MODULE ONE

Overview of Community-Based Management of Acute Malnutrition (CMAM)

Module Overview

This module is a general orientation to or overview of Community-Based Management of Acute Malnutrition (CMAM). It describes the extent of the problem of acute malnutrition. It discusses how CMAM differs from traditional approaches to managing severe acute malnutrition (SAM), which until recently were exclusively centre-based until full recovery for SAM with or without medical complications. The module outlines the key concepts, principles and components of CMAM. It notes the recent innovations making CMAM possible, such as ready to-use therapeutic food (RUTF) and the use of mid-upper arm circumference
(MUAC) as a rapid screening and admission tool for potential beneficiaries. The module briefly looks at the evidence to date from the experience of CMAM services in emergency settings. It notes how CMAM might be applicable in different contexts and incorporated into routine health services and national policies and guidelines. In addition, recent global commitments to CMAM are mentioned.

CMAM evolved from Community-Based Therapeutic Care (CTC), which is a community-based approach for the management of acute malnutrition in emergency settings and comprises community outreach, supplementary feeding programs (SFPs), outpatient therapeutic programs (OTPs) and stabilization centers (SCs). Other variants of CMAM include ambulatory care or home-based care for SAM. The term CTC is in use in certain countries or for emergency interventions. Most implementation experience and evidence to date is from CTC.

Overview of Community-Based management of acute malnutrition (CMAM): Classroom

LEARNING OBJECTIVES	HANDOUTS AND EXERCISES
Introduce Participants, Training Course, Modules, and Course objectives	Handout 1.1 Abbreviations and Acronyms Handout 1.2 Terminology for CMAM Handout 1.3 References and Further Reading PowerPoint: Overview of Community-Based Management of Acute Malnutrition (CMAM) OPTIONAL: Handout 1.15 PowerPoint Presentation Slide Images
1. Discuss Acute Malnutrition and the Need for a Response	Handout 1.4 Key Information on Undernutrition PowerPoint: Overview of Community-Based Management of Acute Malnutrition (CMAM)
2. Identify the Principles of CMAM	Handout 1.5 CMAM Principles PowerPoint: Overview of Community-Based Management of Acute Malnutrition (CMAM)
3. Describe Recent Innovations and Evidence Making CMAM Possible	Handout 1.6 Classification of Acute Malnutrition for CMAM Handout 1.7 Screening and Admission Using MUAC PowerPoint: Overview of Community-Based Management of Acute Malnutrition (CMAM) RUTF packets Colored MUAC tapes (designed for use in community-based programs)
4. Identify the Components of CMAM and How They Work Together	Handout 1.8 CMAM Components and How They Work Together PowerPoint: Overview of Community-Based Management of Acute Malnutrition (CMAM)
5. Explore How CMAM Can Be Implemented in Different Contexts	Handout 1.9 Case Studies Handout 1.10 Implementing CMAM in Different Contexts Handout 1.11 Factors to Consider in Seeking to Provide Services for the Management of SAM Handout 1.12 Integrating CMAM into Routine Health Services at the District Level PowerPoint: Overview of Community-Based Management of Acute Malnutrition (CMAM)
6. Identify Key National and Global Developments and Commitments Relating to CMAM	WHO, WFP, the UN/SCN and UNICEF. 2007. Community-based management of severe acute malnutrition: A joint statement. Video 1. Concern Worldwide Ethiopia Video PowerPoint: Overview of Community-Based Management of Acute Malnutrition (CMAM)
Wrap-up and Module Evaluation	Handout 1.13 Essentials of CMAM
Field Visit to Outpatient Care Site	Handout 1.14 Field Visit Checklist

MATERIALS

- Computer and projector for PowerPoint: Overview of Community-Based Management of Acute Malnutrition (CMAM)
- Post-it notes or colored cards
- Flip chart and markers
- Masking tape
- RUTF packets
- Colored MUAC tapes
- *Community-based Therapeutic Care (CTC): A Field Manual*, 2006
- World Health Organization (WHO), World Food Programme (WFP), the United Nations System Standing Committee on Nutrition (UN/SCN), and the United Nations Children's Fund (UNICEF). 2007. Community-based management of severe acute malnutrition: A joint statement.
- Video 1. Concern Worldwide Ethiopia video

Advance preparation

- Room setup, materials noted above
- Review and, if necessary, adapt "Overview of CMAM" PowerPoint presentation (this may include removing, adding or reorganizing slides). Review all participant handouts. If no adaptation is needed, trainers may decide to distribute **Handout 1.15 PowerPoint Presentation Slide Images** that provides a thumbnail image of all of the slides currently in the "Overview of CMAM" PowerPoint presentation.
- **Optional:** Arrange for a guest speaker(s) to discuss the design and planning of a CMAM intervention. The speaker should preferably be someone from the Ministry of Health (MOH) (regional or district level) who has experience in planning and setting up CMAM services. The speaker can also be someone from a nongovernmental organization (NGO) who has worked closely with the MOH. (Give guidance on the case study to be presented if a guest speaker is invited.)

Module duration: one hour in classroom followed by a one-day site visit

Note: Depending on the needs of their audience(s), trainers may choose to skip or spend more or less time on certain learning objectives and activities. The module duration is an estimate of the time it takes to complete all learning objectives and activities.

Introduce participants, training Course, modules, and Course objectives

Become familiar with **Handout 1.1 Abbreviations and Acronyms**, **Handout 1.2 Terminology for CMAM**, and **Handout 1.3 References and Further Reading**.

ICEBREAKER: PRESENTATION OF NEIGHBOUR. Ask participants to introduce themselves and say a little about why they are attending the training, what their interest is in attending the course and how they plan to use the skills they will acquire.

Alternative icebreaker: Ask participants to pair up and interview each other about their experience with programs managing acute malnutrition. Have them ask each other whether they are involved in services or programs to address SAM or moderate acute malnutrition (MAM), and whether community-based or facility-based, etc. Then, have participants introduce their partners and share this information. Discuss similarities and varieties of experiences.

POWERPOINT: PRESENTATION OF COURSE PURPOSE AND OBJECTIVES (Show slides 1-2.) Ask participants to write three things they expect to gain from the training on cards or Post-it notes, one expectation per card. Collect the expectations and group similar ones together. Post the expectations in the training room and discuss them.

Present course purpose and objectives (PowerPoint slides 1-2). Compare the learning objectives to participants' expectations, and explain which expectations are likely and unlikely to be met during the training. Leave the expectations posted during training and review them at the end of each day.

Tell participants that a flip chart will be kept free to post ideas, questions and suggestions that arise throughout the course (often referred to as a "parking place"). Check the parking place periodically throughout the course and respond.

Refer participants to **Handout 1.1 Abbreviations and Acronyms**, **Handout 1.2 Terminology for CMAM**, and **Handout 1.3 References and Further Reading**. Ask them to use them as reference tools and invite questions now or at any point in the training.

Learning objective 1:

Discuss acute malnutrition and the need for a response

LO.1

Become familiar with **Handout 1.4 key Information on undernutrition**.

BRAINSTORM: UNDERNUTRITION AS A PUBLIC HEALTH CONCERN. Ask participants to contemplate the statement "Undernutrition is a public health concern" and to brainstorm reasons whether and why this statement is true.

PARTICIPATORY LECTURE: INTRODUCTION TO ACUTE MALNUTRITION. Ask participants "What is acute malnutrition?" and "Why is a focus on acute malnutrition important?" Discussion should touch on the difference between MAM and SAM, and text from **Handout 1.4 key Information on undernutrition.**

	bilateral Pitting Edema	**MUAC***	**WFH z-score** (WHO standards or NCHS references)	**WFH as a percentage of the median** (NCHS references)
SAM:	Present	< 115 mm*	< -3	< 70%
MAM:	Not present	> 115 mm* and < 125 mm*	≥ -3 and < -2	≥ 70% and < 80%

POWERPOINT: UNDERNUTRITION AND ACUTE MALNUTRITION. (Show slides 3-6)

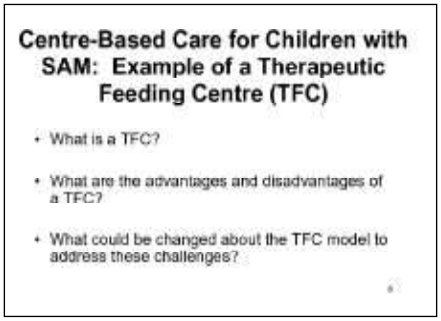
Slide 4: Ask participants what they see and to describe the nutritional status of all three children. Tell participants all three children are the same age. Discuss how this change their impressions of the children's nutritional status. Note: The child on the left is stunted, the middle child is normal and the child on the right is wasted and probably stunted as well.

Slide 6: Remind participants that SAM contributes to about one million deaths of children under 5 each year. The Lancet article (2006) highlighted the extent of the problem of acute malnutrition. Note to participants that:

- Acute malnutrition does not just occur in emergencies and is not limited to Africa.
- Wasting occurs in both emergencies and nonemergencies.
- India and Pakistan (non-emergency settings) have the highest number of children with severe wasting; 78 percent of the world's wasted children live in India, Pakistan and Bangladesh.
- Madagascar has the highest prevalence of severe wasting, above the emergency threshold for response to wasting
- Ranking is based on absolute numbers of severe wasting and will change when based on overall wasting.

lo.1

POWERPOINT: THE TRADITIONAL RESPONSE TO SAM. (Show slides 7-12.)



