Overview of Community-Based Management of Acute Malnutrition (CMAM)
Module 1. Learning Objectives

- Discuss acute malnutrition and the need for a response.
- Describe the principles of CMAM.
- Describe recent innovations and evidence making CMAM possible.
- Identify the components of CMAM and how they work together.
- Explore how CMAM can be implemented in different contexts.
- Identify global commitments related to CMAM.
What is undernutrition?

- A consequence of a deficiency in nutrients in the body

- Types of undernutrition?
  - Acute malnutrition (wasting and bilateral pitting oedema)
  - Stunting
  - Underweight (combined measurement of stunting and wasting)
  - Micronutrient deficiencies

- Why focus on acute malnutrition?
What is undernutrition?

Photo credit: Mike Golden
54% of child mortality is associated with underweight.

Severe wasting is an important cause of these deaths (it is difficult to estimate).

Proportion associated with acute malnutrition often grows dramatically in emergency contexts.

Caulfield, LE, M de Onis, M Blossner, and R Black, 2004
Magnitude of ‘Wasting’ Around the World – not only in emergencies

<table>
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<tr>
<th>Country</th>
<th>Total population of under-5s (10^6)</th>
<th>Moderate and severe wasting (Z score &lt;-3)*</th>
<th>Severe wasting (Z score &lt;-3)*</th>
<th>Under-5 mortality rate†</th>
<th>Severely wasted children (10^6)</th>
<th>Ranking</th>
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*All values from 2003 except columns 2 and 3 which refer to 1995-2003. †Probability of dying between birth and 5 years of age expressed per 1000 livebirths.

Recent History in the Management of Severe Acute Malnutrition (SAM)

- Traditionally, children with SAM are treated in centre-based care: paediatric ward, therapeutic feeding centre (TFC), nutrition rehabilitation unit (NRU), other inpatient care sites.
- The centre-based care model follows the World Health Organization (WHO) Guidelines for Management of Severe Malnutrition.
Centre-Based Care for Children with SAM: Example of a Therapeutic Feeding Centre (TFC)

• What is a TFC?

• What are the advantages and disadvantages of a TFC?

• What could be changed about the TFC model to address these challenges?
Centre-Based Care for Children with SAM: Challenges

- Low coverage leading to late presentation
- Overcrowding
- Heavy staff work loads
- Cross infection
- High default rates due to need for long stay
- Potential for mothers to engage in high risk behaviours to cover meals
What is Community-Based Management of Acute Malnutrition (CMAM)?
CMAM

• A community-based approach to treating SAM
  – Most children with SAM without medical complications can be treated as outpatients at accessible, decentralised sites
  – Children with SAM and medical complications are treated as inpatients
  – Community outreach for community involvement and early detection and referral of cases

• Also known as community-based therapeutic care (CTC), ambulatory care, home-based care (HBC) for the management of SAM
Core Components of CMAM (1)

CMAM

Community-based Management of Acute Malnutrition

Community Outreach

Services and programs addressing MAM

Outpatient care for SAM without complications

Inpatient care for SAM with complications

Services and/or programs to prevent undernutrition
Core Components of CMAM (2)

1. Community Outreach:
   - Community assessment
   - Community mobilisation and involvement
   - Community outreach workers:
     - Early identification and referral of children with SAM before the onset of serious complications
     - Follow-up home visits for problem cases
   - Community outreach to increase access and coverage
Core Components of CMAM (3)

2. Outpatient care for children with SAM without medical complications at decentralised health facilities and at home

• Initial medical and anthropometry assessment with the start of medical treatment and nutrition rehabilitation with take home ready-to-use therapeutic food (RUTF)
• Weekly or bi-weekly medical and anthropometry assessments monitoring treatment progress
• Continued nutrition rehabilitation with RUTF at home

ESSENTIAL: a good referral system to inpatient care, based on Action Protocol
Core Components of CMAM (4)

3. Inpatient care for children with SAM with medical complications or no appetite
   • Child is treated in a hospital for stabilisation of the medical complication
   • Child resumes outpatient care when complications are resolved

ESSENTIAL: good referral system to outpatient care
Core Components of CMAM (5)

