



Government of Malawi
Ministry of Health

Training Course on
**INPATIENT
MANAGEMENT OF
SEVERE ACUTE
MALNUTRITION**

**Module 1.
Introduction**



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Contents

Preface	i
Acknowledgements	ii
Acronyms and Abbreviations	iv
The Importance of Severe Acute Malnutrition as a Health Problem	1
Purpose of This Training Course	2
Competencies and Standards for Inpatient Management of SAM in Children.....	3
Definition of Terms.....	3
Training Course Methods and Materials.....	4
Learning Objectives for Case Management Training	6
Module 2: Principles of Care	6
Module 3: Initial Management.....	6
Module 4: Feeding	6
Module 5: Daily Care.....	6
Module 6: Monitoring, Problem Solving and Reporting	7
Module 7: Involving Mothers in Care.....	7
Annex A: Equipment and Supplies for Inpatient Management of SAM	8
Annex B: Terminology	12

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Preface

The *Malawi Inpatient Management of Severe Acute Malnutrition Training Package* includes training modules, training guides, training aids, training planning tools, and job aids. The training package is based on the 2002 World Health Organisation (WHO) Training Course on the Management of Severe Malnutrition (SAM) and has been updated to include the 2013 WHO update on management of SAM in infants and children. The training package guides participants in applying the National Guidelines for the Community-based Management of Acute Malnutrition (CMAM), 2016.

This *Module* is one of a set of training guides and modules for conducting the *Training Course on Inpatient Management of Severe Acute Malnutrition*:

Guides

Facilitator Guide

Clinical Instructor Guide

Course Director Guide

Modules

Module 1—Introduction

Module 2—Principles of Care

Module 3—Initial Management

Module 4—Feeding

Module 5—Daily Care

Module 6—Monitoring, Problem Solving and Reporting

Module 7—Involving Mothers in Care

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This inpatient management of children with severe acute malnutrition (SAM) training course is the practical application of the 1999 World Health Organisation (WHO) publication *Management of Severe Malnutrition: A Manual for Physicians and other Senior Health Workers*, and the WHO is grateful to all those involved in the production of this fundamental training course. The WHO would particularly like to thank ACT International, USA, and especially Ms P. Whitesell Shirey for having developed the manuscript of the Training Course, together with Ms F. Johnson, who also acted as the course coordinator during field testing. The WHO acknowledges with all gratitude the substantial technical contribution and advice of Professor A. Ashworth-Hill from the London School of Hygiene and Tropical Medicine, who has also acted as one of the course facilitators. Special thanks are extended to Dr S. Khanum (former Regional Adviser for Nutrition and Food Safety, WHO Regional Office for South-East Asia in New Delhi), Department of Nutrition for Health and Development, for her technical contribution, comments, and advice throughout the development of the training modules and for organising field testing as a course director.

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This modified version of the training materials for the course on inpatient management of SAM is the practical application of the *National Guidelines for the Community-based Management of Acute Malnutrition (CMAM), 2016*.

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Acronyms and Abbreviations

AWG	Average Daily Weight Gain
CHW	Community Health Worker
cm	Centimetre(s)
CMAM	Community-Based Management Of Acute Malnutrition
CMV	Combined Mineral and Vitamin Mix
dl	Decilitre(s)
ETAT	Emergency Triage Assessment and Treatment
g	Gram(s)
GAM	Global Acute Malnutrition
Hb	Haemoglobin
HFA	Height-for-Age
HIV	Human Immunodeficiency Virus
IGF	Insulin Growth Factor
IM	Intramuscular
IMCI	Integrated Management Of Childhood Illness
IU	International Unit(S)
IV	Intravenous
IYCF	Infant and Young Child Feeding
kcal	Kilocalorie(s)
kg	Kilogram(s)
L	Litre(s)
LA	Lumefantrine–Artemether
LOS	Length of Stay
M&R	Monitoring and Reporting
MAM	Moderate Acute Malnutrition
mg	Milligram(s)
ml	Millilitre(s)
mm	Millimetre(s)
mmol	Millimoles
MOH	Ministry of Health
MUAC	Mid-Upper Arm Circumference
NG	Nasogastric
NRU	Nutrition Rehabilitation Unit
OPD	Outpatient Department
OTP	Outpatient Therapeutic Programme
ORS	Oral Rehydration Solution
PCR	Polymerase Chain Reaction
PCV	Packed Cell Volume
QI	Quality Improvement
RDT	Rapid Diagnostic Test
ReSoMal	Rehydration Solution for Malnutrition
RUTF	Ready-To-Use Therapeutic Food