Slide 8: Ask participants what a therapeutic feeding centre (TFC) is. Explain that TFCs are also known as nutrition rehabilitation units (NRUs) and others. TFCs provide inpatient care for treating malnourished children; children with SAM receive F75 and F100 milk and medical care by trained clinical staff in a centralized facility with 24-hour care.

- Ask participants about the impact on coverage if treatment is provided only in centralized facilities by trained medical staff. What are the implications for patients and their mothers/caregivers?
- Ask what the implications are if ALL children with SAM are admitted as inpatients to a centre or health facility. What are the implications for inpatient capacity, availability of resources and quality of care? What about the possibility of cross-infection with so many children in overcrowded facilities?

Slide 9-12: Explain to participants, if not already addressed in discussion above, that because cent rebased care requires specially trained staff, facilities with beds and 24-hour medical care, there are few centers that cover large areas. These centers can become very overcrowded, especially in populations with a high incidence of SAM in both development and emergency contexts. As the centers become overcrowded, already vulnerable children become increasingly at risk for cross-infection and the facility can become overwhelmed (e.g., staff, equipment, supplies, beds).

Learning objective 2:

Identify the principles of CMAM

LO.2

Become familiar with **Handout 1.5 CMAM Principles**.

BUZZ GROUPS: WHAT IS CMAM. Have participants form groups of two or three to quickly name, if they can, a few key facts about CMAM. Write responses on a flip chart.

POWERPOINT: INTRODUCTION TO CMAM (Show slides 13-19.)
Highlight the four main components:

1. Community outreach
2. Outpatient care for SAM without medical complications
3. Inpatient care for SAM with medical complications
4. Services or programs for management of MAM can be provided depending on the context

DISCUSSION: COMMUNITY-BASED VS. CENTRE-BASED APPROACHES FOR THERAPEUTIC FEEDING.

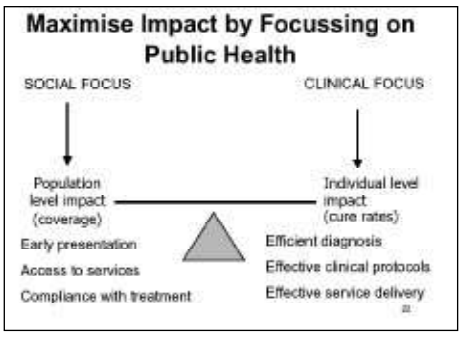
Ask participants to quickly highlight some advantages of CMAM in comparison to centre-based approaches, then discuss the disadvantages. Write responses on a flip chart and be prepared to return to this topic.

POWERPOINT: PRINCIPLES OF CMAM (Show slides 20-22.)

Refer participants to **Handout 1.5 CMAM Principles** and review briefly together. Explain that in bringing together the four main components of CMAM, services can be carried out according to the following key principles:

1. Maximum access and coverage
2. Timeliness
3. Appropriate medical and nutrition care
4. Care for as long as it is needed

Slide 22: Explain that CMAM is a public health approach (treating as many as possible in outpatient care), as compared to the traditional centre-based approach (treating individuals in a 24-hour clinical setting). As such, it illustrates a shift from the individual to the population.



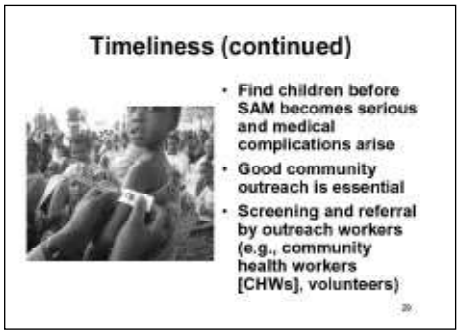
POWERPOINT: KEY PRINCIPLE 1. MAXIMUM ACCESS AND COVERAGE
(Show slides 23-26.)

Slides 24-25: The first scenario provides care at a national level only. The second scenario shows the provincial geographical coverage when many decentralized outpatient care sites were established.

LO.2

POWERPOINT: KEY PRINCIPLE 2. TIMELINESS (Show slides 27-30.)

Slide 29: Note to participants that this is a child with SAM who is still alert, likely has a good appetite, and can be treated as an outpatient. The colored strip measures MUAC in children ages 6-59 months. Outreach workers (e.g., lady health workers [LHWs], volunteers) can easily identify children with acute malnutrition using MUAC tape and can be trained to recognize bilateral pitting edema. This makes it easy to identify children with acute malnutrition in the community.



POWERPOINT: KEY PRINCIPLE 3. APPROPRIATE MEDICAL AND NUTRITION CARE (Show slides 31-32.)

Slide 32: An assessment of the medical condition following the integrated management of childhood and neonatal illness (IMNCI) approach as well as the appetite test will determine whether the child can be treated as an outpatient with regular visits to the health facility or must be referred to inpatient care.

POWERPOINT: KEY PRINCIPLE 4. CARE FOR AS LONG AS IS NEEDED (Show slides 31-32.)

discussion: Ask participants if they have further thoughts on the advantages or disadvantages of community-based versus centre-based therapeutic care. Then ask how each of the components contributes to achieving the principles.

Learning objective 3:

Describe recent innovations and evidence making CMAM possible

Become familiar with **Handout 1.6 Classification of Acute Malnutrition for CMAM** and **Handout 1.7 Screening and Admission using MUAC**.

ELICITATION: Ask participants if any can name innovations that have made CMAM possible. Direct conversation to the following three innovations:

1. Availability of RUTF
2. Classification of acute malnutrition for CMAM
3. Screening and admission using MUAC

POWERPOINT: AVAILABILITY OF RUTF (Show slides 35-39.)

Slide 36: Explain that RUTF is an oil-based paste with very low water activity. It does not grow bacteria even when accidentally contaminated. It is safe to use in most environments. It is energy-dense but the quantity of proteins, fat, vitamins and minerals per 100 kilocalories (kcal) is equivalent to that of F100, recommended by WHO for the inpatient treatment of SAM. RUTF can be eaten straight from the packet or pot and can be consumed easily by children from the age of 6 months. No water is added.

Slide 37: RUTF has distinct advantages over the traditional milk-based therapeutic diets: F100, which can be easily contaminated, should never be used for outpatient care, while RUTF can be kept in simple packaging for several months without refrigeration. RUTF can be kept for several days even when opened. Also, RUTF contains iron, while F100 does not.

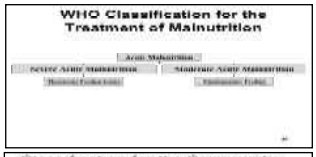
Slide 38: RUTF can be produced locally using simple equipment. However, thorough inspections and quality control are needed for large-scale local production to ensure that there is no risk of contamination of the ingredients and that the product has the right composition and quality. The cost for local production can vary based on availability of ingredients and the capacity of local manufacturers.

DEMONSTRATION: FAMILIARIZATION WITH RUTF AND ITS PACKAGING.
After the PowerPoint slides, distribute RUTF packets so that participants can familiarize themselves with the product.

LO.3

POWERPOINT: ACUTE MALNUTRITION CLASSIFICATION FOR CMAM

(Show slides 40-41.)



Slide 40: Note to participants that in the past, acute malnutrition was divided into two categories which determined the mode of treatment.

Slide 41: An updated classification has been proposed for use in CMAM: dividing the category for children with SAM into SAM with medical complications and SAM without.

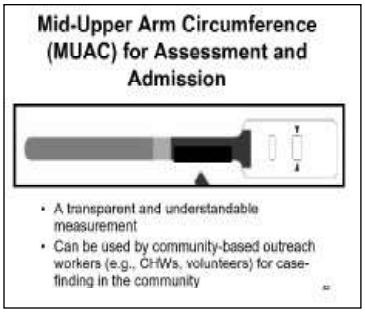
ELICITATION: COMPARING THE TWO CLASSIFICATIONS. Ask participants what has changed between the two classifications and what implications this has for treating children with SAM. Fill in the gaps:

- The new classification recommends that children with SAM and medical complications be treated in inpatient care until their condition is stabilized. This ensures that children with increased mortality risk are treated appropriately.
- It also recommends that those with SAM with appetite and without medical complications be treated in outpatient care.

Ask participants about critical factors in identifying children with medical complications. Note that the most critical indicator of whether a child with SAM requires inpatient or outpatient care is APPETITE.

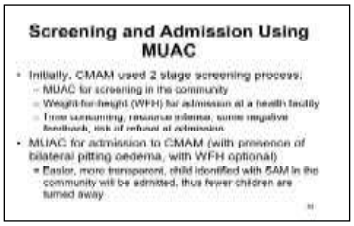
POWERPOINT: SCREENING AND ADMISSION USING MUAC (Show slides 42-44.)

Slide 42: Note that:



- MUAC makes it easy to understand how children are classified and whether they will qualify for treatment. This increases transparency and community support for the program.
- MUAC is simple to use. A MUAC tape can be used by one person and is easily transportable. It can fit into a pocket. It also does not require literacy, numeracy or additional equipment. This makes it easy to use at the community level, increasing the likelihood of early identification and presentation. However, simple training is needed to ensure correct use of the MUAC tape.

Slide 43: Note that:



- MUAC is used for identification of SAM during screening at the community level and admission for treatment at the health facility. Using MUAC alone for admission means that all children who are referred by CHWs and who come to outpatient care would be admitted and therefore would not be rejected if they do not meet the weight-for-height (WFH) criteria for admission.
- Using MUAC alone as independent criteria for SAM was endorsed by WHO.

