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.

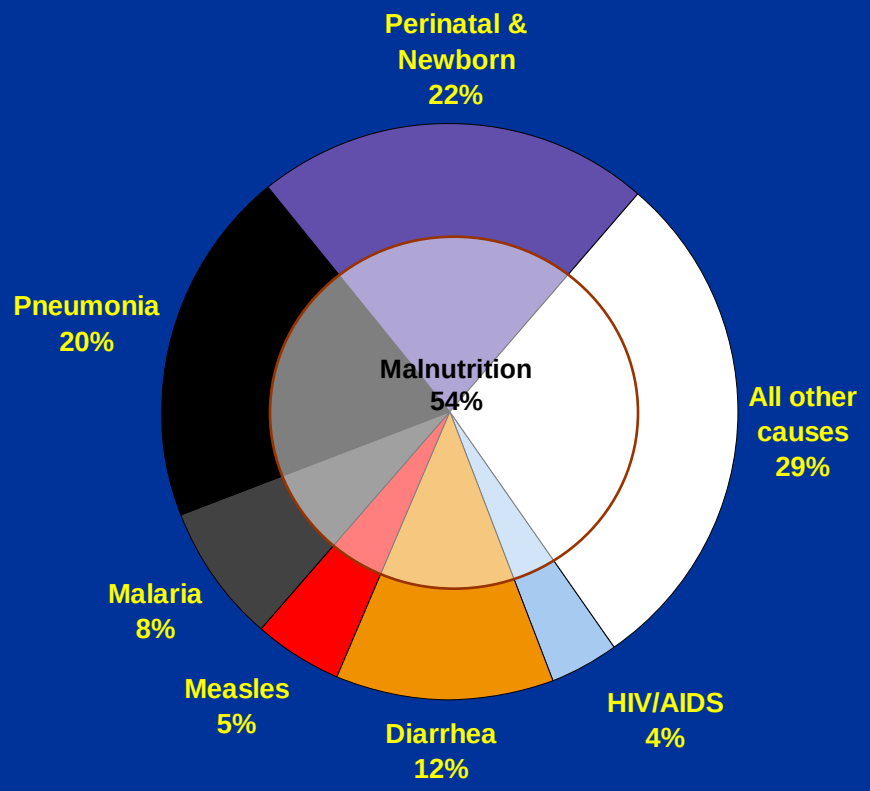
What is undernutrition?

- 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

Undernutrition and Child Mortality



- 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

Caulfied, LE, M de Onis, M Blossner, and R Black, 2004

Magnitude of 'Wasting' Around the World – not only in emergencies

	Total population of under-5s (10⁶)	Moderate and severe wasting (Z score <–3)*	Severe wasting (Z score <–3)*	Under-5 mortality rate†	Severely wasted children (10⁶)	Ranking
India	118568	16	3	87	3557·0	1
Pakistan	23528	13	3	103	705·8	2
Democratic Republic of the Congo	10220	13	3	205	306·6	3
Bangladesh	19408	10	1	69	194·1	4
Madagascar	3054	14	5	126	152·7	5
Ethiopia	12453	11	1	169	124·5	6
Cambodia	2107	15	4	140	84·3	7
Afghanistan	4183	25	2	257	83·7	8
Somalia	2020	17	4	225	80·8	9
Burkina Faso	2560	13	3	207	76·8	10
Niger	2549	14	3	262	76·5	11
Mali	2581	11	2	220	51·6	12
Nepal	3688	10	1	82	36·9	13
Chad	1646	11	2	200	32·9	14
Ghana	2978	10	1	95	29·8	15
Laos	867	15	3	91	26·0	16
Sierra Leone	903	10	2	284	18·1	17
Togo	811	12	2	140	16·2	18
Mauritania	499	13	3	183	15·0	19
Eritrea	717	13	2	85	14·3	20
Total (103)				5683·6		

*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 live births.

Table: Number and rates of wasted children in countries with high under-5 mortality

Source: Webb and Gross, *Wasted time for wasted children*, The Lancet April 8, 2006

