Dermatitis

Dermatitis refers to any skin disease or condition especially one that is not characterized by inflammation. Dermatitis is graded as mild (+), moderate (++) and severe (+++)

If the patient has only mild or moderate dermatitis, use regular soap for bathing.

If the patient has severe (+++) dermatitis, bathe for 10 to 15 min/day in 0.01% potassium permanganate solution. Sponge the solution onto affected areas while the patient is sitting in a basin.

If the patient has severe dermatitis but is too sick to be bathed, dab 0.01% potassium permanganate solution or gentian violet.

Apply barrier cream to raw areas using ointments such as zinc and castor oil ointment or petroleum jelly and paraffin gauze dressing. For diaper areas colonised with candida, use nystatin ointment or cream after bathing. Candidiasis is also treated with oral nystatin or other recommended antifungal.

Micronutrient Supplements

Vitamin A supplementation

Patients with severe acute malnutrition should receive 5000 IU daily recommended intake throughout the treatment period. This should be provided either as an integral part of therapeutic foods or as part of a multi-micronutrient formulation.

Children with severe acute malnutrition do not require a high dose of vitamin A as a supplement if they are receiving F-75, F-100 or ready-to-use therapeutic food that complies with WHO specifications or vitamin A is part of other daily supplements unless they have conditions described already above (see section on treatment of corneal ulcerations).

Children with severe acute malnutrition should be given a high dose of vitamin A (50 000 IU, 100 000 IU or 200 000 IU, depending on age) on admission, only if they are given therapeutic foods that are not fortified as recommended in WHO specifications and vitamin A is not part of other daily supplements.

Folic Acid supplement

Folic acid is a vitamin of the B complex that is important for treating and preventing anaemia and repairing the damaged gut. Each child, except infants less than 6 months, should be given a large dose (5mg) on Day 1 and a smaller dose (1mg) on subsequent days, unless the patient is receiving F-75 and F-100 or if the feeds contain CMV (Combined Mineral Vitamin Mix).

Multivitamin supplement

If CMV is used in preparing feeds, then the feeds will include appropriate vitamins, otherwise give multivitamin drops daily (not including iron).

Other Specific Cases

HIV/AIDS

Children with HIV/AIDS and severe acute malnutrition:

- Who qualify for lifelong antiretroviral therapy should be started on antiretroviral drug treatment as soon as possible after stabilization of metabolic complications and sepsis. This would be indicated by return of appetite and resolution of severe oedema. HIV-infected children with severe acute malnutrition should be given the same antiretroviral drug treatment regimens, in the same doses, as children with HIV who do not have severe acute malnutrition.
- Who are started on antiretroviral drug treatment should be monitored closely (inpatient and outpatient) in the first 6–8 weeks following initiation of antiretroviral therapy, to identify early metabolic complications and opportunistic infections
- Should be managed with the same therapeutic feeding approaches as children with severe acute malnutrition who are not HIV infected
- Should receive a high dose of vitamin A on admission (50 000 IU to 200 000 IU depending on age) and zinc for management of diarrhoea, as indicated for other children with severe acute malnutrition, unless they are already receiving F-75, F-100 or ready-to-use therapeutic food, which contain adequate vitamin A and zinc if they are fortified following the WHO specifications.
- In whom persistent diarrhoea does not resolve with standard management should be investigated to exclude carbohydrate intolerance and other infective causes, which may require different management, such as modification of fluid and feed intake, or antibiotics. For any other care treatment, refer to the national HIV/AIDS treatment guidelines.

Malaria

If the patient's test is positive, treat according to the national protocol.

Monitor other danger signs

Watch carefully any patient with an infection such as pneumonia or sepsis, ear infection, or urinary tract infection (UTI) for occurrence of the signs below:

- Anorexia (Loss of Appetite)
- Change in mental state (for example, becomes Lethargic)
- Jaundice (yellowish skin or eyes)
- Cyanosis (tongue/lips turning blue from lack of oxygen)
- Difficult breathing
- Difficulty feeding or waking (drowsy)
- Abdominal distension
- New oedema
- Large weight changes
- Increased vomiting
- Petechiae (bruising)
- Alert a clinician if any of these danger signs appear. (See annex 8 for summary of danger signs)

Feeding in Phase I: Stabilization

Feeding is obviously a critical part of managing severe acute malnutrition; however, feeding must be started as soon as possible with F75 (see recipes of preparing F75 in Annex 7) cautiously and in frequent small amounts. If feeding begins too aggressively, or if feeds contain too much protein or sodium, the patient's systems may be overwhelmed, and the patient may die.

Determine frequency and amount of feeds

On the first day, feed the patient a small amount of F-75 every 2 hours (12 feeds in 24 hours, including through the night). Night feeds are extremely important to prevent hypoglycemia.

The front of the F75 reference card (see annex8) of is for severely malnourished children with no oedema, or with mild or moderate oedema. The reverse side is only for children admitted with severe (+++) oedema.)

The recommended amount for a child with no oedema/oedema grade + and ++ is 130 ml/kg/day of F75. If oedema is +++, the recommended amount is 100 ml/kg/day (see Annex 8 for the amount of feed to give according to the patient's weight).

After the first day, increase the volume per feed gradually so that the patient's system is not overwhelmed. Give less frequent feeds (every 3 hours or every 4 hours).

Each patient's feeding plan should be recorded on a 24-Hour Feed Intake Chart (Annex 10)

Older children, adolescents and adults should receive the same F75 milk formula as children. Encourage adolescents and adults to take this formula milk alone.

Feeding methods

Two feeding methods are recommended: oral or by NGT.

Oral Feeding

Due to muscle weakness and slow swallowing, the risk of aspiration pneumonia is high especially for malnourished children. Therefore, great care must be taken while feeding. Preferably use a cup and a saucer when feeding children with SAM.

Caution:

- *Never leave the child to feed alone (ensure supervised feeding)*
- *The patient should never be force-fed; should never have his/her nose pinched, and should never be laid on the back to have the milk poured into his/her mouth.*
- *Encourage breastfeeding on demand between formula feeds. Ensure that the patient still gets the required feeds of F-75 even if breastfeeding*

Feeding by Naso-Gastric Tube (NGT)

It may be necessary to use a nasogastric tube (NGT) if the patient is very weak, has mouth ulcers that prevent drinking, or if the patient cannot take enough F-75 by mouth. The minimum acceptable amount for the patient to take is 80% of the amount offered. At each feed, offer the F-75 orally first. Use an NG tube if the patient does not take 80% of the feed (i.e., leaves more than 20%) for 2 or 3 consecutive feeds. NG feeding should be done by experienced staff. Do not plunge F-75 through the NG tube; let it drip in, or use gentle pressure.

If the patient develops a hard distended abdomen with very little bowel sound, give 2 ml of a 50% solution of magnesium sulphate IM.

Feeding children who have vomiting

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

Provide continued care at night because many deaths in severely malnourished children occur at night.

Important things NOT to do and why

Do not give diuretics to treat oedema. The oedema is partly due to potassium and magnesium deficiencies that may take about 2 weeks to correct. The oedema will go away with proper feeding including a mineral mix containing potassium and magnesium. Giving a diuretic will worsen the child's electrolyte imbalance and may cause death.

- **Do not give iron during the initial feeding phase.** Add iron only after the **child has been on F-100 for 2 days (usually during week 2)**. As described earlier, giving iron early in treatment can have toxic effects and interfere with the body's ability to resist infection.
- **Do not give high protein formula** (over 1.5 g protein per kg body weight daily). Too much protein in the first days of treatment may be dangerous because the severely malnourished child is unable to deal with the extra metabolic stress involved. Too much protein could overload the liver, heart, and kidneys and may cause death.

- **Do not give IV fluids routinely.** IV fluids can easily cause fluid overload and heart failure in a severely malnourished child.

Be sure that personnel in the emergency treatment area of the hospital know these important things NOT to do, as well as what to do.

Transition

This phase is designed to prepare patients for Phase II or OTC (rehabilitation/catch up growth).

How to Recognize Readiness for Transition:

Look for the following signs of readiness:

- Return of appetite (easily finishes 3 - 4 hourly feeds of F75)
- Reduced oedema or minimal oedema

In settings where RUTF is provided as a therapeutic food in rehabilitation phase:

Once children are ready to move into the rehabilitation phase perform acceptance test for RUTF (table 12) and they should transition from F-75 to ready-to-use therapeutic food over 2–3 days, as tolerated. The recommended energy intake during this period is 100–135 kcal/kg/day.

Give RUTF slowly and gradually

Two approaches for transitioning children from F-75 to ready-to use therapeutic food are suggested:

- Start feeding by giving ready-to-use therapeutic food as prescribed for the transition phase (see annex 8). Let the child drink safe water freely. If the child does not take the prescribed amount of ready-to-use therapeutic food, then top up the feed with F-75. Increase the amount of ready-to-use therapeutic food over 2–3 days until the child takes the full requirement of ready-to-use therapeutic food, or
- Give the child the prescribed amount of ready-to-use therapeutic food for the transition phase. Let the child drink safe water freely. If the child does not take at least half the prescribed amount of ready-to-use therapeutic food in the first 12 hr, then stop giving the ready-to-use therapeutic food and give F-75 again. Retry the same approach after another 1-2 days until the child takes the appropriate amount of ready-to-use therapeutic food to meet energy needs.

Children with severe acute malnutrition who present with either acute or persistent diarrhoea, can be given ready-to-use therapeutic food in the same way as children without diarrhoea. If a child is breastfeeding, encourage the mother to continue.

If the RUTF is not available or if the child does not accept it, give F100:

The transition is spread over three days, during which the F-100 is administered according to the following:

First 48 hours (2 days): Give F-100 every 3- 4 hours in the same amounts of F-75 that were being given. Do not increase the volume for 2 days. Then on Day 3: Add 10 ml at each meal until the child finishes his meal. If the child does not finish a meal, offer the same amount for the next meal; if he/she finishes then, further increase the next meal by 10 ml. Continue until the child leaves a bit

of most of his meals (usually, when the volume reached around 30 ml / kg per meal). If the child is being breastfed, encourage mothers to breastfeed between F-100 rations.

In inpatient settings where F-100 is provided as the therapeutic feed in the rehabilitation phase:

Children who have been admitted with complicated severe acute malnutrition and are achieving rapid weight gain on F-100 should be changed to ready-to-use therapeutic food and observed to ensure that they accept the diet before being transferred to an outpatient programme

F100 should never be given to take home.

Providing medical treatment in the transition phase

Continue the routine medical treatment (Table 16) and record on the Critical Care Pathway (CCP). Give any specific medical treatment prescribed and record on the CCP.

Monitor the patient carefully during transition

In the transition phase, individual monitoring of patients is done every 4 hours. Check the patient's respiratory and pulse rate and call a clinician for help if any danger signs occur.

Criteria for Transfer from Transition back to Stabilization phase

All patients who develop signs of medical complications should be returned to stabilization phase. The signs include;

- Loss of appetite and not taking 80% of the measured feeds
- Increasing /development of oedema
- Medical conditions not improving or just deteriorating
- Any signs of fluid overload
- Significant re-feeding diarrhoea so that there is weight loss

Criteria for Transfer from Transition to OTC or Phase II

- Good appetite (if the patient passes the acceptance test and takes more than 80 percent of the daily ration of RUTF)
- Reduced oedema to ++/Grade 2 or +/Grade 1 or no oedema
- Medical complications have been resolved
- Clinically well and alert

6.4 Rehabilitation Phase / Phase 2

A patient progressing to the rehabilitation phase on RUTF can be discharged from ITC to OTC if available.

Refer to OTC when the patient is taking the entire amount of RUTF proposed during transition (at least 150 kcal / kg / day).

Before leaving, the mother/caretaker should receive a ration of RUTF covering the needs of the child for one to two weeks and should be informed of the referral site closest to where he lives.

If no programme for outpatient management of severe acute malnutrition is available:

During rehabilitation, the patient is expected to gain weight rapidly, and the amount of F-100 given should be increased as the child gains. If no possible referral for outpatient care, feed freely with F-100 during rehabilitation, to an upper limit of 220Kcal/kg/day (see annex 8 for amounts)

Medications in Rehabilitation phase/Phase 2

The patient should continue to receive any prescribed drugs and complete the course.

Routine medicines and supplements shown in Table 17 should follow the schedule as prescribed.

TABLE 17: ROUTINE MEDICINES AND SUPPLEMENTS

MEDICATION	WHAT TO GIVE / USE	FREQUENCY
Iron supplement	Ferrous Sulphate 300mgs/day (3 mg elemental Fe/kg/day)	2 divided doses
	DO NOT GIVE IRON IF THE CHILD RECEIVES RUTF	
	Note: Even if the patient is anaemic, he should not be given iron until he is recovering and has been on F-100 for two days (i.e. after two days of transition). If given earlier, iron can have toxic effects and reduce resistance to infection.	
De-worm ₇	Mebendazole >1 year: 500mg Albendazole ≥1year: 200mgs Albendazole >2years: 400mgs	
Measles immunisation ⁸	9 months (up to 5 years) if no record that it has been given before	Single dose after 2 days on F-100 or RUTF
		Single dose as soon as the child is stable

Monitoring During Phase II

Individual monitoring of the recovering child in rehabilitation phase is done daily. The following parameters should be monitored daily and recorded on the CCP:

- Body temperature, pulse and respiration rate
- Weight, which should be plotted on the weight chart of the CCP (Refer to Annex 16).
- Oedema

⁷ Report of the WHO Informal Consultation on the use of Praziquantel during Pregnancy/Lactation and Albendazole/Mobendazole in Children under 24months

⁸ Management of severe Malnutrition: A manual for physicians and other health workers, WHO 1998

- Vomiting or diarrhoea
- Refusal to feed
- Clinical examination.
- Length/height or MUAC at discharge

6.5 Criteria to move from Phase II back to the Stabilisation Phase (Phase 1)

If a patient develops any signs of a medical complication, he should be referred back to the stabilisation phase.

Failure to Respond during Rehabilitation phase

Some patients may fail to gain weight during rehabilitation. Such patients should be re-evaluated investigated and treated appropriately

Criteria for discharging children 6 – 59 months from treatment

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

- Weight-for-height/length is ≥ -2 Z-score and they have had no oedema for at least 2 weeks, or
- Mid-upper-arm circumference is ≥ 12.5 cm and they have had no oedema for at least 2 weeks.

Criteria for discharging patients 5 years and above

- Refer to Table 2 for MUAC and BMI cut-offs and
- They have had no oedema for at least 2 weeks.

The anthropometric indicator that is used to confirm severe acute malnutrition should also be used to assess whether a patient has reached nutritional recovery, i.e. if mid-upper-arm circumference is used to identify that a patient has severe acute malnutrition, then mid-upper arm circumference should be used to assess and confirm nutritional recovery. Similarly, if weight-for-length/height is used to identify that a patient has severe acute malnutrition, then weight-for-length/height should be used to assess and confirm nutritional recovery.

Children admitted with only bilateral pitting oedema should be discharged from treatment based on which ever anthropometric indicator, mid-upper arm circumference or weight-for-length/height is routinely used in programmes.

Percentage weight gain should not be used as a discharge criterion

Give general discharge instructions

In addition to feeding instructions, mothers/caregiver will be taught:

- How to continue any needed medications at home
- Signs to bring the child back for immediate care (Refer to danger signs)
- When and where to go for planned follow-up:- at 1 week, 2 weeks, 1 month, 3 months, and 6 months; - then twice every year until when the child is 3 years old.
- Where and when a child should be taken for growth monitoring and promotion on monthly basis up to 2 years
- When to return for next immunization.

- When to go to the health centre for vitamin A and deworming (every 6 months);
- How to continue stimulating the child at home with play activities.

If a patient has to be transferred to OTC, the following actions should be taken:

- Complete a referral slip to outpatient care, including a summary section on medical intervention and treatment given to the patient.
- Inform the mother/caregiver where and on which day to go for outpatient care
- Give mothers/caretakers key messages on RUTF and basic hygiene.
- The mother/caregiver should also be given instructions for medications at home
- Inform the mother/caregiver to return the child on appearance of any danger signs.

If early discharge (before reaching -2 SD) is unavoidable, and there is no programme for OTC, it is critical to make special arrangements for follow-up (home and special care visits by social and healthcare) (See discharge card in Annex 14)

Ensure adequate arrangements for linking the caregiver and patient with appropriate community initiatives and for follow-up have been made such as supplementary feeding, food security, social protection, safety nets, etc.

TABLE 18: TYPES OF DISCHARGES, CONDITIONS AND ACTIONS FROM ITC

CATEGORY OF DISCHARGE	DISCHARGE CRITERIA	ACTION
Cured	• Acute medical conditions have been resolved • The patient is eating well (can eat family foods) • No bilateral pitting oedema for two weeks • Clinically well and alert • WFL/H $\geq$ -2z-scores (infants, children and adolescents) • MUAC $\geq$ 12.5cm (children 6 to 59 months)	• Transfer to SFP if accessible/available for follow up once every month for three months • Refer for follow-up at closest health facility and community • Link to the available livelihood programmes • For HIV-positive clients, ensure ongoing treatment through an HIV treatment programme
Transfer to OTC	• No worrying medical condition • Passed appetite test • In Transition Phase and taking RUTF • Oedema if present has reduced to +/Grade 1 or ++/Grade 2	• Transfer to nearest functional OTC if available
Died	• Died while on programme	• Complete file and card appropriately
Defaulted	• Absent for two consecutive days	• May re-enter the ITC if patient meets the admission criteria • Re-admit with the old registration number and involve the Village Health Team for follow-up during home visits, if available.



CHAPTER SEVEN

INPATIENT MANAGEMENT OF INFANTS LESS THAN SIX MONTHS WITH SAM

7.0 Introduction

Severe acute malnutrition in infants who are less than 6 months of age is defined as; weight for length < -3 Z-score or presence of bilateral pitting oedema.

Infants less than 6 months old with Severe Acute Malnutrition (SAM) should always be treated in an inpatient unit until discharge. The objectives of ITC are to:

- improve or re-establish, effective exclusive breastfeeding by the mother
- provide temporary or longer-term appropriate therapeutic feeding for the infants; and
- Provide nutrition, psychological, and if needed medical care for the caregivers.

Infants less than 6 months may become malnourished if they have never been breastfed or been only partially breastfed. There are also other causes of malnutrition in this age group which may be related to either the mother or the child.

7.1 Admission Criteria

- Weight-for-length less than -3 Z-scores
- Any pitting oedema
- Recent weight loss or failure to gain weight
- Ineffective feeding (attachment, positioning and suckling) directly observed for 15-20 minutes, ideally in a supervised separate area
- Any medical or social issue needing more detailed assessment or intensive support (e.g. disability, depression of caregiver, or other adverse social circumstance)
- Any serious clinical condition or medical complication as outlined for infants 6 months of age or older with severe acute malnutrition
- Any infants who have been identified to have poor weight gain and who have not responded to nutrition counselling and support (IMCI) should be admitted for further investigation and treatment
- Any infant with a general danger sign as defined by IMCI should be admitted for urgent treatment and care

Severely malnourished young infants need:

1. Diagnosis of medical complications and treatment if any are found.
2. Warmth to treat and prevent hypothermia.
3. Initial re-feeding (for metabolic stabilization) which may require milk feeds in addition to breast milk, or where an infant is not breastfed instead of breast milk.
4. Feeding for catch-up growth (nutrition rehabilitation).
5. Continuous monitoring of weight and feed intake.
6. Follow-up to reduce the risk of becoming malnourished again.

Note: Low birth weight infants are not usually severely wasted or oedematous and so are unlikely to meet the criteria for SAM. Therefore, they should be managed according to the WHO guidelines specifically for “Low birth weight babies”.

7.2 Stabilization Phase

Medical management and micronutrient supplementation

Infants who are less than 6 months of age with severe acute malnutrition should receive the same general medical care as infants with severe acute malnutrition who are 6 months of age or older:

- Infants with severe acute malnutrition who are admitted for inpatient care should be given parenteral antibiotics to treat possible sepsis and appropriate treatment for other medical complications such as tuberculosis, HIV, surgical conditions or disability;
- Infants with severe acute malnutrition who are not admitted should receive a course of broad-spectrum oral antibiotics, such as amoxicillin, in an appropriately weight adjusted dose

Feeding during stabilization

- The Feeding approach for infants who are less than 6 months of age with SAM should be prioritize establishing, or re-establishing, effective exclusive breast feeding by the mother unless under difficult circumstances (orphaned, abandoned, medical reasons). If an infant is not breastfed, support should be given to the mother to relactate.
- Infants less than six with SAM should also be provided a supplementary feed:
 - Supplementary suckling approaches should, where feasible, be prioritized.
 - For infants with severe acute malnutrition but no oedema, expressed breast milk should be given, and, where this is not possible, commercial (generic) infant formula or F-75 or diluted F-100 (see Box G) may be given, either alone or as the supplementary feed together with breast milk.
 - For infants with severe acute malnutrition but no oedema, expressed breast milk should be given, and, where this is not possible, commercial (generic) infant formula or F-75 or diluted F-100 may be given, either alone or as supplementary feed together with breast milk.
- For infants with severe acute malnutrition and oedema, infant formula or F-75 should be given as a supplement to breast milk.
- Support the mother to breast feed every 2 to 3 hours for at least 20 minutes.
- Infants less than six with SAM should not be given undiluted F-100 at any time (owing to the high renal solute load and risk of hypernatraemic dehydration).
- If there is no realistic prospect of being breastfed, the infants should be given appropriate and adequate replacement feeds such as commercial (generic) infant formula, with relevant support to enable safe preparation and use, including at home when discharged.
- In addition assessment of the physical and mental health status of mothers or caregivers should be promoted and relevant treatment or support provided

Feeding an infant less than six months of age with SAM with prospect to breastfeed

The main objective is to restore effective exclusive breastfeeding. During the initial phase of treatment, breastfeeding must be complemented with infant formula or commercial therapeutic milk, while stimulating the production of breast milk.

If the infant is able to suckle:

The infant should be breastfed as often as possible. Encourage the mother to breastfeed the infant at any time, as soon as the infant wants, between shots of milk supplement.

- Half an hour to an hour after feeding, give therapeutic milk using a supplemental suckling technique (SST) (see section below).
- The therapeutic milk should be given 2 to 3 hourly (see annex 9 for amounts).
- Do not increase the amount of therapeutic milk if the infant is regularly gaining weight.
If the infant loses weight or has a static weight on three consecutive days, but takes all feeds and continues to be hungry, add 5 ml more at each feed.

Feeding Procedure:

- During breastfeeding, ensure good positioning and good attachment of the infant to ensure efficient suckling.
- Use the SST to stimulate breast milk production. If this is not possible, give the milk supplement with a cup and a saucer or nasogastric tube (using gravity but not pumping).

Note: Only feed with an NGT when the infant is not taking sufficient milk by mouth

The supplemental suckling technique

The SST is recommended to re-establish breastfeeding as well as to provide maintenance amounts of therapeutic feeds for severely malnourished infants. This method involves the infant suckling the breast while taking a supplement (therapeutic feed). The therapeutic feed supplement is given in a cup through a thin tube along the nipple. The mother holds a cup containing F75. The tip of a nasogastric tube (size No. 8) is placed in the cup and the other end of the tube is placed on the nipple of the breast (Figure 13). The infant should be positioned to breastfeed. The cup is placed 5-10 cm below the nipple to facilitate breastfeeding. When the baby suckles more strongly, the cup can be lowered to 30 cm.

FIGURE 13: SUPPLEMENTAL SUCKLING TECHNIQUE



BOX C

F100-Diluted for infants

Infants below 6 months of age should not receive F100 full strength as the consistency is unsuitable, F75 and F100 diluted have similar concentration to breast milk with around 75 calories per 100ml. Prepared F100 should be further diluted by adding 30% safe water

If F100 is not readily available, infants can be fed with the same quantities of commercial infant formula diluted according to the instructions on the tin. If there is a range of milk formulas to choose from, use a formula designed for premature infants.

Note that infant formula is not designed to promote rapid catch-up growth.

Unmodified powdered whole milk **should not** be used.

If the infant is NOT able to suckle or is suckling weakly:

- If the mother is willing, encourage her to start expressing her breast milk.
- Show her how to hand express all that she can at least 8-12 times a day. This will stimulate her breasts to make more milk.
- Measure the expressed breast milk and feed it to the baby by cup and saucer or nasogastric tube, in the same way as the supplementary milk.
- Give the expressed breast milk in addition to the full amount of supplementary milk.
- When the infant starts to suckle, give some or all of the supplementary feeds by supplementary suckling technique if possible.
- If the mother is reluctant to express her milk but her baby is too weak to suckle effectively, use SST with the cup held as high as the baby's mouth. As the infant gains strength, lower the cup.

Feeding during Transition:

When the infant begins to gain weight (at least 20 g per day) for 2 to 3 days:

- Gradually decrease the amount of milk supplement (therapeutic feed) by one third, so that the infant gets more breast milk and maintain this amount for 2 to 3 days
- If the infant continues to gain weight satisfactorily (20 g per day), further reduce the amount of milk supplement, in the same proportions, until not giving any more.
- If weight gain is not satisfactory with reducing the volume of milk supplement, increase the volume to the previous level for 2 days and try again.

Feeding during Rehabilitation:

During this phase, the infant should not receive any more milk supplement and should be gaining weight with exclusively breastfeeding.

Observe feeding in order to ensure that the infant is feeding well, and as often and as long as possible.

Prepare the mother to exclusively breast feed the infant until the age of 6 months before starting to diversify food at 6 months.

Note: If the mother is HIV positive, refer her for specialized care on HIV and infant feeding.

Discharge criteria:

Any in-patient stay in a nutrition ward or hospital should be as short as possible to avoid cross infection and defaulting.