DEMONSTRATION: FAMILIARISATION WITH MUAC TAPES. Distribute colored MUAC tapes and briefly show how they are used. Allow participants to familiarize themselves with them. Refer participants to **Handout 1.7 Screening and Admission using MUAC** and review the categorization by color and what they mean. Answer any questions.

Learning objective 4:

Identify the components of CMAM and how they Work together

LO.4

Become familiar with **Handout 1.8 CMAM Components and How They work Together**.

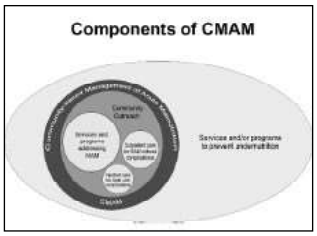
POWERPOINT: CMAM COMPONENTS (Show slides 45-55)

Review the four components of CMAM (below) and refer participants to **Handout 1.8 CMAM Components and How They work Together** for future reference**.**

1. Community outreach
2. Outpatient care for SAM without medical complications
3. Inpatient care for SAM with medical complications
4. SFPs for MAM, depending on the context.

POWERPOINT: HOW THE COMPONENTS OF CMAM WORK TOGETHER (Show slides 56-58.)

Slide 56: Point out each of the components and ask participants why the circles are of different sizes. Point out that:



- If community outreach is effective and intervention is timely, children with acute malnutrition will be identified early and most will have MAM without medical complications. They can then be referred to programs to treat MAM.
- More than 80 percent of those with SAM will have no medical complications and will qualify for outpatient care.
- The few children with SAM who have medical complications or no appetite will require referral to inpatient care.

GROUP DISCUSSION: HOW THE COMPONENTS WORK TOGETHER. Have participants break into groups of four to five people, show slide 56 (Components of CMAM) and ask the groups to discuss:

- The component where children most at risk are treated
- The component where children at medium risk are treated
- The component where children at lower risk are treated

Ask groups to diagram the movement of the following child among CMAM components.

Ask each question individually after each group has answered the previous question:

- Identified by community screener with red MUAC
  - Where does the child go next? (outpatient care)
- In outpatient care, the child is found to have red MUAC and medical complications
  - Where does child go next? (inpatient care)
- Child's medical complications clear, but still has red MUAC
  - Where does child go next? (outpatient care)
- Child has been in treatment for the minimum amount of time and MUAC shows s/he is now moderately malnourished
  - Where does child go next? (supplementary feeding, if available)

Ask participants to discuss their own experiences with implementing the different components.

Learning objective 5:

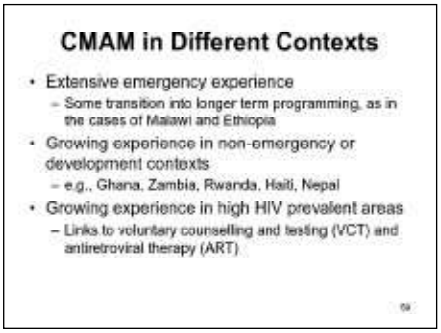
Explore how CMAM Can Be implemented in different Contexts

Become familiar with **Handout 1.9 Case Studies**, **Handout 1.10: Implementing CMAM in different Contexts**, **Handout 1.11: Factors to Consider in Providing Services for the Management of SAM** and **Handout 1.12: Integrating CMAM into Routine Health Services at the district level**.

WORKING GROUPS: Ask participants to form groups of five or six. Give each group **Handout 1.9 Case Studies**. Ask the groups: "Which case study best represents your working context, and why"? Ask the groups to present back then discuss. If not raised in discussion, ask whether the context was an emergency setting or not, whether CMAM services were integrated into routine health services, and whether there was a high HIV prevalence rate.

POWERPOINT: CMAM IN DIFFERENT CONTEXTS (Show slides 59-61.)

Slide 59: Highlight to participants the following characteristics of CMAM in different contexts:



emergency and post-emergency settings: CMAM works well in an emergency context because large numbers of children with acute malnutrition can be reached, due to the availability of external financial and technical resources to introduce or strengthen services.

non-emergency context: CMAM of SAM can take place in the context of ongoing health programming. Inpatient care takes place at existing health facilities with 24-hour care (e.g., hospitals, health centers with hospitalization), while outpatient care operates at the first-level health facility (e.g., health centers, clinics, health posts).

In high HIV prevalence areas: A large proportion of children with SAM in inpatient and outpatient care will be HIV-positive. The majority of HIV-positive children with SAM will benefit from community-based treatment with RUTF. Strong linkages between CMAM, voluntary counselling and testing (VCT) and treatment services (i.e. offering antiretroviral [ARV] and cotrimoxazole prophylaxis) are essential.

WORKING GROUPS: INTEGRATING CMAM WITH EXISTING HEALTH SERVICES. Still in the same working groups, refer participants to **Handout 1.12 Integrating CMAM into Routine Health Services at the district level.** Ask participants to read it quietly and then discuss what programs in their district could be integrated with CMAM and how. Ask them to take into account the factors to consider outlined in **Handout 1.11 Factors to Consider in Providing Services for the Management of SAM.**

Learning objective 6:

Identify key national and global developments and Commitments relating to CMAM

Become familiar with the **WHO, WFP, UN/SCN and UNICEF 2007 joint Statement on Community-based Management of Severe Acute Malnutrition**.

POWERPOINT: GLOBAL COMMITMENT FOR CMAM (Show slides 62-63.)

DISCUSSION: Distribute the **WHO, WFP, UN/SCN and UNICEF 2007 joint Statement on Community-based Management of Severe Acute Malnutrition** and briefly review the contents together. Make particular note of the joint statement's support to:

Adopt national policies and programs to:

- Ensure that national protocols for management of SAM have a strong community component
- Achieve high coverage through reaching children who need treatment through effective community outreach and active case-finding
- Provide training and support for CHWs to identify children with SAM and to recognize those with medical complications that need urgent referrals
- Provide training for improved management of SAM at all levels so there is an effective integrated approach (i.e. combined inpatient and outpatient care)

Provide the resources needed for effective management of SAM including:

- Making RUTF available in community-based services and programs as well as other essential items (e.g. F100, F75, ReSoMal, scales, MUAC tapes)
- Encouraging national production of RUTF
- Ensuring funding to provide free treatment for SAM

Link CMAM with other health activities, including IMCI and prevention services

DISCUSSION: Ask a few participants to give examples of national commitments and policy with regard to CMAM.

VIDEO: View a video of a CMAM programme run by the Ethiopia MOH with Concern Worldwide/Wollo Ethiopia. Discuss.

GUEST SPEAKER: Listen to a guest speaker share his/her experiences in planning, implementing and integrating a CMAM programme.

Wrap-up and module evaluation

SUGGESTED METHOD: REVIEW OF LEARNING OBJECTIVES AND COMPLETION OF EVALUATION FORM

- Review the learning objectives of the module. In this module you have:

1. Discussed acute malnutrition and the need for a response
2. Described the principles of CMAM
3. Described recent innovations and evidence
4. Discussed how the components of CMAM work together
5. Developed an appreciation for the issues related to implementing CMAM
6. Explored how CMAM can be implemented in different contexts
7. Identified global commitments related to CMAM ▪

Ask for any questions and feedback on the module.

- Direct participants to **Handout 1.13 essentials of CMAM** for future reference.
- Tell participants that they will have an opportunity to observe procedures and talk with staff during the field visit.
- Ask participants to complete the module evaluation form. *

*The evaluation form can also be distributed at the end of each day or periodically, depending on trainers' preferences.

FIELD VISIT TO OUTPATIENT CARE

Become familiar with **Handout 1.14 Field visit Checklist**.

- A maximum of five participants should be at each outpatient care site on a given day. Coordinate with as many sites as necessary to keep the number of participants at five or fewer.
- Pair participants with someone who speaks both the local language and the participants' language.
- Introduce participants to the person in charge.

Learning objectives

1. Observe the following activities:
   - How children with SAM are admitted and discharged, if possible
   - How children with SAM are treated and evaluated in outpatient care follow-on sessions (e.g., anthropometric measurement, medical assessment, supply of RUTF)
2. Discuss with staff the following:
   - What do they like and dislike about the CMAM service?
   - How does this service affect their overall workload?
   - What shortcomings or problems do they see with the service?
   - How do they work with outreach workers (e.g., CHWs, volunteers)?
   - How do they link with other health services (e.g., expanded programme of immunization [EPI], VCT)?
   - What type of support is provided to the child's family after the child is discharged (e.g., micro-credit support, agricultural support, infant and young child feeding [IYCF] counselling)
3. Talk with mothers/caregivers:
   - How did they find out about the service?
   - What do they like and dislike about the service?