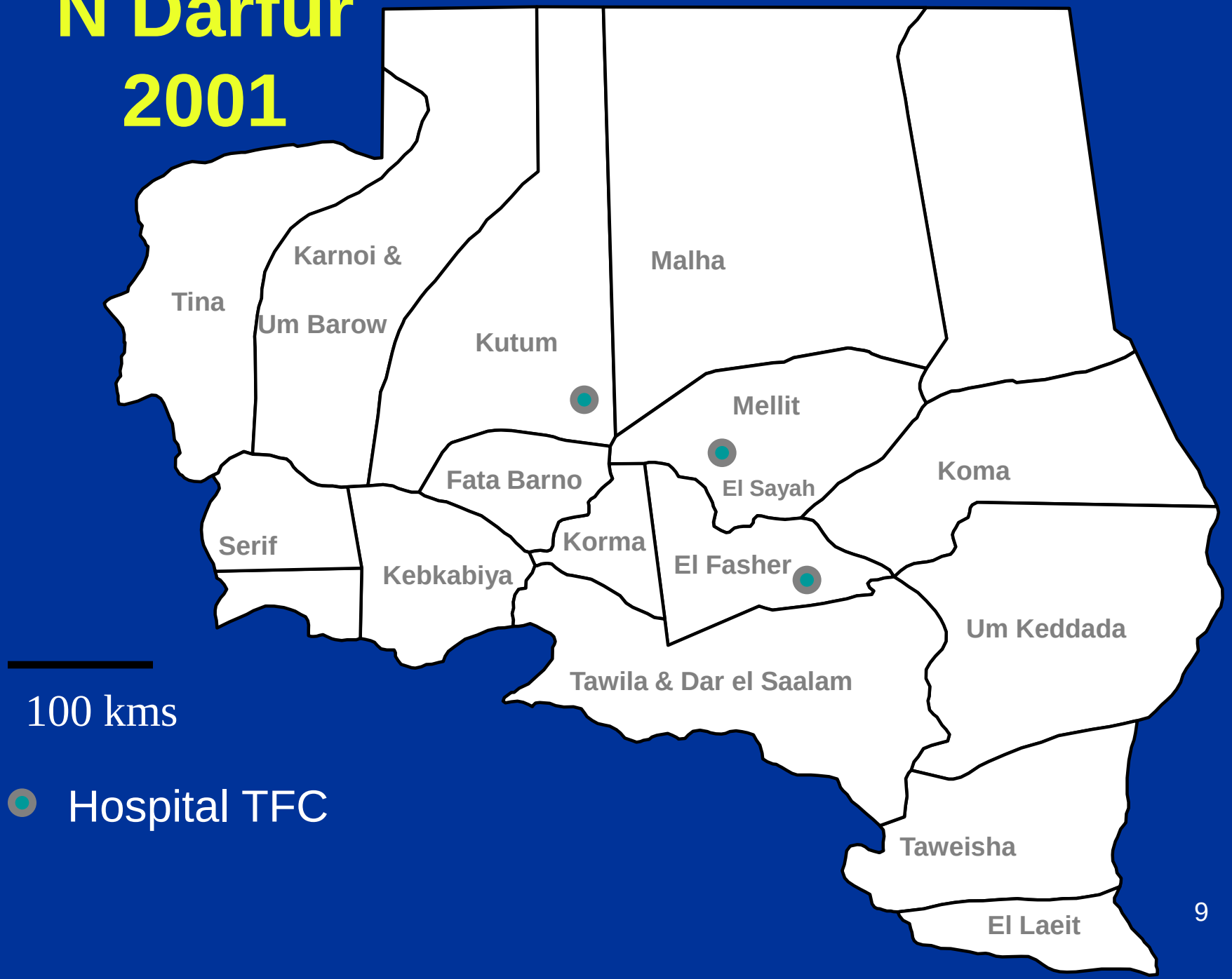
Recent History in the Management of Severe Acute Malnutrition (SAM)

- 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?

N Darfur 2001



Centre-Based Care for Children with SAM: Challenges

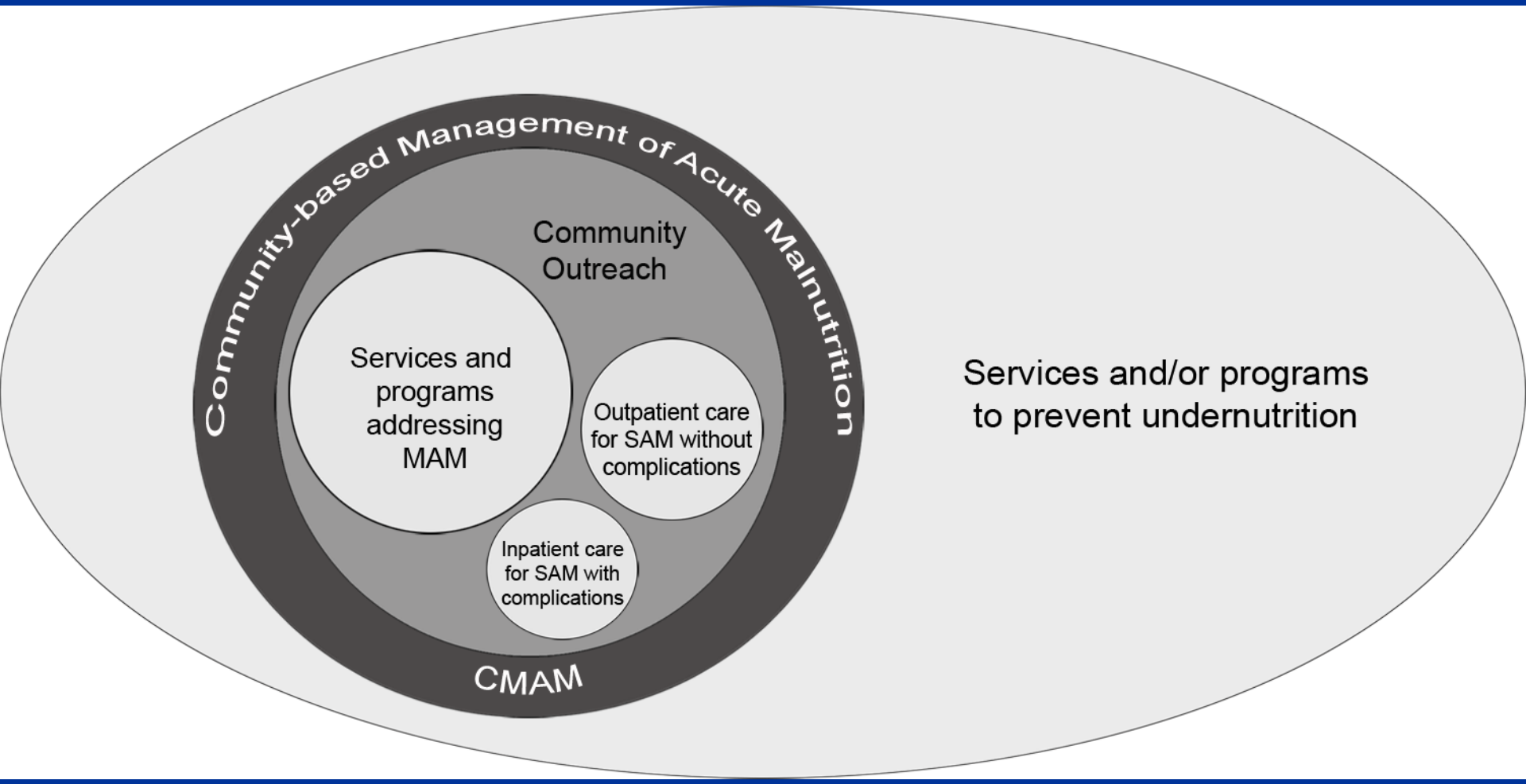
- Low coverage leading to late presentation
- Overcrowding
- Heavy staff work loads
- Cross infection
- High default rates due to need for long stay
- Potential for mothers to engage in high risk behaviours to cover meals

