

Prevention and Treatment of Moderate Acute Malnutrition

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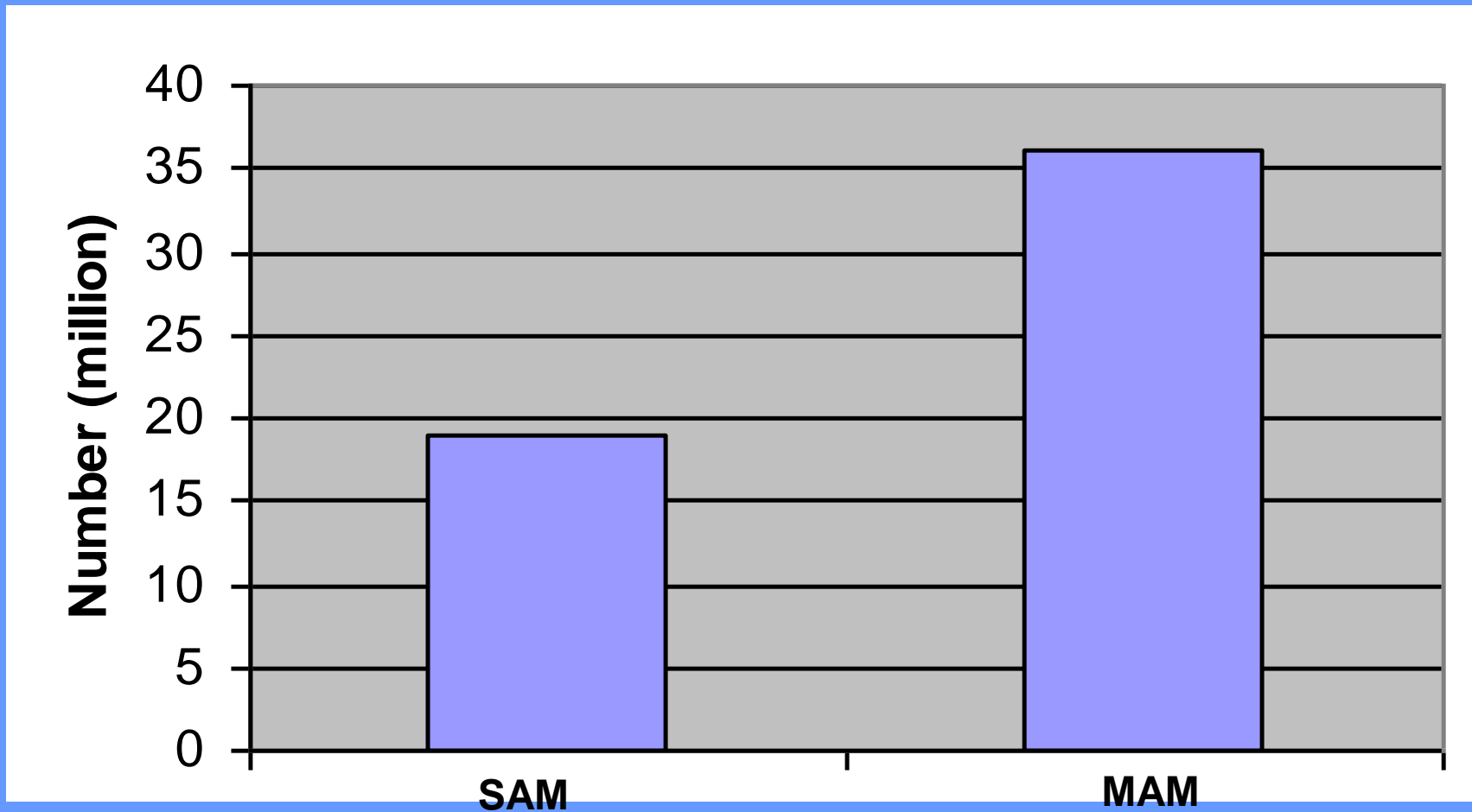
Malnutrition Revisited

- RUTF (Plumpy'nut) success
- Review of supplementary feeding programmes in emergencies (ENN/SCUK, 2005-6)
 - Lack of evidence of programme effectiveness
 - Poor quality of data
 - Less than 40% of centres attained minimum Sphere Standards of recovery rates
 - The main factor undermining the rate of recovery was defaulting
- No significant change in rations or programming for MAM in 30 years