DISCUSSION: FEEDBACK ON FIELD VISIT SESSION. After the field visit, conduct a feedback session in which participants will:

- Provide feedback on strengths observed at each outpatient care site visited
- Raise issues for clarification by facilitators
- Identify key gaps that need more observation time

HANDOUTS
& EXERCISES

COMMUNITY-BASED MANAGEMENT OF ACUTE MALNUTRITION

MODULE ONE

Overview of Community-Based Management of Acute Malnutrition (CMAM)

Compiled and Edited by Dr. Abdul Rehman Pirzado pirzado@gmail.com

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HANDOUT 1.1 ABBREVIATIONS AND ACRONYMS

ACT	artemisinin-based combination therapy
AED	Academy for Educational Development
ARI	acute respiratory infection
ART	antiretroviral therapy
ARV	antiretroviral
AWG	average daily weight gain
BCC	behavior change communication
CBO	community based organization
CCC	Community Care Coalition
CDC	Centers for Disease Control
CHC	child health card
CHP	community health promoter
CHPS	Community-Based Health Planning and Services Initiative
CHPS-TA	Community-Based Health Planning and Services Initiative – Technical Assistance
CHW	community health worker
CMAM	Community-Based Management of Acute Malnutrition
CMV	combined mineral and vitamin mix
CRS	Catholic Relief Services
CSAS	centric systematic area sampling
CSB	corn-soy blend
CTC	community-based therapeutic care
DHMT	district health management team
DHS	Demographic Health Survey
DSM	dry skim milk
EBF	exclusive breastfeeding
EDL	Essential Drug List
ENA	Essential Nutrition Actions
ENN	Emergency Nutrition Network

EPI	expanded programme of immunization
FANTA	Food and Nutrition Technical Assistance Project
FAO	Food and Agriculture Organization of the United Nations
FBF	fortified blended food
GAM	global acute malnutrition
GHS	Ghana Health Services
GI	gastrointestinal
GMP	height-for-age
GSHP	High Impact and Rapid Delivery
HBC	human immunodeficiency virus
HEW	health management information system
HFA	information, education and communication
HIRD	Infant Feeding in Emergencies
HIV	integrated management of childhood illness
HMIS	Integrated Nutrition Action Against Malnutrition
IEC	insecticide treated net
IFE	international units
IMCI	infant and young children feeding
INAAM	kilocalories
ITN	lipid-based nutrient supplement
IU	average length of stay
IYCF	lower respiratory tract infection
KCAL	monitoring and evaluation
LNS	moderate acute malnutrition
LOS	Management of Acute Malnutrition in Infants Project of the Institute of Child Health
LRTI	maternal and child health
M&E	maternal and child health and nutrition
MAM	Millennium Development Goal
MDG	Millennium Development Goal
MICS	Multiple Indicator Clause Survey
MOH	Ministry of Health
MSF	Médecins Sans Frontièrs

MUAC	mid-upper arm circumference
NCHS	National Centre for Health Statistics
NFDM	non-fat dry milk
NGO	nongovernmental organization
NRC	nutrition rehabilitation centre
NRU	nutrition rehabilitation unit
OI	opportunistic infection
OICI	Opportunities Industrialization Centers International
OPD	outpatient department
OTP	outpatient therapeutic programme
OVC	orphans and vulnerable children
PD	Positive Deviance
PHC	primary health care
PLHIV	people living with HIV
PMTCT	prevention of mother-to-child transmition of HIV
PRA	Participatory Rural Appraisal
QHP	Quality Health Partners
ReSoMal	Rehydration Solution for Malnutrition
RRA	Rapid Rural Appraisal
RUSF	ready-to-use supplementary food
RUTF	ready-to-use therapeutic food
SAM	severe acute malnutrition
SC	stabilization centre
SC-USA	Save the Children USA
SD	standard deviation
SFP	supplementary feeding programme
SMART	Standardized Monitoring and Assessment for Relief and Transition
SNNPR	Southern Nations, Nationalities, and People's Region
SQUEAC	semi-quantitative evaluation of access and coverage
SST	supplementary suckling technique

SWOT	strengths, weaknesses, opportunities and threats
TB	tuberculosis
TF	task force
TFC	therapeutic feeding centre
UN	United Nations
UNICEF	United Nations Children's Fund
UN/SCN	United Nations System Standing Committee on Nutrition
USAID	United States Agency for International Development
VCT	voluntary counselling and testing
WFA	weight-for-age
WFH	weight-for-height
WFP	World Food Programme
WHO	World Health Organization
WSB	wheat-soy-blend

HANDOUT 1.2 Terminology for CMAM

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 edema or sudden weight loss. It is defined by the presence of bilateral pitting edema or wasting (low mid-upper arm circumference [MUAC] or low weight-for-height [WFH]). *Note: The MUAC indicator cutoffs are being debated (see "Mid-Upper Arm Circumference [MUAC] Indicator" below). The WFH indicator is expressed as a z-score below two standard deviations (SDs) of the median (or WFH z-score < -2) of the World Health Organization (WHO) child growth standards (WHO standards), or as a percentage of the median < 80% of the National Centre for Health Statistics (NCHS) child growth references (NCHS references).*
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 the decisive criteria for participation in outpatient care. The test is done at admission and at all outpatient care follow-on sessions to ensure that the child can eat ready-to-use therapeutic food (RUTF). If the child has no appetite, s/he must receive inpatient care.
Bilateral Pitting Edema	Bilateral pitting edema, also known as nutritional edema, kwashiorkor or edematous malnutrition, is a sign of severe acute malnutrition (SAM). It is defined by bilateral pitting edema of the feet and 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. It is an abnormal infiltration and excess accumulation of serous fluid in connective tissue or in a serous cavity. The categories of bilateral pitting edema are: Mild : Both feet (can include ankles), Grade + Moderate: Both feet, lower legs, hands or lower arms, Grade + + Severe: Generalized bilateral pitting edema including both feet, legs, hands, arms and face, Grade + + +
Centre-Based Care for SAM	Centre-based care for SAM refers to the management of SAM with or without medical complications in inpatient care until weight recovery is achieved. Before the development of CMAM or in the absence of the CMAM approach, children with SAM were exclusively managed as inpatients receiving medical treatment and nutrition rehabilitation until weight recovery is achieved.
Community-Based Management of Acute Malnutrition (CMAM)	CMAM refers to the management of acute malnutrition through: 1) inpatient care for children with SAM with medical complications and all infants under 6 months old with SAM; 2) outpatient care for children with SAM without medical complications; 3) community outreach; and 4) services or programs for children with moderate acute malnutrition (MAM) that may be provided depending on the context. CMAM evolved from Community-Based Therapeutic Care (CTC), which is a community-based approach for the management of acute malnutrition in emergency settings, and

	comprises the key components of community outreach, supplementary feeding programs (SFPs), outpatient care programs (OCPs) and stabilization centers (SCs). Other variants of CMAM include ambulatory care or home-based care (HBC) for SAM.
CMAM Programs versus CMAM Services	Implementing agencies manage CMAM programs. The Ministry of Health (MOH) or private health care providers at health facilities (or in the communities) provide CMAM services.
Community Outreach	Community outreach for CMAM includes community assessment, community mobilization, 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 the health facility for CMAM services.
Community Volunteer	A community volunteer is a person who conducts outreach for community mobilization, screening, referral and follow-up in the community. He or she can receive an incentive but no remuneration.
Coverage	*Geographical coverage* refers to the availability of CMAM services (i.e. geographical access) through the decentralization and scale-up of CMAM services. *Service or programme coverage* refers to the uptake of CMAM services (service access and use). *Geographical coverage* can be defined by the ratio of health facilities with CMAM services to health facilities per district, or by the ratio of children with SAM in treatment to children with SAM in the community (estimated with direct methods or indirect methods). *Geographical coverage*, defined by the ratio of children with SAM in treatment to the total number of children with SAM identified in the community at a particular time, is measured by a population survey in the study population (i.e., cluster survey; the study population is living in an area that can be larger than the catchment area of the health facilities with CMAM services). *Service or program coverage*, defined by the ratio of children with SAM in treatment to the total number of children with SAM identified in the community at a particular time, is measured by a population survey (e.g., centric systematic area sampling [CSAS] method, semi-quantitative evaluation of access and coverage [SQUEAC] method, the study population is living within the catchment area of the health facilities with CMAM services).
Coverage Ratio	Coverage ratio is expressed as the ratio of children with SAM under treatment (a) to the total number of children with SAM identified in the community at a particular time (a+b). Children with SAM identified in the community are calculated as children with SAM under treatment (a) plus children with SAM who are not under treatment (b). [Coverage ratio = a/(a+b)].
Essential Health Care Package	Essential health care package refers to the set of services provided at health facilities, as mandated by the national health policy. The package varies based on the health facility type (e.g., health centre versus health post).
F75	Formula 75 (75 kcal/100ml) is the milk-based diet recommended by WHO for the stabilization of children with SAM in inpatient care.

F100	Formula 100 (100 kcal/100ml) is the milk-based diet recommended by WHO for the nutrition rehabilitation of children with SAM after stabilization in inpatient care and was used in this context before RUTF was available. Its current principal use in CMAM services is for children with SAM who have severe mouth lesions and cannot swallow RUTF, and who are being treated in inpatient care. Diluted F100 is used for the stabilization and rehabilitation of infants under 6 months of age in inpatient care.
Global Acute Malnutrition (GAM)	GAM is a population-level indicator referring to overall acute malnutrition defined by the presence of bilateral pitting edema or wasting defined by WFH < -2 z-score (WHO standards or NCHS references). GAM is divided into moderate and severe acute malnutrition (GAM = SAM + MAM).
Hand-Over of CMAM	Hand-over refers to the actual transfer of roles and responsibility for CMAM services from the nongovernmental organization (NGO) to the MOH. While the NGO or other partner may continue to provide some financial or technical support following the hand-over (e.g., purchase and transport of supplies, provision of training), MOH staff conducts CMAM planning and provides CMAM services.
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	Health care provider refers to the medical, nursing and allied health professionals, including community health workers (CHWs).
Health Care System	A health care system refers to the organized delivery of health care.
Health System	A health system consists of all structures, resources, policies, personnel, services and programs involved in the promotion, restoration and maintenance of health.
Height-for-Age Index (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 standards. This index reflects a child's past nutritional status.
Inpatient Care for the Management of SAM with Medical Complications	Inpatient care is a CMAM service treating children with SAM with medical complications until their medical condition is stabilized and the complication is resolved (usually four to seven days). Treatment then continues in outpatient care until weight recovery is achieved. Inpatient care for SAM with medical complications is provided in a hospital or health facility with 24-hour care capacity.
In-Service Training	In-service training prepares health professionals to provide CMAM services 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., on-the-job training, tutoring or mentoring, refresher training sessions).
Integration of CMAM or	Integration of CMAM refers to the incorporation of CMAM into the national health system.