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)



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

CLINICAL FOCUS

Population level impact (coverage)

Individual level impact (cure rates)

Early presentation

Access to services

Compliance with treatment

Efficient diagnosis

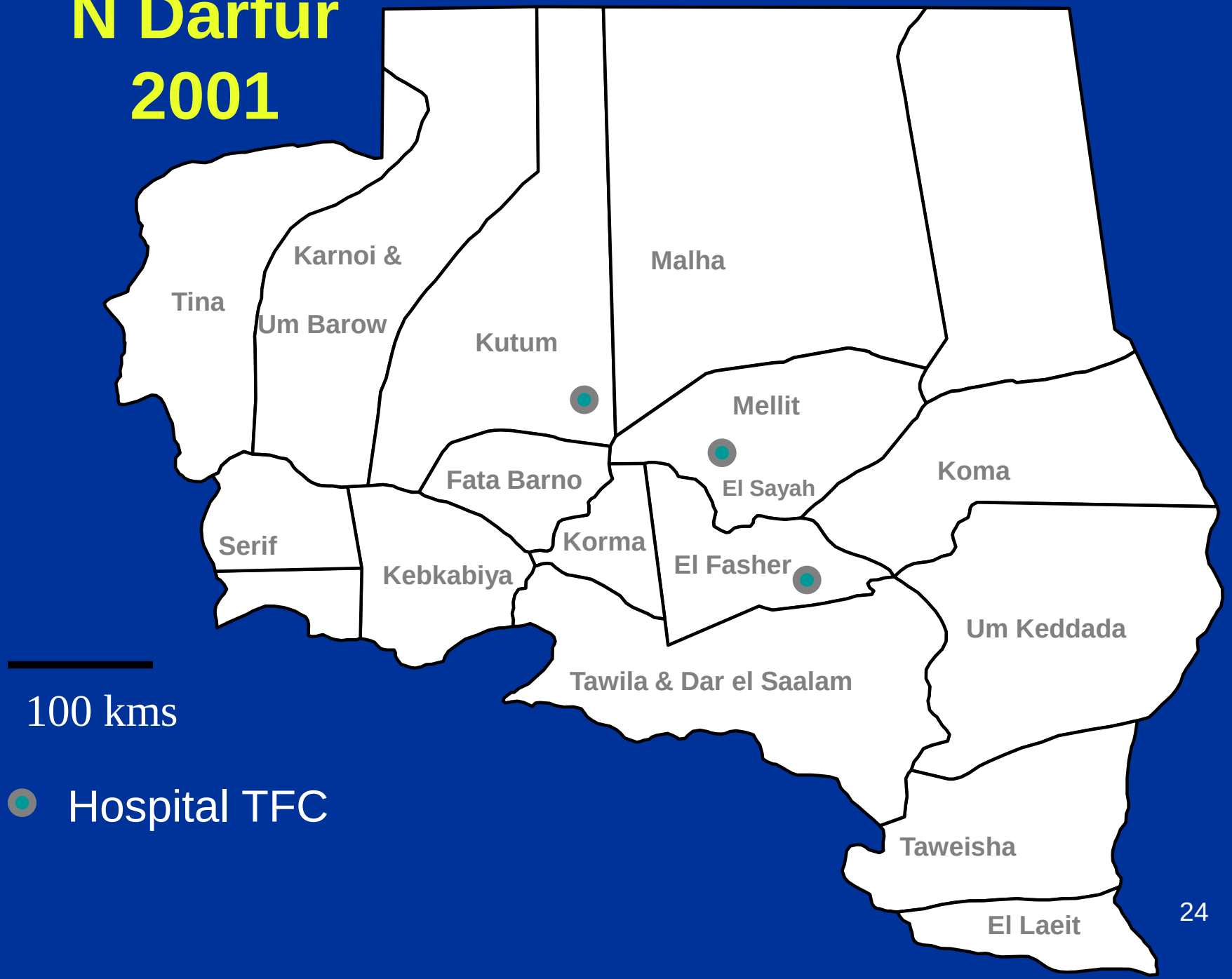
Effective clinical protocols

Effective service delivery

Key Principle of CMAM

Maximum access and coverage

N Darfur 2001



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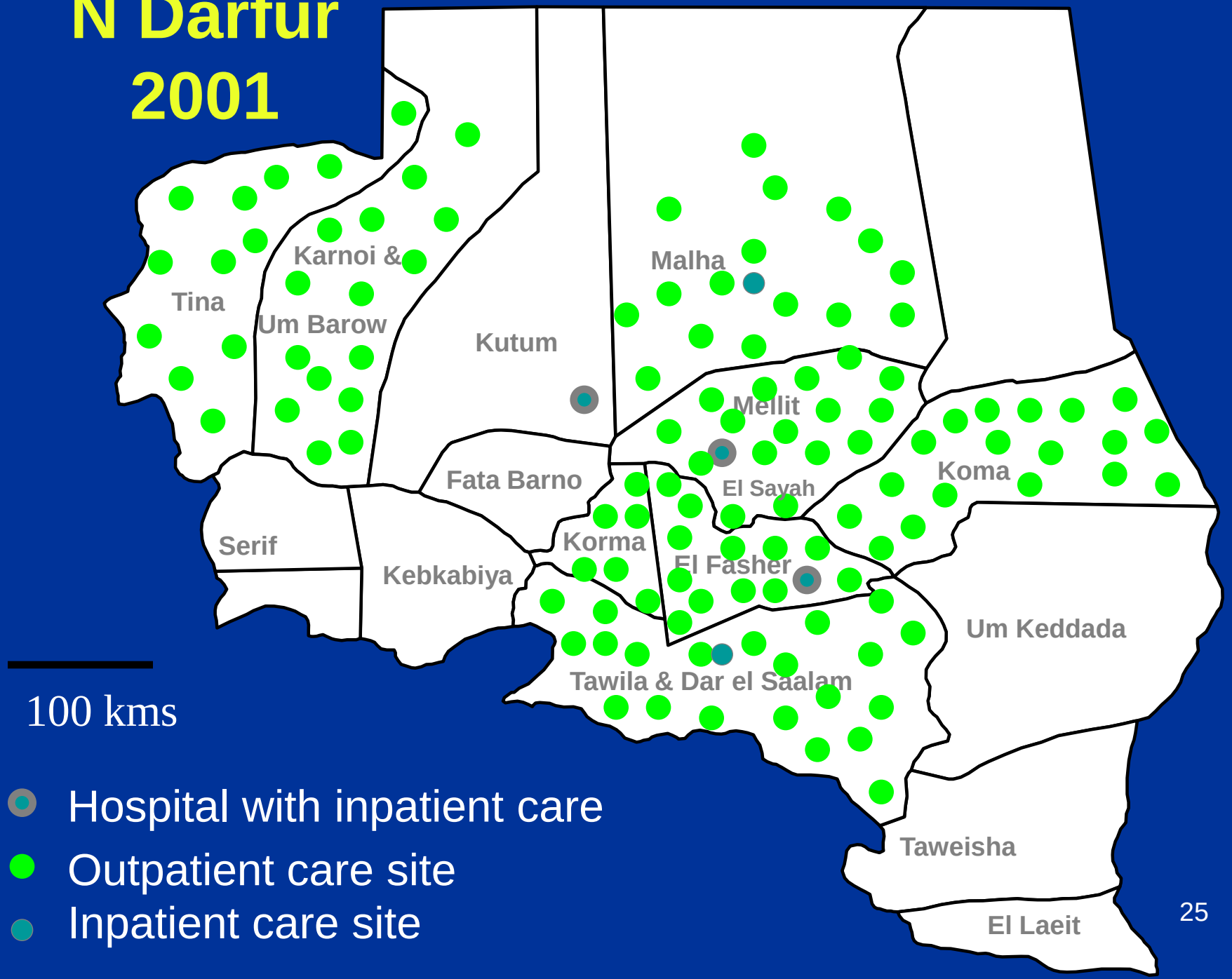
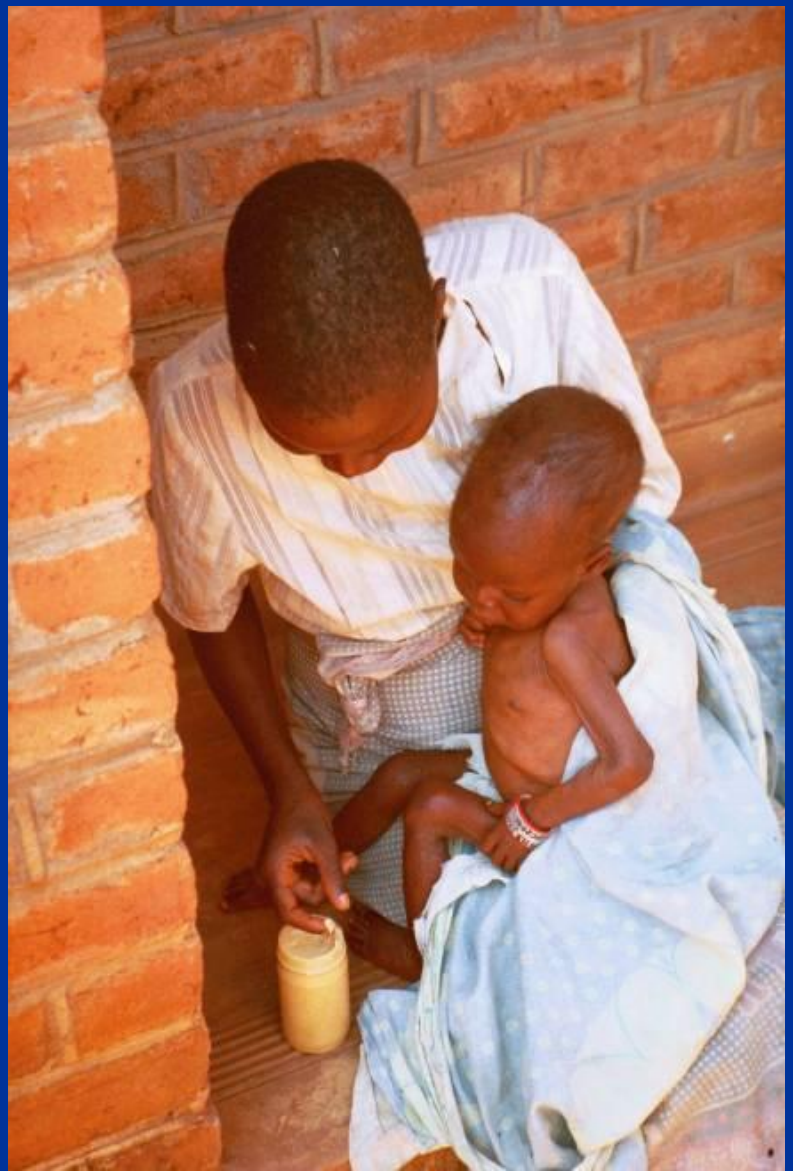