SAM	Severe Acute Malnutrition
SD	Standard Deviation
SFP	Supplementary Feeding Programme
TB	Tuberculosis
WFH	Weight-For-Height
WFP	World Food Programme
WHO	World Health Organisation
µg	Microgram(s)

The Importance of Severe Acute Malnutrition as a Health Problem

Severe acute malnutrition (SAM) is one of the most common causes of illness and death among children under 5 years of age worldwide. Many children under 5 with SAM die at home without care or present to the hospital late and with severe medical complications.

The lives of many children with SAM can be saved by implementing active case-finding in the community and systematic case-finding in health facilities to identify children with SAM and refer them for early treatment. The bulk of the children will have uncomplicated SAM and should be managed in decentralised primary health care facilities as outpatients with ready-to use therapeutic food (RUTF) and infant and young child feeding (IYCF) support. Case management of severely malnourished children with medical complications should be provided in the hospital until the children are stabilised. With this approach, the lives of many children can be saved, and mortality associated with SAM can be drastically reduced to less than 10 percent.

Children with SAM often die because health workers unknowingly use practices that are suitable for most children, but highly dangerous for children with SAM. This training course will strengthen the knowledge and skills of physicians and other health workers involved in inpatient management of SAM and promote continuous quality improvement (QI) of care.

This training course uses the Government of Malawi, Ministry of Health (MOH) *National Guidelines on Community-based Management of Acute Malnutrition 2016* (hereafter referred to as ‘CMAM Guidelines’) as reference. The training course materials reflect the latest World Health Organisation (WHO) guidance through the various publications to date. The training materials include seven training modules, three training guides and a set of job and training aids, which are the major tools to use during this training course.



Take your CMAM Guidelines and set of Training Modules and Job Aids and look at its contents.

Purpose of This Training Course

This training course is designed for physicians, nurses and nutritionists/dieticians in hospitals that provide inpatient management of SAM with medical complications (and without medical complications in case RUTF is not available or outpatient care not feasible).

The training covers all aspects of case management of a child with SAM with medical complications until the condition of the child is stabilised then discharged early to continue treatment in outpatient care. It also covers the treatment of children with SAM with medical complications until full recovery in inpatient care in cases where the children cannot tolerate RUTF as well as infants < 6 months. Although the training course focuses on inpatient management of SAM, participants are also introduced to the components of the overall management of acute malnutrition to understand the links, appropriately transfer cases between services and work with colleagues who receive these cases. This ensures best continuity of care and follow up.

The course does not teach basic medical techniques that are taught in schools of medicine and nursing (such as how to insert an intravenous [IV] line or take a blood sample).

It is expected that participants will return to their hospitals and begin to use the case management practices described in this course. To use these practices, staff working in special wards for inpatient management of SAM (also known as the nutrition rehabilitation unit [NRU]) should develop an action plan for QI and regularly monitor the quality of care (discussed in **Module 6**). Certain basic supplies and equipment are needed for these practices; they are listed in **Annex A** of this module.

Competencies and Standards for Inpatient Management of SAM in Children

Definition of Terms

Competency: An ability to integrate knowledge, values, attitudes and skills that can be observed. These competencies are designed to produce a desired nutrition outcome (e.g., what the health service provider in OTP is expected to know and is able to do).

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

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

Training Course Methods and Materials

This training course uses many methods of instruction, including independent study, written exercises, discussions, role-plays, video, demonstrations and practice in a real NRU. Practice, whether in written or practical exercises, or in the NRU during a clinical session, is a critical part of instruction.

Small groups of participants are led and assisted by ‘facilitators’ as they work through the training modules (booklets that contain units of instruction). The facilitators are not lecturers, as in a traditional classroom. Their role is to answer questions, provide individual feedback on exercises, lead discussions, structure role-plays and so on.