CMAM Services	Integration of CMAM services refers to the incorporation of the CMAM services of inpatient care, outpatient care and community outreach into the national health care system. It assumes that the health care system has the capacity and competence for providing, strengthening, adapting, and maintaining quality and effective CMAM services with minimal external support. Minimal external support refers to financial and technical support to the MOH for capacity strengthening and access to supplies.
Kwashiorkor	See **Bilateral Pitting Edema**.
Management of Illness	Management of a specific illness is the prevention, detection, referral for treatment, treatment, follow-up, and prevention of relapse of the illness.
Marasmic Kwashiorkor	Marasmic kwashiorkor is the simultaneous condition of severe wasting (marasmus) and bilateral pitting edema (kwashiorkor).
Marasmus	See **Severe Wasting**.
Medical Complications in the Presence of SAM	The major medical complications in the presence of SAM that indicate the need for referral of a child to inpatient care are: anorexia or no appetite, convulsions, high fever, hypoglycaemia or hypothermia, intractable vomiting, lethargy or not alert, lower respiratory tract infection (LRTI), severe anemia, severe dehydration, unconsciousness. (Other cases needing inpatient care besides severe bilateral pitting edema, Marasmic kwashiorkor, SAM with medical complications and infants under 6 months with SAM include: infants 6 months or older with SAM and a weight below 4 kg, children with SAM in outpatient care and weight loss for three weeks or with static weight for five weeks, or upon mother/caregiver's request.)
Micronutrient Deficiencies	Micronutrient deficiencies are a consequence of reduced or excess micronutrient intake and/or absorption in the body. The most common forms of micronutrient deficiencies are related to iron, vitamin A and iodine deficiency
Mid-Upper Arm Circumference (MUAC) Indicator	Low MUAC is an indicator for wasting, used for a child that is 6 to 59 months old. MUAC < 115 mm indicates severe wasting or SAM. MUAC ≥ 115 mm and < 125 mm indicates moderate wasting or MAM. MUAC cutoffs are being debated; for example, new suggestions could be MUAC < 115 mm for SAM and ≥ 115 and <125 for MAM. MUAC is a better indicator of mortality risk associated with acute malnutrition than WFH.
Moderate Acute Malnutrition (MAM)	MAM, or moderate wasting, is defined by a MUAC ≥ 115 mm and < 125 mm (the cutoff is being debated) or a WFH ≥ -3 z-score and < -2 z-score of the median (WHO standards) or WFH as a percentage of the median ≥ 70% and < 80% (NCHS references).
Moderate Wasting	MAM can also be used as a population-level indicator defined by WFH ≥ -3 z-score and < -2 z-score (WHO standards or NCHS references).

Nutritional Edema	See **Bilateral Pitting Edema.**
Edematous Malnutrition	See **Bilateral Pitting Edema.**
Outpatient Care for the Management of SAM Without Medical Complications	Outpatient care is a CMAM service treating children with SAM without medical complications through the provision of routine medical treatment and nutrition rehabilitation with RUTF. Children attend outpatient care at regular intervals (usually once a week) until weight recovery is achieved (usually two months).
Outreach Worker for CMAM	An outreach worker is a CHW, health extension worker (HEW) or community volunteer who identifies and refers children with acute malnutrition from the community to the CMAM services and follows up with the children in their homes when required.
Pre-Service Training	Pre-service training 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 simulations, demonstrations, on-the-job training, mentoring, etc.
Ready-to-Use Therapeutic Food (RUTF)	RUTF is an energy-dense, mineral- and vitamin-enriched food specifically designed to treat SAM. RUTF has a similar nutrient composition to F100. RUTF is soft, crushable food that can be consumed easily by children from the age of 6 months without adding water. Unlike F100, 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. Plumpy'nut® is an example of a commonly known lipid-based RUTF.
Referral	A referral is a child who is moved to a different component of CMAM (e.g., from outpatient care to inpatient care for medical reasons) but has not left the program.
Routine Health Services	Routine health services refer to those services provided at health facilities depending on staff capacity and facility resources. These services include the essential health care package and other services.
Scale-Up	Scale-up involves the expansion of services (e.g., from the pilot phase to the program 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 outpatient care or inpatient care site without a referral from outreach workers (e.g., CHWs, volunteers).
Severe Acute Malnutrition (SAM)	SAM is defined by the presence of bilateral pitting edema or severe wasting (MUAC < 115 mm [cutoff being debated] or a WFH < -3 z-score [WHO standards] or WFH < 70% of the median [NCHS references]). A child with SAM is highly vulnerable and has a high mortality risk

	SAM can also be used as a population-based indicator defined by the presence of bilateral pitting edema or severe wasting (WFH < -3 z-score [WHO standards or NCHS references]).
Severe Wasting	Severe wasting is a sign of SAM. It is defined by a MUAC < 115 mm (cutoff being debated) or a WFH < -3 z-score (WHO standards) or WFH < 70% of the median (NCHS references). 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" or "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 the humanitarian agencies in disaster response. Sphere has established Minimum Standards in Disaster Response (often referred to as Sphere Standards) and indicators to describe the level of disaster assistance to which all people have a right. www.sphereproject.org
Stunting	Stunting, or chronic undernutrition, is a form of undernutrition. It is defined by a height-for-age (HFA) z-score below two SDs of the median (WHO standards). 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 programs aimed at pregnant women, infants, and children under age 2. Programme responses to stunting require longer-term planning and policy development.
Transition of Programs	Transition refers to the process leading up to hand-over, including planning and preparation for the gradual transfer of roles and responsibilities for CMAM services from the NGO to the MOH, until hand-over is complete.
Undernutrition	Undernutrition is a consequence of a deficiency in nutrient intake and/or absorption in the body. The different forms of undernutrition that can appear isolated or in combination are acute malnutrition (bilateral pitting edema and/or wasting), stunting, underweight (combined form of wasting and stunting), and micronutrient deficiencies.
Underweight	Underweight is a composite form of undernutrition including elements of stunting and wasting and is defined by a weight-for-age (WFA) z-score below 2 SDs of the median (WHO standards). This indicator is commonly used in growth monitoring and promotion (GMP) and child health and nutrition programs aimed at the prevention and treatment of undernutrition.
Wasting	Wasting is a form of acute malnutrition. It is defined by a MUAC < 125 mm (cutoff being debated) or a WFH < -2 z-score (WHO standards) or WFH < 80% of the median (NCHS references).
Weight-for-Age Index (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 standards. The index reflects a child's combined current and past nutritional status.
Weight-for-Height Index (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 standards or NCHS references. The index reflects a child's current nutritional status.

HANDOUT 1.3
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HANDOUT 1.4 KEY INFORMATION ON UNDERNUTRITION

WHAT IS UNDERNUTRITION?

Undernutrition is a consequence of a deficiency in nutrient intake and/or absorption in the body and can take the form of:

- Acute malnutrition (bilateral pitting edema and/or wasting)
- Stunting
- Underweight
- Micronutrient deficiencies

Note: Malnutrition comprises both overnutrition (obesity) and undernutrition, but the term malnutrition is often used for forms of undernutrition (e.g., acute malnutrition).

Undernutrition in all its forms is a significant public health concern and an underlying factor in over 50 percent of the 10 million deaths from preventable causes among children under 5 each year[1]. All four types of undernutrition can overlap in the same child.

Undernutrition Indicators

	Acute Malnutrition	**Stunting**	**Underweight**	**Micronutrient Deficiencies**
Indicators	Low mid-upper arm circumference MUAC) or low weight-for-height WFH, wasting) OR Presence of bilateral pitting Edema	Low height-for- age (HFA)	low weight-for-age (WFA) combining wasting and stunting	

WHAT IS ACUTE MALNUTRITION?

- **Acute malnutrition** is caused by a decrease in food consumption and/or illness resulting in bilateral pitting edema or sudden weight loss. It is defined by the presence of **bilateral pitting edema** or **wasting** (low MUAC or low WFH).
- Acute malnutrition comprises both severe acute malnutrition (SAM) and moderate acute malnutrition MAM) and can have the following indicators (with cutoffs

	Bilateral Pitting Edema	**MUAC***	**WFH z-score** (WHO standards or NCHS references)	**WFH as a percentage of the median** (NCHS references)
SAM:	Present	< 115 mm*	< -3	< 70%
MAM:	Not present	> 115 mm* and < 125 mm*	≥ -3 and < -2	≥ 70% and < 80%

[1] Caulfield, L., M. de Onis, M. Blössner and R. Black. 2004. "Undernutrition as an underlying cause of child deaths associated with diarrhea, pneumonia, malaria, and measles," *American Journal of Clinical Nutrition* 80:193-8.

*cutoffs being debated

WHY FOCUS ON ACUTE MALNUTRITION?