- Hospital with inpatient care
- Outpatient care site
- Inpatient care site

Bringing Treatment Into the Local Health Facility and the Home



Key Principle of CMAM

Timeliness

Timeliness: Early Versus Late Presentation

Timeliness (continued)

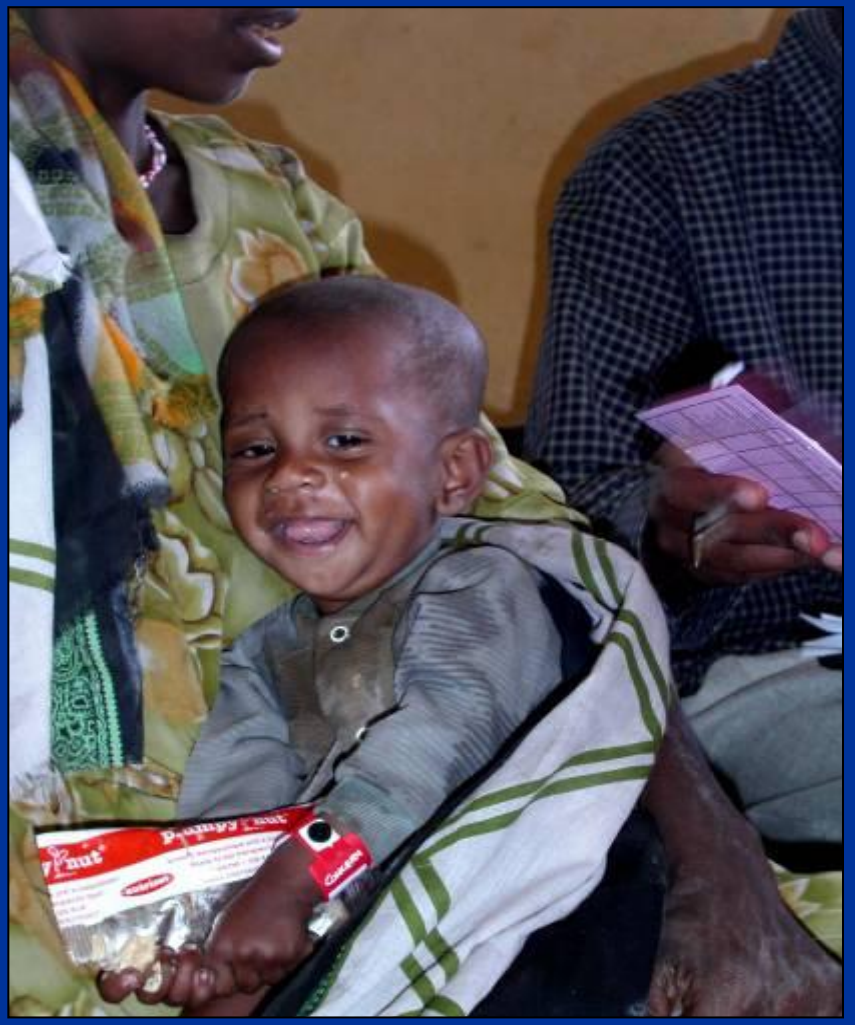
- Find children before SAM becomes serious and medical complications arise
- Good community outreach is essential
- Screening and referral by outreach workers (e.g., community health workers [CHWs], volunteers)