Much of the time the participants work at their own pace through the modules, although in some activities, such as role-plays and discussions, the small group will work together.

The modules in this Inpatient Management of SAM training course include:

1. Introduction
2. Principles of Care
3. Initial Management
4. Feeding
5. Daily Care
6. Monitoring, Problem Solving and Reporting
7. Involving Mothers in Care

In addition to the modules, you should have the following training materials:

Video films

1. Anthropometry
2. Transformations
3. Emergency Treatment
4. Teaching Home Feeding
5. Malnutrition and Mental Development

Slide Presentations

- Slides for Facilitator Training
- Slides on Orientation of CMAM, national strategy and updates in the CMAM Guidelines

Job aids

- CMAM Admission and Discharge Criteria for NRU
- 10 steps protocol for Inpatient Care Management of SAM
- Emergency Management of SAM in Inpatient Care
- Antibiotic Reference Card
- Monitoring Danger Signs in Inpatient Management of SAM
- Weight-for-Height/Length Reference Tables
- F-75, F-100 and F-100 Diluted Reference Tables
- RUTF Reference Table

Training aids

- Photograph booklet
- Wall charts for demonstrations:
 - Daily Feeds Chart

- Inpatient treatment card set
- Initial Management chart (extra wall charts for exercises in **Module 3**)

Forms and checklists

- Inpatient Care Treatment Card
- 24-Hour Feeds Chart
- Daily Care Chart
- Daily ward schedule
- Mentorship and Supportive Supervision Checklist for Inpatient Management of SAM, example
- Quality Improvement Checklist for Inpatient Management of SAM, example

The training materials cover all case management practices and are consistent with the best practices adopted and promoted by the Ministry of Health (MOH), which are summarised in the job aids and described in the CMAM Guidelines. It is expected that with new emerging evidence the MOH will adapt treatment protocols and promote new practices, and therefore regularly update the job aids and guidelines. Training materials will need to be updated to reflect these changes.

Learning Objectives for Case Management Training

Each module and clinical session in this course provides information and examples and allows you to practise skills necessary for managing children with SAM with poor appetite and/or medical complications in the inpatient care. The skills and information presented in each module are briefly outlined below.

Module 2: Principles of Care

- 1.0 Define SAM
- 2.0 Recognise clinical signs of SAM
- 3.0 Weigh and measure a child's mid-upper arm circumference (MUAC), weight, height or length
- 4.0 Identify a child with SAM
- 5.0 Understand the criteria for admission
- 6.0 Understand how the physiology of SAM affect care of a child
- 7.0 List the essential components of care
- 8.0 Understand the procedures for discharge, transfer and end of treatment

Module 3: Initial Management

- 1.0 Identify and manage a child with SAM
- 2.0 Prepare ReSoMal
- 3.0 Give antibiotics
- 4.0 Complete the initial assessment
- 5.0 Keep a written record of initial findings and treatments

Module 4: Feeding

- 1.0 Prepare F-75 and F-100, F-100 Diluted and learn about RUTF
- 2.0 Plan feeding for a child 6 months or older
- 3.0 Plan feeding for an infant less than 6 months with SAM
- 4.0 Measure and give feeds to children
- 5.0 Record intake and output for a 24-hour period
- 6.0 Plan feeding for the NRU

Module 5: Daily Care

- 1.0 Handle a child with SAM with poor appetite and medical complications
- 2.0 Care for the skin and bathing
- 3.0 Give prescribed antibiotics and other medications and supplements
- 4.0 Care for the eyes
- 5.0 Monitor pulse, respirations and temperature, and watch for danger signs
- 6.0 Continue care at night
- 7.0 Complete and interpret the Daily Care page and Monitoring Record of the treatment card
- 8.0 Prepare and maintain a weight chart

Module 6: Monitoring, Problem Solving and Reporting

- 1.0 Use a QI process to identify, analyse and solve problems on individual case management
- 2.0 Monitor and solve problems of an individual patient
- 3.0 Monitor overall weight gain during rehabilitation
- 4.0 Monitor patient outcomes (such as recovery, death, default, non-recovery and referral/transfer)
- 5.0 Monitor case management practices and ward procedures
- 6.0 M&R of performance on the management of SAM in the NRU