Infants who are less than 6 months of age can be discharged when;

They are breastfeeding effectively or feeding well with replacement feeds

- Breastfed infants can be discharged when they have gained a minimum of 20 grams per day on breastfeeding alone for 5 days, regardless of the total body weight or weight-for-length
- Have weight for length ≥ -2 Z-score

Feeding infants less than six months with SAM with no prospect to breastfeed

Feeding during Stabilization

In cases where the mother died or under difficult circumstances as already described above, the infant should be fed on appropriate and adequate replacement feeds such as commercial infant formula, or F75 or diluted F100:

- Dilute the infant formula as directed on the package
- Calculate the appropriate volume according to the weight of the infant on admission (see Annex 9 for amounts to give).
- Give the volume for 24 hours in meals organized every 2 hours with a cup and a saucer or nasogastric tube
- Continue to give the full volume of milk until the baby shows the following signs of recovery:
 - Loss of all oedema
 - Improved appetite

Feeding during Transition

This phase should continue for 4-5 days.

When the infant shows the signs of recovery mentioned above:

- Increase the volume by 30% (see Annex 9 for details)
- Monitor the infant's weight. Weigh every day and use appropriate scales.

Feeding during Rehabilitation

During rehabilitation, infants should be fed using a cup and a saucer; the mother or caregiver will have to be sensitized to use the same method to feed the infant at home after discharge.

- After 4-5 days, increase the volume of milk rations for another 30% (see Annex 9)
- If the infant is still hungry after finishing the feed, give him more. Increase the feeds by 5 ml per feed

It is essential to show the infant's caregiver how to dilute commercial infant formula (clean water, proper dilution), how much to give, how often and how to clean the utensils during the rehabilitation phase.

Supervise preparation of feeds and feeding while the infant is on the nutrition unit/ward.

Discharge criteria:

For an infant who is not breastfed, the planning and preparation for discharge is especially important since the future feeding security of the infant is more uncertain than if he was breastfed.

Discharge can be done when:

- Staff finds that the person caring for the infant is confident to prepare and give the breast milk substitute correctly
- The infant has gained at least 20 g per day for 5 days

Micronutrient supplementation

The infant should receive the following micronutrients supplements:

Vitamin A:

- Give a dose of 50,000 IU to every infant at the time of discharge from the nutrition unit/ward.

Iron:

- Iron supplement should be given when the infant starts to gain on weight.
- Give iron 3 mg /kg / day into two divided doses (crush the tablet and dilute it in the milk).

Folic acid

- Give 2.5 mg (one tablet) as a single dose on admission if a child is being fed on F75 or diluted F100.
- If a child is being fed on infant formula give 2.5mg of folic acid on the first day and a smaller dose (1mg) on subsequent days.
- The child should be sent home with at least a week's supply of folic acid on discharge
- When a child returns for follow up, more can be given.

7.3 Monitoring infants with SAM

Infants less than 6 months with SAM are fragile and require close monitoring. These infants need to be reviewed by a nurse or doctor or nutritionist daily:

The following parameters should be monitored daily and recorded on the CCP:

- Record and review the total intake of supplementary milk feeds and/or number of breastfeeds per 24 hours.
- Assess and record oedema (+/Grade 1, ++/Grade 2, +++/Grade 3)
- Monitor weight gain, urinary output, activity level and other signs that breast milk is being produced. Minimum acceptable weight gain during catch-up growth in young infants (weighing less than 4kgs on admission) is 20g every day

Note: other important information such as: vomiting, refusal to be fed, placement of a nasogastric tube.

7.4 Infant feeding counselling and support

- Mothers should be counselled and supported to continue breastfeeding or to re-lactate if they had stopped.
- Infants should be supplemented with therapeutic milk administered through the SST. This is necessary as a temporary measure until breastfeeding or re-lactation is fully established.
- HIV-positive mothers of infants with SAM, should be supported to continue breastfeeding as per the current national HIV policy guidelines on Infant and young child feeding.
- A mother choosing to re-lactate will need more support than a mother who is already breastfeeding.
- Mother and baby should sleep together to encourage breastfeeding especially overnight.

Nutrition support for the breastfeeding mother

- All mothers who are breastfeeding/re-lactating should be counselled and supported on their own feeding and nutrition. Where possible, they should receive extra meals.
- All breastfeeding mothers should receive Iron and folic acid supplements (60mg of iron per day and 400mg of folic acid) to complete 6 month supplementation.

Infants less than 6 months of age with SAM and who don't require inpatient care, or whose caregivers declined admission for assessment and treatment.

- Counselling and support for optimal IYCF should be provided, based on general recommendation for feeding infants and young children, including for low birth weight infants
- Weight gain of the infant should be monitored weekly to observe changes; if infant doesn't gain weight, or losses weight while the mother or the caregiver is receiving support for breastfeeding, then he/she should be referred to inpatient care
- Assessment of the physical and mental health status of mothers or caregivers should be promoted and relevant treatment or support provided

Follow-up

Continuity of care after discharge is important for these infants, to supervise the quality of recovery and educate the caregivers. It is also important to support the introduction of complementary foods at the appropriate age of 6 months.

- Monitor infant's progress closely, support safe replacement feeding and growth monitoring through close health facility or maternal and child health programme
- HIV exposed/positive infants should be referred and followed up in Paediatric HIV clinic/anti-retroviral therapy clinic
- Support breastfeeding/replacement feeding through close health facility or maternal and child health programme.
- It is also important to support appropriate introduction of complementary food at age of 6 months

Discharge from all Care

Infants who are less than 6 months of age and have been admitted to ITC can be transferred to outpatient care when:

- All clinical conditions or medical complications, including oedema, are resolved,
- The infant has good appetite, is clinically well and alert and weight gain on either exclusive breast feeding or replacement feeding is satisfactory e.g. above the median of the WHO growth velocity standards or more than 5gms/kg/day for at-least 3 successive days
- The infant has been checked for immunizations and other routine interventions, and the mothers or caregivers are linked with needed community based follow-up and support.
- Infants who are less than 6 months of age can be discharged from all care when they are breast feeding effectively or feeding well with replacement feeds, and have adequate weight gain and have a weight for length ≥ -2 Z score





CHAPTER EIGHT

EMERGENCY NUTRITION RESPONSE

8.0 Introduction

Emergencies may be either man-made disaster, such as an exacerbation of an on-going conflict with population displacement, or due to environmental issues such as a serious drought or severe flooding/landslides. The local infrastructure may not have the capacity to respond due to limited resources particularly financial, human, logistics and/or structural limitations. Geographical isolation may further affect ability to respond. When situations such as this occur especially if there is a substantial proportion of the population affected, this often results in food shortages and impairs the nutritional status of affected communities, in particular infants, children and adolescents, but also adults, especially pregnant and lactating women and elderly persons. There is a need to rapidly respond to prevent increased and/or excessive morbidity and mortality.

Nutritional Emergency

Nutritional emergency occurs when there is an abnormally high rate of acute malnutrition resulting from a crisis event.

- Global acute malnutrition rate >10% or
- Crude mortality rate >1 death/10,000 persons per day or
- Under-five mortality rates >2 deaths/10,000 under fives per day (SPHERE, 2004)

Emergency Nutrition Response: An intervention that primarily aims to prevent individuals with mild and moderate malnutrition from becoming severely malnourished and to treat all forms of acute malnutrition during nutritional emergencies.

There are three main nutrition relief responses:

- General food distributions for all the affected households*
- Supplementary Feeding Programme (SFP) for moderately malnourished individuals and at-risk groups (blanket or targeted)*
- Therapeutic feeding programme (TFP) for severely malnourished individuals*
- For more information on these refer to relevant sections of this IMAM guideline.

Emergency nutrition interventions require substantial resources to be set-up and monitored. Non-governmental organisations (NGOs) often support the Ministry of Health (MoH) with collaborative implementation.

8.1 Steps for Emergency Nutrition Response

Step 1: Coordination and information sharing

Coordination of all the emergency activities at all levels and among all implementing partners is key to ensure effectiveness. This prevents duplication of programmes and also identifies gaps that have not been met in each sector.

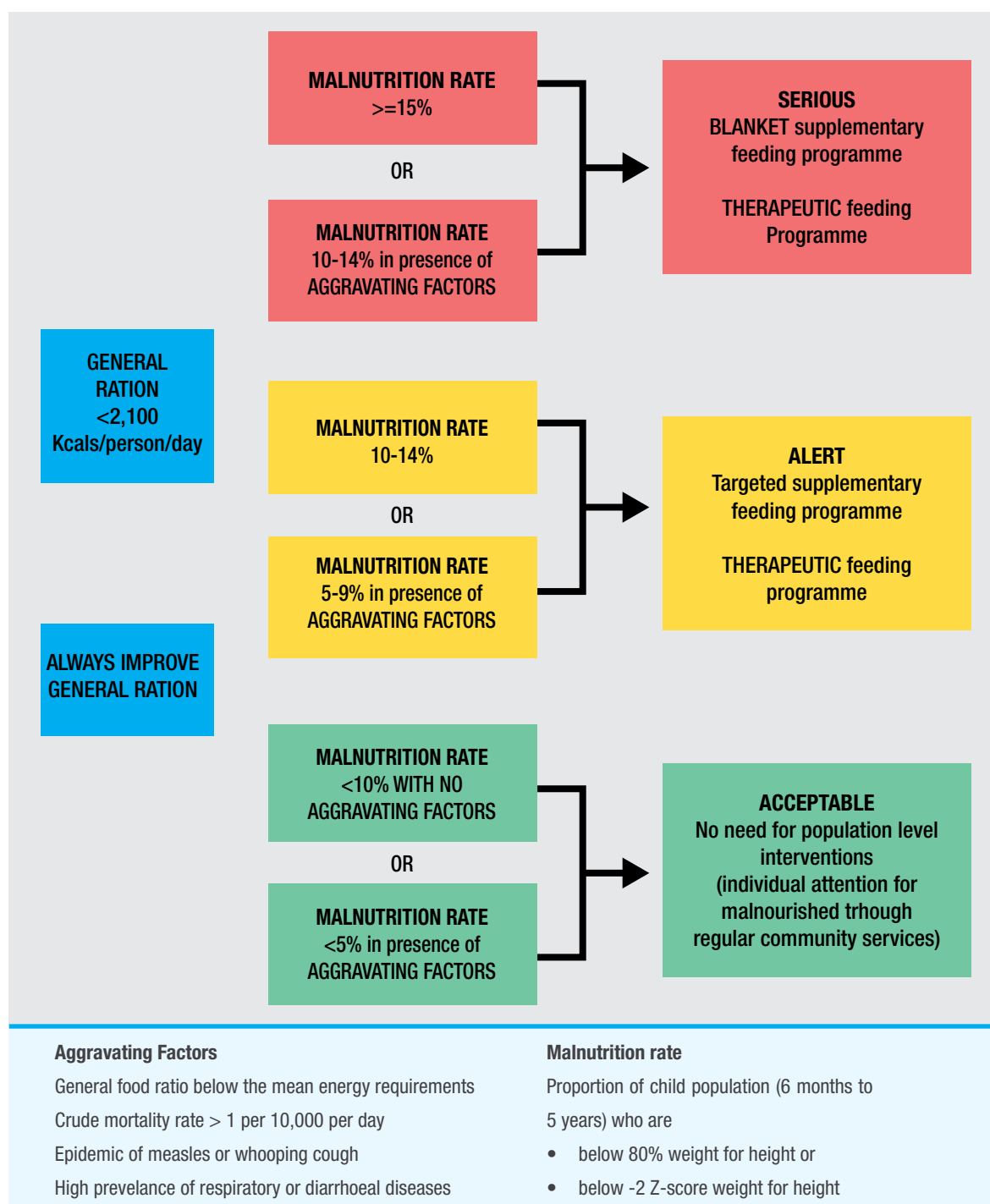
Step 2: Conduct Rapid Nutrition Assessment

- Jointly plan and conduct an initial assessment to understand the situation and identify the extent of the threat to people's lives, their coping strategies and access to services such as health, safe drinking water/sanitation and basic diet using national standardised tools or guidelines. .
- Conduct a multi-sectoral assessment, to understand the different factors affecting malnutrition i.e. the immediate, underlying and basic causes. This will ensure a holistic approach to the management of acute malnutrition.
- Review existing interventions where an existing humanitarian response is in place but there is deterioration in the situation, and identify needs required to increase capacity to meet the demands of a deteriorating situation.
- Carry out on-going nutrition surveys periodically during the programme to monitor effectiveness of response

Step 3. Selecting appropriate emergency nutrition responses

- When the emergency assessment reports indicate that the nutrition needs are unmet, and/or there are increasing/high levels of acute malnutrition, appropriate responses are identified. A decision chart (Figure 13) can be used for guidance on the type of response required.
- The under five age-group, pregnant and lactating women are usually the primary target in emergency nutrition interventions. Other identified vulnerable groups such as the elderly and chronically ill especially People Living with HIV/AIDS (PLWHA) and TB patients should be targeted.
- The nutrition status of under 5 age group is usually taken as the proxy indicator of the nutrition status of the community to inform nutrition planning in emergency situations.

FIGURE 14: DECISION TREE FOR THE IMPLEMENTATION OF SELECTIVE FEEDING PROGRAMMES



Step 4. Planning an emergency nutrition response

These responses should include:

- Establishing an emergency response team (refer to section 8.2) with defined roles and responsibilities.
- Selecting nutrition programme sites. Programme sites are identified depending on the population size affected, the planned geographical coverage and accessibility. The size of the programme will depend on the population needs and the capacity of the implementing partner. The area can be defined by using administrative boundaries.
- Integrating screening and referral for acute malnutrition at all health facility and community

contact points. Ensure medical-nutritional follow-up of patients with MAM and SAM without medical complications and management of those having SAM with medical complications as in-patients.

- Maximizing positive impact and limiting harm (be aware of competition for scarce resources/ increased resources, misuse or misappropriation of supplies).
- Providing equitable humanitarian services. .

8.2 General requirements for Emergency Nutrition Relief Programmes

Personnel

- When implementing emergency nutrition interventions the appropriate staff and staffing levels are vital. There is a need for managers/administration, logistics support, technical staff (clinicians, nutritionists, nurses, records person, etc) and support staff.
- Where possible prioritize recruitment of qualified local staff as they understand the context, speak the local language and understand the culture of the population.
- All the staff must be trained and orientated prior to commencing the relief programmes. They should have clear job descriptions with clear roles and responsibilities.

The following are some staff needed on site:

- Programme manager
- Supervisors,
- Technical staff e.g. doctors, nutritionists, nurses, pharmacists etc.
- Administrators such as registry clerks
- Store-keepers and food distribution supervisors
- Support staff (Security guards, cleaners) etc
- Village health teams (VHTs) or Community health extension workers (CHEWs).

Supply Provision

In any emergency response, it is important to have a good logistics system to ensure there is no break in the system. These programmes need to run continuously and not be affected by lack of commodities. Buffer stocks should be in place especially where insecurity is an issue.

Programme Linkages for Prevention and Management of Acute Malnutrition in Emergencies

Preventing and addressing under nutrition requires multi-sectoral action and other programme linkages for prevention and management of acute malnutrition in emergencies. These interventions include infant and young child feeding in emergencies (IYCF-E), health, water, sanitation and hygiene and food security.

i) Acute malnutrition

- The management of MAM should be linked with the management of SAM wherever possible.
- Linkages at the health facility and community levels are essential in emergencies to take care of the increased numbers of acutely malnourished children.
- Referral mechanisms between prevention and management of acute malnutrition activities are also very important and should be established as part of the nutrition response.

ii) Infant and Young Child Feeding in emergencies (IYCF-E)

- It is important to address IYCF-E as part of the prevention of acute malnutrition, particularly to emphasize exclusive and continued breastfeeding and optimal complementary feeding in children 6-23 months of age.
- It is also important to include basic information on infant and young child feeding in an HIV context.

iii) Health and Water/Sanitation

- Early and accelerated management of sanitation, hygiene, water sources, and health programs for common childhood illness (e.g., diarrhoea, measles) should augment the management of acute malnutrition during an emergency.
- Feeding centres and distribution sites should include access to safe water for drinking and for hand-washing.

iv) Food Security and Livelihood Programmes

- Where food insecurity is a result of an emergency or exists prior to the emergency, resources should be spent on nutrition interventions for prevention of acute malnutrition or treatment of MAM only when a GFD or equivalent transfer in cash or voucher is in place.

8.3 Exit Strategy for Emergency Nutrition Response (ENR)

An exit strategy should be developed right at the beginning of the ENR programme through strong involvement of the district health teams and/or staff of the relevant health facilities.

An exit strategy indicates when an emergency intervention should be phased out or closed down. In emergency nutrition interventions this occurs when the levels of acute malnutrition have reduced (<10% with no aggravating factors⁹) or crude mortality rates <1/10,000/day. It is also important that food security should have improved and that there are no other aggravating factors such as **severe** climatic conditions and inadequate shelter.

Other factors to consider may include;

- Net reduction in the number of children attending the centres (through improvement in the nutritional status or the displacement of the population etc.)
- Depletion of food stock without being renewed
- End of or lack of financial funding
- Epidemiological control of infectious diseases is effective
- Improved climatic conditions where applicable.

Programme closure must be done gradually over a period of 3-6 months. It is desirable to start with a reduction in the rations, stopping new admissions, establishing hand-over solutions, and training of identified focal person(s) for the specific programmes

Monitoring and Evaluation

Monitoring and evaluation of an emergency nutrition response is covered in *chapter 10*.



CHAPTER NINE

NUTRITION INFORMATION, EDUCATION AND COMMUNICATION

9.0 Introduction

Nutrition Information, Education and Communication (IEC) is key to management of acute malnutrition.

The activities rely on a variety of well-designed and effective materials which may include training materials that are used by health workers. Health workers, VHTs and other community resource persons should receive appropriate training and follow-up on use of the IEC materials.

Nutrition education is any combination of education strategies designed to facilitate voluntary adoption of food choices and other food and nutrition related behaviours to help individuals and communities make the best choice of foods for adequate nutrition and health. It is delivered through multiple channels and involves activities at the individual, institutional, community and policy levels.

Qualities of effective nutrition education:

- Focuses on specific behaviours, actions and practices
- Uses communication and education strategies to enhance awareness and motivation
- Employs a systematic behaviour change process, including social support and empowerment
- Includes environmental interventions, community activation and organization.

Health Education is any combination of learning experiences designed to help individuals and communities improve their health, by increasing their knowledge or influencing their attitudes and positive behaviour change.

9.1 Nutrition Education Programme

The nutrition education programme comprises of goals, objectives, outputs and activities. The goal of the nutrition education programme is to re-enforce specific nutrition related practices or behaviours to change habits that contribute to poor health. This is done by creating a motivation for change among people to establish desirable food and behaviour for promotion and protection of good health. Effective nutrition education programmes must be planned and executed in such away as to motivate beneficiaries to develop skills and confidence for the adoption of positive and lasting practices .

Nutrition education programmes should aim at:

1. Increasing the nutrition knowledge and awareness of the public and of policy makers
2. Promoting desired food behaviours and nutrition practices
3. Increasing the diversity and quantity of family food supplies.

At the onset of the program, implementers and other stakeholders should have a monthly, quarterly or annual plan of activities that are to be conducted. Further, an ongoing monitoring and evaluation plan should be developed. The plan should be specific to the programme and must be well understood by implementers. Figure 15 below shows a scheme for planning nutrition education programmes.

FIGURE 15: A SCHEME FOR PLANNING NUTRITION EDUCATION PROGRAMMES

PHASE 1: PREPARATION

- Defining the nutritional problem
- Determining the causes of the problem
- Establishing the educational frame

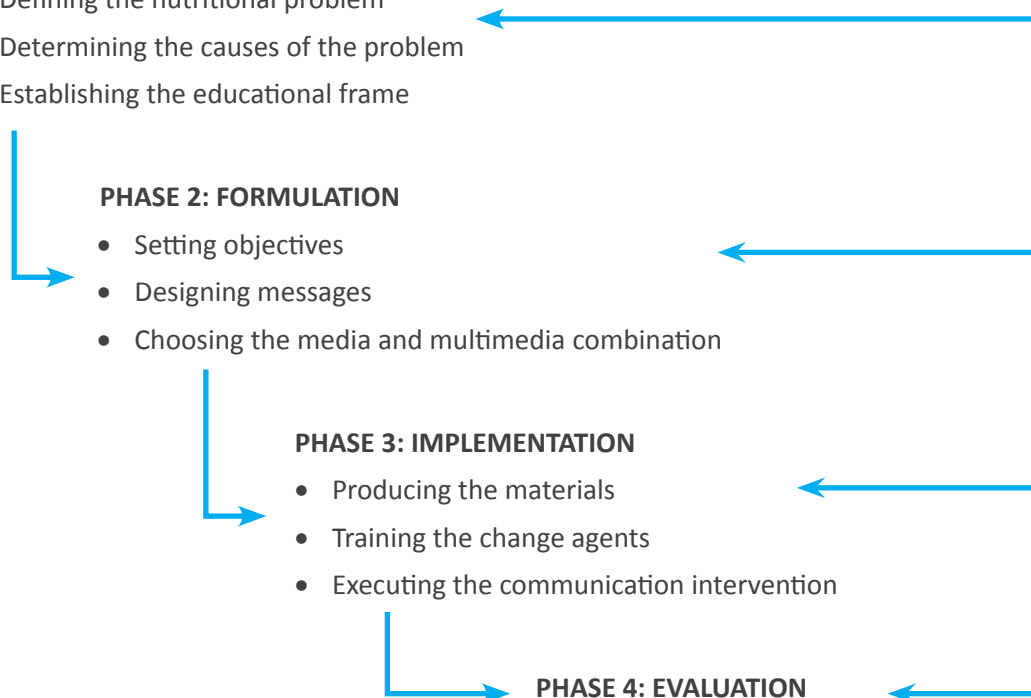
PHASE 2: FORMULATION

- Setting objectives
- Designing messages
- Choosing the media and multimedia combination

PHASE 3: IMPLEMENTATION

- Producing the materials
- Training the change agents
- Executing the communication intervention

PHASE 4: EVALUATION



Source: FAO, 1994

9.2 Communicating Nutrition Information

Key benefits of nutrition information and education include:

- Creates awareness about services at Health facilities and in the community
- Helps to dispel rumours/myths and misconceptions
- Helps to learn about community expectations
- Improved health care seeking behaviour
- Strengthens linkages between community and Health facilities.

Principles of effective communication

Clarity: Use concrete expressions, simple words, short sentences and avoid ambiguity

Completeness- use the 5Ws and H i.e. Who, When, Where, What, Why and How. Answer the questions in designing and responding to any communication message

Consideration: Ensure sufficient regard, empathy and respect for the recipient and use appropriate language, media and style, maintain pleasant and positive approaches and integrity

Conciseness: Be brief, exact and to the point as much as possible

Courtesy: Be and keep polite, welcoming, modest, approachable, friendly, attentive and responsive

Correctness: Use the correct words and facts from correct source, through a correct media, to correct audience under correct circumstances

Channels and methods used to provide nutrition education

- Individual discussions
- Counselling sessions
- Group discussions
- Community meetings and events (dramas, health game events)
- Peer education
- Employee educational seminars
- Electronic Media (Television/ Radio: Visual and audio dramas)
- Print Media (Brochures, booklets, Posters, Banners, Bill Boards, flyers, flip charts)
- Other Promotional materials (T. Shirts, calendars, car tyre covers, pens).

9.3 Procedures for planning and facilitating a nutrition education session

- Identify a relevant topic for discussion
- Identify a knowledgeable person to conduct the nutrition education session
- Determine the target audience and the approach you will use to help them learn and participate in the session for example pregnant and lactating mothers)
- Make objectives for the session (they should be SMART: S- Specific, M- Measurable, A- Attainable, R- Realistic, T- Time bound)
- Review information on the topic and ensure it is up to date

- Prepare the materials you will need to conduct the session (e.g. handouts, flyers, counselling cards, flip charts, posters); prepare brief prompting notes
- Communicate the date, time, venue and topic of discussion
- Document the nutrition and health education session.

9.4 Conducting a nutrition education session

- Introduction
 - Welcome participants and introduce yourself
 - Review the agenda
 - Explore the ground rules
 - Introduce the topic for discussion
- Outline session objectives
- State what the client will gain from the session
- Review and discuss the topic
- Review the key points
- Conduct an evaluation of the topic discussed

Prepare for a Food Demonstration Session

- Gather food items, equipment and materials
 - Food- ensure there is variety-Go, Grow and Glow
 - Utensils (plates, cups, chopping boards, sauce pans, knives) and other materials - ensure good hygiene
 - Fuel for cooking-,
 - Hand washing facilities.

Conduct a Food Demonstration:

- Demonstrate to mothers/caregivers how to prepare a simple and nutritious meal (for young children, pregnant and lactating women, and other vulnerable groups) using local ingredients.
- Emphasize the following:
 - FATVAH (Frequency, Adequacy, Thickness, Variety, Active (responsive) feeding and Hygiene)
 - Feeding a sick child
 - Continued breastfeeding up to 2 years and beyond
 - Involving fathers and other caregivers or family members.

Mothers/Caregivers Conduct a Return Food Demonstration

- Look at the steps used to perform the return food demonstration
- Observe areas of omission that require correction
- Thank the mother or caregivers for conducting the food demonstration.
- Go through the areas that need improvement
- Summarize the key points

After the cooking demonstration, serve the prepared food for the children and mother/caregivers

Summarize the Food Demonstration Session

- Check understanding (question and answer)
- Re-emphasize key messages.
- Thank the mothers/caregivers for coming and participating.

9.5 Key Nutrition Recommendations

The following recommendations (Table 19) will guide the development of key nutrition messages that can be emphasized while conducting nutrition education.