Catching Acute Malnutrition Early

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

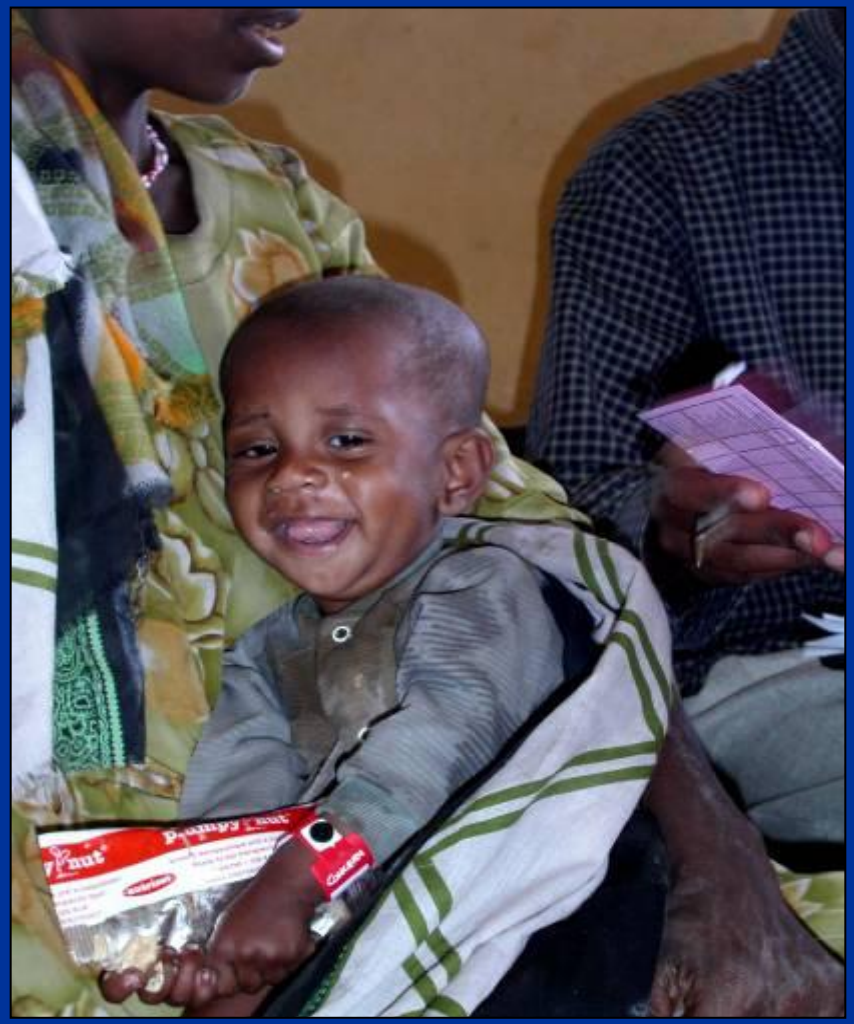
Care For as Long as Needed

- 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

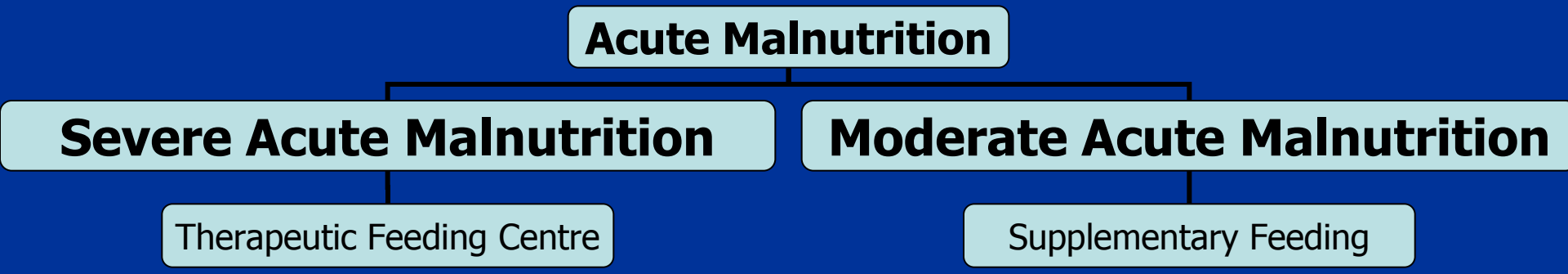
Local production-RUTF

Malawi and Ethiopia

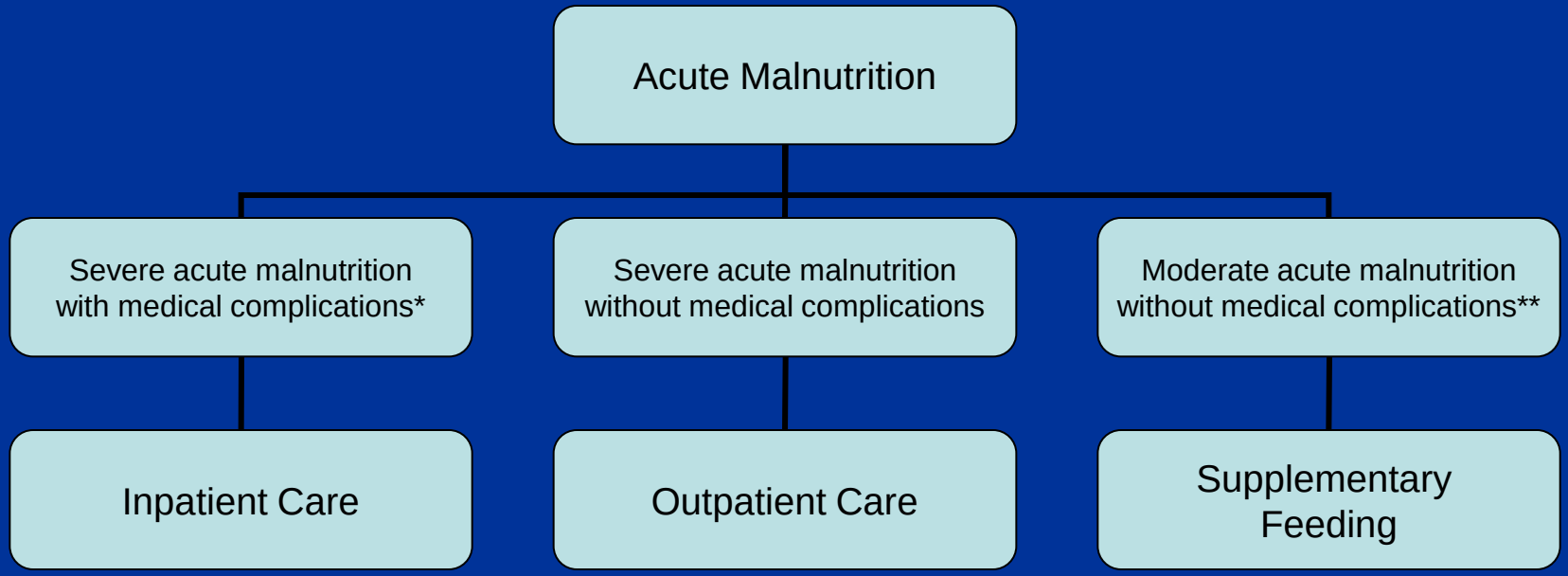
Effectiveness of RUTF

- 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.)