Module 7: Involving Mothers in Care

- 1.0 Encourage involvement of mothers
- 2.0 Involve mothers in comforting, feeding and bathing children
- 3.0 Teach groups of mothers about feeding and care
- 4.0 Prepare for discharge from hospital and continue treatment at home
- 5.0 Teach mothers the importance of stimulation and how to make and use toys
- 6.0 Give advice on continued treatment in outpatient care and follow-up visits
- 7.0 Make special arrangements for follow-up in case early discharge is unavoidable

Annex A: Equipment and Supplies for Inpatient Management of SAM

Ward Equipment/Supplies

- Running water
- Thermometers (preferably low-reading)
- Stethoscope
- Child weighing scales (and item of known weight for checking scales)—preferably be digital scales and SECA MOTHER INFANT DIGITAL SCALES TO USE FOR THE VERY ILL CHILD.
- Infant weighing scales with 10 g precision (and item of known weight for checking scales)
- MUAC tapes
- Height board for measuring height and length (and pole of known length for checking accuracy)
- Adult beds with mattress
- Bed sheets
- Insecticide-treated bed nets
- Blankets or wraps for warming children
- Incandescent lamp or heater
- Wash basin for bathing children
- Safe, homemade toys
- Clock
- Calculator

Pharmacy Equipment/Supplies

- F-75, F-100, RUTF, and infant formula (for special cases of infants less than 6 months)
- Oral rehydration solution (ORS) for preparing Rehydration Solution for Malnutrition (ReSoMal), or commercial ReSoMal
- Iron syrup (e.g. ferrous fumarate)
- Folic acid (folate)
- Vitamin A (Retinol 100,000 and 200,000 IU capsules)
- Sterile 10% glucose (or sucrose)
- Intravenous fluids:
 - Half-strength Darrow's
 - Ringer's lactate
 - Normal saline
- Sterile water for diluting
- Sterile potassium chloride (20 mmol/L)—caution in handling this and should be only be available in experienced and senior medical staff's hands. Poor dosing may result in death.
- Vaccines as per the national expanded programme of immunisation
- Dextrostix
- Haemoglobinometer
- Urine dipstix
- Supplies for IV fluid administration:
 - Scalp vein (butterfly) needles, gauge 21 or 23
 - Heparin solution, 10–100 units/ml
 - Poles or means of hanging bottles of IV fluid
 - Tubing
 - Bottles or bags

- Paediatric nasogastric tubes
- Sticky tape
- Syringes (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:
 - Blood packs
 - Bottles
 - Syringes and needles
 - Other blood collecting materials

Drugs

- Amoxicillin
- Antimalarial: Lumefantrine–Artemether (LA), Artesunate suppository or injection
- Atropine 1% eye drops
- Albendazole/Mebendazole
- Benzylpenicillin
- Ceftriaxone
- Ciprofloxacin
- Cloxacillin
- Cotrimoxazole
- Gentamicin
- Metronidazole
- Paracetamol
- Tetracycline eye ointment or chloramphenicol eye drops
- Fluconazole injection and oral preparation suitable for paediatric patients

For Skin

- Benzyl benzoate
- Gentian violet
- Nystatin
- Paraffin gauze
- Potassium permanganate
- Whitfield's ointment
- Zinc oxide ointment

Laboratory Resources

- Blood culture (if available)
- Cerebrospinal fluid microbiology and culture (if available)
- HIV tests (rapid diagnostic test [RDT] and polymerase chain reaction [PCR] test)
- Malaria tests (RDT, thick blood test)
- Stool microscopy and culture (available)
- Tuberculosis (TB) tests (X-ray, culture of sputum, Mantoux)
- Urinalysis, urine culture

Hygiene Equipment/Supplies of Mothers and Staff

- Toilet, hand-washing and bathing facilities
- Soap for hand-washing
- Place for washing bedding and clothes
- Method for trash disposal

Kitchen Equipment/Supplies

- Electric blender or ordinary whisk (hand held)
- Large containers and spoons for mixing/cooking feed for the ward
- Hot plate/electric kettle
- Feeding cups, saucers, spoons
- Measuring cylinders (or suitable utensils for measuring ingredients and leftovers)
- Jugs (1-litre and 2-litre)
- Refrigeration (if possible)
- Food for mothers