TABLE 19: KEY NUTRITION RECOMMENDATIONS

TOPIC	RECOMMENDATION
Optimal Breastfeeding	• Early initiation of breast feeding within one hour of birth for the baby to benefit from colostrum (first yellowish milk) • Exclusive breastfeeding for the first 6 completed months • Breastfeed on demand (as long as the infant wants, at least 8 – 12 times during day and night) • Appropriate positioning and attachment • Continued breastfeeding up to 2years or beyond OR • Continued breastfeeding up to 12 months of life if the mother is HIV positive and the infant is HIV negative, the mother is on HAART and the infant receive ARV prophylaxis. • Continued breastfeeding during illness and express breast milk if the baby is not able to breastfeed
Optimal Complementary feeding	• At 6 completed months start appropriate complementary foods while continuing to breastfeed • Give a variety of foods to include energy giving foods (GO), body building foods (Grow) and protective foods (Glow) • Ensure: ○ Proper hygiene during food storage, preparation and serving ○ Growth monitoring and promotion monthly ○ Vitamin A supplementation every 6 months ○ Immunisation
Feeding of the sick child (or an adult where applicable)	• Increase frequency of breastfeeding and offer additional food (small frequent meals) • A sick child should be given a diet high in energy, protein and micronutrient especially iron, zinc and vitamins in a form that is easy to eat and digest
Maternal Nutrition	• Increase food intake by eating one extra meal during pregnancy, two extra meals during lactation in addition to eating the regular meals • Ensure iron and folic acid supplementation, intermittent presumptive treatment and prevention of malaria • Eat plenty of fruits and vegetables with every meal

TOPIC	RECOMMENDATION
	• Drink enough liquids every day (8 glasses or 3 NICE cups) • Emphasize the use of iodized salt and other fortified foods. • Pregnant mothers should be discouraged from alcohol consumption, smoking and other un-prescribed medication that may harm the baby. • Take the weight, height and MUAC of all pregnant women and record it in the mother/ child passport/ ANC register and other relevant data collecting tools.
Control of Vitamin A deficiency (VAD)	Children • Vitamin A is safe for children and boosts their immunity • Promote consumption of vitamin A rich foods e.g. mangoes, green leafy vegetables, wild red and orange fruits and foods such as egg yolk, liver, milk and other fortified foods such as vegetable oil
	Vitamin A supplementation • Children 6-59 months should be given vitamin A every 6 months as it protects them from diseases such as night blindness, diarrhoea, acute respiratory infections and reduces deaths. • All non breastfed infants less than six months should be given vitamin A • Children sick with measles, certain eye problems, severe malnutrition. They may need additional vitamin A according to the treatment schedule (refer to ITC).
	Mothers • Encourage pregnant women and lactating mothers to consume a balanced diet and foods rich in vitamin A such as liver, eggs, orange flesh sweet potatoes, pumpkin dark green leafy vegetables • Lactating mothers should not be given vitamin A routinely
Control of anaemia	• Emphasize consumption of iron rich foods such as liver, red meat, eggs, fish, whole grain bread, legumes and iron fortified foods.
	• Promote consumption of vitamin C - rich foods such as oranges, green vegetables as they enhance the absorption of iron.
	• Provide advice on food items and medicines that should not be taken together with iron supplements since they may inhibit absorption such as milk, antacids, tea and coffee.
	• Malaria control
	• Deworming routinely
	Malnourished children with nutritional anemia (commonly due to iron or folic acid deficiency) • Give one dose at 6mg/kg of iron daily for 14 days for children not in ITC and receiving RUTF • Children with SAM and severe anaemia should be managed following ITC protocols • Avoid iron in children known to suffer from sickle cell anaemia. • Avoid folate until 2 weeks after a child has completed the dose of sulphur based drugs (Fansidar , Septrin and others)

TOPIC	RECOMMENDATION
	Mothers • Give all pregnant women a dose of 200mg of iron and 5 mg of folate once a day (combined ferrous sulphate Bp 200mg and folic acid 0.4mg) • Treat anaemia for 3 months • Refer severe cases of anaemia to the nearest higher level of care • Promote use of antimalarial interventions such as Long Lasting Insecticide Treated mosquito nets to prevent malaria which may cause anaemia.
Hygiene and sanitation	Personal hygiene, domestic and environmental hygiene • Promote good hygienic practices in the preparation and handling of food • Hand washing with soap and clean running water • Protect foods from contamination with insects, pests and other animals • Keep all food preparation premises, utensils, and equipments clean • Cook food thoroughly or re-heat it thorough • Keep food at safe temperatures
Deworming	• Use safe water and raw materials • Give 250 mg of mebendazole or 200mg of Albendazole for children 1-2years and 500 mgs mebendazole or 400 mgms Albendazole if > 2years as a single dose Note: DO NOT administer if child is less than 1 year
Growth monitoring and promotion (GMP)	• Children aged 0-2 years should be weighed every month, their weights plotted on the growth chart in the Child Health Card or Mother Child Passport. Explain to the mother the child's progress • Lengths for these children should be measured at specified intervals as per GMP guidelines. Assess and explain to the mother the child's progress (based on length for age). • Children 2 to 5 years should have weights and heights measured every 6 months to determine if they are growing adequately • When children come for GMP, check for their immunization, and vitamin A supplementation status • Children whose growth is faltering are at high risk and should be monitored closely by health facility staff
Immunization	• Encourage all children 0 – 5 years, adolescents and pregnant mothers to receive the recommended vaccinations as per the national immunization schedule • Explain to the mother ○ The importance of immunization and the national schedule ○ Barriers to immunization and how to overcome them ○ Access to immunization services • Make immunization safe (i.e. check expiry date, use sterile disposable needles, observe cold chain, use trained personnel).

Okurya kurungi n'ekyomugasho muhango aha magara g'abantu



Ebyokurya ebirukunda omubiri

Ebyokurya ebirimu buri kiriisa

- * Nibihunduza abasirikare b'omubiri
- * Nibihereza omubiri amaani
- * Nibirinda omubiri okutakwatwa oburwaire
- * Nibonyera okwenda kurya.



Amazi maingi



Ebyokurya ebirukuhereza amaani



Produced by the EIT-AGPS Nutrition Campaign and Food Livelihoods Program for Malawi
and distributed by the Ministry of Health, P.O. Box 707, Lilongwe, Malawi. Tel: 01-461-1111

CHAPTER 10

MONITORING, SUPERVISION, REPORTING AND EVALUATION, QUALITY IMPROVEMENT AND SUPPLY CHAIN MANAGEMENT FOR IMAM

10.0 Introduction

To ensure that the Integrated Management of Acute Malnutrition (IMAM) interventions are achieving their objectives of early case identification and treating acute malnutrition, activities, inputs, outputs and outcomes must be monitored, supervised and reported on. A well designed monitoring and reporting system can identify gaps in implementation of respective components, provide information for on-going needs assessment, advocacy, planning, and redesigning and accountability. Monitoring, reporting and overall quality improvement should be an integral component of the IMAM programme.

10.1 Key definitions

Monitoring is the systematic and continuous check on all aspects of the programme while it is being implemented. This is in order to establish if inputs, processes and outputs are proceeding according to plan so that timely action can be taken to correct deficiencies detected. It is important to monitor IMAM activities to ensure quality service delivery, effective use of resources and strengthen accountability. Monitoring IMAM will also promote continuous learning and improvement.

Supervision is a process of working with and through others by overseeing the performance or operations in order to achieve organization objectives. There should be regular supervision of IMAM activities by trained and skilled personnel. Supervision aims at empowering the individual with technical and administrative skills for decision making, leadership, communication and team building. This can be acquired through on job coaching and mentoring among others.

Reporting refers to giving an account of the programme's performance and inform policy.. Reporting on IMAM services is in line with the HMIS.

Evaluation means determining the value, significance, or worth of the programme through careful appraisal and study. It looks at programme's results, changes and impact over time. Evaluation involves carefully examining data about a project or programme's results determining whether and how well the set objectives are met over a set period.

Coverage is a measure of the extent to which the services rendered cover the potential need for those services in the community . Coverage therefore refers to the extent to which IMAM services are available for the acutely malnourished individuals in community.

Appropriateness refers to a suitable intervention, targeted to the right audience and is rightly and culturally acceptable.

Quality improvement is the use of quantitative and qualitative methods to improve the effectiveness, efficiency, safety of service delivery processes and systems, as well as the performance of human resources in delivering IMAM services

Supply Chain Management is a system of organising people, activities, information and resources involved in moving the products from the supplier to the beneficiary.

10.2 Monitoring of IMAM services

Monitoring comprises of three major components:

- Monitoring of individual treatment to assess client/patient progress
- monitoring to assess effectiveness of treatment interventions (i.e. proportion of acutely malnourished patients treated effectively) and community-level activities for mobilisation and case-finding
- Assessment of service coverage (i.e. proportion of the target group being reached with treatment) and appropriateness of the programme for communities.

10.2.1 IMAM data collection tools

These include tools used for individual and programme level monitoring (Table 20)

TABLE 20: TOOLS USED IN MONITORING, SUPERVISION AND REPORTING FOR IMAM SERVICE

TOOLS	PURPOSE
VHT/ ICCM register	- To record detailed information of clients screened for acute malnutrition using MUAC - To record detailed information of clients referred to health facilities for nutrition and other health services as well as those followed up
Community referral forms	Used by VHTs and other community health and nutrition providers to refer patients within IMAM services and vice versa
Quarterly report forms for VHTs	Used by VHTs for quarterly reporting on cases: assessed, identified; referred and follow ups; health and nutrition education activities and other health related activities carried out in the community
Integrated nutrition ration cards	- For recording therapeutic or supplementary food in OTC or SFP - To track a patient's progress through monitoring weight, height and MUAC on every visit to OTC/ SFP.
Integrated nutrition register	- To record detailed information of patients admitted to ITC, OTC and SFP - To track the individual patients enrolled into the IMAM services using Integrated Nutrition registration number (INR No.) - To track a patient's progress through monitoring weight, height and MUAC on every visit to OTC/ SFP - To record patients' outcome on exiting the feeding programme
Referral forms	Used by healthcare providers to refer patients within IMAM services and vice versa
Critical Care Pathway Chart	To record the patient's presenting signs, symptoms and initial management as well as monitor progress (weight, vital signs, medical complications, feeding, antibiotics, fluid management etc)
24 hour Feed Intake Chart	- Is a record of the patient's feeding plan in a 24hr period (type, frequency, amount and total feeds) - Monitors the patient's feed intake over a 24hr period

TOOLS	PURPOSE
Weight Gain Tally Sheet for Ward	To record and monitor rate of weight gain for children receiving F100 (calculated monthly or quarterly)
Tally sheets	To summarize weekly, monthly data from INR and compile reports
HMIS monthly and quarterly reports	- To report on cases presented with/treated for acute malnutrition in health facilities - Tracks performance of IMAM services through monitoring patient outcomes vis-a-vis set standards
*Community Supervision checklists	Used at community level to assess/monitor quality of IMAM services
* Health facility Integrated support supervision checklists	Used at health facility level to assess/monitor quality of IMAM services
Nutrition Service Delivery Assessment (NSDA) tools	To assess quality of nutrition service delivery at both high and low level health facilities
*Checklist for monitoring ENR	Monitors availability of requirements for setting up and implementing ENR programme
*Tools for conducting FGDs and KIIs	To assess IMAM coverage and access through conducting FGDs and interviews is to uncover potential barriers to components of IMAM in order to improve its delivery
*Tools for conducting: 1-FGDs (including interview guides for: VHTs and other community resource persons; beneficiary caregivers and other community members; 2-KIIs (including individual interview guides for: health and nutrition programme managers and; for health facility workers	To capture information from those directly and indirectly involved in IMAM. This information should be collected at community, district and national level

10.2.2 IMAM service performance indicators

The following are the indicators used in monitoring the effectiveness of IMAM services:

INDICATOR		DEFINITION
A: OTC, SFP		
1	Cure rate	Number of patients successfully cured as a percentage of total discharges during the reporting quarter. Discharges include cured, defaulters, deaths and non respondents) <i>(Total discharged as cured/Total discharges x100)</i>

INDICATOR		DEFINITION
2	Default rate	Number of patients who defaulted as a percentage of all discharges during the reporting quarter (<i>Default/Total discharges x 100</i>)
3	Non-respondents rate	Number of patients who are non-respondents as a percentage of total discharges during the reporting quarter (<i>Total non-respondents/Total discharges x 100</i>)
4	Coverage	Number of eligible cases who are enrolled in IMAM programme divided by total number of eligible clients x 100
5	Death rate	The number of patients who died as a percentage of total discharges during the reporting quarter (<i>Total Died/Total discharges x 100</i>)
B: INPATIENT THERAPEUTIC CARE		
1	Case fatality ^a	Number of patients who died as a percentage of all new admissions for the reporting month (s) (<i>Total Died/Total new admissions x 100</i>)
2	Defaulter rate	Number of patients who defaulted (ran away) as a percentage of all new admissions for the reporting month (s) (<i>Total defaulted/Total new admissions x 100</i>)
3	Failure to respond ^b	Number of patients who failed to respond as a percentage of all new admissions for the reporting month (s) (<i>Total failure to respond/Total new admissions x 100</i>)
4	Transfer rates to OTC	Number of patients transferred to OTC as a percentage of new admissions for the reporting month (s) (<i>Total transfers to OTC /Total new admissions x 100</i>)
5	Cure rate (<i>if F100 is used for rehabilitation</i>)	Number of patients cured as a percentage of new admissions for the reporting month (<i>Total cured /Total new admissions x 100</i>)
6	Average rate of weight gain ^c (only for children feeding freely on F100)	Average weight gain (g) for patients on F-100 for the entire week (7days) divided by their average weight (kg) x 100. <i>Good weight gain is >10 g/kg/day-; moderate weight gain 5 up to 10 g/kg/day and poor weight gain is <5 g/kg/day</i>

^a Case-fatality rate of >20% is unacceptable; 11-20% poor; 5-10% moderate and <5% is acceptable

^b see below for details on how to recognize failure to respond

^c If the average rate of weight gain is poor for ≥10% of the children on F-100 or there is a decrease in average rate of weight gain in comparison to previous three months, there is a problem that must be investigated.

How to recognize failure to respond:

CONDITION	APPROXIMATE 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 5 g/kg/day for 3 successive days after feeding freely on F-100	After feeding freely on F-100

Note: HIV/AIDS patients may not respond as those who are HIV negative

The indicators given are primarily applicable to children 6 -59 months age group although others may be part of the program. More than 90% of the target population is with in less than 1 days return walk (including time for treatment). Coverage is greater than 50% in rural areas, greater than 70% in urban areas and 90% in camp Situation.

TABLE 21 TYPICAL TARGET LEVELS FOR CURE, MORTALITY AND DEFAULTING RATES

INDICATORS	ACCEPTABLE			ALARMING	
	SFP	OTC	ITC	SFP	OTC
Cure rate	>75%	>75%	>75%	<50%	
Death rate	< 3%	< 5%	<10%	> 10%	
Defaulter rate	< 15%	< 15%	<15%	>30%	
Non respondent rate	<10%	<10%	<10%		>10%
Coverage	>70%				-
Average length of stay for cured patients	<90 days	<60 days	7 – 8 days*		
Distribution of centres	>90% target population lives within 1 day return walk from centre				

Source: Sphere standards, 2011.

- If cure rates are low and death rates are high, it means the programme is not performing effectively. This needs to be investigated and addressed.
- If cure rates are low and defaulter rates are high, it means that service is not performing effectively. Any defaulter could represent a death.

*ITC linked to OTC

10.2.3 Nutrition Information, Education and Communication

Monitoring a nutrition education programme is essential to determine its progress towards achieving the set objectives. Qualitative data can be collected continuously to determine the program's:

- Appropriateness effectiveness
- Coverage

Monitoring indicators for Nutrition Education Programme include:

- Proportion of topics conducted;
- Proportion of Trainings conducted;
- Proportion of “Trainers of trainers” (TOTs) trained;
- Proportion of program supervisors and managers trained;
- Proportion of Community groups/individuals trained;
- Proportion of IEC materials developed/provided vs those planned for.
- Proportion of active community groups vs those trained.

10.2.4 Emergency Nutrition Response (ENR)

Monitoring helps to ensure that the emergency nutrition response is effective at preventing increased and/or excessive morbidity and mortality related to acute malnutrition.

The following requirements for setting up and implementation of ENR programme should be monitored:

- **Personnel**
 - Appropriate staff and staffing levels (managers, logistics support, administration and technical staff (clinicians, nutritionists, nurses) and support staff.
 - Staff speak/ understand the local language and culture of the population.
 - Staff trained/orientated prior on conducting the relief programmes.
 - Staff have clear job descriptions with clear roles and responsibilities.
- **Supplies and logistics**
 - Availability of good logistics system to ensure there is no break in the pipeline.
 - Buffer stocks should be in place especially where insecurity is an issue.
- **Service Linkages for Prevention and Management of Acute Malnutrition**
 - Interventions to:
 - Manage acute malnutrition
 - Strengthen IYCF-E,
 - Address health, water, sanitation and hygiene and food insecurity.
- **Aggravating factors**
 - GAM rates (>10%)
 - Crude mortality rates (>1/10,000/day)
 - Availability of funding
 - Effective epidemiological control of infectious diseases
 - Climatic conditions (severe or not)
 - Shelter (whether adequate or not).

10.2.5 Monitoring Coverage of IMAM services

Coverage is a critical indicator that should be monitored at programme level. If programme performance is good (high cure, low mortality and default rates) but coverage is poor, then there is low programme impact at population level. Where cure rates are lower, higher coverage rates are needed to effect a given GAM reduction at population level.

Table 22 shows the coverage needed in order to achieve a reduction in global acute malnutrition (GAM) at population level, at 75% cure rate.

TABLE 22: COVERAGE NEEDED TO EFFECT A GIVEN REDUCTION IN GAM

GAM REDUCTION AIM	MINIMUM COVERAGE NEEDED
100%	Not possible with a cure rate of 75%
75%	100%
50%	66.7%
25%	33.3%

Note: 75% cure rate is constant

Assessing coverage identifies the proportion of clients enrolled in the IMAM services out of the total number of people who need the intervention in a given area. Coverage is normally expressed as a percentage (i.e. if 100 people are acutely malnourished in the community and 50 are admitted in the IMAM programme, then the coverage is 50%).

Coverage is one of the most important indicators of how well the IMAM service is meeting a need. A “met need” is the product of coverage rate and cure rate. A programme with a high coverage but lower cure rates (75% coverage X 70% cure rate= 53% of need met) may be better at meeting the need than one with high cure rate with a low coverage (80% cure X 25% coverage = 20% of need met).

The IMAM coverage is estimated using a population based coverage survey which requires specialized assistance (see Valid Community-based Therapeutic Care: A field Manual- chapter 9 for information on conducting coverage surveys. There are several methodologies that can be used for assessing coverage e.g. SLEAC and SQUEAC.

Monitoring Appropriateness of IMAM programme:

The following can be used:

- Focus group discussions (FGDs) and
- Interviews with key members of the community .

The purpose of these discussions and interviews is to uncover potential barriers to components of IMAM in order to improve its delivery.

10.3 IMAM service supervision

A supervisor should:

- Give direction to the team, make decisions, solve problems, monitor progress, provide feedback and keep records;
- Be endowed with knowledge and skills and;
- Receive support and guidance from the work place to enable him/her be effective as a supervisor

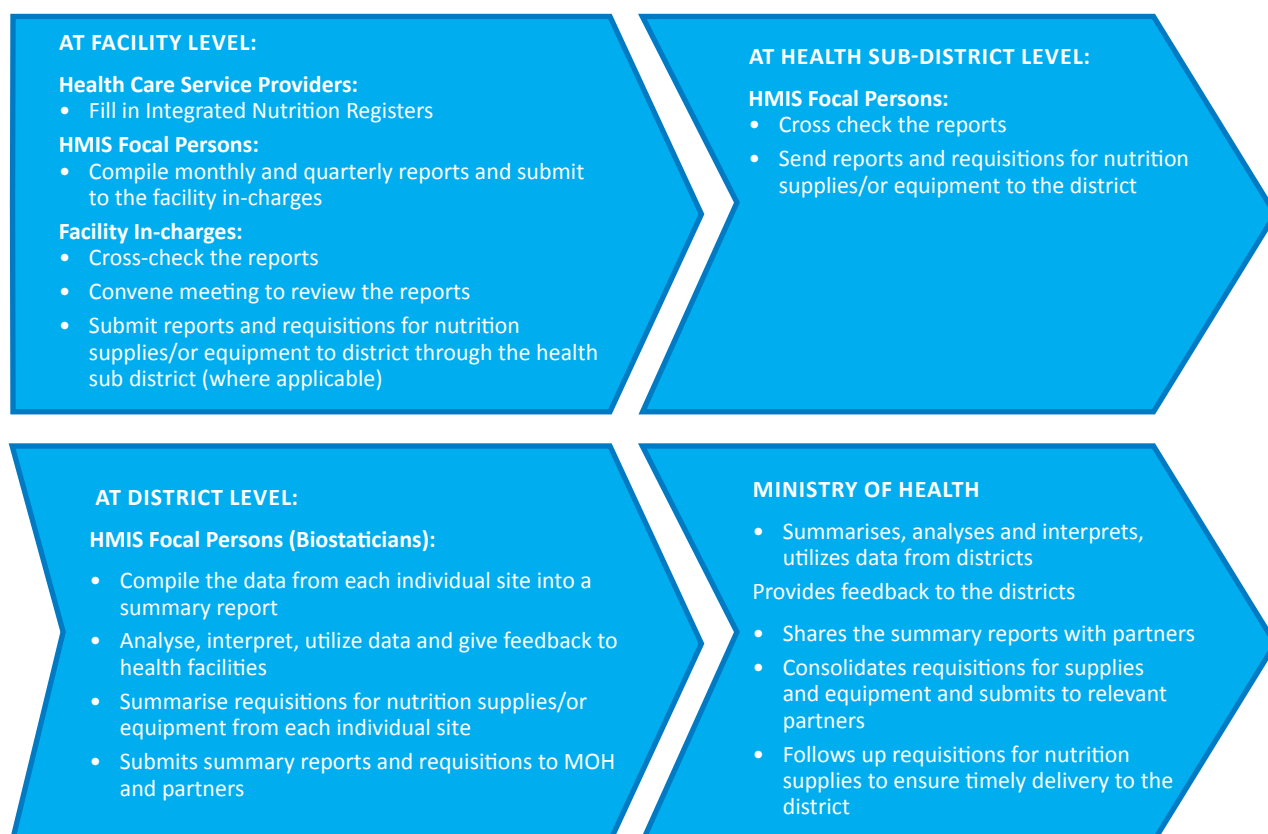
Supervisors should use integrated support supervision checklist to assist in monitoring the quality of the IMAM programme.

Indicators for Supervision

- Percentage of support supervisions conducted vs planned for annually at district and national level
- Proportion of supervisors trained on integrated support supervision at district and national level

10.4 Reporting

FIGURE 16: THE REPORTING SYSTEM OF THE IMAM PROGRAMME



Reporting on stock

- a) Amount of stock consumed in the reporting month or quarter (F75, F100, ReSoMal, RUTF and supplementary foods)
- b) Stock balance (at hand) is given by amount available at beginning of month + stock received during the month minus stock utilized + wastage/leakages for each supply
- c) Wastage/leakages in a reporting month (s) may be due to damage by rodents, expiry or losses during feed preparation, etc
- d) Supply projections for the next quarter – see section on supply chain management for details

10.5 Evaluation

An evaluation will often address two main questions:

- Are the results those that were intended?
- And are they of value?

Evaluation can be performed using:

- The existing data bases collected over time
- Specific evaluation studies conducted at base line, midterm and at the end of the programme (see table 22 for tools).

10.6 Quality improvement in integrated management of acute malnutrition

Quality refers to:

- The ability to satisfy stated or implied needs of a person/ population
- Performance according to standards or expectations

Quality improvement in IMAM programming refers to:

- Systematically improving quality of IMAM services by bridging the gaps between services actually provided and desired standards.

Attributes of Quality:

- Access to services
- Effectiveness of care
- Interpersonal relations
- Efficiency of service delivery
- Continuity of services
- Safety
- Physical infrastructure and comfort (amenities)

Principles of quality improvement

Quality improvement is based on four key principles:

- **Client focus:** IMAM services should be designed to meet the needs and the expectations of the clients or community in order to improve service uptake and utilization.
- **Focus on systems and processes:**
 - By analysing gaps and identifying causes of poor performance
- **Testing changes and emphasizing the use of data:**
 - Changes are tested to find out whether they yield the required improvement.
 - Data are used to analyse processes, identify problems and determine whether the changes have resulted in improvement.
- **Team work:** Improvement is achieved through the team approach to problem solving and quality improvement.

THE MOH QI FRAMEWORK AND COORDINATION STRUCTURE:



IMAM QI should be fully embedded within the existing QI framework at all levels (national, regional, district, sub-district and health facility levels) using the 5-S model and the iterative PDSA (refer to HSQI Framework and HSSP 2010/11– 2014/15 for details).

5-S Model

5-S is sequence of activities which include: sort-set-shine-standardize-sustain. The 5-S model is the initial step/foundation for all quality improvement initiatives by MoH.

Objectives of 5-S

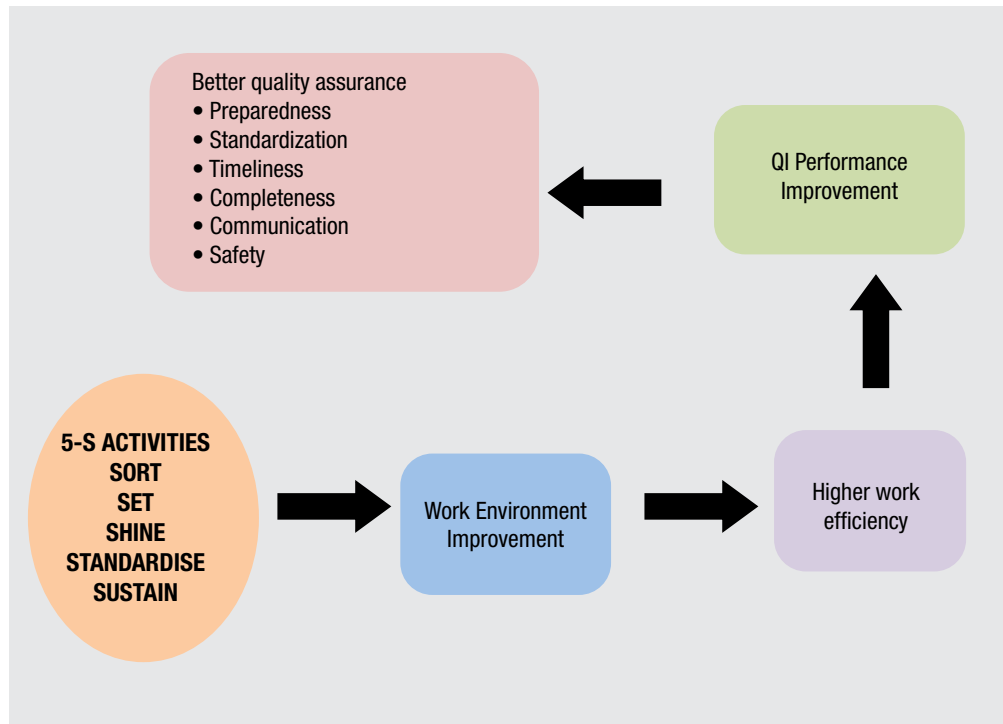
- To improved health care quality and productivity
- To improved infrastructure maintenance
- To improved health and safety

Steps in implementing 5-S

- Sort** refers to removing unnecessary items from your work place.
- Set** refers to organizing everything needed in proper order for easy operation.
- Shine** refers to maintaining a high standard of cleanliness including tools, instruments and machines and developing a long term maintenance plan.