WHO Classification for the Treatment of Malnutrition



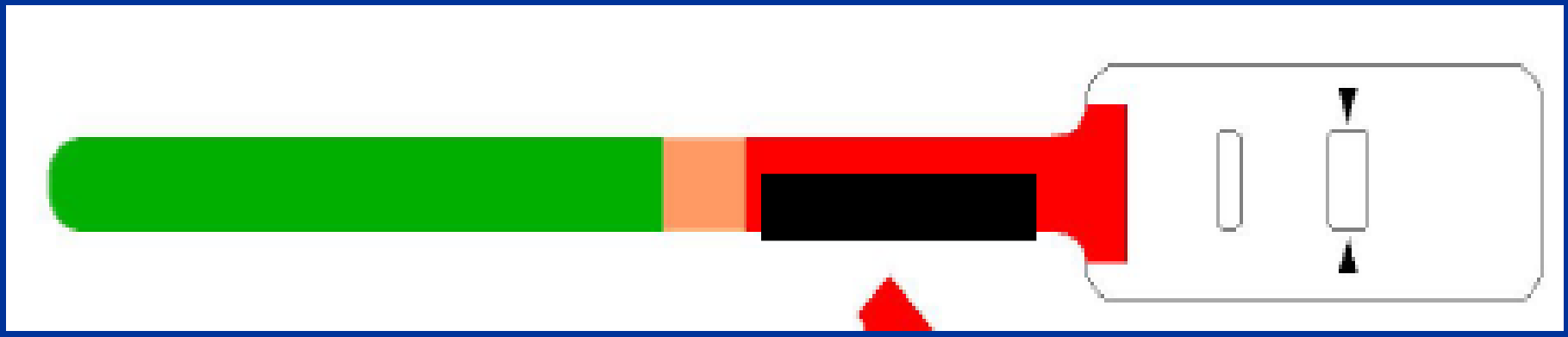
Classification for the Community-Based Treatment of Acute Malnutrition