Job Aids

Laminated Set (and Wall Charts)

- CMAM Admission and Discharge Criteria for NRU
- 10 steps protocol for Inpatient Care Management of SAM
- Emergency Management of SAM in Inpatient Care
- Antibiotic Reference Card
- Monitoring Danger Signs in Inpatient Management of SAM
- Weight-for-Height/Length Reference Tables
- F-75, F-100 and F-100 Diluted Reference Tables
- RUTF Reference Table

Forms and checklists, examples

- Inpatient Care Treatment Card
- 24-Hour Feeds Chart
- Daily Care Chart
- Daily ward schedule
- Mentorship and Supportive Supervision Checklist for Inpatient Management of SAM, example
- Quality Improvement Checklist for Inpatient Management of SAM, example

Staff

- Senior and junior health workers*

This includes clinicians, senior nurses and junior nurses. It is recommended that clinicians and nurses are specially trained in the management of SAM, because treatment for the non-malnourished child could be dangerous for the malnourished child.

A ratio of 1 health worker per 10 patients is considered appropriate in the NRU.

- Home-craft workers*

Home-craft workers are in charge of weighing the child, supervising meals, interacting with mothers, monitoring clinical warning signs and filling in most of the information on the patient's Treatment Card. Other staff in this category could be in charge of the emotional and physical stimulation programme.

A ratio of 1 assistant per 10 patients is considered appropriate in the NRU.

- ❑ *Support Staff*
Cleaners, ward attendants, patient attendants and kitchen staff are vital to maintaining a tidy environment and preparing therapeutic milks and food for mothers. In large centres, a person in charge of the logistics and transport will be necessary. Guardians, storekeepers and other ancillary staff might be needed depending on the context and size of the facility. Some facilities could also have play ladies to assist in play and stimulation.

- ❑ *Supervisors*
One supervisor is needed for each NRU (usually, NRU/Paediatric Nurse-In-Charge).

Annex B: Terminology

Acute Malnutrition	Acute malnutrition is a form of undernutrition. It is caused by a decrease in food consumption and/or illness, resulting in bilateral pitting oedema or sudden weight loss. It is defined by the presence of bilateral pitting oedema or wasting.										
Anthropometry	Anthropometry is the study and technique of human body measurement. It is used to measure and monitor the nutritional status of an individual or population group.										
Appetite	Appetite is a vital sign of the clinical condition of a child and a decisive criterion for participation in outpatient care. If the child has no appetite, she or he must receive inpatient care.										
Basic Package of Health Services	A basic package of health services is a set of services provided at health facilities, at the different levels of the health system, as mandated by the national health policy. The package varies based on the health facility type of primary, secondary or tertiary care (e.g. referral hospital, general hospital, health centre or health post).										
Bilateral Pitting Oedema	<p>Bilateral pitting oedema—also known as nutritional oedema or oedematous malnutrition—is a sign of SAM. It is caused by an abnormal infiltration and excess accumulation of serous fluid in connective tissue or in serous cavities. Bilateral pitting oedema 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.</p> <p>The grades of bilateral pitting oedema are:</p> <table border="1"> <thead> <tr> <th>Grade</th> <th>Definition</th> </tr> </thead> <tbody> <tr> <td>0 or Absent</td> <td>No bilateral pitting oedema</td> </tr> <tr> <td>+ or Mild</td> <td>Bilateral pitting oedema on both feet</td> </tr> <tr> <td>++ or Moderate</td> <td>Bilateral pitting oedema on both feet, plus lower legs, hands, or lower arms</td> </tr> <tr> <td>+++ or Severe</td> <td>Generalised bilateral pitting oedema, including both feet, legs, arms, and face</td> </tr> </tbody> </table>	Grade	Definition	0 or Absent	No bilateral pitting oedema	+ or Mild	Bilateral pitting oedema on both feet	++ or Moderate	Bilateral pitting oedema on both feet, plus lower legs, hands, or lower arms	+++ or Severe	Generalised bilateral pitting oedema, including both feet, legs, arms, and face
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++ or Moderate	Bilateral pitting oedema on both feet, plus lower legs, hands, or lower arms										
+++ or Severe	Generalised bilateral pitting oedema, including both feet, legs, arms, and face										
Cascade Training	Cascade training is a process in which an experienced trainer trains health care providers with limited experience and expertise who, in turn, pass on that knowledge and skills to other practitioners with less experience and expertise. These practitioners then train other practitioners with less experience and expertise, and so on. Note that the knowledge and skills tend to get diluted as a result of the training that occurs later in the process being conducted further and further from the initial training. As a result, cascade training is not recommended as a training method.										
Community-Based Management of Acute Malnutrition (CMAM)	<p>CMAM refers to the management of acute malnutrition through:</p> <ol style="list-style-type: none"> 1) Inpatient care for children under 5 with SAM with medical complications and for all other age groups with SAM, regardless of medical complications 2) Outpatient care for children under 5 with SAM without medical complications 3) Community outreach for early and active case detection, and referral for treatment 4) Supplementary Feeding Program or other programs for the management of moderate acute malnutrition (MAM) 										
Community Outreach	Community outreach for CMAM includes community assessment, community mobilisation, active case-finding and referral and case follow-up.										
Community Referral	Community referral is the process of identifying children with acute malnutrition in the community and sending them to a health facility for CMAM.										
Community Volunteer	A community volunteer is a person who conducts outreach for community mobilisation, screening, referral and follow-up in the community. He or she can receive an incentive, but no remuneration.										