- d. **Standardize-** refers to establishing the above three Ss as the norm in every work place and ensuring regular maintenance, cleanliness and improved quality of care.
- e. **Sustain** refers to continuous training and maintaining the discipline of the personnel- ensure team work, work improvement team (WIT) and 5-S training

FIGURE 17: WORK PLACE IMPROVEMENT THROUGH 5-S



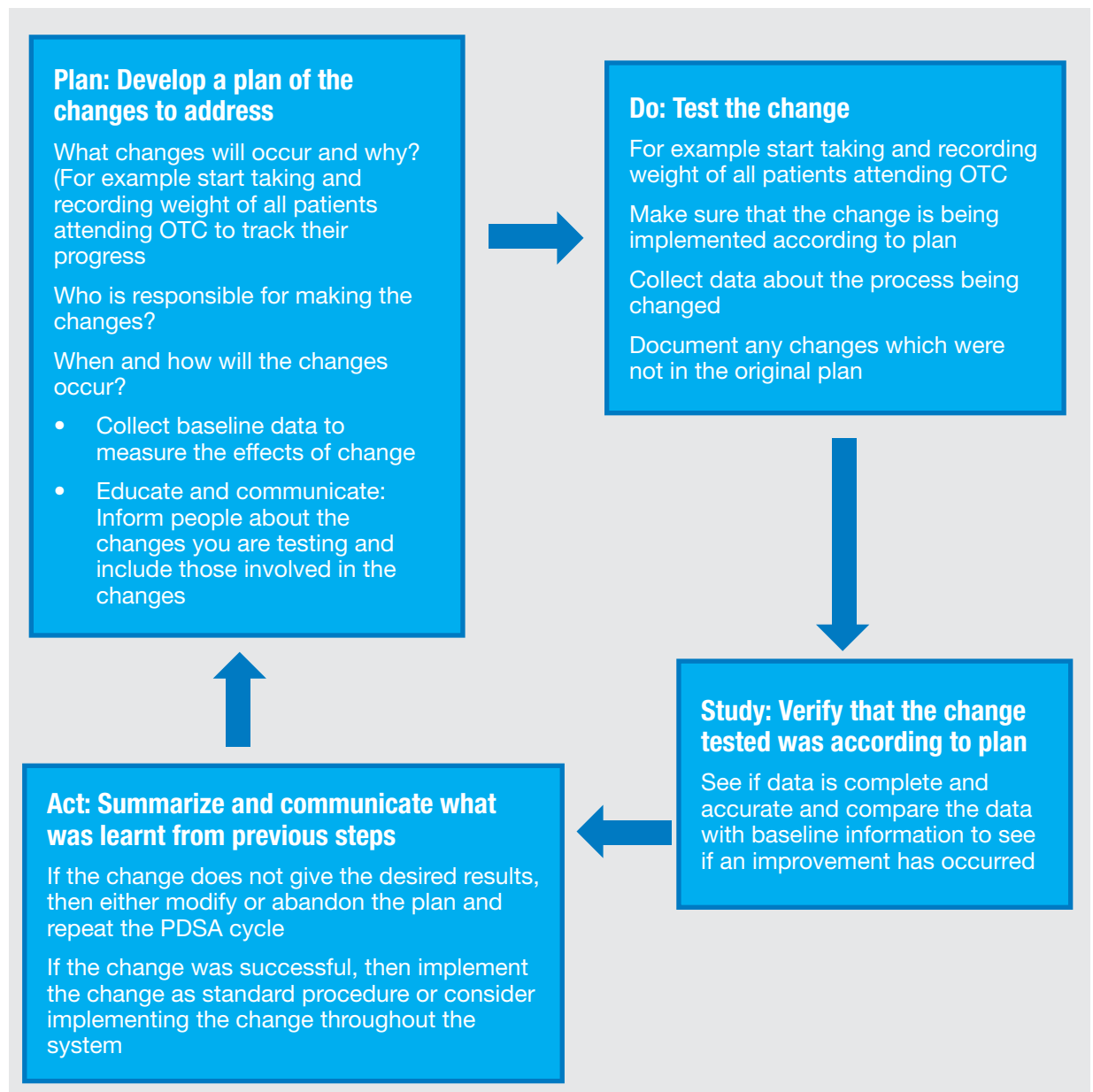
The PDSA cycle

- Is a way to try out ideas to improve before deciding to implement
- Allows teams to know quickly whether the change will work
- Gathers data to convince colleagues that the changes work

The QI team should use the PDSA cycle to identify the gaps, test changes to bridge the gaps, study the tested changes and adapt changes that have caused improvement in IMAM service delivery as best practices.

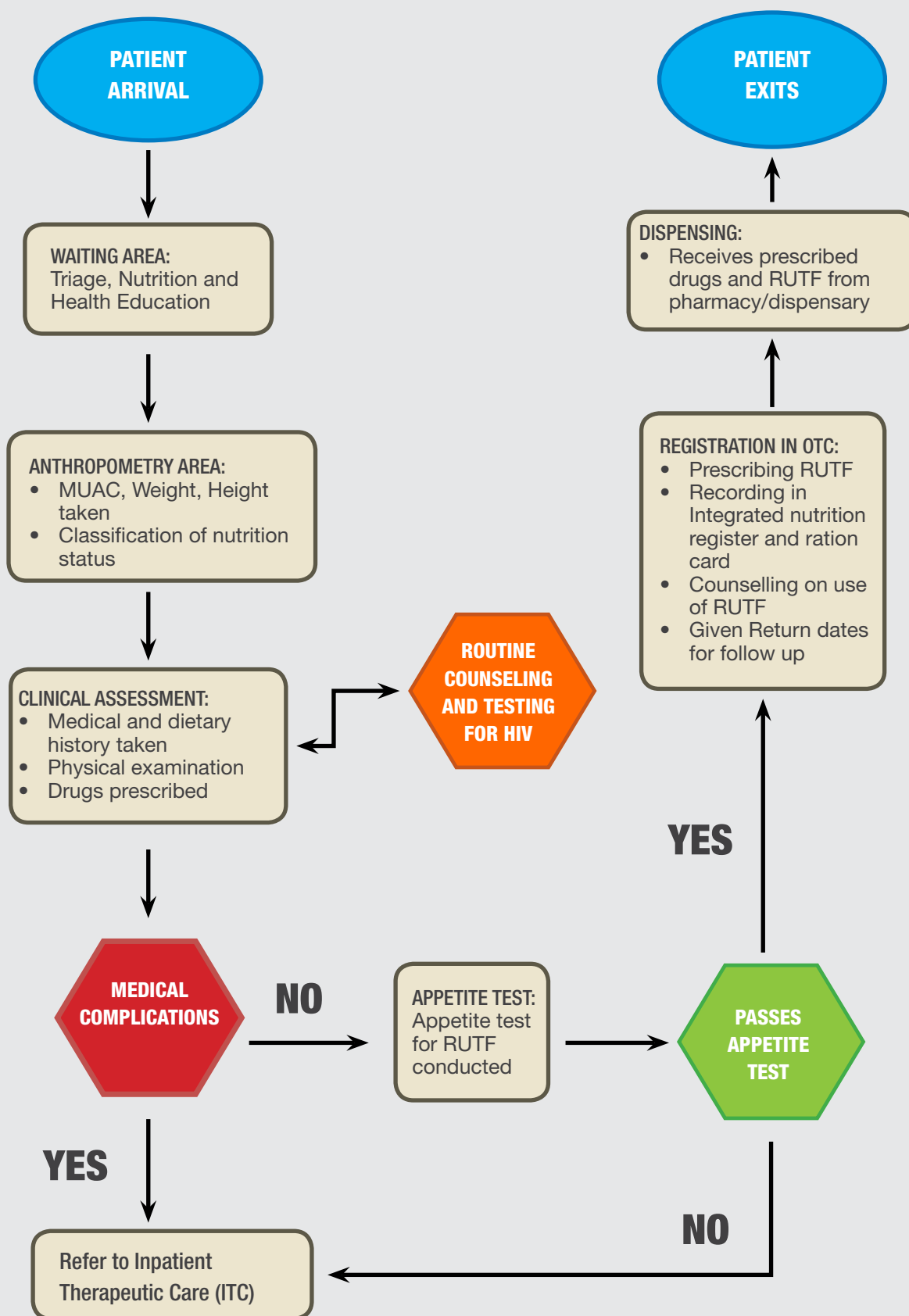
- Use the appropriate QI tools (documentation journals) to design QI projects on IMAM, monitor performance and document best practices
- Strengthen existing QI teams to address IMAM QI activities

FIGURE 18: THE PDSA CYCLE



Flow chart is a quality improvement tool that explains the process of doing something from beginning to end such as an OTC patient flow chart (as illustrated in Figure 19 below).

FIGURE 19: PROCESS FLOW OF PATIENTS IN OTC



Surge Approach

The IMAM Surge approach is a process that involves a set of practical tools to help health systems to better manage services for acute malnutrition over time. Specifically, the approach focuses on improving planning and management of treatment services during seasonal spikes or surges in case loads of acute malnutrition. It is used to address both severe and moderate acute malnutrition where appropriate

Components of the Surge Approach include:

- **Risk analysis and capacity assessment**

Health facilities should analyse the most likely causes of acute malnutrition in their catchment area to establish what a 'normal' case load looks like and when and to what degree surges occur throughout the year.

- **Threshthshold setting**

In this context, thresholds are the number of cases of severe acute malnutrition seen in the facility per month, above which the health facility would need to modify their normal clinic procedures (usually the 'alert' threshold) and/or receive external support from the District Health Office (usually the 'serious' or 'emergency' threshold).

Based on the capacity assessment and previous experience, a set of caseload thresholds are agreed on for each health facility.

- **Monitoring against set thresholds**

Thresholds are monitored periodically, by plotting caseloads against time.

- **Provision of surge support**

Through the DHT and other stakeholders, a comprehensive surge appropriate action and support package are delivered to the health units

- **Scaling down surge support**

As caseloads reduce, any surge support package is gradually scaled down in line with the thresholds. Ultimately, caseloads and external support are expected to return to 'normal' pre-surge levels.

Note: At the end of the 'surge season', the health facility and District health staff should review how the scale up of support worked and how the actual caseload trends differed from the trends predicted. This review should also occur whenever major changes in capacity occur at Health Facilities.

TABLE 23: SAMPLE ACTION PLAN FOR IMPLEMENTATION OF QI IN IMAM SERVICES (ALTERNATIVELY ONE CAN USE THE DOCUMENTATION JOURNAL AS IN ANNEX 20)

Health Facility _____

Date Prepared _____

Step	Current status (What we do now)	Changes to be introduced (New things we must do)	Who will organize the changes		New resources needed	Source	Who will organize the resources	
			Who?	When?			Who?	When?

10.7 Supply chain management for imam

This topic outlines the goals, type of supplies, their sources and stock management at different levels of the health system.

Goals of SCM for IMAM supplies:

- i) To prevent stock outs,
- ii) To reduce time loss, and
- iii) To build confidence in service management

TABLE 24: TYPES OF IMAM SUPPLIES

TYPE	EXAMPLES	WHEN TO ORDER
Therapeutic feeds	F75, F100, RUTF, CMV and Resomal	Quarterly
Supplementary foods	Corn Soya Blend (CSB), lipid based nutrient supplement, Fortified blended foods (Super Cereal and Super Cereal Plus), BP100, BP 5, RUSF,	Quarterly
Anthropometric equipment	MUAC tapes, weighing scales, height boards,	based on need
Data collection tools	HMIS- Integrated nutrition register, integrated nutrition ration card, monthly and quarterly reports, registers at different care points	based on need
Routine medicines and supplements	Refer to chapters on specific IMAM components	As per NMS cycle

Managing stocks involves the following:

a. Quantification of supplies

Projections for nutrition supplies are done regularly in order to ensure effective programming and minimize on stock outs. Calculations are either based on case loads and target populations or previous consumption levels and should include 10% of supplies (buffer stock) estimates.

Consumption estimates of the nutrition supplies are derived from total number of new admitted cases multiplied by the recommended quantities of the therapeutic supplies used for treating a child. For example a child in:

ITC (LINKED TO AN OTC)	OTC	SFP
Requires an estimate of; ○ 12 sachets of F75, ○ 0.2 sachets of ReSoMal. ○ Minimal RUTF ○ 4 sachets of F100	requires an estimate of:- ○ 136 sachets of RUTF.	

Buffer stock

Buffer stock is defined as reserve supplies to safeguard against unforeseen shortages or demands. It is stock used over and above the actual stock required or needed to run the programme.

It is obtained by calculating 10% of the stock needed for the programme.

Transportation, distribution, storage and dispensing of nutrition supplies should be integrated with other supplies at all levels. Similarly, management of stock outs should follow the existing protocols.

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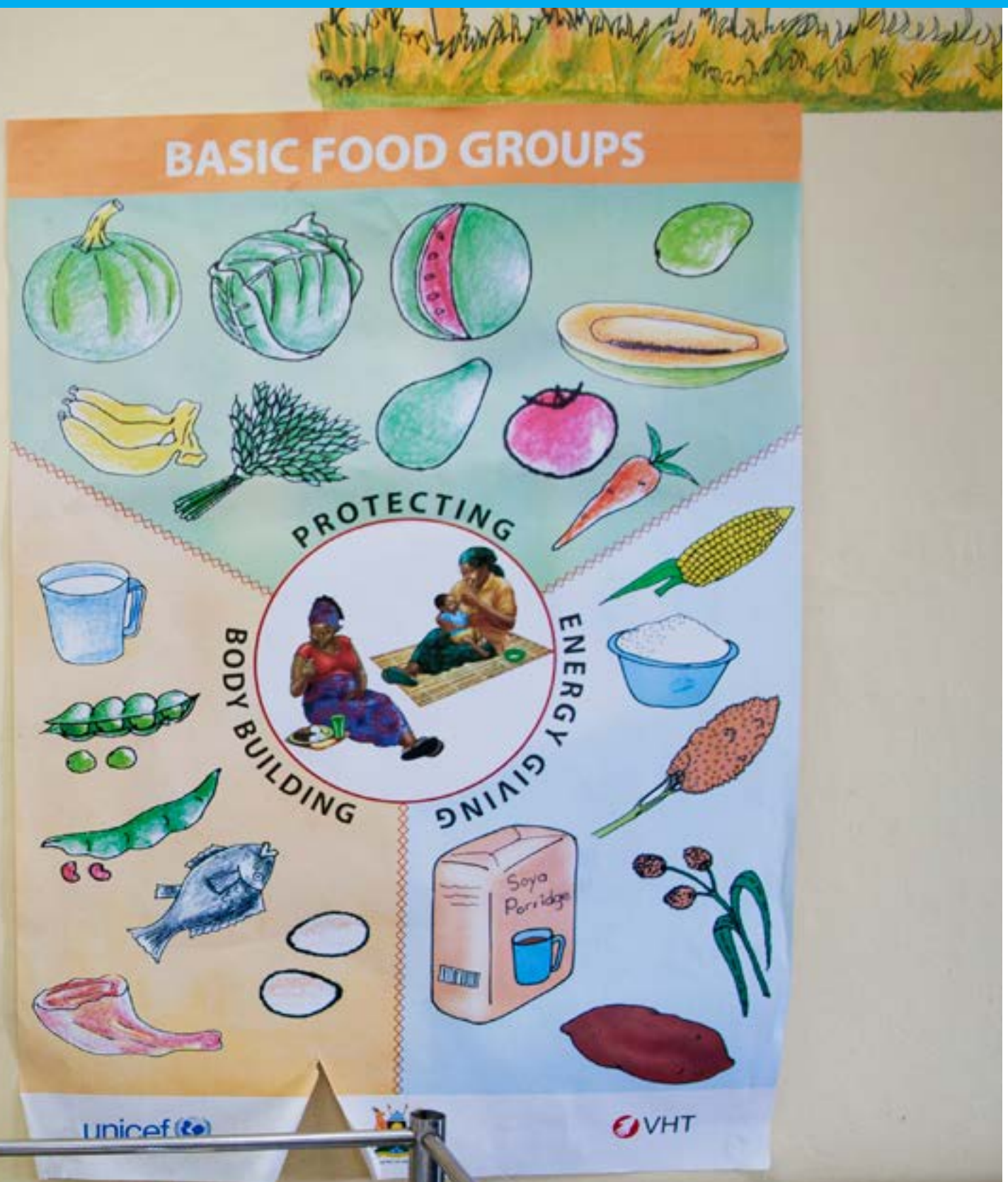
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ANNEX 1

EQUIPMENT AND SUPPLIES NEEDED FOR A NUTRITION WARD/UNIT

Ward Equipment/Supplies

- Glucostix/ sticks for random blood sugar
- Running water
- Thermometers
- MUAC tapes (children and adults)
- Weighing scales (must be functioning correctly)
 - Items of known weight for checking scales
- Board for measuring length
 - Pole of known length for checking accuracy
- Stadiometer (to measure standing height)
- Haemoglobinometer

Supplies for IV:

- Scalp vein (butterfly) needles, gauge for children (22, 24) for adults (18, 20)
- Poles or means of hanging bottles of IV fluid
- Giving sets
- IV fluids
- Nasogastric tubes (pediatrics and adults)
- Adhesive plaster
- Syringes (20 and 50 ml for feeds)
- Syringes (2 ml for drugs, 5 ml for drawing blood, 10 ml)
- Sterile needles
- Eye pads
- Bandages
- Gauze

Supplies for blood transfusion:

- Units of blood
- Syringes and needles
- Blood transfusion sets
- Blankets or wraps for warming children
- Incandescent lamp or heater
- Wash basin for bathing patients
- Safe, homemade toys
- Clock
- Calculator

For hygiene of mothers and staff

- Toilet and hand washing facilities
- Clean water and soap for hand washing
- Place for washing bedding and clothes
- Facility for waste disposal

For reference and record keeping

- Relevant tables such as:
 - Weight-for-Length/ Height Reference Card
 - BMI Reference Card
 - F-75 Reference Card
 - F-100 Reference Card
 - RUTF appetite test Reference Card
 - RUTF dosing Reference Card
 - Antibiotics Reference Card

- Suitable forms for record keeping, such as the CCP (Critical Care Pathway) or other forms requesting similar information (weight charts, monitoring records)
- 24-Hour Feed Intake Charts

Kitchen Equipment/Supplies

- Dietary scales able to weigh to 5 g
- Electric blender or manual whisks
- Large containers and spoons for mixing/cooking feed for the ward
- Facilities for cooking
- Feeding cups, saucers, spoons
- Measuring cylinders (or suitable utensils for measuring ingredients and leftovers)
- Jugs (1-litre and 2-litres)
- Refrigeration
- For making F-75 and F-100:
 - Dried skimmed milk, whole dried milk, fresh whole milk, or long-life milk
 - Sugar
 - Cereal flour
 - Vegetable oil
 - Safe water supply

Locally available foods (for teaching/use in transition to home foods)

Pharmacy Equipment/ Supplies

- Pharmaceutical scales
- WHO ORS for use in making ReSoMal (or commercial ReSoMal)
- Combined Mineral Vitamin Mix (CMV)

If CMV not available:

* Mineral mix (may be prepared in the pharmacy) or

Electrolytes and minerals:

- Potassium chloride
- Tripotassium citrate
- Magnesium chloride
- Zinc acetate
- Copper sulphate

* Multivitamin without iron

- Iron syrup (e.g., ferrous fumarate)
- Folic acid
- Vitamin A (high potency syrup or 50,000/100 000 / 200 000 IU capsules)
- Glucose (or sucrose)
- IV fluids – one of the following:
 - Half-strength Darrow's solution with 5% glucose (dextrose)
 - Ringer's lactate solution with 5% glucose*
 - 0.45% (half-normal) saline with 5% glucose*

*If either of these is used, sterile potassium chloride

(20 mol/l) should be added if possible.

- Sterile water for diluting
- Water for injection (ampoules 2, 5 and 10 ml)
- Vaccines (BCG, OPV, Pentavalent, Rota Virus, PCV and Measles)

Drugs (See formulations listed on Antibiotics Reference Card)

- Amoxicillin
- Ampicillin
- Benzylpenicillin
- Cotrimoxazole
- Gentamicin
- Metronidazole
- Cloxacillin
- Ceftriaxone
- Mebendazole, albendazole and/or other drugs for treatment of worms (as on note of drug kit for management of severe acute malnutrition with medical complications (See support materials))
- Gentamycin or chloramphenicol eye drops
- Atropine 1% eye drops
- Artemether + Lumefantrine tablets

• Artesunate suppository

For skin

- Gentian violet
- Zinc oxide ointment
- Petroleum jelly ointment

- Nystatin ointment or cream (for Candidiasis)
- Vaseline gauze (tulle gras)
- Silver sulphuradiazine

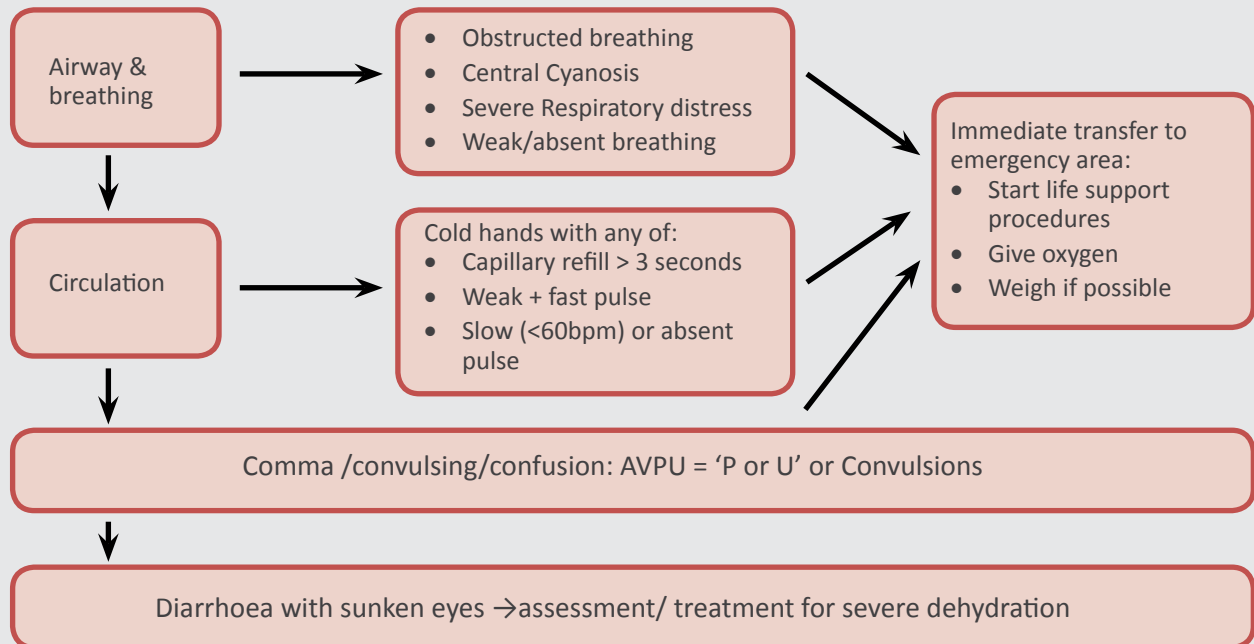
Laboratory resources accessible where applicable

- TB tests (x-ray, culture of sputum, Mantoux)
- Urinalysis
- Stool analysis and culture
- Blood culture
- Cerebrospinal fluid analysis and culture
- Genexpert
- HIV test
 - HIV rapid Testing kits
- Blood sample
 - Filter papers
 - RDT

ANNEX 2

TRIAGE OF SICK CHILDREN

EMERGENCY SIGNS:



PRIORITY SIGNS

- Tiny-Sick infant aged < 2months
- Temperature very high >390
- Trauma-major trauma
- Pain-Child in severe pain
- Poison-mother reports poisoning
- Pallor- severe palmer pallor
- Restless/Irritable/Floppy
- Respiratory distress
- Referral-has an urgent referral letter
- Malnutrition:
 - visible severe wasting
 - Bilateral pitting oedema
- Burns- severe burns

MEDICAL COMPLICATIONS IF SEVERE ACUTE MALNUTRITION

- Hypoglycaemia (Blood Sugar <3mmol/dl)
- Hypothermia Temp ≤35.50C, axillar
- Severe infections
- Diarrhea and Severe dehydration
- Shock
- Very severe anemia (Hb ≤ 4g/dl)
- Cardiac failure
- Severe dermatosis
- Corneal Ulceration

- Front of the Queue - Clinical review as soon as possible:**
- Weigh
 - Baseline observations

NON URGENT- CHILDREN WITH NONE OF THE ABOVE SIGNS/MEDICAL COMPLICATIONS

ANNEX 3

3A: WEIGHT-FOR-LENGTH REFERENCE CARD^a

(WHO Growth Standards)