- The World Health Organization (WHO), the World Food Programme (WFP), the UN Standing Committee on Nutrition (UN/SCN), and the United Nations Children's Fund (UNICEF) estimate that nearly 20 million children suffer from SAM worldwide and that SAM contributes to more than one million deaths of children under 5 every year.
- The importance of underweight (low WFA) and stunting (low HFA) in contributing to child illness and mortality is well accepted. As such, development programs (e.g., growth monitoring and promotion [GMP], integrated management of childhood illnesses [IMCI]) and child survival interventions have focused on these forms of undernutrition in health and nutrition prevention and treatment programs. Until recently, acute malnutrition has not been given much recognition beyond humanitarian emergency interventions.
- Since the 1990s a very effective SAM treatment protocol with low case fatality has been developed and made available. The availability of ready-to-use therapeutic food (RUTF) and the CMAM approach in the early 2000s made large-scale management of SAM possible with improved access and coverage.
- A larger number of children are affected by underweight and stunting than are by acute malnutrition, which demonstrates that a higher mortality risk is associated with acute malnutrition. Addressing acute malnutrition with an effective treatment at large scale will have a significant impact on mortality at the population level (see the Lancet's 2008 "Maternal and Child Undernutrition" series for further information).
- Acute malnutrition occurs in both emergency and non-emergency settings, but it is sometimes difficult to draw the line between the two:
    - Many countries experience protracted emergencies (e.g., South Sudan, Democratic Republic of Congo).
    - Some non-conflict settings like India have high general acute malnutrition (GAM) because of poverty.
    - The SAM/MAM case load in a country is determined by both prevalence and total population. Both are high in Pakistan and India. Therefore, a large concentration of cases can occur outside high-profile emergencies.
- Children have a right to treatment for acute malnutrition, as they do for other illnesses (e.g., malaria, pneumonia), regardless of where they live. It is vital to find ways to reach them over the short, medium and long term.

Other factors, like HIV, can lead to high SAM levels even when GAM is low (e.g., Malawi).

HANDOUT 1.5

CMAM PRINCIPLES

MAXIMUM ACCESS AND COVERAGE

Goal: Bring treatment close to where people live and make it less costly to access by having many decentralized sites and regular (weekly or biweekly) outpatient services.

- Outpatient care can be managed by health care providers with a variety of expertise. This reduces the need for highly trained clinical staff.
- Bringing care into the home reduces opportunity costs and disruption to the family.

TIMELINESS

Goal: Start treatment before the onset of life-threatening illnesses.

- Strong community outreach allows for early detection of severe acute malnutrition (SAM), ensuring that children are found, referred and treated on a timely basis.
- Decentralized services allow for early presentation because families can be referred to health facilities with outpatient care close to home.

APPROPRIATE MEDICAL CARE AND NUTRITION REHABILITATION

Goal: Provide the right treatment to children in need.

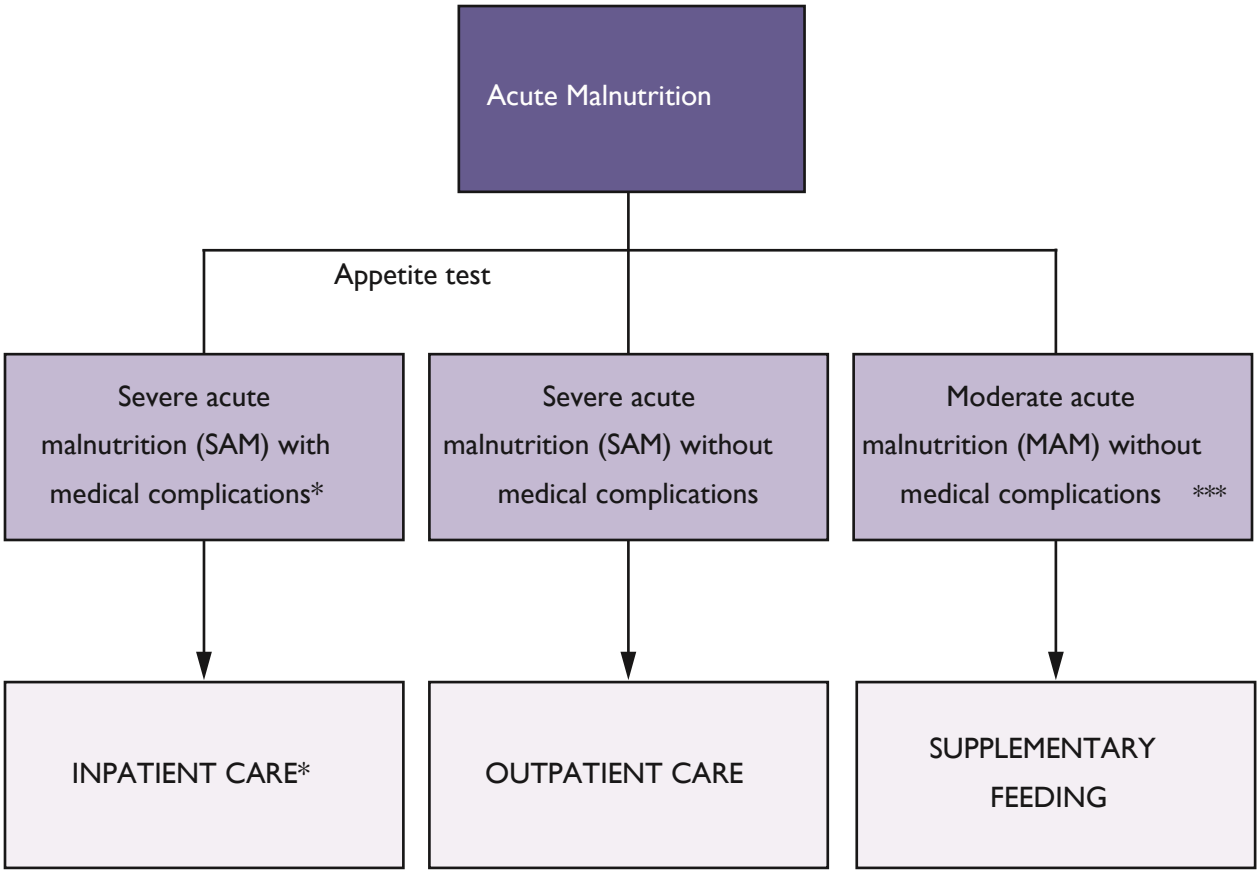
- CMAM recognizes that the severity of illness in children with SAM can range widely. Those with medical complications or no appetite are referred to inpatient care. Those with no medical complications and an appetite are referred to outpatient care.
- Once children are identified with acute malnutrition, they must be seen by a health care provider with the skills to assess them.

CARE AS LONG AS IT IS NEEDED

Goal: Reduce barriers to access and prevent relapse.

- Programs are designed to minimize default to ensure that children stay in the programme until they recover.
- Strong community outreach helps to identify and reduce barriers to access.
- Strong health service capacity ensures that treatment can be offered on an ongoing basis and is available as long as there is a need and supplies are present.

HANDOUT 1.6
CLASSIFICATION OF ACUTE MALNUTRITION FOR CMAM



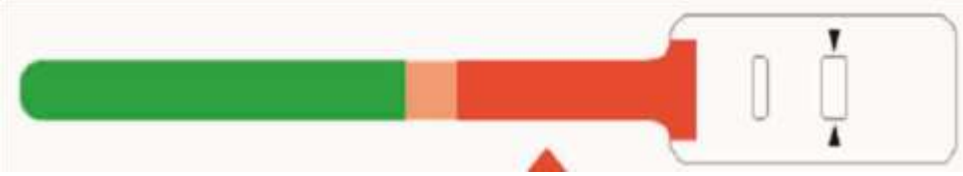
*Medical complications include severe bilateral pitting edema, Marasmic kwashiorkor, anorexia, intractable vomiting, convulsions, lethargy or not alert, unconsciousness, lower respiratory tract infection (LRTI), high fever, severe dehydration, severe anemia, hypoglycaemia, and hypothermia.

**Others admitted to inpatient care are: infants less than 6 months with SAM (bilateral pitting edema or visible wasting), children over 6 months of age who weigh less than 4 kg, and children with SAM in outpatient care who are losing weight or have static weight for five weeks.

*** Children with MAM and medical complications are admitted to supplementary feeding services or programs (known as SFPs in the emergency context) and receive supplementary food rations but are referred for medical treatment and return to supplementary feeding when medical complications are resolved.

HANDOUT 1.7
SCREENING AND ADMISSION USING MUAC

MID-UPPER ARM CIRCUMFERENCE (MUAC) TAPE



MUAC ONLY FOR REFERRAL AND ADMISSION

For children 6-59 months:

RED	SAM	MUAC < 115 mm and/or bilateral pitting edema
YELLOW	MAM	MUAC > 115 mm and < 125 mm
GREEN	Normal	MUAC > 125 mm

- MUAC is recommended as the best tool for effective CMAM services. The World Health Organization (WHO, 2005) has endorsed MUAC as an independent criterion for referral and admission to treatment services for severe acute malnutrition (SAM). However, national guidelines may also require the use of weight-for-height (WFH) in addition to MUAC.
- MUAC < 115 mm indicates severe wasting in children age 6-59 months. MUAC ≥ 115 mm and < 125 mm indicates moderate wasting (cutoffs being debated).
- Children age 6-59 months who are referred from the community with a red MUAC (<115 mm) are automatically admitted to outpatient care if they have an appetite and no medical complications.
- In some situations, cutoffs may be adjusted to accommodate available resources. For example, several countries, such as Ethiopia, use MUAC < 120 mm as the cutoff for admission to services to manage moderate acute malnutrition (MAM).