Coverage	<p><i>Geographical coverage</i> refers to the availability of CMAM (i.e., geographical access) through the decentralisation and scale-up of CMAM. <i>Geographical coverage</i> can be defined as the ratio of health facilities with CMAM to the total number of health facilities per district, region, or area at a particular time.</p> <p><i>Treatment coverage</i> refers to the access and service uptake of CMAM (access and use). <i>Treatment coverage</i> can be defined as the ratio of children with SAM in treatment to the total number of children with SAM in the community at a particular time.</p>
F-75	Formula 75 (75 kcal/100 ml) is the milk-based diet recommended by the WHO for the stabilisation of children with SAM in inpatient care.
F-100	Formula 100 (100 kcal/100ml) is the milk-based diet recommended by the WHO for the rehabilitation of children with SAM after stabilisation in inpatient care in the absence of RUTF. F-100-Diluted is used for the stabilisation and rehabilitation of infants less than 6 months in inpatient care.
Global Acute Malnutrition (GAM)	GAM is a population-level indicator referring to overall acute malnutrition defined by the proportion of children 6–59 months (or under 5) with presence of bilateral pitting oedema or wasting based on WFH z-score below 2 standard deviations of the median of the standard population (< -2 z-score). GAM is the combination of moderate and severe acute malnutrition (GAM = MAM + SAM).
Health Care	Health care is the prevention, treatment and management of illness and the preservation of mental and physical well-being through the services offered by health care providers. Health care embraces all the goods and services designed to promote health, including preventive, curative and palliative interventions, whether directed to individuals or to populations.
Health Care Provider	A health care provider is a medical, nursing and allied health professional, including a CHW.
Health Care System	A health care system is the organised delivery of health care.
Health System	A health system consists of all structures, resources, policies, personnel, services and programmes involved in the promotion, restoration and maintenance of health.
Height-for-Age (HFA)	The HFA index is used to assess stunting. It shows how a child’s height compares to the height of a child of the same age and sex in the WHO standard population. This index reflects a child’s long-term growth pattern.
Inpatient Management of SAM with Medical Complications	A service/programme for inpatient management of SAM for children under 5 with SAM and medical complications and other age groups with SAM, regardless of medical complications. Inpatient care is provided in a hospital or health facility with 24-hour care capacity.
In-Service Training	In-service training prepares health professionals to provide, e.g., CMAM, by developing specific knowledge and skills according to their job qualifications while accounting for prior learning and work experience. It includes theoretical and practical training, e.g., learning visits, classroom training, on-the-job training, tutoring or mentoring and refresher training sessions.
Integration of CMAM	Integration of CMAM refers to the incorporation of the management of acute malnutrition into the national health system. It assumes that the health care system has the capacity and competence for providing, strengthening, adapting and maintaining quality and effective inpatient care, outpatient care, management of MAM and community outreach with minimal external support.