BOYS' WEIGHT (KG)				LENGTH (CM)	GIRLS' WEIGHT (KG)			
-3 SD	-2 SD	-1 SD	Median		Median	-1 SD	-2 SD	-3 SD
1.9	2.0	2.2	2.4	45	2.5	2.3	2.1	1.9
2.0	2.2	2.4	2.6	46	2.6	2.4	2.2	2.0
2.1	2.3	2.5	2.8	47	2.8	2.6	2.4	2.2
2.3	2.5	2.7	2.9	48	3.0	2.7	2.5	2.3
2.4	2.6	2.9	3.1	49	3.2	2.9	2.6	2.4
2.6	2.8	3.0	3.3	50	3.4	3.1	2.8	2.6
2.7	3.0	3.2	3.5	51	3.6	3.3	3.0	2.8
2.9	3.2	3.5	3.8	52	3.8	3.5	3.2	2.9
3.1	3.4	3.7	4.0	53	4.0	3.7	3.4	3.1
3.3	3.6	3.9	4.3	54	4.3	3.9	3.6	3.3
3.6	3.8	4.2	4.5	55	4.5	4.2	3.8	3.5
3.8	4.1	4.4	4.8	56	4.8	4.4	4.0	3.7
4.0	4.3	4.7	5.1	57	5.1	4.6	4.3	3.9
4.3	4.6	5.0	5.4	58	5.4	4.9	4.5	4.1
4.5	4.8	5.3	5.7	59	5.6	5.1	4.7	4.3
4.7	5.1	5.5	6.0	60	5.9	5.4	4.9	4.5
4.9	5.3	5.8	6.3	61	6.1	5.6	5.1	4.7
5.1	5.6	6.0	6.5	62	6.4	5.8	5.3	4.9
5.3	5.8	6.2	6.8	63	6.6	6.0	5.5	5.1
5.5	6.0	6.5	7.0	64	6.9	6.3	5.7	5.3
5.7	6.2	6.7	7.3	65	7.1	6.5	5.9	5.5
5.9	6.4	6.9	7.5	66	7.3	6.7	6.1	5.6
6.1	6.6	7.1	7.7	67	7.5	6.9	6.3	5.8
6.3	6.8	7.3	8.0	68	7.7	7.1	6.5	6.0
6.5	7.0	7.6	8.2	69	8.0	7.3	6.7	6.1
6.6	7.2	7.8	8.4	70	8.2	7.5	6.9	6.3
6.8	7.4	8.0	8.6	71	8.4	7.7	7.0	6.5
7.0	7.6	8.2	8.9	72	8.6	7.8	7.2	6.6
7.2	7.7	8.4	9.1	73	8.8	8.0	7.4	6.8
7.3	7.9	8.6	9.3	74	9.0	8.2	7.5	6.9

BOYS' WEIGHT (KG)				LENGTH (CM)	GIRLS' WEIGHT (KG)			
-3 SD	-2 SD	-1 SD	Median		Median	-1 SD	-2 SD	-3 SD
7.5	8.1	8.8	9.5	75	9.1	8.4	7.7	7.1
7.6	8.3	8.9	9.7	76	9.3	8.5	7.8	7.2
7.8	8.4	9.1	9.9	77	9.5	8.7	8.0	7.4
7.9	8.6	9.3	10.1	78	9.7	8.9	8.2	7.5
8.1	8.7	9.5	10.3	79	9.9	9.1	8.3	7.7
8.2	8.9	9.6	10.4	80	10.1	9.2	8.5	7.8
8.4	9.1	9.8	10.6	81	10.3	9.4	8.7	8.0
8.5	9.2	10.0	10.8	82	10.5	9.6	8.8	8.1
8.7	9.4	10.2	11.0	83	10.7	9.8	9.0	8.3
8.9	9.6	10.4	11.3	84	11.0	10.1	9.2	8.5
9.1	9.8	10.6	11.5	85	11.2	10.3	9.4	8.7
9.3	10.0	10.8	11.7	86	11.5	10.5	9.7	8.9
9.5	10.2	11.1	12.0	87	11.7	10.7	9.9	9.1
9.7	10.5	11.3	12.2	88	12.0	11.0	10.1	9.3
9.9	10.7	11.5	12.5	89	12.2	11.2	10.3	9.5
10.1	10.9	11.8	12.7	90	12.5	11.4	10.5	9.7
10.3	11.1	12.0	13.0	91	12.7	11.7	10.7	9.9
10.5	11.3	12.2	13.2	92	13.0	11.9	10.9	10.1
10.7	11.5	12.4	13.4	93	13.2	12.1	11.1	10.2
10.8	11.7	12.6	13.7	94	13.5	12.3	11.3	10.4
11.0	11.9	12.8	13.9	95	13.7	12.6	11.5	10.6
11.2	12.1	13.1	14.1	96	14.0	12.8	11.7	10.8
11.4	12.3	13.3	14.4	97	14.2	13.0	12.0	11.0
11.6	12.5	13.5	14.6	98	14.5	13.3	12.2	11.2
11.8	12.7	13.7	14.9	99	14.8	13.5	12.4	11.4
12.0	12.9	14.0	15.2	100	15.0	13.7	12.6	11.6

^a A more detailed table is available on http://www.who.int/childgrowth/standards/weight_for_length/en/index.html ^b Length is measured for children below 2 years or, if age is not known, below 87 cm. For children 2 years and above (or, if age is not known, 87 cm or more), height is measured (see following table). Recumbent length is on average 0.7 cm greater than standing height; although the difference is of no importance to individual children, a correction may be made by adding 0.7 cm to the height if the child is less than 2 years (or below 87 cm if age not known) when recumbent length cannot be measured.

3B: WEIGHT-FOR- HEIGHT REFERENCE CARD^a

(WHO Growth Standards)

BOYS' WEIGHT (KG)				HEIGHT ^b (CM)	GIRLS' WEIGHT (KG)			
-3 SD	-2 SD	-1 SD	Median		Median	-1 SD	-2 SD	-3 SD
5.9	6.3	6.9	7.4	65	7.2	6.6	6.1	5.6
6.1	6.5	7.1	7.7	66	7.5	6.8	6.3	5.8
6.2	6.7	7.3	7.9	67	7.7	7.0	6.4	5.9
6.4	6.9	7.5	8.1	68	7.9	7.2	6.6	6.1
6.6	7.1	7.7	8.4	69	8.1	7.4	6.8	6.3
6.8	7.3	7.9	8.6	70	8.3	7.6	7.0	6.4
6.9	7.5	8.1	8.8	71	8.5	7.8	7.1	6.6
7.1	7.7	8.3	9.0	72	8.7	8.0	7.3	6.7
7.3	7.9	8.5	9.2	73	8.9	8.1	7.5	6.9
7.4	8.0	8.7	9.4	74	9.1	8.3	7.6	7.0
7.6	8.2	8.9	9.6	75	9.3	8.5	7.8	7.2
7.7	8.4	9.1	9.8	76	9.5	8.7	8.0	7.3
7.9	8.5	9.2	10.0	77	9.6	8.8	8.1	7.5
8.0	8.7	9.4	10.2	78	9.8	9.0	8.3	7.6
8.2	8.8	9.6	10.4	79	10.0	9.2	8.4	7.8
8.3	9.0	9.7	10.6	80	10.2	9.4	8.6	7.9
8.5	9.2	9.9	10.8	81	10.4	9.6	8.8	8.1
8.7	9.3	10.1	11.0	82	10.7	9.8	9.0	8.3
8.8	9.5	10.3	11.2	83	10.9	10.0	9.2	8.5
9.0	9.7	10.5	11.4	84	11.1	10.2	9.4	8.6
9.2	10.0	10.8	11.7	85	11.4	10.4	9.6	8.8
9.4	10.2	11.0	11.9	86	11.6	10.7	9.8	9.0
9.6	10.4	11.2	12.2	87	11.9	10.9	10.0	9.2
9.8	10.6	11.5	12.4	88	12.1	11.1	10.2	9.4
10.0	10.8	11.7	12.6	89	12.4	11.4	10.4	9.6
10.2	11.0	11.9	12.9	90	12.6	11.6	10.6	9.8
10.4	11.2	12.1	13.1	91	12.9	11.8	10.9	10.0
10.6	11.4	12.3	13.4	92	13.1	12.0	11.1	10.2
10.8	11.6	12.6	13.6	93	13.4	12.3	11.3	10.4
11.0	11.8	12.8	13.8	94	13.6	12.5	11.5	10.6
11.1	12.0	13.0	14.1	95	13.9	12.7	11.7	10.8

BOYS' WEIGHT (KG)				HEIGHT ^b (CM)	GIRLS' WEIGHT (KG)			
-3 SD	-2 SD	-1 SD	Median		Median	-1 SD	-2 SD	-3 SD
11.3	12.2	13.2	14.3	96	14.1	12.9	11.9	10.9
11.5	12.4	13.4	14.6	97	14.4	13.2	12.1	11.1
11.7	12.6	13.7	14.8	98	14.7	13.4	12.3	11.3
11.9	12.9	13.9	15.1	99	14.9	13.7	12.5	11.5
12.1	13.1	14.2	15.4	100	15.2	13.9	12.8	11.7
12.3	13.3	14.4	15.6	101	15.5	14.2	13.0	12.0
12.5	13.6	14.7	15.9	102	15.8	14.5	13.3	12.2
12.8	13.8	14.9	16.2	103	16.1	14.7	13.5	12.4
13.0	14.0	15.2	16.5	104	16.4	15.0	13.8	12.6
13.2	14.3	15.5	16.8	105	16.8	15.3	14.0	12.9
13.4	14.5	15.8	17.2	106	17.1	15.6	14.3	13.1
13.7	14.8	16.1	17.5	107	17.5	15.9	14.6	13.4
13.9	15.1	16.4	17.8	108	17.8	16.3	14.9	13.7
14.1	15.3	16.7	18.2	109	18.2	16.6	15.2	13.9
14.4	15.6	17.0	18.5	110	18.6	17.0	15.5	14.2
14.6	15.9	17.3	18.9	111	19.0	17.3	15.8	14.5
14.9	16.2	17.6	19.2	112	19.4	17.7	16.2	14.8
15.2	16.5	18.0	19.6	113	19.8	18.0	16.5	15.1
15.4	16.8	18.3	20.0	114	20.2	18.4	16.8	15.4
15.7	17.1	18.6	20.4	115	20.7	18.8	17.2	15.7
16.0	17.4	19.0	20.8	116	21.1	19.2	17.5	16.0
16.2	17.7	19.3	21.2	117	21.5	19.6	17.8	16.3
16.5	18.0	19.7	21.6	118	22.0	19.9	18.2	16.6
16.8	18.3	20.0	22.0	119	22.4	20.3	18.5	16.9
17.1	18.6	20.4	22.4	120	22.8	20.7	18.9	17.3

^a A more detailed table is available on http://www.who.int/childgrowth/standards/weight_for_height/en/index.html.

^b For children 2 years and above (or, if age not known, 87 cm or more), height is measured. Recumbent length is on average 0.7 cm greater than standing height; although the difference is of no importance to individual children, a correction may be made by subtracting 0.7cm from the lengths if the child is 2 years or more or above 86.9 cm when standing height cannot be measured.

3C: BMI-FOR-AGE REFERENCE CARD FOR CHILDREN 5 TO 19 YEARS

Boy's BMI (kg/m ²)				Age		Girl's BMI (kg/m ²)			
-3SD	-2SD	-1SD	Median	Year: Months	Months	Median	-1SD	-2SD	-3SD
12.1	13.0	14.1	15.3	5:1	61	15.2	13.9	12.7	11.8
12.1	13.0	14.1	15.3	5:2	62	15.2	13.9	12.7	11.8
12.1	13.0	14.1	15.3	5:3	63	15.2	13.9	12.7	11.8
12.1	13.0	14.1	15.3	5:4	64	15.2	13.9	12.7	11.8
12.1	13.0	14.1	15.3	5:5	65	15.2	13.9	12.7	11.7
12.1	13.0	14.1	15.3	5:6	66	15.2	13.9	12.7	11.7
12.1	13.0	14.1	15.3	5:7	67	15.2	13.9	12.7	11.7
12.1	13.0	14.1	15.3	5:8	68	15.3	13.9	12.7	11.7
12.1	13.0	14.1	15.3	5:9	69	15.3	13.9	12.7	11.7
12.1	13.0	14.1	15.3	5:10	70	15.3	13.9	12.7	11.7
12.1	13.0	14.1	15.3	5:11	71	15.3	13.9	12.7	11.7
12.1	13.0	14.1	15.3	6:0	72	15.3	13.9	12.7	11.7
12.1	13.0	14.1	15.3	6:1	73	15.3	13.9	12.7	11.7
12.2	13.1	14.1	15.3	6:2	74	15.3	13.9	12.7	11.7
12.2	13.1	14.1	15.3	6:3	75	15.3	13.9	12.7	11.7
12.2	13.1	14.1	15.4	6:4	76	15.3	13.9	12.7	11.7
12.2	13.1	14.1	15.4	6:5	77	15.3	13.9	12.7	11.7
12.2	13.1	14.1	15.4	6:6	78	15.3	13.9	12.7	11.7
12.2	13.1	14.1	15.4	6:7	79	15.3	13.9	12.7	11.7
12.2	13.1	14.2	15.4	6:8	80	15.3	13.9	12.7	11.7
12.2	13.1	14.2	15.4	6:9	81	15.4	13.9	12.7	11.7
12.2	13.1	14.2	15.4	6:10	82	15.4	13.9	12.7	11.7
12.2	13.1	14.2	15.5	6:11	83	15.4	13.9	12.7	11.7
12.3	13.1	14.2	15.5	7:0	84	15.4	13.9	12.7	11.8
12.3	13.2	14.2	15.5	7:1	85	15.4	13.9	12.7	11.8
12.3	13.2	14.2	15.5	7:2	86	15.4	14.0	12.8	11.8
12.3	13.2	14.3	15.5	7:3	87	15.5	14.0	12.8	11.8
12.3	13.2	14.3	15.6	7:4	88	15.5	14.0	12.8	11.8
12.3	13.2	14.3	15.6	7:5	89	15.5	14.0	12.8	11.8
12.3	13.2	14.3	15.6	7:6	90	15.5	14.0	12.8	11.8
12.3	13.2	14.3	15.6	7:7	91	15.5	14.0	12.8	11.8
12.3	13.2	14.3	15.6	7:8	92	15.6	14.0	12.8	11.8
12.4	13.2	14.3	15.7	7:9	93	15.6	14.1	12.8	11.8
12.4	13.3	14.4	15.7	7:10	94	15.6	14.1	12.9	11.9
12.4	13.3	14.4	15.7	7:11	95	15.7	14.1	12.9	11.9
12.4	13.3	14.4	15.7	8:0	96	15.7	14.1	12.9	11.9
12.4	13.3	14.4	15.8	8:1	97	15.7	14.1	12.9	11.9
12.4	13.3	14.4	15.8	8:2	98	15.7	14.2	12.9	11.9
12.4	13.3	14.4	15.8	8:3	99	15.8	14.2	12.9	11.9
12.4	13.4	14.5	15.8	8:4	100	15.8	14.2	13.0	11.9
12.5	13.4	14.5	15.9	8:5	101	15.8	14.2	13.0	12.0

Boy's BMI (kg/m ²)				Age		Girl's BMI (kg/m ²)			
-3SD	-2SD	-1SD	Median	Year: Months	Months	Median	-1SD	-2SD	-3SD
12.5	13.4	14.5	15.9	8:6	102	15.9	14.3	13.0	12.0
12.5	13.4	14.5	15.9	8:7	103	15.9	14.3	13.0	12.0
12.5	13.4	14.5	15.9	8:8	104	15.9	14.3	13.0	12.0
12.5	13.4	14.6	16.0	8:9	105	16.0	14.3	13.1	12.0
12.5	13.5	14.6	16.0	8:10	106	16.0	14.4	13.1	12.1
12.5	13.5	14.6	16.0	8:11	107	16.1	14.4	13.1	12.1
12.6	13.5	14.6	16.0	9:0	108	16.1	14.4	13.1	12.1
12.6	13.5	14.6	16.1	9:1	109	16.1	14.5	13.2	12.1
12.6	13.5	14.7	16.1	9:2	110	16.2	14.5	13.2	12.1
12.6	13.5	14.7	16.1	9:3	111	16.2	14.5	13.2	12.2
12.6	13.6	14.7	16.2	9:4	112	16.3	14.6	13.2	12.2
12.6	13.6	14.7	16.2	9:5	113	16.3	14.6	13.3	12.2
12.7	13.6	14.8	16.2	9:6	114	16.3	14.6	13.3	12.2
12.7	13.6	14.8	16.3	9:7	115	16.4	14.7	13.3	12.3
12.7	13.6	14.8	16.3	9:8	116	16.4	14.7	13.4	12.3
12.7	13.7	14.8	16.3	9:9	117	16.5	14.7	13.4	12.3
12.7	13.7	14.9	16.4	9:10	118	16.5	14.8	13.4	12.3
12.8	13.7	14.9	16.4	9:11	119	16.6	14.8	13.4	12.4
12.8	13.7	14.9	16.4	10:0	120	16.6	14.8	13.5	12.4
12.8	13.8	15.0	16.5	10:1	121	16.7	14.9	13.5	12.4
12.8	13.8	15.0	16.5	10:2	122	16.7	14.9	13.5	12.4
12.8	13.8	15.0	16.6	10:3	123	16.8	15.0	13.6	12.5
12.9	13.8	15.0	16.6	10:4	124	16.8	15.0	13.6	12.5
12.9	13.9	15.1	16.6	10:5	125	16.9	15.0	13.6	12.5
12.9	13.9	15.1	16.7	10:6	126	16.9	15.1	13.7	12.5
12.9	13.9	15.1	16.7	10:7	127	17.0	15.1	13.7	12.6
13.0	13.9	15.2	16.8	10:8	128	17.0	15.2	13.7	12.6
13.0	14.0	15.2	16.8	10:9	129	17.1	15.2	13.8	12.6
13.0	14.0	15.2	16.9	10:10	130	17.1	15.3	13.8	12.7
13.0	14.0	15.3	16.9	10:11	131	17.2	15.3	13.8	12.7
13.1	14.1	15.3	16.9	11:0	132	17.2	15.3	13.9	12.7
13.1	14.1	15.3	17.0	11:1	133	17.3	15.4	13.9	12.8
13.1	14.1	15.4	17.0	11:2	134	17.4	15.4	14.0	12.8
13.1	14.1	15.4	17.1	11:3	135	17.4	15.5	14.0	12.8
13.2	14.2	15.5	17.1	11:4	136	17.5	15.5	14.0	12.9
13.2	14.2	15.5	17.2	11:5	137	17.5	15.6	14.1	12.9
13.2	14.2	15.5	17.2	11:6	138	17.6	15.6	14.1	12.9
13.2	14.3	15.6	17.3	11:7	139	17.7	15.7	14.2	13.0
13.3	14.3	15.6	17.3	11:8	140	17.7	15.7	14.2	13.0
13.3	14.3	15.7	17.4	11:9	141	17.8	15.8	14.3	13.0
13.3	14.4	15.7	17.4	11:10	142	17.9	15.8	14.3	13.1
13.4	14.4	15.7	17.5	11:11	143	17.9	15.9	14.3	13.1
13.4	14.5	15.8	17.5	12:0	144	18.0	16.0	14.4	13.2

Boy's BMI (kg/m ²)				Age	Girl's BMI (kg/m ²)				
-3SD	-2SD	-1SD	Median	Year: Months	Months	Median	-1SD	-2SD	-3SD
13.4	14.5	15.8	17.6	12:1	145	18.1	16.0	14.4	13.2
13.5	14.5	15.9	17.6	12:2	146	18.1	16.1	14.5	13.2
13.5	14.6	15.9	17.7	12:3	147	18.2	16.1	14.5	13.3
13.5	14.6	16.0	17.8	12:4	148	18.3	16.2	14.6	13.3
13.6	14.6	16.0	17.8	12:5	149	18.3	16.2	14.6	13.3
13.6	14.7	16.1	17.9	12:6	150	18.4	16.3	14.7	13.4
13.6	14.7	16.1	17.9	12:7	151	18.5	16.3	14.7	13.4
13.7	14.8	16.2	18.0	12:8	152	18.5	16.4	14.8	13.5
13.7	14.8	16.2	18.0	12:9	153	18.6	16.4	14.8	13.5
13.7	14.8	16.3	18.1	12:10	154	18.7	16.5	14.8	13.5
13.8	14.9	16.3	18.2	12:11	155	18.7	16.6	14.9	13.6
13.8	14.9	16.4	18.2	13:0	156	18.8	16.6	14.9	13.6
13.8	15.0	16.4	18.3	13:1	157	18.9	16.7	15.0	13.6
13.9	15.0	16.5	18.4	13:2	158	18.9	16.7	15.0	13.7
13.9	15.1	16.5	18.4	13:3	159	19.0	16.8	15.1	13.7
14.0	15.1	16.6	18.5	13:4	160	19.1	16.8	15.1	13.8
14.0	15.2	16.6	18.6	13:5	161	19.1	16.9	15.2	13.8
14.0	15.2	16.7	18.6	13:6	162	19.2	16.9	15.2	13.8
14.1	15.2	16.7	18.7	13:7	163	19.3	17.0	15.2	13.9
14.1	15.3	16.8	18.7	13:8	164	19.3	17.0	15.3	13.9
14.1	15.3	16.8	18.8	13:9	165	19.4	17.1	15.3	13.9
14.2	15.4	16.9	18.9	13:10	166	19.4	17.1	15.4	14.0
14.2	15.4	17.0	18.9	13:11	167	19.5	17.2	15.4	14.0
14.3	15.5	17.0	19.0	14:0	168	19.6	17.2	15.4	14.0
14.3	15.5	17.1	19.1	14:1	169	19.6	17.3	15.5	14.1
14.3	15.6	17.1	19.1	14:2	170	19.7	17.3	15.5	14.1
14.4	15.6	17.2	19.2	14:3	171	19.7	17.4	15.6	14.1
14.4	15.7	17.2	19.3	14:4	172	19.8	17.4	15.6	14.1
14.5	15.7	17.3	19.3	14:5	173	19.9	17.5	15.6	14.2
14.5	15.7	17.3	19.4	14:6	174	19.9	17.5	15.7	14.2
14.5	15.8	17.4	19.5	14:7	175	20.0	17.6	15.7	14.2
14.6	15.8	17.4	19.5	14:8	176	20.0	17.6	15.7	14.3
14.6	15.9	17.5	19.6	14:9	177	20.1	17.6	15.8	14.3
14.6	15.9	17.5	19.6	14:10	178	20.1	17.7	15.8	14.3
14.7	16.0	17.6	19.7	14:11	179	20.2	17.7	15.8	14.3
14.7	16.0	17.6	19.8	15:0	180	20.2	17.8	15.9	14.4
14.7	16.1	17.7	19.8	15:1	181	20.3	17.8	15.9	14.4
14.8	16.1	17.8	19.9	15:2	182	20.3	17.8	15.9	14.4
14.8	16.1	17.8	20.0	15:3	183	20.4	17.9	16.0	14.4
14.8	16.2	17.9	20.0	15:4	184	20.4	17.9	16.0	14.5
14.9	16.2	17.9	20.1	15:5	185	20.4	17.9	16.0	14.5
14.9	16.3	18.0	20.1	15:6	186	20.5	18.0	16.0	14.5
15.0	16.3	18.0	20.2	15:7	187	20.5	18.0	16.1	14.5

Boy's BMI (kg/m ²)				Age		Girl's BMI (kg/m ²)			
-3SD	-2SD	-1SD	Median	Year: Months	Months	Median	-1SD	-2SD	-3SD
15.0	16.3	18.1	20.3	15:8	188	20.6	18.0	16.1	14.5
15.0	16.4	18.1	20.3	15:9	189	20.6	18.1	16.1	14.5
15.0	16.4	18.2	20.4	15:10	190	20.6	18.1	16.1	14.6
15.1	16.5	18.2	20.4	15:11	191	20.7	18.1	16.2	14.6
15.1	16.5	18.2	20.5	16:0	192	20.7	18.2	16.2	14.6
15.1	16.5	18.3	20.6	16:1	193	20.7	18.2	16.2	14.6
15.2	16.6	18.3	20.6	16:2	194	20.8	18.2	16.2	14.6
15.2	16.6	18.4	20.7	16:3	195	20.8	18.2	16.2	14.6
15.2	16.7	18.4	20.7	16:4	196	20.8	18.3	16.2	14.6
15.3	16.7	18.5	20.8	16:5	197	20.9	18.3	16.3	14.6
15.3	16.7	18.5	20.8	16:6	198	20.9	18.3	16.3	14.7
15.3	16.8	18.6	20.9	16:7	199	20.9	18.3	16.3	14.7
15.3	16.8	18.6	20.9	16:8	200	20.9	18.3	16.3	14.7
15.4	16.8	18.7	21.0	16:9	201	21.0	18.4	16.3	14.7
15.4	16.9	18.7	21.0	16:10	202	21.0	18.4	16.3	14.7
15.4	16.9	18.7	21.1	16:11	203	21.0	18.4	16.3	14.7
15.4	16.9	18.8	21.1	17:0	204	21.0	18.4	16.4	14.7
15.5	17.0	18.8	21.2	17:1	205	21.1	18.4	16.4	14.7
15.5	17.0	18.9	21.2	17:2	206	21.1	18.4	16.4	14.7
15.5	17.0	18.9	21.3	17:3	207	21.1	18.5	16.4	14.7
15.5	17.1	18.9	21.3	17:4	208	21.1	18.5	16.4	14.7
15.6	17.1	19.0	21.4	17:5	209	21.1	18.5	16.4	14.7
15.6	17.1	19.0	21.4	17:6	210	21.2	18.5	16.4	14.7
15.6	17.1	19.1	21.5	17:7	211	21.2	18.5	16.4	14.7
15.6	17.2	19.1	21.5	17:8	212	21.2	18.5	16.4	14.7
15.6	17.2	19.1	21.6	17:9	213	21.2	18.5	16.4	14.7
15.7	17.2	19.2	21.6	17:10	214	21.2	18.5	16.4	14.7
15.7	17.3	19.2	21.7	17:11	215	21.2	18.6	16.4	14.7
15.7	17.3	19.2	21.7	18:0	216	21.3	18.6	16.4	14.7
15.7	17.3	19.3	21.8	18:1	217	21.3	18.6	16.5	14.7
15.7	17.3	19.3	21.8	18:2	218	21.3	18.6	16.5	14.7
15.7	17.4	19.3	21.8	18:3	219	21.3	18.6	16.5	14.7
15.8	17.4	19.4	21.9	18:4	220	21.3	18.6	16.5	14.7
15.8	17.4	19.4	21.9	18:5	221	21.3	18.6	16.5	14.7
15.8	17.4	19.4	22.0	18:6	222	21.3	18.6	16.5	14.7
15.8	17.5	19.5	22.0	18:7	223	21.4	18.6	16.5	14.7
15.8	17.5	19.5	22.0	18:8	224	21.4	18.6	16.5	14.7
15.8	17.5	19.5	22.1	18:9	225	21.4	18.7	16.5	14.7
15.8	17.5	19.6	22.1	18:10	226	21.4	18.7	16.5	14.7
15.8	17.5	19.6	22.2	18:11	227	21.4	18.7	16.5	14.7
15.9	17.6	19.6	22.2	19:0	228	21.4	18.7	16.5	14.7

This table has been constructed using the WHO reference tables for BMI-for-age z-scores for 5 to 19 years.