4. Services or programmes for the management of moderate acute malnutrition (MAM)

- Supplementary Feeding
Recent History of CMAM

• Response to challenges of centre-based care for the management of SAM
• 2000: 1st pilot programme in Ethiopia
• 2002: pilot programme in Malawi
• Scale up of programmes in Ethiopia (2003-4 Emergency), Malawi (2005-6 Emergency), Niger (2005-6 Emergency)
• Many agencies and governments now involved in CMAM programming in emergencies and non-emergencies
  – E.g., Malawi, Ethiopia, Niger, Democratic Republic of Congo, Sudan, Kenya, Somalia, Sri Lanka
• Over 25,000 children with SAM treated in CMAM programmes since 2001 (Lancet 2006)
Principles of CMAM

- Maximum access and coverage
- Timeliness
- Appropriate medical and nutrition care
- Care for as long as needed

Following these steps ensure maximum public health impact!
Maximise Impact by Focussing on Public Health

SOCIAL FOCUS

Population level impact (coverage)
- Early presentation
- Access to services
- Compliance with treatment

CLINICAL FOCUS

Individual level impact (cure rates)
- Efficient diagnosis
- Effective clinical protocols
- Effective service delivery
Key Principle of CMAM

Maximum access and coverage
El Fasher
Um Keddada
Mellit
Kutum
Taweisha
El Laeit
Malha
Tawila & Dar el Saalam
Karnoi & Um Barow
Koma
Kebkabiya
Fata Borno
Korma
El Savah
Koma
Um Keddada
Taweisha
El Laeit

Hospital with inpatient care
Outpatient care site
Inpatient care site

N Darfur
2001

100 kms
Bringing Treatment Into the Local Health Facility and the Home
Key Principle of CMAM

Timeliness
Timeliness: Early Versus Late Presentation
Timeliness (continued)

• Find children before SAM becomes serious and medical complications arise

• Good community outreach is essential

• Screening and referral by outreach workers (e.g., community health workers [CHWs], volunteers)
Catching Acute Malnutrition Early

BUKU BAGAN TATATALAKSANA ANAK GIZI BURUK

Inpatient care
Outpatient Care
SFP
Key Principle of CMAM

Appropriate medical care and nutrition rehabilitation
Appropriate Medical Treatment and Nutrition Rehabilitation Based on Need
Key Principle of CMAM

Care as long as it is needed
Care For as Long as Needed

- Care for the management of SAM is provided as long as needed
- Services to address SAM can be integrated into routine health services of health facilities, if supplies are present
- Additional support to health facilities can be added during certain seasonal peaks or during a crisis
New Innovations Making CMAM Possible

• RUTF
• New classification of acute malnutrition
• Mid-upper arm circumference (MUAC) accepted as independent criteria for the classification of SAM
Ready-to-Use Therapeutic Food (RUTF)

- Energy and nutrient dense: 500 kcal/92g
- Same formula as F100 (except it contains iron)
- No microbial growth even when opened
- Safe and easy for home use
- Is ingested after breast milk
- Safe drinking water should be provided
- Well liked by children
- Can be produced locally
- Is not given to infants under 6 months
RUTF (continued)

• Nutriset France produces ‘PlumpyNut®’ and has national production franchises in Niger, Ethiopia, and Zambia

• Another producers of RUTF is Valid Nutrition in Malawi, Zambia and Kenya

• Ingredients for lipid-based RUTF:
  – Peanuts (ground into a paste)
  – Vegetable oil
  – Powdered sugar
  – Powdered milk
  – Vitamin and mineral mix (special formula)

• Additional formulations of RUTF are being researched
Local production-RUTF
Malawi and Ethiopia
Effectiveness of RUTF

• Treatment at home using RUTF resulted in better outcomes than centre-based care in Malawi (Ciliberto, et al. 2005.)
• Locally produced RUTF is nutritionally equivalent to PlumpyNut® (Sandige et al. 2004.)
Classification for the Community-Based Treatment of Acute Malnutrition

Acute Malnutrition

- Severe acute malnutrition with medical complications*
  - Inpatient Care

- Severe acute malnutrition without medical complications
  - Outpatient Care

- Moderate acute malnutrition without medical complications**
  - Supplementary Feeding

*Complications: anorexia or no appetite, intractable vomiting, convulsions, lethargy or not alert, unconsciousness, lower respiratory tract infection (LRTI), high fever, severe dehydration, severe anaemia, hypoglycaemia, or hypothermia

**Children with MAM with medical complications are admitted to supplementary feeding but are referred for treatment of the medical complication as appropriate
Mid-Upper Arm Circumference (MUAC) for Assessment and Admission

- A transparent and understandable measurement
- Can be used by community-based outreach workers (e.g., CHWs, volunteers) for case-finding in the community
Screening and Admission Using MUAC