Integrated Management of Childhood Illness (IMCI) Danger Signs for Referral	IMCI danger signs are: not able to drink or breastfeed, poor appetite; vomits everything; lethargic or unconscious; convulsions (has had and/or now). Other main symptoms: cough with fast breathing with lower chestwall indrawing or stridor in calm child; diarrhoea and recent sunken eyes; high fever or stiff neck; measles now or within the last three months, and/or clouding cornea or other eye signs of vitamin A deficiency and/or deep, extensive mouth ulcers; ear pain with tender swelling behind the ear; severe palmar pallor.
Kwashiorkor	An acute form of childhood protein-energy malnutrition characterized by oedema, irritability, anorexia, ulcerating dermatosis, and an enlarged liver with fatty infiltrates.
Malnutrition	Malnutrition occurs when an individual's dietary intake is not balanced with his or her nutritional needs. Malnutrition includes both undernutrition and overnutrition .
Moderate acute malnutrition (MAM)	MAM, or moderate wasting, is defined in children 6–59 months by a MUAC ≥ 115 mm and < 125 mm or in children under 5 by WFH ≥ -3 z-score and < -2 z-score. MAM can be used as a population-level indicator, defined as the proportion of children 6–59 months with moderate wasting (defined by a WFH ≥ -3 z-score and < -2 z-score).
Management of Illness	Management of illness is the detection, diagnosis, treatment, treatment follow-up and prevention of adverse events (e.g., relapse of illness, death).
Marasmic Kwashiorkor	Marasmic kwashiorkor is the simultaneous condition of severe wasting (marasmus) and kwashiorkor.
Marasmus	See Severe Wasting .
Micronutrient Deficiencies	Micronutrient deficiencies are a consequence of reduced micronutrient intake and/or absorption in the body. The most common forms of micronutrient deficiencies are related to iron, vitamin A and iodine deficiency.
Moderate Wasting	See MAM .
Mid-Upper Arm Circumference (MUAC)	Low MUAC is an indicator for wasting, used for children 6–59 months. MUAC < 115 mm indicates severe wasting, or SAM. MUAC ≥ 115 mm and < 125 mm indicates moderate wasting, or MAM.
Nutritional Oedema	See Bilateral Pitting Oedema .
Oedematous Malnutrition	See Bilateral Pitting Oedema .
Outpatient Management of SAM without Medical Complications	A service/programme for outpatient management of SAM for children under 5 with SAM without medical complications through the provision of routine medical treatment and nutrition rehabilitation. Children attend outpatient care at regular intervals (usually once a week) and continue receiving treatment at home until weight recovery is achieved (usually 2 months).
Outreach Worker for CMAM	An outreach worker is a community health worker (CHW), health extension worker (paid), or community volunteer (unpaid) who identifies and refers children with acute malnutrition from the community to CMAM and follows up with the children in their homes when required.
Overnutrition	Overnutrition occurs when the body receives more nutrients than it needs. Overnutrition conditions include both overweight and obesity.
Pre-Service Education	Pre-service education is conducted at a teaching institution as part of the curriculum for a professional qualification. It can be at the pre-graduate, post-graduate or diploma level (e.g., in medical or nursing schools). It includes theoretical and practical training. Practical training sessions can be, e.g., simulations, demonstrations, learning visits, internships and mentoring.