3D: BODY MASS INDEX REFERENCE CARD

Height (cm)	Body Mass Index					
	18.5	18	17.5	17	16.5	16
140	36.3	35.3	34.3	33.3	32.3	31.4
141	36.8	35.8	34.8	33.8	32.8	31.8
142	37.3	36.3	35.3	34.3	33.3	32.3
143	37.8	36.8	35.8	34.8	33.7	32.7
144	38.4	37.3	36.3	35.3	34.2	33.2
145	38.9	37.8	36.8	35.7	34.7	33.6
146	39.4	38.4	37.3	36.2	35.2	34.1
147	40.0	38.9	37.8	36.7	35.7	34.6
148	40.5	39.4	38.3	37.2	36.1	35.0
149	41.1	40.0	38.9	37.7	36.6	35.5
150	41.6	40.5	39.4	38.3	37.1	36.0
151	42.2	41.0	39.9	38.8	37.6	36.5
152	42.7	41.6	40.4	39.3	38.1	37.0
153	43.3	42.1	41.0	39.8	38.6	37.5
154	43.9	42.7	41.5	40.3	39.1	37.9
155	44.4	43.2	42.0	40.8	39.6	38.4
156	45.0	43.8	42.6	41.4	40.2	38.9
157	45.6	44.4	43.1	41.9	40.7	39.4
158	46.2	44.9	43.7	42.4	41.2	39.9
159	46.8	45.5	44.2	43.0	41.7	40.4
160	47.4	46.1	44.8	43.5	42.2	41.0
161	48.0	46.7	45.4	44.1	42.8	41.5
162	48.6	47.2	45.9	44.6	43.3	42.0
163	49.2	47.8	46.5	45.2	43.8	42.5
164	49.8	48.4	47.1	45.7	44.4	43.0

Height (cm)	Body Mass Index					
	18.5	18	17.5	17	16.5	16
165	50.4	49.0	47.6	46.3	44.9	43.6
166	51.0	49.6	48.2	46.8	45.5	44.1
167	51.6	50.2	48.8	47.4	46.0	44.6
168	52.2	50.8	49.4	48.0	46.6	45.2
169	52.8	51.4	50.0	48.6	47.1	45.7
170	53.5	52.0	50.6	49.1	47.7	46.2
171	54.1	52.6	51.2	49.7	48.2	46.8
172	54.7	53.3	51.8	50.3	48.8	47.3
173	55.4	53.9	52.4	50.9	49.4	47.9
174	55.0	54.5	53.0	51.5	50.0	48.4
175	56.7	55.1	53.6	52.1	50.5	49.0
176	57.3	55.8	54.2	52.7	51.1	49.6
177	58.0	56.4	54.8	53.3	51.7	50.7
178	58.6	57.0	55.4	53.9	52.3	50.7
179	59.3	57.7	56.1	54.5	52.9	51.3
180	59.9	58.3	56.7	55.1	53.5	51.8
181	60.6	59.0	57.3	55.7	54.1	52.4
182	61.3	59.6	58.0	56.3	54.7	53.0
183	62.0	60.3	58.6	56.9	55.3	53.6
184	62.6	60.9	59.2	57.6	55.9	54.2
185	63.3	61.6	59.9	58.2	56.5	54.8
186	64.0	62.3	60.5	58.8	57.1	55.4
187	64.7	62.9	61.2	59.4	57.7	56.0
188	65.4	63.6	61.9	60.1	58.3	56.6
189	66.1	64.3	62.5	60.7	58.9	57.2
190	66.8	65.0	63.2	61.4	59.6	57.8

ANNEX 4

PROTOCOL FOR THE INPATIENT MANAGEMENT OF THE SEVERELY MALNOURISHED

STEP	PREVENTION	WARNING SIGNS	IMMEDIATE ACTION
1. Treat or prevent Hypoglycemia (Low blood sugar) Hypoglycemia is a blood glucose <3mmol/L	For all children:- 1. Feed straightaway and then every 2-3 hours, day and night. 2. Encourage mothers to watch for any deterioration, help feed and keep child	1. Low temperature (hypothermia) noted on routine check. 2. Lethargy, limpness and loss of consciousness. 3. Child can becomes drowsy.	Perform Dextrostix test on admission, before giving glucose or feeding. If hypoglycemia is suspected and no dextrostix are available or if it is not possible to get enough blood for test, assume that the child has hypoglycemia and give treatment immediately without laboratory confirmation. If conscious: 1. Give a bolus of 10% glucose (50ml) or sugar solution (1 rounded teaspoon sugar in 3 tablespoons of water). Bolus of 10% glucose is best, but give sugar solution or F75 formula rather than wait for glucose. 2. Start feeding straightaway: Feed 2-hourly (12 feeds in 24 hours). Use feed chart to find amount to give and feed every 2-3 hours day and night. If unconscious , give glucose IV (5ml/kg of sterile 10% glucose), followed by 50 ml of 10% glucose or sucrose by NG tube.
2. Treat or prevent Hypothermia (Low temperature) Hypothermia is a rectal temperature <35.50C (95.90F) or an underarm temperature <350C (950F).	For all children:- 1 Feed straightaway and then every 2-3 hours, day and night. 2. Keep warm. 3. Use the kangaroo technique, cover with a blanket. Let mother sleep with child to keep child warm.	Low temperature NOTE: Hypothermia in malnourished children often indicates coexisting hypoglycemia and serious infection.	Take rectal temperature on admission. (Ensure thermometer is well shaken down). If the rectal temperature is below 35.50C: 1. Feed straightaway (or start rehydration if needed). 2. Re-warm. Put the child on the mother's bare chest (skin to skin contact) and cover them, OR clothe the child including the head, cover with a warmed blanket and place a heater or lamp nearby.

	3. Keep room warm, no draughts. 4. Keep bedding/clothes dry. Dry carefully after bathing (do not bathe if very ill). 5. Avoid exposure during examinations, bathing. 6. Use a heater or incandescent lamp with caution, do not use hot bottle water or fluorescent lamp.		3. Feed 2-hourly (12 feeds in 24 hours). Monitor during re-warming • ☐ Take rectal temperature every two hours: stop re-warming when it rises above 36.50C • ☐ Take every 30 minutes if heater is used because the child may become overheated.
3. Treat or prevent dehydration (Too little fluid in the body)	When a child has watery diarrhoea, give ReSoMal between feeds after each loose stool. As a guide, give 50-100ml after each watery stool if child is aged <2 years, or 100-200ml if aged 2 years or older.	Profuse watery diarrhoea, thirst, hypothermia, sunken eyes, weak or absent radial pulse, cold hands and feet, reduced urine output.	DO NOT GIVE IV FLUIDS EXCEPT IN SHOCK (see separate protocol for treating shock) If dehydrated: 1. Give ReSoMal 5ml/kg every 30 minutes for 2 hours (orally or by nasogastric tube) 2. Then give 5-10ml/kg in alternate hours for up to 10 hours (i.e. give ReSoMal and F75 formula in alternate hours). Use Initial Management Chart. 3. Stop ReSoMal when there are 3 or more hydration signs, or signs of over-hydration. Monitor during rehydration for signs of over-hydration: • ☐ increasing pulse and respiratory rate • ☐ increasing oedema and puffy eyelids Check for signs at least hourly. Stop if pulse increases by 25 beats/minute and respiratory rate by 5 breaths/minute.

4. Correct electrolyte imbalance (Too little potassium and magnesium, and too much sodium)	1. Use ReSoMal and F75 formula as these are low in sodium. 2. Do not add salt to food introduced during the rehabilitation phase.	Oedema develops or worsens.	Follow feeding recommendation, as well as recommendation or prevention or treatment of dehydration: Extra potassium (4mmol/kg body weight) and magnesium (0.6mmol/kg) are important. For potassium, add CMV or electrolyte/mineral solution or 10% potassium chloride solution to feeds and to prepare ReSoMal. If these are unavailable, give crushed Slow K ½ tablet/kg body weight daily. For magnesium, add CMV or electrolyte/mineral solution to feeds and to ReSoMal. NOTE: Potassium and magnesium are already added in ready to dilute F75 and F100 packets.

	1. Keep malnutrition ward in a separate room 2. Reduce overcrowding if possible. 3. Wash hands before preparing feeds and before and after dealing with any child. 4. Give measles vaccine to unimmunized children over 6 months of age. 5. Good nursing care	NOTE: The usual signs of infection, such as fever, are often absent so assume all severely malnourished children have infection and treat with antibiotics. Hypothermia and hypoglycaemia are signs of severe infection. NOTE: ensure all doses are given. Give them on time.	Starting on the first day, give broad-spectrum antibiotics* to all children. 1. If the child has no complications, give:- Cotrimoxazole 5 ml paediatric suspension orally twice a day for 5 days OR 2. If the child is severely ill (apathetic, lethargic) or has complications (hypoglycemia, hypothermia, raw skin/fissures, respiratory tract or urinary tract infection) give IV/IM ampicillin AND gentamicin. ☑ Ampicillin: 50mg/kg IM/IV 6-hourly for 2 days, then oral amoxycillin 15mg/kg 8-hourly for 5 days or if amoxycillin is not available continue with ampicillin but give orally, 50mg/kg 6-hourly ☑ Gentamicin: 7.5mg/kg IM/IV once daily for 7 days. In addition, give Metronidazole according to national policy. If a child fails to improve after 48 hours ADD chloramphenicol 25mg/kg 8 hourly IM/IV for 5 day. * Should be in line with national policy. For parasitic worms (helminthiasis, whipworm): treatment should be delayed until the rehabilitation phase. For children over 2 years: Give Albendazole (400 mg, single dose) and Mebendazole 100mg orally twice a day for three days. For children under 2 years: Give pyrantel (10 mg/kg, single dose) or ascariasis with pyrantel or piperazine.
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STEP	MANAGEMENT
6. Correct micronutrient deficiencies	Give Vitamin A on day 1. If under 6 months give 50,000 units; if 6-12 months give 100,000 units; and if >12 months give 200,000 units. If the child has any signs of vitamin A deficiency, repeat this dose on day 2 and day 14. Give the following daily: - Folic acid : 5mg on day 1; then 1 mg daily if micronutrients not included in the feeds. - Multivitamin syrup 5 ml only if micronutrients not included in the feeds. - Zinc (2mg/kg body weight) and copper (0.3mg/kg body weight) if micronutrients not included in the feeds - Start iron (3mg/kg/day) after 2 days on F100 catch-up formula. (Do not give iron in the stabilisation phase and do not give iron if child receiving RUTF) NOTE: Vitamin A, folic acid, multivitamins, zinc and copper are already added in F75 and F100 packets. They are also in CMV.
7. Begin cautious feeding stabilization phase and transition phase	Stabilisation phase: - Give F75 formula (see feed chart for amounts). These provide 130ml/kg/day. - Give 8-12 feeds over 24 hours - If the child has oedema +++, reduce the volume to 100 ml/kg/day (see feed chart for amounts) - If the child has poor appetite, encourage the mother to coax and support the child finishing the feed. If eating 80% or less of the amount offered for 2 consecutive feeds, use a nasogastric tube. If in doubt, see feed chart for intakes below which tube feeding is needed. - Keep a 24-hour intake chart. Measure feeds carefully. Record leftovers. - If the child is breastfed, encourage continued breastfeeding but also give F75. - Transfer to F100 formula as soon as appetite has returned (usually within one week) and oedema has been lost or is reduced - Weigh daily and plot weight. Transition phase: - Change to F100: ☐ for 2 days, replace F75 with the same amount of F100 on the next day increase each feed by 10ml until some feed remains uneaten.

8. Increase feeding to recover weight loss: “Catch-up growth” rehabilitation phase	1. Give 6 feeds over 24 hours. These can be 3 feeds of F100 and 3 specially modified family meals, high in energy and protein. Ready-to-use therapeutic food is an alternative to F100, recommended to be given if the child is being referred to outpatient care. 2. Encourage the child to eat as much as possible, so the child can gain weight rapidly. If the child is finishing everything, offer more and increase subsequent feeds. Make sure that the child is actively fed. 3. Weigh daily and plot weight.
9. Stimulate emotional and sensorial development: Loving care, play and stimulation	1. Provide tender loving care 2. Help and encourage mothers to comfort, feed, and play with their children 3. Give structured play when the child is well enough.
10. Prepare for discharge and follow-up.	1. Obtain information on family background and socio-economic status. 2. Instruct mothers how to modify family foods, how often to feed and how much to give. 3. Establish a link with community health workers for home follow-up. 4. Write full clinical summary in patient-held card. 5. Send a referral letter to the clinic. 6. If outpatient management of severe malnutrition exists, inform the mother of the closest outpatient care referral point to her home and give the mother a weekly ration of RUTF for home based rehabilitation.

ANNEX 5

Target Weight for Rehydration

TARGET WEIGHT FOR REHYDRATION (DO NOT EXCEED)								
Weight before rehydration	Target weight		Weight before rehydration	Target weight		Weight before rehydration	Target weight	
	Lowest	Highest		Lowest	Highest		Lowest	Highest
2.0	2.04	2.10	3.6	3.67	3.78	5.2	5.30	5.46
2.1	2.14	2.21	3.7	3.77	3.89	5.3	5.41	5.57
2.2	2.24	2.31	3.8	3.88	3.99	5.4	5.51	5.67
2.3	2.35	2.42	3.9	3.98	4.10	5.5	5.61	5.78
2.4	2.45	2.52	4.0	4.08	4.20	5.6	5.71	5.88
2.5	2.55	2.63	4.1	4.18	4.31	5.7	5.81	5.99
2.6	2.65	2.73	4.2	4.28	4.41	5.8	5.92	6.09
2.7	2.75	2.84	4.3	4.39	4.52	5.9	6.02	6.20
2.8	2.86	2.94	4.4	4.49	4.62	6.0	6.12	6.30
2.9	2.96	3.05	4.5	4.59	4.73	6.1	6.22	6.41
3.0	3.06	3.15	4.6	4.69	4.83	6.2	6.32	6.51
3.1	3.16	3.26	4.7	4.79	4.94	6.3	6.43	6.62
3.2	3.26	3.36	4.8	4.90	5.04	6.4	6.53	6.72
3.3	3.37	3.47	4.9	5.00	5.15	6.5	6.63	6.83
3.4	3.47	3.57	5.0	5.10	5.25	6.6	6.73	6.93
3.5	3.57	3.68	5.1	5.20	5.36	6.7	6.83	7.04

TARGET WEIGHT FOR REHYDRATION (DO NOT EXCEED)						
Weight before rehydration	Target weight		Weight before rehydration	Target weight		Weight before rehydration
	Lowest	Highest		Lowest	Highest	
6.8	6.94	7.14	8.6	8.77	9.03	10.4
6.9	7.04	7.25	8.7	8.87	9.14	10.5
7.0	7.14	7.35	8.8	8.98	9.24	10.6
7.1	7.24	7.46	8.9	9.08	9.35	10.7
7.2	7.34	7.56	9.0	9.18	9.45	10.8
7.3	7.45	7.67	9.1	9.28	9.56	10.9
7.4	7.55	7.77	9.2	9.38	9.66	11.0
7.5	7.65	7.88	9.3	9.49	9.77	11.1
7.6	7.75	7.98	9.4	9.59	9.87	11.2
7.7	7.85	8.09	9.5	9.69	9.98	11.3
7.8	7.96	8.19	9.6	9.79	10.08	11.4
7.9	8.06	8.30	9.7	9.89	10.19	11.5
8.0	8.16	8.40	9.8	10.00	10.29	11.6
8.1	8.26	8.51	9.9	10.10	10.40	11.7
8.2	8.36	8.61	10.0	10.20	10.5	11.8
8.3	8.47	8.72	10.1	10.30	10.61	11.9
8.4	8.57	8.82	10.2	10.40	10.71	12.0
8.5	8.67	8.93	10.3	10.51	10.82	
						10.61
						10.71
						10.81
						10.91
						11.02
						11.12
						11.22
						11.32
						11.42
						11.53
						11.63
						11.73
						11.83
						11.93
						12.04
						12.14
						12.24
						12.39
						12.50
						12.60
						12.71
						12.82
						12.93
						13.04
						13.15
						13.26
						13.37
						13.48
						13.59
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						13.81
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						18.76
						18.87
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						19.31
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						19.53
						19.64
						19.75
						19.86
						19.97
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						20.30
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						36.91
						37.02
						37.13
						37.24
						37.35
						37.46
						37.57
						37.68
						37.79
						37.90
						38.01
						38.12
						38.23
						38.34
						38.45
						38.56
						38.67
						38.78
						38.89
						39.00
						39.11
						39.22
						39.33
						39.44
						39.55
						39.66
						39.77
						39.88
						39.99
						40.10
						40.21
						40.32
						40.43
						40.54
						40.65
						40.76
						40.87
						40.98
						41.09

ANNEX 6

ANTIBIOTICS REFERENCE CARD

Summary: Antibiotics for Severely Malnourished Children

IF:	GIVE:	
NO COMPLICATIONS	Amoxicillin oral: 25 mg/kg every 12 hours for 5 days	
COMPLICATIONS (shock, hypoglycaemia, hypothermia, severe dermatosis, infections, IMCI danger signs, severe anaemia, cardiac failure, and corneal ulceration)	Gentamicin ¹ IV or IM (5 mg/kg), once daily for 7 days, plus:	
	Ampicillin IV or IM (50 mg/kg), every 6 hours for 2 days	Followed by: Amoxicillin Oral: 25 mg/kg, every 12 hours for 5 days
If resistance to amoxicillin and ampicillin, and presence of medical complications:	See details of drug use below the drug kit (support material):	
	In the case of sepsis or septic shock: IM ceftriaxone or cefotaxime (For children / infants beyond one month: 50 mg / kg every 8 to 12 hours) + oral ciprofloxacin (5 to 15 mg / kg 2 times per day).	
	If suspected staphylococcal infections: Add: cloxacillin (12, 5 to 50 mg /kg / dose four times a day, depending on the severity of the infection).	
If a specific infection requires an additional antibiotic, ALSO GIVE:	Specific antibiotic are directed on the drug kit (see support materials). Refer to the drug kit for severe acute malnutrition with medical complications.	

¹If the child is not passing urine, gentamicin may accumulate in the body and cause deafness. Do not give the second dose until the child is passing urine.

²If amoxicillin is not available, give ampicillin, 50 mg/kg orally every 6 hours for 5 days.

Doses for Specific Formulations

ANTIBIOTIC	ROUTE / DOSE/ FREQUENCY/ DURATION	FORMULATION
Amoxicillin	Oral: 25 mg/kg every 12 hours for 5 days	Tablet, 250 mg
		Syrup, 125 mg/5ml
Ampicillin	Oral: 50 mg/kg every 6 hours for 5 days	Tablet, 250 mg
	IV/IM: 50 mg/kg every 6 hours for 2 days	Vial of 500 mg mixed with 2.1 ml sterile water to give 500 mg /2.5 ml
Metronidazole	Oral: maximum 5 mg/kg twice a day for a maximum of 4 days IV/IM	Syrup, 200 mg SMX + 40 mg TMP per 5 ml
		Suspension, 40 mg / ml
Benzylpenicillin	IV or IM: 50 000 units / kg every 6 hours for 5 days	500 mg / 100 ml
		IV: vial of 600 mg mixed with 9.6 ml sterile water to give 1 000 000 units /10 ml IM: vial of 600 mg mixed with 1.6 ml sterile water to give 1 000 000 units /2ml

Doses of Iron Syrup for a Common Formulation

Weight of child	Dose of Iron Syrup: Ferrous Fumarate 100 mg per 5 ml (20 mg elemental iron per ml)
3 up to 6 kg	0.5 ml
6 up to 10 kg	0.75 ml
10 up to 15kg	1 ml

Doses for Selected Antibiotics, for Specific Formulations and Body Weights

ANTIBIOTIC	ROUTE / DOSE FREQUENCY/ DURATION	FORMULATION	DOSES FOR SPECIFIC BODY WEIGHTS (Use closest weight)									
Gentamicin	IV or IM: 5 mg/kg once daily for 7 days	IV/IM: vial containing 20 mg (2 ml at 10mg/ml), undiluted	3kg	4kg	5kg	6kg	7kg	8kg	9kg	10kg	11kg	12kg
			2.25ml	3ml	3.75ml	4.5ml	5.25ml	6ml	6.75ml	7.5ml	8.25ml	9ml
		IV/IM: vial containing 80 mg (2 ml at 40 mg/ml) mixed with 6 ml sterile water to give 80 mg/ 8 ml	0.5ml	0.75ml	0.9ml	1.1ml	1.3ml	1.5ml	1.7ml	1.9ml	2ml	2.25ml
		IV/IM: vial containing 80 mg (2 ml at 40 mg/ml), undiluted										

ANNEX 7

RECIPES FOR F-75 AND F-100

ALTERNATIVES	INGREDIENT	AMOUNT FOR F-75
Use one of the following recipes for F-75 (Note that cooking facilities are needed):		
If you have dried whole milk	Dried whole milk	35 g
	Sugar	70 g
	Cereal flour	35 g
	Vegetable oil	20 g
	Complex Mineral and Vitamin mix*	½ leveled scoop
	Water to make 1000 ml	1000 ml**
If you have fresh cow's milk, or full-cream (whole) long life milk	Milk	300 ml
	Sugar	70 g
	Cereal flour	35 g
	Vegetable oil	20 g
	Complex Mineral and Vitamin mix*	½ leveled scoop
	Water to make 1000 ml	1000 ml**
Use one of the following recipes for F-100:		
If you have fresh cow's milk, or full-cream (whole) long life milk	Fresh cow's milk, or full- cream (whole) long life milk	880 ml
	Sugar	75 g
	Vegetable oil	20 g
	Complex Mineral and Vitamin mix*	½ leveled scoop
	Water to make 1000 ml	1000 ml**
If you have dried whole milk	Dried whole milk	110 g
	Sugar	50 g
	Vegetable oil	30 g
	Complex Mineral and Vitamin mix*	½ leveled scoop
	Water to make 1000 ml	1000 ml**

Where CMV is not available, a mineral mix should be used (20 ml for one liter of preparation). Contents of mineral mix are given in annex 3 Module Introduction

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



Directions for making cooked F-75 with cereal flour (top recipes)

You will need a 1-litre electric blender or a hand whisk (rotary whisk or balloon whisk), a 1-litre measuring jug, a cooking pot, and a stove or hot plate. Amounts of ingredients are listed on the previous page. Cereal flour may be maize meal, rice flour, or whatever is the staple cereal in the area.

It is important to use cooled, boiled water even for recipes that involve cooking. The cooking is only 4 minutes of gentle boiling, and this may not be enough to kill all pathogens in the water. The water should be cooled because adding boiling water to the powdered ingredients may create lumps.

If using an electric blender:

1. Put about 200 ml of the boiled, cooled water into the blender. (If using liquid milk instead of milk powder, omit this step.)
2. Add the flour, milk or milk powder, sugar, oil and blend.
3. Add boiled, cooled water to the 1000 ml mark and blend at a high speed.
4. Transfer the mixture to a cooking pot and boil gently for 4 minutes while stirring continuously.
5. Some water will evaporate while cooking, so transfer the mixture back to the blender after cooking and add enough boiled, cooled water to make 1000 ml. Add the CMV and blend again.

If using a hand whisk:

1. Mix the flour, milk or milk powder, sugar and oil in a 1-litre measuring jug. (If using milk powder, this will be a paste.)
2. Slowly add boiled, cooled water up to 1000 ml mark.
3. Transfer to cooking pot and whisk the mixture vigorously.
4. Boil gently for 4 minutes while stirring continuously.
5. Some water will evaporate while cooking, so transfer the mixture back to the measuring jug after cooking and add enough boiled cooled water to make 1000 ml. Add the CMV and whisk again

Directions for making non-cooked F-100 recipes**If using an electric blender:**

1. Put about 200 ml of the boiled, cooled water into the blender. (If using liquid milk instead of milk powder, omit this step.)
2. Add the required amounts of milk or milk powder, sugar, oil, and CMV.
3. Add boiled cooled water to the 1000 ml mark and then blend at high speed.*

If using a hand whisk:

1. Mix the required amounts of milk powder and sugar in a 1-litre measuring jug; then add the oil and stir well to make a paste (If you use liquid milk, mix the sugar and oil, and then add the milk.)
2. Add CMV, and slowly add boiled, cooled water up to 1000 ml mark, while stirring all the time¹.*
3. Whisk vigorously.

If CMV is not available, use Mineral mix

Mineral mix is included in each recipe for F-75 and F-100. It is also used in making ReSoMal. The contents of the mineral mix are listed in Annex D. The mix contains potassium, magnesium, and other essential minerals. It **must** be included in F-75 and F-100 to correct electrolyte imbalance. The mineral mix may be made in the pharmacy of the hospital

Vitamins

Vitamins are also needed in or with the feed. The vitamin mix described in Annex D cannot be made in the hospital pharmacy because amounts are so small. Thus, children are usually given multivitamin drops as well. Recommended vitamins to be included in the multivitamin preparation are listed in Annex D. The multivitamin preparation should **not** include iron.

If CMV is used, separate multivitamin drops are not needed.

¹ Whether using a blender or a whisk, it is important to measure up to the 1000 ml mark before blending/whisking. Otherwise, the mixture becomes too frothy to judge where the liquid line is.