- Initially, CMAM used a 2-stage screening process:
  - MUAC for screening in the community
  - Weight-for-height (WFH) for admission at a health facility
    - Time consuming, resource intense, some negative feedback, risk of refusal at admission

- MUAC for admission to CMAM (with presence of bilateral pitting oedema, with WFH optional)
  - Easier, more transparent, child identified with SAM in the community will be admitted, thus fewer children are turned away
MUAC: Community Referral
Components of CMAM

1. Community outreach
2. Outpatient care for the management of SAM without medical complications
3. Inpatient care for the management of SAM with medical complications
4. Services or programmes for the management of MAM
1. Community Outreach

Key individuals in the community:

• Promote CMAM services

• Make CMAM and the treatment of SAM understandable

• Understand cultural practices, barriers and systems

• Dialogue on barriers to uptake

• Promote community case-finding and referral

• Conduct follow-up home visits for problem cases
Community Mobilisation and Screening
2. Outpatient Care

- Target group: children 6-59 months with SAM WITHOUT medical complications AND with good appetite
- Activities: weekly outpatient care follow-on visits at the health facility (medical assessment and monitoring, basic medical treatment and nutrition rehabilitation)
Clinic Admission for Outpatient Care
Outpatient Care: Medical Examination
Outpatient Care: Routine Medication

- Amoxycillin
- Anti-Malarials
- Vitamin A
- Anti-helminths
- Measles vaccination
Outpatient Care: Appetite Test
RUTF Supply

- Ensure understanding of RUTF and use of medicines
  
  Provide one week’s supply of RUTF and medicine to take at home
  
  Return every week to outpatient care to monitor progress and assess compliance
3. Inpatient Care

• SAM with medical complications or no appetite
• Medical treatment according to WHO and/or national protocols
• Return to outpatient care after complication is resolved, oedema reduced, and appetite regained
• All infants under 6 months with SAM receive specialised treatment until full recovery
4. Services or Programmes for the Management of MAM

- Activities
  - Routine medication
  - Dry supplementary ration
  - Basic preventive health care and immunisation
  - Health and hygiene education; infant and young child feeding (IYCF) practices and behaviour change communication (BCC)
Components of CMAM

Community Outreach

- Services and programs addressing MAM
- Outpatient care for SAM without complications
- Inpatient care for SAM with complications

Services and/or programs to prevent undernutrition
Relationship Between Outpatient Care and Inpatient Care

• Complementary
  – Inpatient care for the management of SAM with medical complications until the medical condition is stabilised and the complication is resolving

• Different priorities
  – Outpatient care prioritises early access and coverage
  – Inpatient care prioritises medical care and therapeutic feeding for stabilisation
21 programmes in Ethiopia, Malawi, Sudan, Niger. 23,511 children with SAM treated and documented. (results for combined outpatient and inpatient)
CMAM in Different Contexts

- Extensive emergency experience
  - Some transition into longer term programming, as in the cases of Malawi and Ethiopia

- Growing experience in non-emergency or development contexts
  - e.g., Ghana, Zambia, Rwanda, Haiti, Nepal

- Growing experience in high HIV prevalent areas
  - Links to voluntary counselling and testing (VCT) and antiretroviral therapy (ART)
When Rates of SAM Increase:

- **Non-Emergency**: Capacity to manage severe acute malnutrition strengthened in ongoing health and nutrition programs within existing health system.
  - Community based prevention based nutrition programs. SAM identified in GM and screening through MUAC.

- **Emergency Levels**: GAM and SAM above seasonal norms.
  - (Exceed MoH capacity)
  - Facilitate MOH to cope with increased numbers (in-country rapid response).

- **Post emergency**: High numbers reducing MoH resumes normal programming within existing health system.
  - Link outpatient and inpatient care with health/nutrition community based programming.

**Shock/crisis**

**Transition**
Global Commitment for CMAM (1)

- WHO consultation (Nov 2005) – agreement by WHO to revise SAM guidelines to include outpatient care and endorse MUAC as entry criterion for programmes
- United Nations (UN) Joint Statement on Community-Based Management of Severe Acute Malnutrition (May 2007) – support for national policies, protocols, trainings, and action plans for adopting approach: e.g., Ethiopia, Malawi, Uganda, Sudan, Niger
Global Commitment for CMAM (2)

- Collaboration on joint trainings between WHO, UNICEF, United Nations High Council for Refugees (UNHCR), and United States Agency for International Development (USAID)
- Donor support for CMAM development, coordination and training
- Several agencies supporting integration of CMAM into national health systems