SCREENING AND ADMISSION USING MUAC

- MUAC is simple, quick, accurate and inexpensive, and color-coded tapes are suitable to be used by people who are illiterate/innumerate but trained.
- Identifying SAM with MUAC tapes can help people in the community better recognize which children need treatment: those who are very thin (a red MUAC).
- MUAC automatically selects younger children, those who are most at risk.
- MUAC is a better indicator of mortality risk associated with undernutrition than WFH.[1]

[1] See Myatt et al (2007), FNB or www.who.int/child_adolescent_health/New_Publications/nutrition/CBSM/tbp_1.pdf.

- MUAC involves only one measurement, while WFH requires two measurements and one calculation. As a result, there are fewer chances for error with MUAC and the process takes less time.

- MUAC-only admission reduces the chance that children will be rejected at an outpatient care site because a referral based on MUAC is an automatic entitlement for admission.

CONSIDERATIONS IN USING MUAC

- MUAC and WFH will identify slightly different groups of children as having SAM. Some children with MUAC < 115 mm can have a WFH z-score > -3 (WHO standards) or WFH > 70% of the median (National Centre for Health Statistics [NCHS] references) and vice versa. Therefore, different discharge criteria are applicable depending on the means of admission, which also includes bilateral pitting edema.

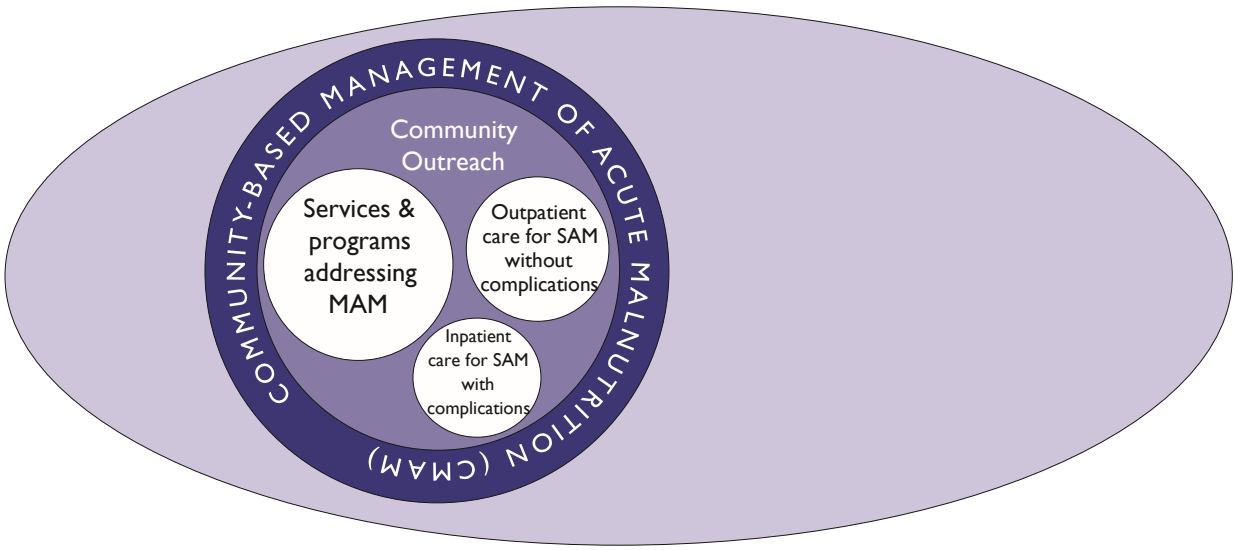
- If a young infant's age is unknown, the age is estimated by the mother/caregiver. If this is not possible, the ready-to-use therapeutic food (RUTF) appetite test can be used. If the infant can swallow the RUTF, then s/he can be safely treated in outpatient care if identified with SAM. No lower cutoff proxy based on length is applicable, neither for the use of MUAC nor for admission to outpatient care for SAM without medical complications.

Health care providers must be trained and regularly monitored for the standardization of MUAC measurements.

HANDOUT 1.8

CMAM COMPONENTS AND HOW THEY WORK TOGETHER

CORE COMPONENTS: COMMUNITY-BASED MANAGEMENT OF ACUTE MALNUTRITION



1.Community Outreach involves:

- Community assessment and mobilization
- Active case-finding to ensure early detection, early presentation and referral
- Education and sensitization of the community so that they know how and where to bring their children for screening and treatment
- Case follow-up

To establish the most effective outreach, CMAM makes it a priority to:

- Understand local barriers to access and service uptake
- Explain acute malnutrition and the objectives of the services in readily understandable local terms
    - Services and/or programs to prevent undernutrition
- Engage a broad array of local institutions and community outreach systems and initiatives

2.Outpatient Care is provided to children 6-59 months with severe acute malnutrition (SAM) and appetite but no medical complications. The following services are provided through outpatient care follow-on sessions to the health centre:

- Medical assessment and anthropometric monitoring
- Nutrition rehabilitation with ready-to-use therapeutic food (RUTF) ☐☐Basic medical treatment
- Medical assessment, anthropometric monitoring and treatment are based on simple protocols.

3. Inpatient Care is provided to infants below 6 months of age with SAM and to children 6-59 months with SAM and medical complications and/or no appetite.

- Medical treatment and nutrition rehabilitation is provided according to World Health Organization (WHO) and/or national protocols
- Children 6-59 months return to outpatient care when the medical complication is resolved and appetite returns
- Infants receive specialized treatment until full recovery

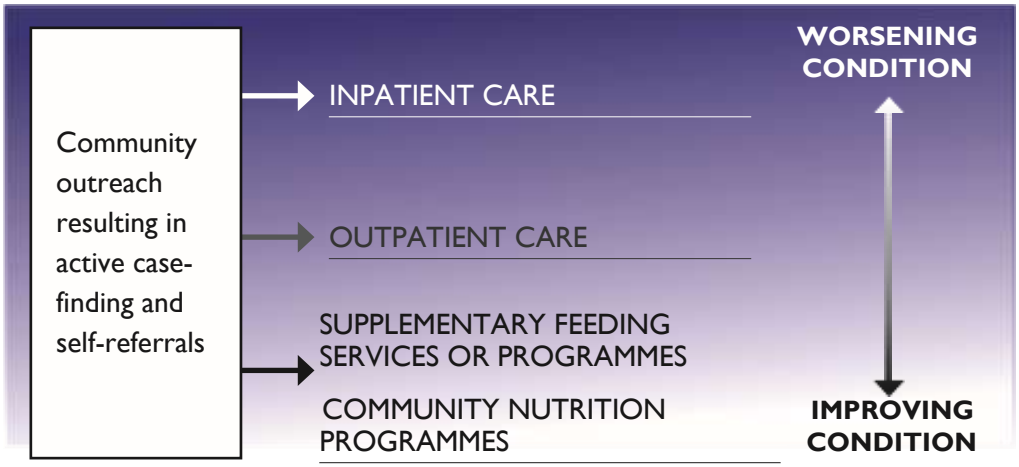
4. Management of Moderate Acute Malnutrition (MAM) can occur through supplementary feeding services or programs. Where such services do not exist, linkages can be created with other prevention and treatment programs, such as community nutrition programs, aimed at moderately malnourished children.

REFERRALS TO AND BETWEEN CMAM COMPONENTS

Referrals to CMAM services are fueled by strong community outreach resulting in active case-finding and self-referrals by community members. Admission criteria determine which service component a child is admitted to initially.

Referrals between CMAM service components follow established criteria. Children initially admitted to inpatient care will move to outpatient care as soon as their medical complication is resolved and their appetite returns. After discharge from outpatient care, the children are referred to nutrition programs in the community (e.g., PD Hearth, GMP) or, in emergency contexts, to SFPs.

REFERRALS TO AND BETWEEN CMAM SERVICE COMPONENTS



Effective and smooth referrals between the components are essential. This is facilitated by:

- The action protocol
- The use of referral slips, which ensure that full information on the child including reason for referral is available
- Good communication between staff in inpatient care and outpatient care

HANDOUT 1.9
CASE STUDIES

Compiled and Edited by Dr. Abdul Rehman Pirzado pirzado@gmail.com

HANDOUT 1.10

IMPLEMENTING CMAM IN DIFFERENT CONTEXTS

EMERGENCY AND POST-EMERGENCY SETTINGS

- CMAM services have been implemented in emergency settings since 2001. More recently, outpatient care for the management of acute malnutrition has occurred in non-emergency and high HIV prevalence settings.
- For CMAM programs that were started by nongovernmental organizations (NGOs) in an emergency context and handed over to the Ministry of Health (MOH), initial performance results after handover are encouraging. Longitudinal data on outcome indicators are necessary to better judge the performance and sustainability of quality of the integrated CMAM services over time.
- In an emergency, CMAM interventions follow a hierarchy of interventions. The needs of the greatest number should be a priority. In practice, this means that securing a general ration for the whole population takes priority over setting up services for target groups within the population.
- In an emergency, large numbers of children can be reached through decentralized and/or mobile outpatient care sites.
- To date, there are three scenarios for emergency CMAM interventions:
  - Short-term, life-saving intervention with little or no attempt to hand over CMAM services to the DOH or integrate them into routine health services (Handout 1.9 Case Study 1)
  - Integrated CMAM services in a development context (Handout 1.9 Case Study 2)
  - Emergency CMAM intervention that evolves into post-emergency services that are handed over to the DOH and integrated into routine health services (Handout 1.9 Case Study 3)
- External agencies often start their involvement during a crisis but ideally will continue to support the health system during the post-crisis transition to establish basic CMAM capacity. This will prepare the local health services for future seasonal or sudden increases in severe acute malnutrition (SAM), and if another crisis occurs, the country will require fewer external resources because local capacity will have been maintained.