ANNEX 8

F-75, F100 AND RUTF REFERENCE CARDS

F-75 Reference Card Volume of F-75 to give for children of different weights

See reverse for adjusted amounts for children with severe (+++) oedema.

Weight with +++ oedem ^a (kg)	Every 2 hours ^b (12 feeds)	Every 3 hours ^c (8 feeds)	Every 4 hours (6 feeds)	Daily total (130 ml/kg)	80% of daily total (minimum)
2.0	20	30	45	260	210
2.2	25	35	50	286	230
2.4	25	40	55	312	250
2.6	30	45	55	338	265
2.8	30	45	60	364	290
3.0	35	50	65	390	310
3.2	35	55	70	416	335
3.4	35	55	75	442	355
3.6	40	60	80	468	375
3.8	40	60	85	494	395
4.0	45	65	90	520	415
4.2	45	70	90	546	435
4.4	50	70	95	572	460
4.6	50	75	100	598	480
4.8	55	80	105	624	500
5.0	55	80	110	650	520
5.2	55	85	115	676	540
5.4	60	90	120	702	560
5.6	60	90	125	728	580
5.8	65	95	130	754	605
6.0	65	100	130	780	625
6.2	70	100	135	806	645
6.4	70	105	140	832	665
6.6	75	110	145	858	685
6.8	75	110	150	884	705
7.0	75	115	155	910	730
7.2	80	120	160	936	750
7.4	80	120	160	962	770
7.6	85	125	165	988	790
7.8	85	130	170	1014	810
8.0	90	130	175	1040	830
8.2	90	135	180	1066	855
8.4	90	140	185	1092	875
8.6	95	140	190	1118	895
8.8	95	145	195	1144	915
9.0	100	145	200	1170	935
9.2	100	150	200	1196	960
9.4	105	155	205	1222	980
9.6	105	155	210	1248	1000
9.8	110	160	215	1274	1020
10.0	110	160	220	1300	1040

^aVolumes in these columns are rounded to the nearest 5 ml.

^b Feed 2-hourly for at least the first day. Then, when little or no vomiting, modest diarrhoea (<5 watery stools per day), and finishing most feeds, change to 3-hourly feeds.

^cAfter a day on 3-hourly feeds: If no vomiting, less diarrhoea, and finishing most feeds, change to 4-hourly feeds.

Volume of F-75 for Children with Severe (+++) Oedema

Weight with +++ oedema (kg)	Volume of F-75 per feed (ml) ^a			Daily total (100 ml/kg)	80% of daily total ^a (minimum)
	Every 2 hours ^b (12 feeds)	Every 3 hours ^c (8 feeds)	Every 4 hours (6 feeds)		
3.0	25	40	50	300	240
3.2	25	40	55	320	255
3.4	30	45	60	340	270
3.6	30	45	60	360	290
3.8	30	50	65	380	305
4.0	35	50	65	400	320
4.2	35	55	70	420	335
4.4	35	55	75	440	350
4.6	40	60	75	460	370
4.8	40	60	80	480	385
5.0	40	65	85	500	400
5.2	45	65	85	520	415
5.4	45	70	90	540	430
5.6	45	70	95	560	450
5.8	50	75	95	580	465
6.0	50	75	100	600	480
6.2	50	80	105	620	495
6.4	55	80	105	640	510
6.6	55	85	110	660	530
6.8	55	85	115	680	545
7.0	60	90	115	700	560
7.2	60	90	120	720	575
7.4	60	95	125	740	590
7.6	65	95	125	760	610
7.8	65	100	130	780	625
8.0	65	100	135	800	640
8.2	70	105	135	820	655
8.4	70	105	140	840	670
8.6	70	110	145	860	690
8.8	75	110	145	880	705
9.0	75	115	150	900	720
9.2	75	115	155	920	735
9.4	80	120	155	940	750
9.6	80	120	160	960	770
9.8	80	125	165	980	785
10.0	85	125	165	1000	800
10.2	85	130	170	1020	815
10.4	85	130	175	1040	830
10.6	90	135	175	1060	850
10.8	90	135	180	1080	865
11.0	90	140	185	1100	880
11.2	95	140	185	1120	895
11.4	95	145	190	1140	910
11.6	95	145	195	1160	930
11.8	100	150	195	1180	945
12.0	100	150	200	1200	960

^aVolumes in these columns are rounded to the nearest 5 ml.

^b Feed 2-hourly for at least the first day. Then, when little or no vomiting, modest diarrhoea (<5

watery stools per day), and finishing most feeds, change to 3-hourly feeds.

After a day on 3-hourly feeds: If no vomiting, less diarrhoea, and finishing most feeds, change to 4-hourly feeds.

RUTF reference card. Quantities of RUTF in Transition.

Child's weight	Daily weight of RUTF (g)	Number of RUTF sachets per day (if one sachet = 92g).	Child's weight	Daily weight of RUTF (g)	Number of RUTF sachets per day (if one sachet = 92g).
3	83	1	6.6	182	2
3.2	88	1	6.8	188	2
3.4	94	1	7	193	2.2
3.6	99	1.2	7.2	199	2.2
3.8	105	1.2	7.4	204	2.2
4.0	110	1.5	7.6	210	2.5
4.2	116	1.5	7.8	215	2.5
4.4	121	1.5	8	221	2.5
4.6	127	1.5	8.2	226	2.5
4.8	132	1.5	8.4	232	2.5
5	138	1.5	8.6	237	2.75
5.2	144	1.5	8.8	243	2.75
5.4	149	1.75	9	248	2.75
5.6	155	1.75	9.2	254	2.75
5.8	160	1.75	9.4	259	3
6	166	1.75	9.6	265	3
6.2	171	2	9.8	270	3
6.4	177	2	10	276	3

Quantities of RUTF in Rehabilitation (OTC)

WEIGHT OF PATIENT (KG)	SACHETS/DAY	SACHETS/WEEK
3.0-3.4	1.25	9
3.5-3.9	1.5	11
4.0-5.4	2	14
5.5-6.92	2.5	18
7.0-8.4	3	21
8.5-9.4	3.5	25
9.5-10.4	4	28
10.5-11.9	4.5	32
≥ 12.0	5	35
Adolescents 10-14 yrs	5	35
Adolescents > 14 yrs and adults	6	42

F-100 Reference Card - Range of Volumes for Free-Feeding with F-100

Weight of Child (kg)	Range of volumes per 4-hourly feed of F-100 (6 feeds daily)		Range of daily volumes of F-100	
	Minimum (ml)	Maximum (ml) ^a	Minimum (150 ml/kg/day)	Maximum (220 ml/kg/day)
2.0	50	75	300	440
2.2	55	80	330	484
2.4	60	90	360	528
2.6	65	95	390	572
2.8	70	105	420	616
3.0	75	110	450	660
3.2	80	115	480	704
3.4	85	125	510	748
3.6	90	130	540	792
3.8	95	140	570	836
4.0	100	145	600	880
4.2	105	155	630	924
4.4	110	160	660	968
4.6	115	170	690	1012
4.8	120	175	720	1056
5.0	125	185	750	1100
5.2	130	190	780	1144
5.4	135	200	810	1188
5.6	140	205	840	1232
5.8	145	215	870	1276
6.0	150	220	900	1320
6.2	155	230	930	1364
6.4	160	235	960	1408
6.6	165	240	990	1452
6.8	170	250	1020	1496
7.0	175	255	1050	1540
7.2	180	265	1080	1588
7.4	185	270	1110	1628
7.6	190	280	1140	1672
7.8	195	285	1170	1716
8.0	200	295	1200	1760
8.2	205	300	1230	1804
8.4	210	310	1260	1848
8.6	215	315	1290	1892
8.8	220	325	1320	1936
9.0	225	330	1350	1980
9.2	230	335	1380	2024
9.4	235	345	1410	2068
9.6	240	350	1440	2112
9.8	245	360	1470	2156
10.0	250	365	1500	2200

^a Volumes per feed are rounded to the nearest 5 ml.

Danger Signs Related to Pulse, Respirations, and Temperature

Alert a physician if these occur.	Danger sign:	Suggests:
Pulse and Respirations	Confirmed increase in pulse rate of 25 or more beats per minute, along with Confirmed increase in respiratory rate of 5 or more breaths per minute	Infection or Heart failure (possibly from overhydration due to feeding or rehydrating too fast)
Respirations only	Fast breathing: • 50 breaths/minute or more in child 2 months up to 12 months old* • 40 breaths/ minute or more in child 12 months up to 5 years	Pneumonia
Temperature	Any sudden increase or decrease Rectal temperature below 35.5°C (95.9°F)	• Infection • Hypothermia (possibly due to infection, a missed feed, or child being uncovered)

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

- anorexia (loss of appetite)
- change in mental state (e.g., becomes lethargic)
- jaundice (yellowish skin or eyes)
- cyanosis (tongue/lips turning blue from lack of oxygen)
- difficult breathing
- difficulty feeding or waking (drowsy)
- abdominal distention
- new oedema
- large weight changes
- increased vomiting
- petechiae (bruising)

Normal ranges of pulse and respiratory rates:

AGE	NORMAL RANGES (PER MINUTE)	
	PULSE	RESPIRATIONS
2 months up to 12 months	80 up to 160	20 up to 60*
12 months up to 60 months (5 years)	80 up to 140	20 up to 40

**Some children age 2 months up to 12 months will normally breathe fast (i.e. 50 – 60 breaths per minute) without having pneumonia. However, unless the child's normal respiratory rate is known to be high, he should be assumed to have either overhydration or pneumonia. Careful evaluation, taking into account prior fluid administration, will help differentiate the two conditions and plan appropriate treatment.*

ANNEX 9: THERAPEUTIC MILK REFERENCE CARDS FOR INFANTS LESS THAN 6 MONTHS WITH SAM

9A: THERAPEUTIC MILK REFERENCE CARDS FOR INFANTS LESS THAN 6 MONTHS WITH SAM (STABILIZATION PHASE)

Check the weight of the child and see the volume of milk needed for 24 hours and frequency of feeds expected.

- Do not make adjustments for oedema
- Try at all costs to feed very small babies at least 8 times a day.

To give all the necessary volume in 24 hours, when the ideal frequency is impossible to follow, it is better to reduce the number of feed without reducing the total daily amount than to skip meals.

Weight of infant (kg)	Total feed volume in 24 hours (ml)	Volume of feed according to feed frequency (per 24 hours)					
		12 feeds (ml)	10 feeds (ml)	8 feeds (ml)	7 feeds (ml)	6 feeds (ml)	5 feeds (ml)
1.2	240	20	20	25	30	35	45
1.3	240	20	25	30	30	35	45
1.4	240	20	25	30	35	40	45
1.5	240	20	25	30	35	40	45
1.6	300	25	30	35	40	45	55
1.7	300	25	30	35	40	45	55
1.8	300	25	30	40	40	45	60
1.9	300	25	30	40	45	50	60
2.0	300	25	35	40	45	50	65
2.1	300	25	35	40	45	50	65
2.2	360	30	35	45	50	60	70
2.3	360	30	35	45	50	60	70
2.4	360	30	35	45	50	60	70
2.5	420	35	40	50	55	65	75
2.6	420	35	40	50	55	65	75
2.7	420	35	40	50	55	65	75
2.8	420	35	40	55	60	70	80
2.9	420	35	40	55	60	70	80
3.0	480	40	45	60	65	75	85
3.1	480	40	45	60	65	75	85
3.2	480	40	45	60	65	75	85
3.3	480	40	45	60	65	75	85
3.4	480	40	45	60	65	75	85
3.5	480	40	50	65	70	80	95
3.6	480	40	50	65	70	80	95
3.7	480	40	50	65	70	80	95

Weight of infant (kg)	Total feed volume in 24 hours (ml)	Volume of feed according to feed frequency (per 24 hours)					
		12 feeds (ml)	10 feeds (ml)	8 feeds (ml)	7 feeds (ml)	6 feeds (ml)	5 feeds (ml)
3.8	480	40	50	65	70	80	95
3.9	480	40	50	65	70	80	95
4.0	540	45	55	70	75	85	110
4.4	540	45	55	70	75	85	110
4.5	600	50	60	80	90	95	120
4.9	600	50	60	80	90	95	120
5.0	720	60	70	90	100	110	130
4.4	720	60	70	90	100	110	130
4.5	720	60	80	100	110	120	150
4.9	720	60	80	100	110	120	150
6.0	840	70	85	110	120	140	175

How total feed volumes are calculated for initial feeding

The lower the weight of the infant, the higher the volume of feed per kg required. As a guide, the average volume of feed /kg, according to weight in the stabilization phase is:

WEIGHT	FEED ML/KG/24 HOURS*
1.2 - 1.5 kg	180 ml/kg
1.6 - 1.9 kg	170 ml/kg
2.0 - 3.0 kg	155 ml/kg
3.1 - 3.5 kg	145 ml/kg
3.6 - 6.0 kg	130 ml/kg

*average rounded to nearest 5ml therefore absolute volumes per kg body weight may vary a little, these are guidance volumes.

9B: THERAPEUTIC MILK REFERENCE CARD FOR INFANTS LESS THAN 6 MONTHS WITH SAM WHO ARE NOT BREASTFED (TRANSITION PHASE).

Weight of infant kg	Total feed volume in 24 hours (ml)	Volume of feed according to feed frequency (per 24 hours)					
		12 feeds (ml)	10 feeds (ml)	8 feeds (ml)	7 feeds (ml)	6 feeds (ml)	5 feeds (ml)
1.2	300	25	25	35	40	45	60
1.3	300	25	30	40	40	45	60
1.4	300	25	30	40	45	50	60
1.5	300	25	30	40	45	50	60
1.6	360	30	40	45	50	60	70
1.7	360	30	40	45	50	60	70
1.8	360	30	40	50	50	60	80
1.9	360	30	40	50	60	65	80
2.0	360	30	45	50	60	65	85
2.1	360	30	45	50	60	65	

Weight of infant kg	Total feed volume in 24 hours (ml)	Volume of feed according to feed frequency (per 24 hours)					
		12 feeds (ml)	10 feeds (ml)	8 feeds (ml)	7 feeds (ml)	6 feeds (ml)	5 feeds (ml)
2.2	480	40	45	60	65	80	90
2.3	480	40	45	60	65	80	90
2.4	480	40	45	60	65	80	90
2.5	540	45	50	65	70	85	100
2.6	540	45	50	65	70	85	100
2.7	540	45	50	65	70	85	100
2.8	540	45	50	70	80	90	105
2.9	540	45	50	70	80	90	105
3.0	600	50	60	80	85	100	110
3.1	600	50	60	80	85	100	110
3.2	600	50	60	80	85	100	110
3.3	600	50	60	80	85	100	110
3.4	600	50	60	80	85	100	110
3.5	600	50	65	85	90	105	125
3.6	600	50	65	85	90	105	125
3.7	600	50	65	85	90	105	125
3.8	600	50	65	85	90	105	125
3.9	600	50	65	85	90	105	125
4.0	720	60	70	90	100	110	145
4.4	720	60	70	90	100	110	145
4.5	780	65	80	105	125	125	155
4.9	780	65	80	105	125	125	155
5.0	960	80	90	115	130	145	170
4.4	960	80	90	115	130	145	170
4.5	960	80	105	130	145	155	195
4.9	960	80	105	130	145	155	195
6.0	1080	90	110	145	155	180	225

How total feed volumes are calculated for the transition phase (non-breastfed infants)

The lower the weight of the infant, the higher the volume of feed per kg required. As a rough guide, the average volume of feed/kg, according to weight in the transition phase is:

WEIGHT	FEED ML/KG/24 HOURS*
1.2 - 1.5 kg	225 ml/kg
1.6 - 1.9 kg	205 ml/kg
2.0 - 3.0 kg	200 ml/kg
3.1 - 3.5 kg	180 ml/kg
3.6 - 6.0 kg	170 ml/kg

*average rounded to nearest 5ml

Refer to the large table to manage individual infants

9C: THERAPEUTIC MILK FEEDS IN THE RECOVERY PHASE FOR INFANTS LESS THAN 6 MONTHS WHO ARE NOT BEING BREASTFED.

Weight of infant	Total feed volume in 24 hours	Volume of feed according to feed frequency (per 24 hours)					
		12 feeds	10 feeds	8 feeds	7 feeds	6 feeds	5 feeds
1.2	360	30	30	40	50	55	70
1.3	360	30	40	50	50	55	70
1.4	360	30	40	50	55	65	70
1.5	420	35	40	50	60	70	80
1.6	480	40	50	55	65	70	90
1.7	480	40	50	55	65	70	90
1.8	480	40	50	65	65	70	95
1.9	480	40	50	65	70	80	95
2.0	480	40	55	65	70	80	105
2.1	480	40	55	65	70	80	105
2.2	600	50	55	70	80	95	110
2.3	600	50	55	70	80	95	110
2.4	600	50	55	70	80	95	110
2.5	660	55	65	80	90	105	120
2.6	660	55	65	80	90	105	120
2.7	660	55	65	80	90	105	120
2.8	660	55	65	90	95	110	130
2.9	660	55	65	90	95	110	130
3.0	780	65	70	95	105	120	135
3.1	780	65	70	95	105	120	135
3.2	780	65	70	95	105	120	135
3.4	780	65	70	95	105	120	135
3.5	780	65	80	105	110	130	150
3.6	780	65	80	105	110	130	150
3.7	780	65	80	105	110	130	150
3.8	780	65	80	105	110	130	150
3.9	780	65	80	105	110	130	150
4.0	840	70	90	110	120	135	175
4.4	840	70	90	110	120	135	175
4.5	960	80	95	130	145	150	190
4.9	960	80	95	130	145	150	190
5.0	1140	95	110	145	160	175	210
5.4	1140	95	110	145	160	175	210
5.5	1140	95	130	160	175	190	240
5.9	1140	95	130	160	175	190	240
6.0	1320	110	135	175	190	225	280

How total feed volumes are calculated for catch-up/rehabilitation (non-breastfed infants)

The lower the weight of the infant, the higher the volume of feed per kg required. As a rough guide, the average volume of feed/kg, according to weight in the catch up phase is:

WEIGHT	FEED ML/KG/24 HOURS*
1.2 - 1.9 kg	270 ml/kg
2.0 - 3.0 kg	270 ml/kg
3.1 - 3.5 kg	240 ml/kg
3.6 - 6.0 kg	230 ml/kg

*average rounded to nearest 5ml

Refer to the large table to manage individual infants

ANNEX 10

24-HOUR FEED 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 _____ ml						
Time	a. Amount offered (ml)	b. Amount left in cup (ml)	c. Amount taken orally (a – b) (ml)	d. Amount taken by NG, if needed (ml)	e. Estimated amount vomited (ml)	f. Watery diarrhoea (if present, yes)
Column totals			c.	d.	e.	Total yes:
Total volume taken over 24 hours = amount taken orally (c) + amount taken by NG (d) – total amount vomited (e) = ____ ml						

ANNEX 11

DAILY WARD FEED CHART

DATE: _____

WARD: _____

Name of Child	F-75			F100/F-100 Diluted (SDTM)*		
	Number feeds	Amount/ feed (ml)	Total (ml)	Number feeds	Amount/ feed (ml)	Total (ml)
F-75 (total ml) needed for 24 hours				F-100 /F100 Diluted(total ml) needed for 24 hrs		
Amount needed for __ hours*				Amount needed for __ hours**		
Amount to prepare (round up to whole litre)				Amount to prepare (round up to whole litre)		

* F100 Diluted (SDTM) is for infants less than six months

**Divide daily amount by the number of times feeds are prepared each day. For example, if feeds are prepared every 12 hours, divide daily amount by 2.

ANNEX 12

WEIGHT GAIN TALLY SHEET FOR WARD

WEEK OF: dd/mm/yr	GOOD WEIGHT GAIN: 10 g/kg/day	MODERATE WEIGHT GAIN: 5 up to 10 g/ kg/day	POOR WEIGHT GAIN: < 5 g/kg/ day
Number of children on F-100 for entire week:.....			
Totals			
% of children on F-100 in ward			

ANNEX 13

MONITORING CHECKLISTS

CHECKLIST FOR MONITORING FEED PREPARATION

OBSERVE:	YES	NO	COMMENTS
Are ingredients for the recipes available?			
Are ingredients' expiry dates within acceptable ranges?			
Is the correct recipe used for the ingredients that are available?			
Are ingredients stored appropriately and discarded at appropriate times?			
Are containers and utensils kept clean?			
Do kitchen staff (or those preparing feeds) wash hands with soap before preparing food?			
Are the recipes for F-75 and F-100 followed exactly? (If changes are made due to lack of ingredients, are these changes appropriate?)			
Are measurements made exactly with proper measuring utensils (e.g., correct scoops)?			
Are ingredients thoroughly mixed (and cooked, if necessary)?			
Is the appropriate amount of oil mixed in (i.e., not left stuck in the measuring container)?			
Is mineral mix or CMV added correctly?			
Is correct amount of water added to make up a litre of formula? (Staff should not add a litre of water, but just enough to make a litre of formula.)			
Are feeds served at appropriate temperatures?			
Are the feeds consistently mixed when served (i.e. oil is mixed in, not separated)?			
Are correct amounts put in the cup for each child?			
Is leftover prepared food discarded promptly?			
Other:			

CHECKLIST FOR MONITORING WARD PROCEDURES

OBSERVE:	YES	NO	COMMENTS
FEEDING			
Are correct feeds served in correct amounts?			
Are feeds given at the prescribed times, even on nights and weekends?			
Are children held and encouraged to eat (never left alone to feed)?			
Are children fed with a cup (never a bottle)?			
Is food intake (and any vomiting/diarrhoea) recorded correctly after each feed?			
Are leftovers recorded accurately?			
Are amounts of F-75 kept the same throughout the initial phase, even if weight is lost?			
After transition, are amounts of F-100 given freely and increased as the child gains weight?			
WARMING			
Is the room kept between 25°C - 30°C (to the extent possible)?			
Are blankets provided and children kept covered at night?			
Are safe measures used for re-warming children?			
Are temperatures of patients taken and recorded correctly?			
WEIGHING			
Are scales functioning correctly?			
Are scales standardized monthly?			
Are children weighed at about the same time each day?			
Are they weighed about one hour before a feed (to the extent possible)?			
Do staff adjust the scale to zero before weighing?			
Are children consistently weighed without clothes?			
Do staff correctly read weight to the nearest division of the scale?			
Do staff immediately record weights on the child's CCP?			
Are weights correctly plotted on the Weight Chart?			
GIVING ANTIBIOTICS, MEDICATIONS, SUPPLEMENTS			
Are antibiotics given as prescribed (correct dose at correct time)?			
When antibiotics are given, do staff immediately record on the CCP?			
Is folic acid given daily and recorded on the CCP?			
Is vitamin A given according to schedule?			
Is a multivitamin given daily and recorded on the CCP?			
After children are on F-100 for 2 days, is the correct dose of iron given twice daily and recorded on the CCP?			
WARD ENVIRONMENT			
Are surroundings welcoming and cheerful?			
Are mothers offered a place to sit and sleep?			
Are mothers taught/ encouraged to be involved in care?			
Are staff consistently courteous?			
As children recover, are they stimulated and encouraged to move and play?			

CHECKLIST FOR MONITORING HYGIENE

OBSERVE:	YES	NO	COMMENTS
HAND WASHING			
Are there functional hand washing facilities in the ward?			
Do staff consistently wash hands thoroughly with soap?			
Are their nails clean?			
Do they wash hands before handling food?			
Do they wash hands between each patient?			
MOTHERS' CLEANLINESS			
Do mothers have a place to bathe, and do they use it?			
Do mothers wash hands with soap after using the toilet or changing diapers?			
Do mothers wash hands before feeding children?			
BEDDING AND LAUNDRY			
Is bedding changed every day or when soiled/wet?			
Are diapers, soiled towels and rags, etc. stored in bag, then washed or disposed of properly?			
Is there a place for mothers to do laundry?			
Is laundry done in hot water?			
GENERAL MAINTENANCE			
Are floors mopped?			
Is trash disposed of properly?			
Is the ward kept as free as possible of insects and rodents?			
Are surfaces and walls dusted?			
FOOD STORAGE			
Are ingredients and food kept covered and stored at the proper temperature?			
Are leftovers discarded?			
FEEDING UTENSILS WASHING			
Are feeding Utensils washed after each feed?			
Are they washed in hot water with soap?			
TOYS			
Are toys washable?			
Are toys washed regularly, and after each child uses them?			

ANNEX 14

SAMPLE DISCHARGE CARD

This sample discharge card is intended to be folded. This type of card would need to be adapted for local use. A growth chart could be folded inside this card or attached to it.

Danger Signs – Bring Child for Immediate Care if

Not able to drink or
Stops feeding



Diarrhoea than 1 day
or blood in stool



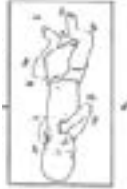
Swelling in feet,
hands, legs or arms



Fever (feels hot)



Convulsion (fits)



Fast or difficult breathing



DISCHARGE CARD

For Child Recovering from Severe Malnutrition
Hospital Name



Child's name: _____ M _____ F Date of birth: _____

Date	Weight (kg)	Ht./Length (cm)	% weight-for-height
Admission			
Discharge			



Instructions for feeding at Home

What to feed? (Include recipe if needed) _____

How much and how often? _____

Medications and Supplements

Give _____ drops _____ (multivitamin preparation) with food once daily.

Give 1 tablet folic acid once daily for _____ days.

Give _____ Iron twice daily for 1 month.