Referral	A referral is a child who moved to a higher level of the health system, e.g., in the management of SAM, from outpatient care to inpatient care, or to other medical services for specialised treatment.
Routine Health Services	Routine health services refers to services provided at health facilities, depending on staff capacity and facility resources. These services include the basic package of health services.
RUTF	RUTF is an energy-dense, mineral- and vitamin-enriched food specifically designed to treat SAM. RUTF has a similar nutrient composition to F-100 and can be lipid-based or non-lipid-based pastes. RUTF can be consumed easily by children from the age of 6 months, without adding water, however, plenty of drinking water is offered separately. RUTF is not water-based, meaning that bacteria cannot grow in it and that it can be used safely at home without refrigeration and in areas where hygiene conditions are not optimal. It does not require preparation before consumption.
SAM	SAM is defined by the presence of bilateral pitting oedema or severe wasting (defined by a MUAC < 115 mm in children 6–59 months or a WFH < -3 z-score in children under 5). A child with SAM is highly vulnerable to illness and has a high mortality risk. SAM can also be used as a population-based indicator defined by the proportion of children 6-59 months with presence of bilateral pitting oedema or severe wasting (defined by a WFH < -3 z-score)
Scale-Up	Scale-up involves the expansion of services (e.g., from the pilot phase to the programme phase, as part of a strategy to expand geographical coverage to the targeted area or nationally).
Self-Referral	Self-referral occurs when mothers/caregivers bring children to the health facility upon their own initiative without being referred by a health worker.
Severe Wasting	Severe wasting is defined by a MUAC < 115 mm in children 6–59 months or a WFH < -3 z-score in children under 5. Severe wasting is also called marasmus. The child with severe wasting has lost fat and muscle and appears very thin (e.g., signs of old man face, baggy pants [folds of skin over the buttocks]).
Sphere Project or Sphere Standards	The Sphere Project Humanitarian Charter and Minimum Standards in Disaster Response is a voluntary effort to improve the quality of assistance provided to people affected by disaster and to enhance the accountability of humanitarian agencies in disaster response. Sphere has established Minimum Standards in Disaster Response (often referred to as the Sphere Standards) and indicators to describe the level of disaster assistance to which all people have a right. See http://www.sphereproject.org (April 2011 version).
Stunting	Stunting reflects chronic undernutrition. It is defined in a proportion of children under 5 defined by a HFA < -2 z-score. Stunting is a result of prolonged or repeated episodes of undernutrition starting before birth. This type of undernutrition is best addressed through preventive maternal health programmes aimed at pregnant women, infants and children under 2. Programme responses to stunting require longer-term planning and policies.
Training of Trainers (TOT)	TOT or facilitator training is a process in which an experienced trainer both expands the knowledge and skills of health care providers already experienced in the subject matter and trains them in adult training. These health providers then, in turn, become facilitators (or master trainers) who pass on the expanded knowledge and skills to practitioners with less experience and expertise in the subject matter. The facilitators (or master trainers) remain the core trainers on the subject. Note that the knowledge and skills tend not to get diluted because the training remains the responsibility of trained facilitators (or master trainers), whose training skills continuously improve by repetitive training. They remain clinicians but are made available as trainers when the need arises. As a result, TOT or facilitator training is recommended as a training method.

Transfer	A transfer is a child who moved to a lower level of the health system, e.g., in the management of SAM, from inpatient care to outpatient care.
Transition of Programmes	Transition refers to the process leading up to hand-over of a health service that was set up in parallel with a national health system, including planning and preparation for the gradual transfer of roles and responsibilities, until hand-over is complete, e.g., hand-over of a temporary nongovernmental organisation (NGO)-led emergency intervention to the MOH.
Undernourishment	Undernourishment is a population-level indicator that compares caloric availability per capita with minimum caloric requirements.
Undernutrition	Undernutrition is a consequence of a lack of nutrients caused by inadequate dietary intake and/or disease. It encompasses a range of conditions, including acute malnutrition, chronic malnutrition, and micronutrient deficiency. The different forms of undernutrition that can appear isolated or in combination are acute malnutrition (bilateral pitting oedema and/or wasting), stunting, underweight (combined form of wasting and stunting) and micronutrient deficiencies.
Underweight	Underweight is a composite form of undernutrition that includes elements of stunting and wasting. It is defined in a proportion of children under 5 by a WFA < -2 z-score. This indicator is commonly used in growth monitoring and promotion and child health and nutrition programmes aimed at the prevention and treatment of undernutrition.
Wasting	Wasting is a form of acute malnutrition. It is defined by a MUAC < 125 mm in children 6–59 months or a WFH < -2 z-score in children under 5.
Weight-for-Age (WFA)	The WFA index is used to assess underweight. It shows how a child's weight compares to the weight of a child of the same age and sex in the WHO standard population. The index reflects a child's long-term growth pattern and current nutritional status.
Weight-for-Height (WFH)	The WFH index is used to assess wasting. It shows how a child's weight compares to the weight of a child of the same length/height and sex in the WHO standard population. The index reflects a child's current nutritional status.