***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 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

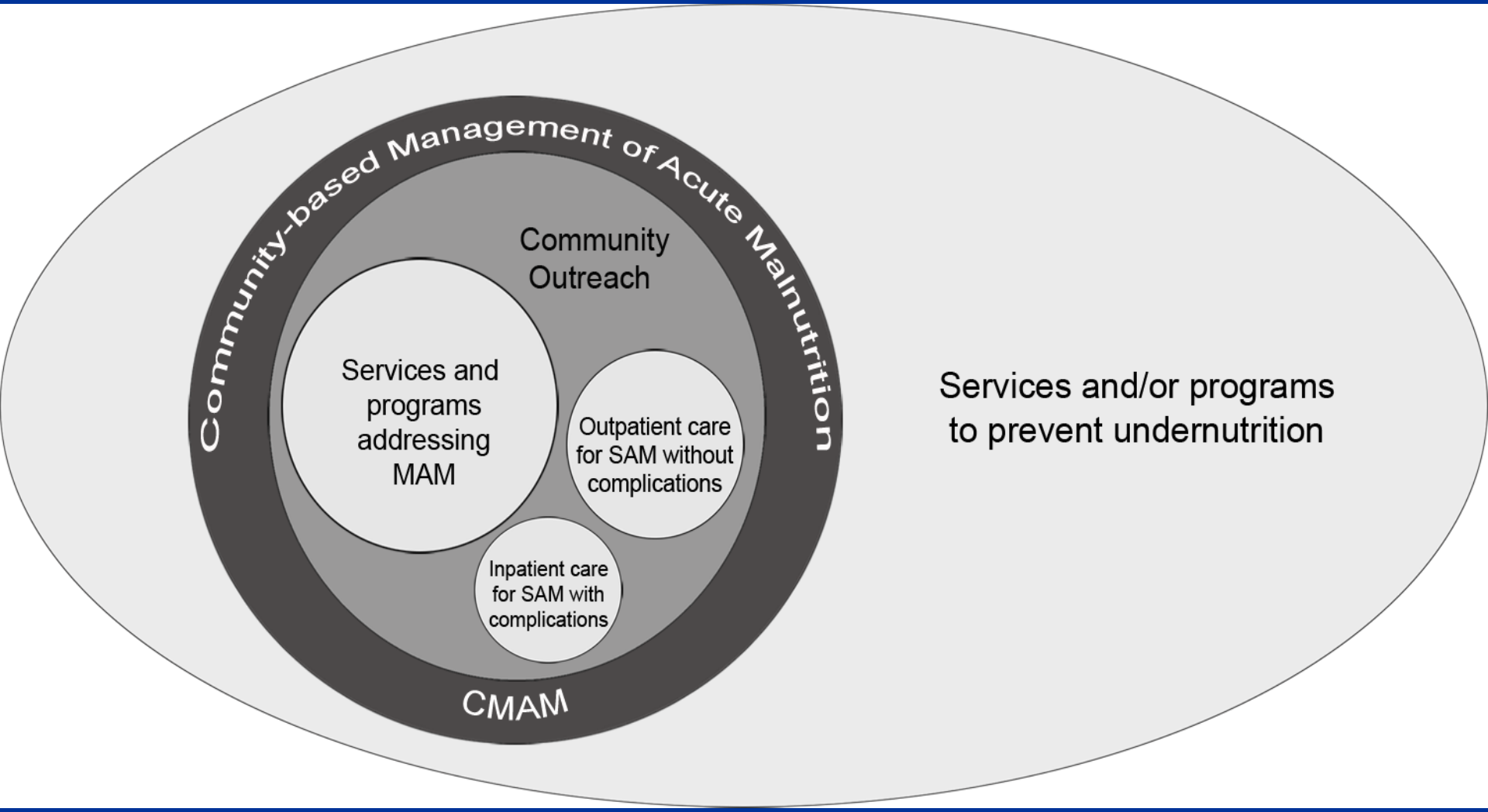
3. Inpatient Care

- 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



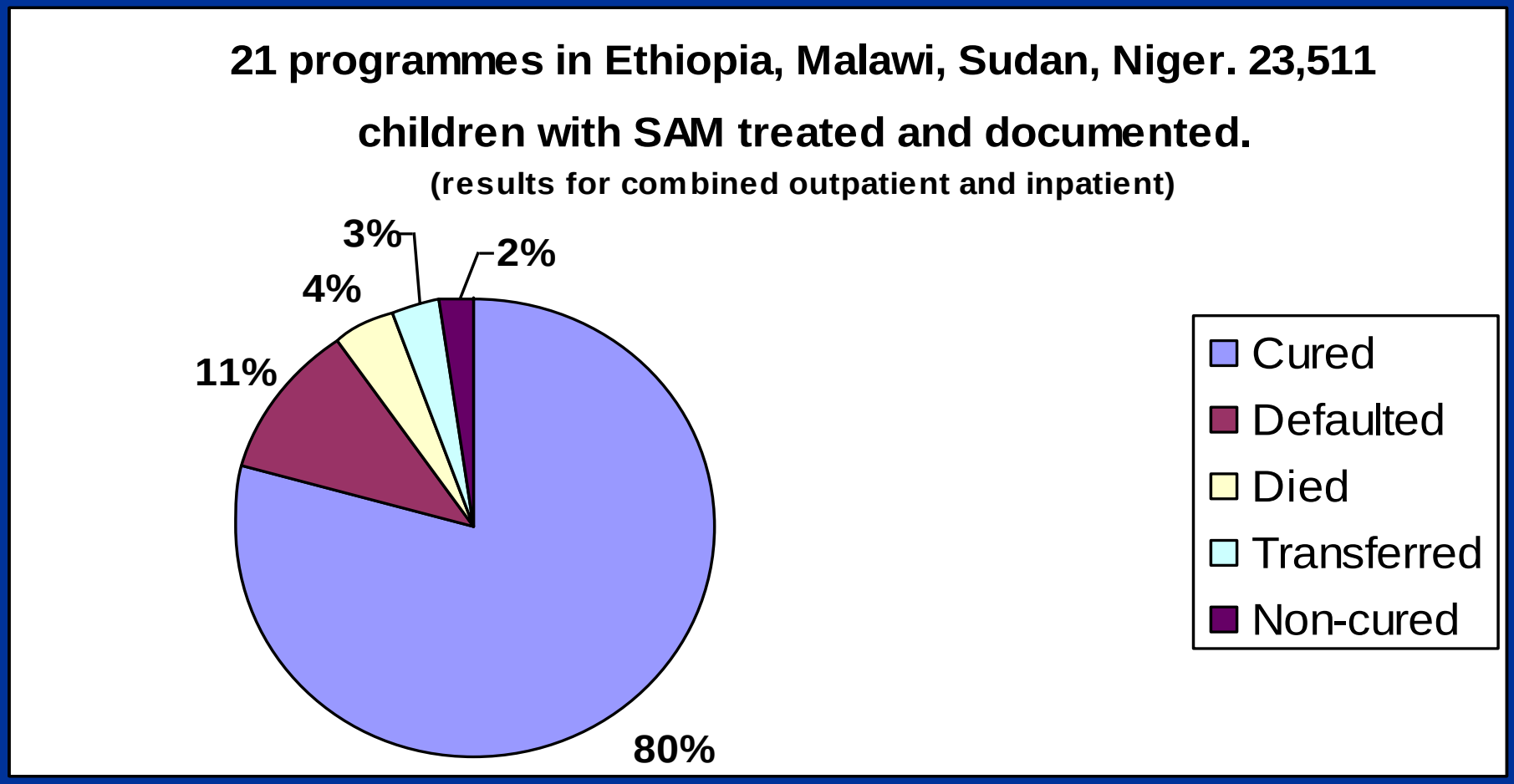
Relationship Between Outpatient Care and Inpatient Care

- **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

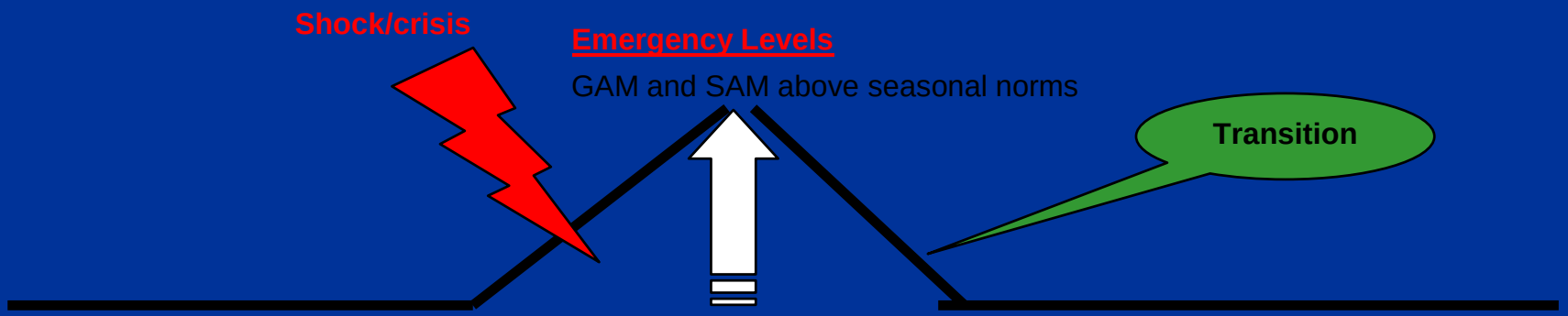
Programme Outcomes for 21 Inpatient and Outpatient Care Programmes – 2001 to 2006



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

(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

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 Children's Fund (UNICEF) accepted CMAM globally (2006)
- 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