HANDOUT 1.11

FACTORS TO CONSIDER IN SEEKING TO PROVIDE SERVICES FOR THE MANAGEMENT OF SAM

ENABLING ENVIRONMENT

- Effective Ministry of Health (MOH) leadership and coordination mechanisms are essential to ensure that various agencies, including government and nongovernmental organizations (NGOs) running programs for children with acute malnutrition, collaborate. Technical task forces and/or coordination meetings at various levels should be put in place.
- Prevention of undernutrition should be the first policy priority, but treatment is needed for children with SAM because they have a high mortality risk.
- National guidelines must be in place to standardize treatment protocols and monitoring tools. The guidelines should describe the community-based approach to manage SAM that builds upon and links with existing inpatient care, nutrition programs and primary health care (PHC).
- Free treatment for malnourished children must be ensured.
- District health managers should develop a contingency plan to meet and manage additional needs if the number of children requiring CMAM services exceeds capacity.

ACCESS TO SERVICES

- Centralized inpatient care for SAM with medical complications should be provided in a health facility with 24-hour care.
- Decentralized outpatient care for SAM without medical complications should be provided in health facilities. One health care provider can manage 10-15 children a day in outpatient care as part of routine health services. In emergencies, services could be further decentralized in the community and provided by mobile teams. Outpatient care sites should be set up within a day's walk from and back to a settlement.
- Adequate referral mechanisms must be ensured so that once children with SAM are identified, they can access appropriate care.
- Qualified health care providers (i.e. qualified to perform a medical assessment, refer or treat children with SAM) must be available in adequate numbers.
- Community outreach for community assessment, community mobilization and active case-finding and referral should be in line with existing formal and informal health and community outreach systems and initiatives.
- Management of SAM as a routine health service means that a child presented at the health facility at any time should be assessed and treated for SAM, receive health and nutrition education for prevention of undernutrition, and be referred to other health services and initiatives as needed (e.g., integrated management of childhood illness [IMCI], growth monitoring and promotion [GMP], voluntary counselling and testing [VCT]). IMCI diagnostic tools and GMP programs should include the use of MUAC so that SAM can be identified and appropriate referral to CMAM can occur.
- Links with other community services and programs should be made as necessary (e.g., with food security, agriculture and livelihood programs to ensure increased access to high-quality foods).

SUPPLIES

- Adequate resources and supplies for effective management of SAM must be provided to all health facilities providing inpatient care and outpatient care for the management of SAM. This includes ready-to-use therapeutic food (RUTF), F75, F100, ReSoMal, essential drugs, mid-upper arm circumference (MUAC) tapes, scales and height boards, treatment cards, and monitoring cards.

- Regular transportation of supplies should be secured.

QUALITY OF SERVICES

- Having national CMAM guidelines with standardized treatment protocols fosters adherence.
- Support and supervision on clinical case management and organization of services improve performance.
- Standardized monitoring and evaluation (M&E) systems and tools compatible with the national health information system enhance quality of services and reporting.

COMPETENCIES

- Opportunities to integrate pre-service and in-service training for CMAM should be maximized.
- Internships at learning sites and learning visits provide real-time learning and rapid transfer of skills.
- In-service training for improved management of SAM must be provided to health care providers at all levels (i.e. district health managers, health care providers at health facilities, community outreach workers) so there is an effective integrated approach that links management and supervision, inpatient care, outpatient care, and other health services with one another.
- In-service training and support must be provided to community outreach workers (e.g., community health workers [CHWs], volunteers) who identify and refer children with SAM in the communities.
- Capacity development strategies should account for high staff turnover.
- A positive work and learning environment empowers and motivates health care providers (control workload).
- CMAM should become part of health care providers' roles, responsibilities and job descriptions, and health care providers should be accountable for meeting those responsibilities.
- Sharing information and experiences with peers and experts is essential for continually learning good practices.
- Formative research is critical for improving the effectiveness of services, promoting good practices, learning lessons and fostering programme integration and scale-up.
-

HANDOUT 1.12

INTEGRATING CMAM INTO ROUTINE HEALTH SERVICES AT THE DISTRICT LEVEL

- Existing health services and initiatives should be mapped and the programme planned with the relevant authorities and agencies to prevent duplication, build upon and strengthen existing structures and systems, and ensure that referral pathways, roles and responsibilities are clear.
- Health facilities with existing inpatient care for severe acute malnutrition (SAM) (e.g., therapeutic feeding centre [TFC], nutrition rehabilitation unit [NRU], hospital ward) can be adapted to also establish outpatient care for the management of SAM without medical complications in their outpatient department (OPD). This takes the burden off the inpatient care staff, which will continue to treat children with SAM and medical complications until they are stabilized and can be referred to outpatient care.
- Good communication between health care providers managing inpatient care and outpatient care is important for strong links and referral between those services.
- Existing community outreach networks can provide a platform for the community outreach work required for successful CMAM implementation. Assessing what is already in place and identifying potential links to those services are key to making the best use of resources available.
- CMAM can be integrated into child health and nutrition services at first-level health facilities. Bilateral pitting edema and mid-upper arm circumference (MUAC) checks can be added to IMCI diagnostic tools so that children with SAM can be identified at any contact point within the health care system and be referred for appropriate treatment.
- CMAM can also be linked with other health services such as malaria prevention, voluntary counselling and testing (VCT), family planning, and provision of relevant information, education and communication (IEC) materials.

HANDOUT 1.13

ESSENTIALS OF CMAM

ESSENTIALS OF CMAM

1. Acute malnutrition is a significant public health concern. It is estimated that 20 million children around the world suffer from severe acute malnutrition (SAM). Children suffering from SAM have an increased mortality risk. Current estimates suggest that SAM contributes to about 1 million deaths of children under 5 every year.

2. CMAM is a new approach to treating SAM. The principles of CMAM are maximum coverage and access (reaching as many children with acute malnutrition as possible), timeliness (early identification and referral before medical complications develop) and appropriate care (outpatient care for children with SAM without medical complications as long as needed and inpatient care only for those with SAM and medical complications). Evidence from emergency contexts has shown that about 80 percent of children with SAM can be treated as outpatients.

3. To reach the maximum number of children with acute malnutrition, trained health care providers must be able to reach the majority of these children in their communities, where they can access health facilities as outpatients and continue treatment in their homes. Coverage and access are achieved by providing CMAM outpatient care in decentralized health facilities or by establishing mobile outpatient care sites (in the case of emergencies). This differs from the centre-based approach, where all children with SAM are treated as inpatients for both stabilization and rehabilitation until weight recovery is achieved.

4. Recent innovations have made CMAM possible:

   - Ready-to-use therapeutic food (RUTF), which can be used safely at home without refrigeration and in areas where hygiene conditions are not optimal, meaning children can be treated at home
   - Using an acute malnutrition classification that divides SAM into two categories--SAM with medical complications and SAM without medical complications--to determine treatment (see below)
   - Screening and admission using mid-upper arm circumference (MUAC) which is simple, accurate and inexpensive, and makes active case-finding, referral and admission transparent

5. Treatment for SAM differentiates between SAM with medical complications and SAM without medical complications:

   - Children with SAM without appetite or with medical complications are treated in inpatient care
   - Children with SAM and appetite and no medical complications are treated in outpatient care
   - Infants under 6 months with SAM are treated in inpatient care

   Children with moderate acute malnutrition (MAM) with appetite and no medical complications are treated in services or programs that manage MAM, such as supplementary feeding), if available.

6. CMAM has four essential components: community outreach, outpatient care for children with SAM without medical complications, inpatient care for children with SAM with medical complications and for infants under 6 months with SAM, and supplementary feeding for children with MAM (depending on the context). In some cases, supplementary feeding may not be available. Effective and smooth referral among the components is essential. Using an action protocol helps health care providers determine which children require inpatient care and follow-up at home. To date, the protocols used in outpatient care are aimed at children 6 to 59 months old.

7. Evidence from emergency programs has demonstrated that the community-based approach works very well. Recovery rates, mortality rates and default rates are all within Sphere Standards. Coverage ratios are much higher than those seen in centre-based services.

8. CMAM can be implemented in a variety of contexts (e.g., emergency, non-emergency, high HIV prevalence). The CMAM components should complement existing services.

9. CMAM should be integrated into existing health facilities and run as a component of primary health care (PHC) where possible. Linkages can be made to other child health services (e.g., integrated management of childhood illness [IMCI], HIV services, prevention services).

10. In recent years, there have been several key developments and commitments at the global level regarding the acceptance of CMAM.

HANDOUT 1.14

FIELD VISIT CHECKLIST

Complete the following activities during the CMAM field visit.

OBSERVE THE FOLLOWING ACTIVITIES, IF POSSIBLE:	
	Admission of children with severe acute malnutrition (SAM)
	Discharge of children with SAM
	Outpatient care follow-on sessions -Anthropometric measurement -Medical assessment -Supply of ready-to-use therapeutic food (RUTF)
DISCUSS WITH STAFF THE FOLLOWING:	
	What do they like and dislike about the CMAM service?
	How does this programme affect their overall workload?
	What shortcomings or problems do they see with the service?
	How do they work with volunteers?
	How do they link with other health services (e.g., expanded programme of immunization [EPI], voluntary counselling and testing [VCT])?
	What type of support is provided to the child's family after the child is discharged (e.g., micro-credit support, agricultural support, IYCF counselling)?
DISCUSS WITH MOTHERS/CAREGIVERS THE FOLLOWING:	
	How did they find out about the service?
	What do they like and dislike about the service?

HANDOUT 1.15

POWERPOINT PRESENTATION SLIDE IMAGES