Other: _____

Come for Scheduled Follow-Up Visits

Next Planned Follow-Up		Record of Visits		
Date	Place	Date	Ht/Length	Weight
				%wt-for-ht

Vitamin A – Bring Child for a Dose Every Six Months

Next Dose Vitamin A:		Record of Doses Received:	
Date	Place	Date	Dose

Immunizations Given

Tick or record date given:

BCG	DPT 1	DPT 2	DPT 3
OPV 0	OPV 2	OPV 2	OPV 3
			Measles

Next Immunization

Date	Dose(s) needed



ANNEX 15

SPECIALIZED NUTRITIOUS FOODS SHEET

Objective	Treatment of Severe Acute Malnutrition		Treatment of Moderate Acute Malnutrition		Prevention of Malnutrition			Other
	Ready-to-Use Therapeutic Foods (RUTF)	Ready-to-use Supplementary Foods (RUSF) High quantity*	Fortified Blended Foods	Lipid-based Nutrient Supplements (LNS) Medium quantity*	Fortified Blended Food	Lipid-based Nutrient Supplements (LNS) Low quantity*	Vitamin & Mineral Powder	
Generic Term								High Energy Biscuits (HEB)
Products*								
Purpose	Treatment of uncomplicated severe acute malnutrition with continued breastfeeding	Supplement to treat moderate acute malnutrition with continued breastfeeding	Supplement to treat moderate acute malnutrition with continued breastfeeding	Supplement to the local diet for prevention of acute malnutrition with continued breastfeeding and prevent micronutrient deficiency and stunting	Supplement to the local diet for prevention of acute malnutrition with continued breastfeeding and prevent micronutrient deficiency and stunting	Supplement to the local diet with continued breastfeeding to prevent micronutrient deficiency and stunting	Fortification of home prepared foods, just before consumption, with continued breastfeeding to prevent micronutrient deficiencies	Temporary meal replacement; prevention for acute malnutrition and micronutrient deficiencies for vulnerable groups
Target Group	6-59 months Older children and adults including HIV*	6-59 months Others pregnant and lactating women including HIV+ adults	6-59 months: Supercereal Plus Others including PLW, HIV+ adults: Supercereal	6-23 months Supercereal Plus	6-23 months: Supercereal Plus PLW: Supercereal	6-23 months	6-59 months	General population, vulnerable groups

Objective	Treatment of Severe Acute Malnutrition	Treatment of Moderate Acute Malnutrition		Prevention of Malnutrition			Other	
				Acute malnutrition	Micronutrient and chronic malnutrition			
Energy /nutrient per 100g	500 kcal 12.5g protein 32.9g fat	500 kcal 12.5g protein 32.9g fat	840kcal 32gprotein 18g fat	247kcal 5.9gprotein 16g fat	840kcal 32gprotein 18g fat	101kcal 2.5gprotein 7g fat	Daily supplements: BDI: A- 400ug, C- 30ug, D- 5ug, E- 5ug, B1- 0.5, B2- 0.5 ug, niacin- 6ug, B6-0.5ug, B12- 0.9ug, folic acid- 150ug, Iron- 10ug, zinc- 4.1, copper- 0.56, iodine- 90ug, selenium- 17ug Age 6 months- 3-4 3 years 4-8 years 5-6 Adults 8-9	1,800 kcal/400g (biscuits) 2,300kcal/500g (BP-5, NRG-5)
Packaging	Sachet = 92g	Sachet = 92g	Supercereal (SC): 25 kg bag Supercereal Plus: 1.5kg bag SC: 12 months SC: 18 months	325 gm pots or sachets of different quantities 24 months	Supercereal (SC): 25 kg bag Supercereal Plus: 1.5kg bag SC: 12 months SC+: 18 months	Sachet = 20g	Sachet = 1g 400g packs (HEB) 500g packs (NRG-5, BP-5)	
Shelf life	24 months	24 months	24 months	24 months	24 months	24 months	5 years	
Ration/dose	According to weight: 6-59m: 200kcal/kg/day	One sachet/day 92g/day (75kcal/kg/day)	200g/day	47-50g/day	200g/day	One sachet/day 1g/day or 5g/day	Adults: 400g/day (HEB), 500g/day (NRG-5, BP-5)	
Approximate duration of intervention	6-8 weeks	3 months	3-6 months	3-6 months	3-6 months	Up to 18 months	1 week as full diet 1 month for children	
Cost/dose/day (USD)	0.36/sachet	0.29/day	Super Cereal Plus 0.24/day Super Cereal: 0.11-16 / day	0.18/day	Super Cereal Plus 0.24/day Super Cereal: 0.11-16 / day	0.028/day	2.84/day	
Manufacturer	Nutriset (Fr); Vitaset (DR); JB (Mad); Nutrivita (I); Edesia (US); Diva (SA); Compact (N, I); Tabatchnick (US); Challenge (US); Miana (US); Insta (Ke); local producers	Nutriset (Fr); Edesia (US); Compact (I, N); Nutrivita (I); Four producers in Pakistan	Michiels fabrieken (B); Cerfiar (It); ProRata, Somil, J&C (SA); Export Trading, Rab(Mal)	Nutriset (Fr); Edesia (US); Compact (I, N); Nutrivita (I)	Michiels fabrieken (B); Cerfiar (It); ProRata, Somil, J&C (SA); Export Trading, Rab(Mal)	Nutriset (Fr); Edesia (US) fabrieken (B); Cerfiar (It); ProRata, Somil, J&C (SA); Export Trading, Rab(Mal)	Global Health Initiative; DSM (Ch); Heinz (I); Hexagon (I); Piramal (I); Renata (Ban) NRG-5/BP-5; MSH (D); Compact (N), Biscuits: Nuova Biscotti (I);	

Abbreviations: B = Belgium, Ban = Bangladesh, Ch = Switzerland, D = Germany, DR = Dominican Republic, Fr = France, I = India, IL = Italy, Mad = Madagacar, Mal = Malawi, N =Norway, SA = South Africa, US = United States of America

Note: Refer to the decision tool and guidance note in using product sheet and following the decisions made on what type of products to use

*Quantity is referring too kcals in most cases

GNC MAM Taskforce PRODUCT SHEET, VERSION April 2014

ANNEX 16

CRITICAL CARE PATHWAY CHART (-5 PAGES)

CRITICAL CARE PATHWAY (CCP) --- NUTRITION WARD/UNIT

NAME _____ M F DATE OF BIRTH OR AGE _____ DATE OF ADMISSION _____ TIME _____ HOSP.ID No.....

INITIAL MANAGEMENT

Comments on pre-referral and/or emergency treatment already given:

SIGNS OF SEVERE MALNUTRITION		Severe wasting?		
Yes	No			
Oedema?	0	+	++	+++
Dermatosis?	0	+	++	+++ (raw skin, fissures)
Weight(kg):	Height/length (cm):			
SD score:	or MUAC:			
TEMPERATURE _____ °C rectal axillary				
<i>If rectal<35.50C (95.90F), or axillary <350C (950F), actively warm patient . Check temperature every 30 minutes</i>				
BLOOD GLUCOSE (mmol/l):				
<i>If <3mmoVI and alert. Give 50 ml bolus of 10% glucose or sucrose (oral or NG) If <3mmoVI and lethargic, unconscious, or convulsion, give sterile 10% glucose IV: 5ml x ___ kg (child's wt)= ___ ml, then give 50ml bolus NG.</i>				
Time glucose given:		Oral	NG	IV
HAEMOGLOBIN (Hb) (g/l): or Packed cell vol (PCV):				
Blood type:				

SIGNS OF SHOCK Weak/fast pulse	None	Lethargic/unconscious	Cold peripheries	Slow capillary refill (>3 seconds)
<i>If lethargic or unconscious, plus either slow capillary refill or weak/fast pulse, give oxygen. Give IV glucose as described under Blood Glucose (left). Then give IV fluids:</i>				
Amount IV fluids per hour: 15mlx ___ kg (child's wt)= ___ ml				
	Start:	Monitor every 10 minutes	*2 nd hr.	Monitor every 10 minutes
Time			*	
Resp. rate			*	
Pulse rate			*	
<i>*If respiratory & pulse are slower after 1hour, repeat same amount IV fluids for 2nd hour: then alternate ReSoMal and F-75 for up to 10 hours as in right part of chart below. If no improvement on IV fluids, transfuse whole fresh blood. (See left. Haemoglobin.)</i>				
DIARRHOEA	Watery diarrhoea?	Yes	No	If diarrhoea, circle Skin pinch goes back slowly
	Blood in stool?	Yes	No	signs present: Restless/irritable Lethargic Thirsty
	Vomiting?	Yes	No	Sunken eyes Dry mouth/tongue No tears

DAILY CARE

Week 1

Week 2

Week 3

[illegible]

MONITORING RECORD

Monitor respiratory rate, pulse rate, and temperature 4-hourly until after transition to F-100 and patient is stable. Then monitoring may be less frequent (e.g. twice daily)

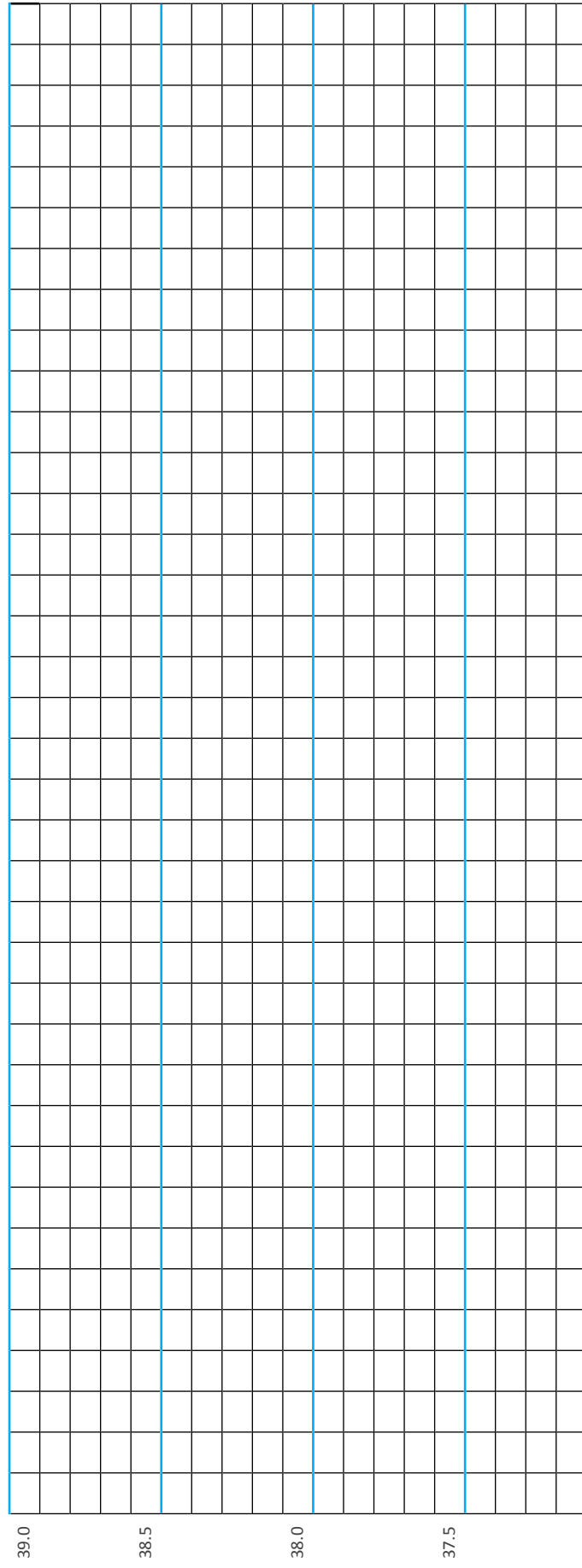
Respiratory rate

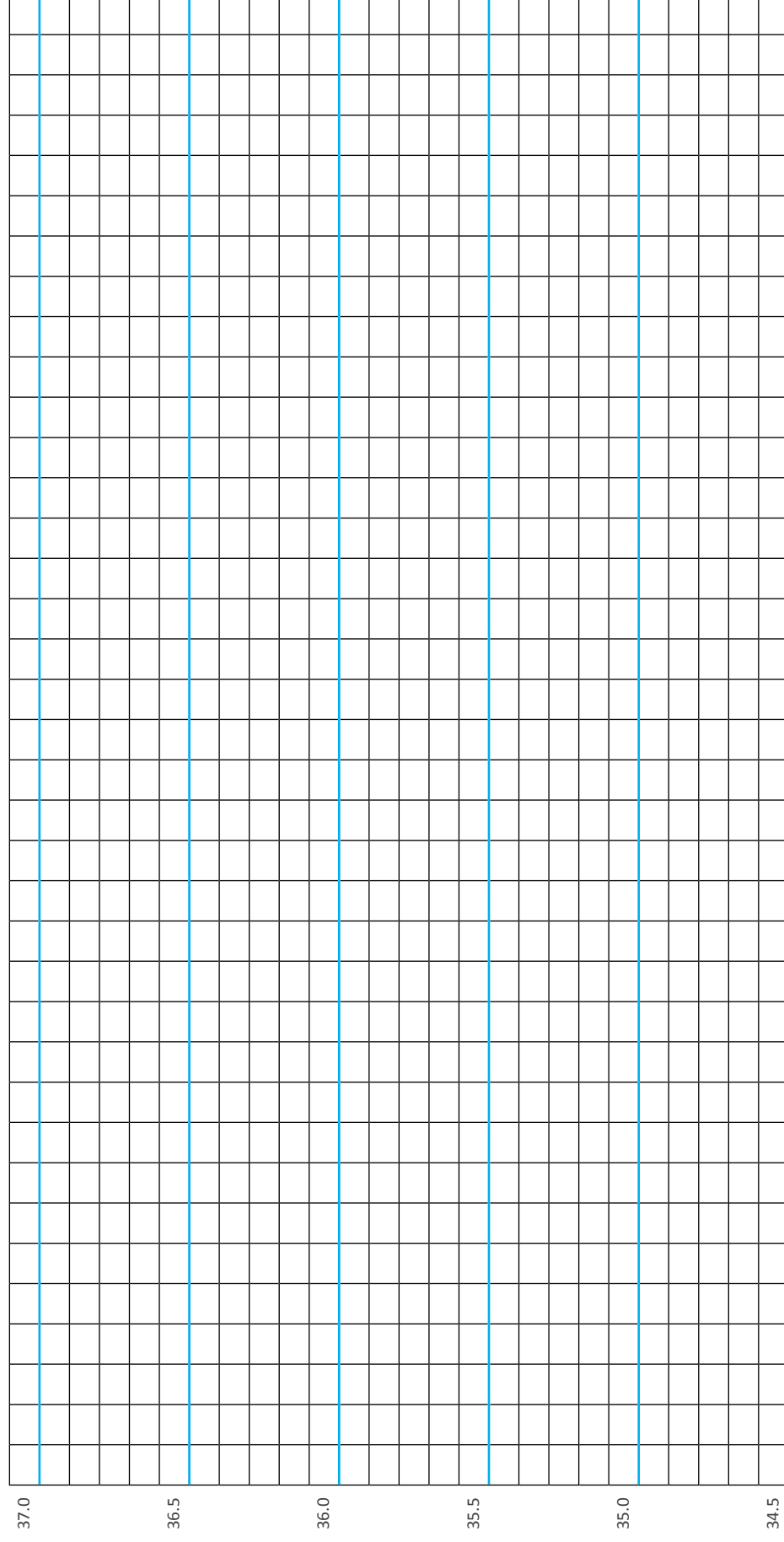
[illegible]

Pulse rate

[illegible]

Temperature





Date /Time: _____

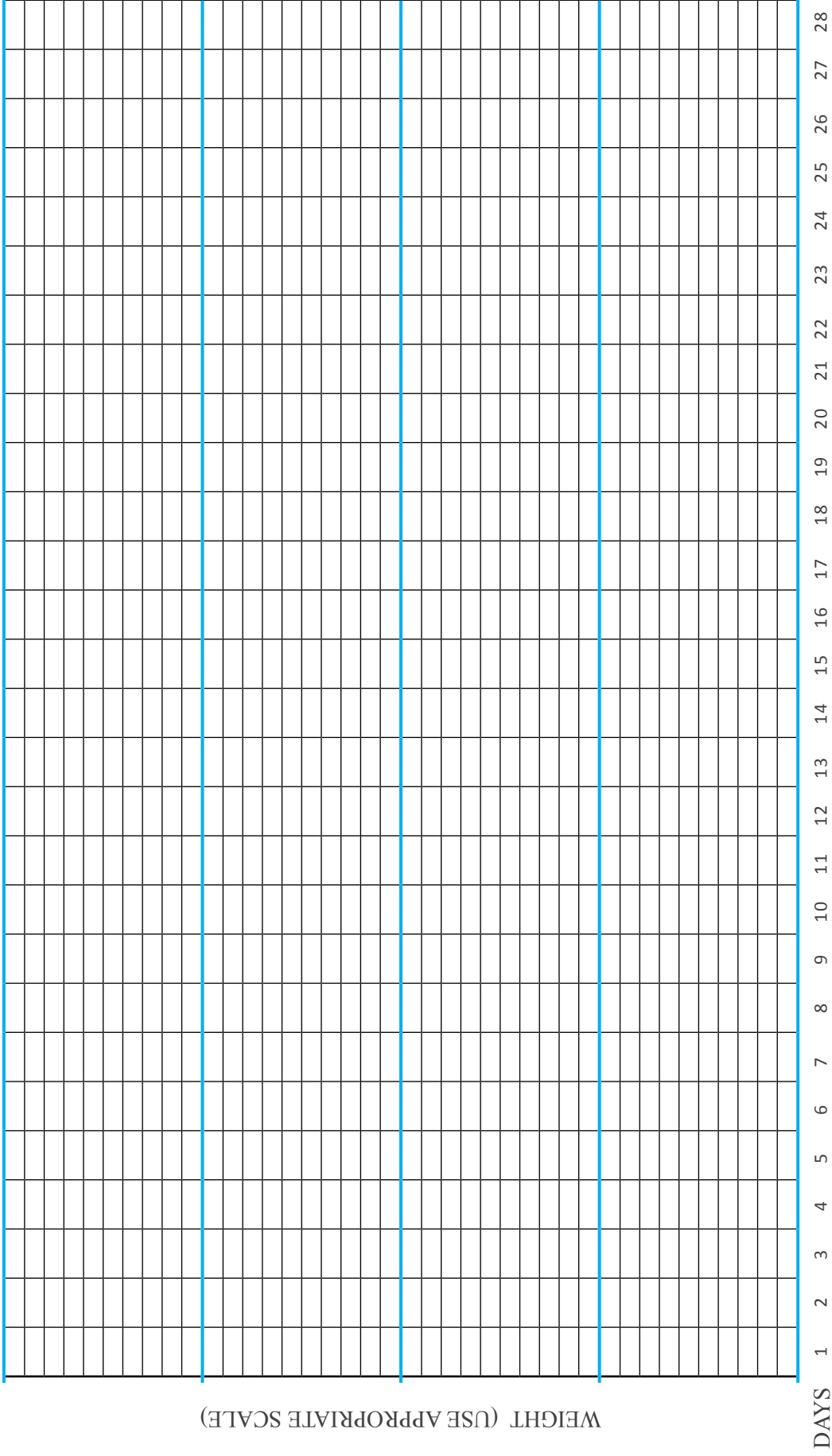
Danger signs: Watch for increasing pulse and respirations, fast or difficult breathing, sudden increase or decrease in temperature, rectal temperature below 35.5°C, and other changes in condition. See Danger Signs listed on back of F-100 Reference Card. Normal ranges of pulse and respiratory rates are also listed on back of F-100 Reference Card.

WEIGHT CHART

Name: _____

Weight on admission _____ Kg Height/length: _____ cm Oedema on admission: 0 + ++ +++ Weight at Discharge _____ Kg

Enter likely range of weights on the vertical axis in an appropriate scale (e.g. each row representing 0.1kg). Allow rows below the starting weight in case weight decreases; weight may decrease by as much as 30% if the child has severe oedema



COMMENTS/OUTCOME

COMMENTS:	
TEACHING GIVEN TO PARENTS/ CAREGIVERS	

IMMUNIZATIONS Immunization card? Yes No Circle immunizations already given. Record initial and date when any is given in hospital				
Immunization	First	Second	Third	Booster
BCG	At birth			
Polio	At birth	6 weeks	14weeks	
DPT	At birth	6 weeks	14weeks	
Measles	9 months	-	-	-

SPECIAL DISCHARGE AND FOLLOW UP INSTRUCTIONS:

PATIENT OUTCOME		
CIRCLE outcome:	DATE	CIRCUMSTANCES/COMMENTS
Transfer to OTC		
Early departure (against advice)		
Early discharge		
Referral		
Death		Number of days after admission (circle): <24 hrs 1-3days 4-7 days >7days
		Approximate time of death: Day Night
		Apparent cause(s):
		Has child received IV fluids? Yes No

ANNEX 17: REFERRAL FORMS

17 A: COMMUNITY REFERRAL FORM

MINISTRY OF HEALTH COMMUNITY REFERRAL FORM	
Client Ref. No: _____	Date: _____
Client Name: _____	Sex: ☐ Male ☐ Female
Sub County: _____	Parish: _____
Village: _____	
Healthy facility client is referred to: _____	
MUAC: (Tick correct colour of MUAC) ☐ Green ☐ Yellow ☐ Red	
Oedema (Swelling of both feet: ☐ Yes ☐ No	
(Tick "Yes" if client has swelling of both feet and "No" if there is no swelling of both feet	
Volunteer's Name: _____	

Feedback from Health Worker to Community Volunteer (Fill and give to the client)
Date: _____
Client admitted to: (Tick as appropriate)
☐ Outpatient Therapeutic Care (OTC) (follow up on RUTF adherence)
☐ Inpatient Therapeutic Care (ITC)
☐ Supplementary Feeding Programme
☐ Does not qualify for admission (counsel on eating well and hygiene)
Health Worker's Name and Signature: _____

17 B: HMIS 032: REFERRAL NOTE

Date of Referral _____

TO _____

FROM _____

Health Unit _____ Referral number _____

REFERENCE

Patient Name: _____

Age: _____ Sex: ☐ Male ☐ Female

Please attend the above person who we are referring to your health unit for further action.

History and Symptoms: _____

Investigations done: _____

Diagnosis: _____

Treatment given: _____

Reason for referral: _____

Please complete this note on discharge and send it back to our unit.

Name of clinician: _____ Signature: _____

To be completed at the referral site

Date of arrival: _____ Date of discharge: _____

Further investigations done: _____

Diagnosis: _____

Treatment given: _____

Treatment or surveillance to be continued: _____

Remarks: _____

Name of clinician: _____ Signature: _____

ANNEX 18

INTEGRATED NUTRITION RATION CARD

#of visits	Comment/treatment received
Adm	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	



THE REPUBLIC OF UGANDA

Ministry of Health
Integrated Nutrition Ration Centre

Nutrition program: SFP ☐ OTC ☐

Other specify

Site: _____

District: _____

Client's Name: _____

Age of Client: _____

Sex: _____

Client's No.: _____

Caregiver/Next of kin: _____

Village: _____

#of visits	Date	Weight (kg)	MUAC (colour code)	Grade of Oedema	#of units per day	#of units given	Date of next visit
Adm							
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							

ANNEX 19

HEALTH AND NUTRITION EDUCATION RECORD FORM

[illegible]

ANNEX 20

DOCUMENTATION JOURNAL FOR QI ACTIVITIES

Documentation journal for QI activities

The documentation journal is a standard tool used for tracking and reflecting on quality of IMAM services in the health facility and community continuously. The journal helps teams to suggest changes and continuously monitor performance, share lessons learnt that contribute to change (improvement/decline). This facilitates follow-up and routine support supervision of IMAM services. The journal has three (3) parts:

Part 1: Documents what the IMAM team/facility is trying to accomplish and why.

Part 2: A worksheet where each of the changes implemented at the IMAM facility/community are listed, including notation of their effectiveness and the dates when they were started or ended (*if applicable*).

Part 3: A provision for graphing the IMAM data or results, and annotating run charts with your changes to ascertain the impact of the changes suggested and tried.

Depending on the changes suggested, level of service provision and indicators to be addressed, teams can decide on the frequency of data aggregation and reporting/feedback. *Refer to examples below:*

Sample documentation journal for QI activities

Name of the facility: _____ District: _____ Region: _____

Team leader: _____ Team members: _____

Start date for improvement project: _____ End date: _____

Part 1: Description of situation

Improvement objective <i>(Improve nutrition assessment at OPD)</i> 	Indicator for the objective <i>Percentage of clients/patients assessed for nutrition status at OPD</i>
Description of problem Briefly describe the IMAM problem being addressed and gaps between the current situation and your improvement objectives. State the differences between the MOH standard of care and the current practices. Also describe some of the challenges with the current situation. (E.g., <i>Only 10% of OPD clients are assessed for nutrition status</i>)	

Part 2: Changes Worksheet - QI Team Activities

Please list below the changes that the team has tried in order to achieve the improvement objective. Write all changes, whether effective or not. Also note when each change was started and when it ended (where applicable) to enable you to annotate the results.

Planned and tested changes In the space below, list all of the changes that you are implementing to address the improvement objective. Write one to two sentences to briefly describe the tested change.	Start date DD/MM/YY	End date (if applicable) DD/MM/YY	Was any Improvement registered? (Yes/No)	Comments Note any potential reasons why the change did or did not yield improvement; also note any change in indicator value observed related to this change.
<i>E.g., On-job training for all OPD staff</i>	<i>5th /Jan/2016</i>	<i>7th /June/2016</i>	<i>No</i>	<i>Few staff at OPD</i>
<i>E.g., Allocate more staff to OPD</i>	<i>8th/June/2016</i>	<i>13th /Dec/2016</i>	Yes	Monthly aggregated data indicated improvement
3.				
4.				
5.				
6.				
7.				

Part 3: Graph Template – Annotated Results

Use the graph below to document your progress. Indicate the value of the numerator and denominator.

[illegible]

Time	0	1	2	3	4	5	6	7	8	9	10	11	12
Numerator													
Denominator													
%													

Notes on the indicators. Write down any additional comments you may have on the performance of indicators. Write anything derived from the changes worksheet and the graph template that might explain the performance trends of the improvement objective.

Notes on other observed effects(lessons learnt). Please write here any effects(positive or negative) you are currently observing as a result of the quality improvement effort, such as comments from patients, changes in your performance or motivation, improved efficiency, or the survival story of a sick patient. You may use your notes to tell the complete story at the next learning session(s).

(Footnotes)

- 1 Report of the WHO Informal Consultation on the use of Praziquantel during Pregnancy/Lactation and Albendazole/Mobendazole in Children under 24 months
- 2 Management of severe Malnutrition: A manual for physicians and other health workers, WHO 1998