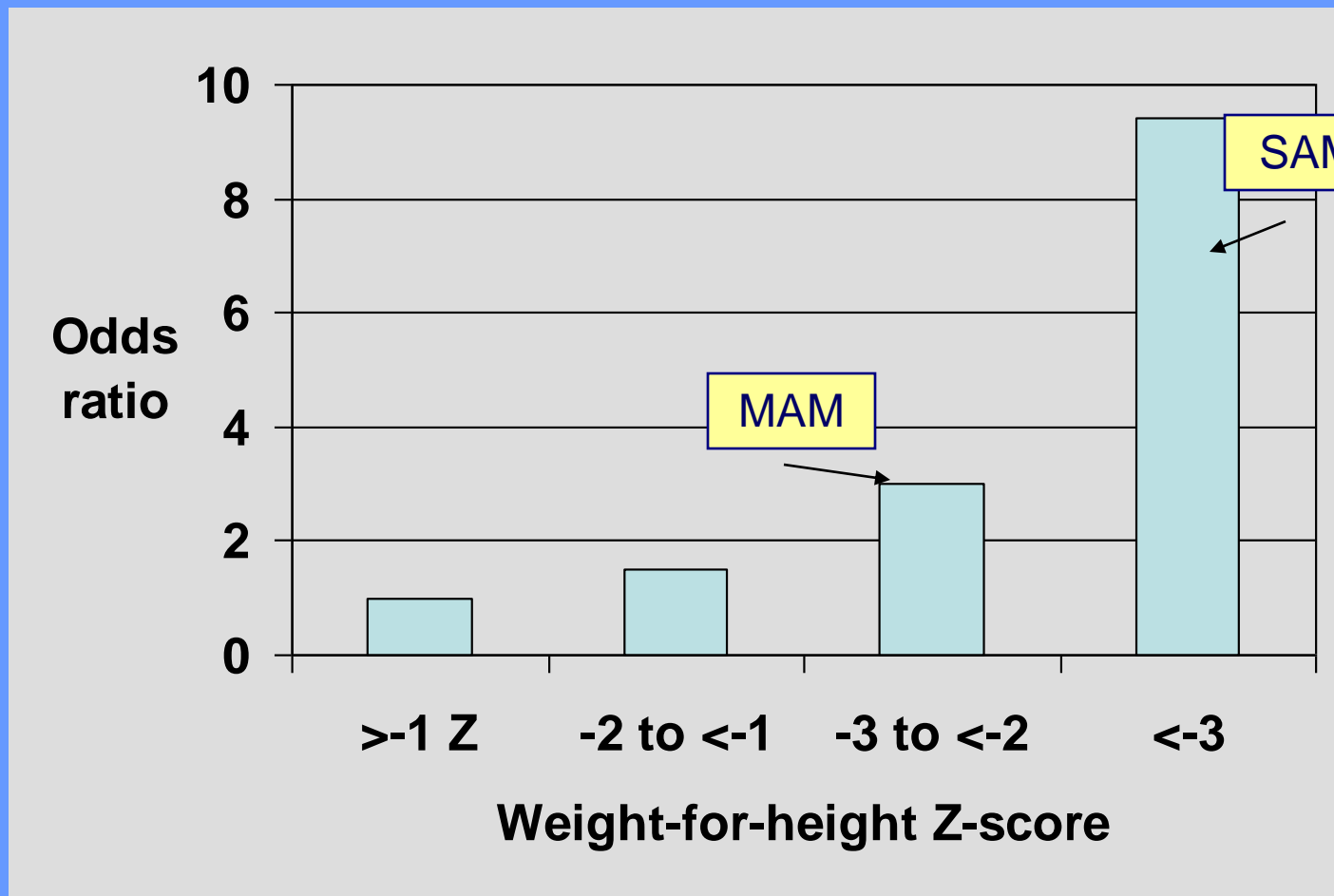
Malnutrition Revisited (2)

- Fortified blended flour standard treatment of MM for over 20 years
 - energy density in comparison to the stomach capacity of a child;
 - high phytate concentration which inhibits the absorption of micronutrients;
 - a lack of animal protein;
 - general acceptability of the FBF.
- (RUF) Plumpy'doz research in Niger, MSF
 - Reduction in wasting and severe wasting
 - Low default rates
- Recent International Meetings on MM – ENN/SCUK (May 2008; WHO/UNICEF/WFP/UNHCR (Oct 2008) LNS Network (Feb 2009)

Prevalence of SAM and MAM in Developing Countries

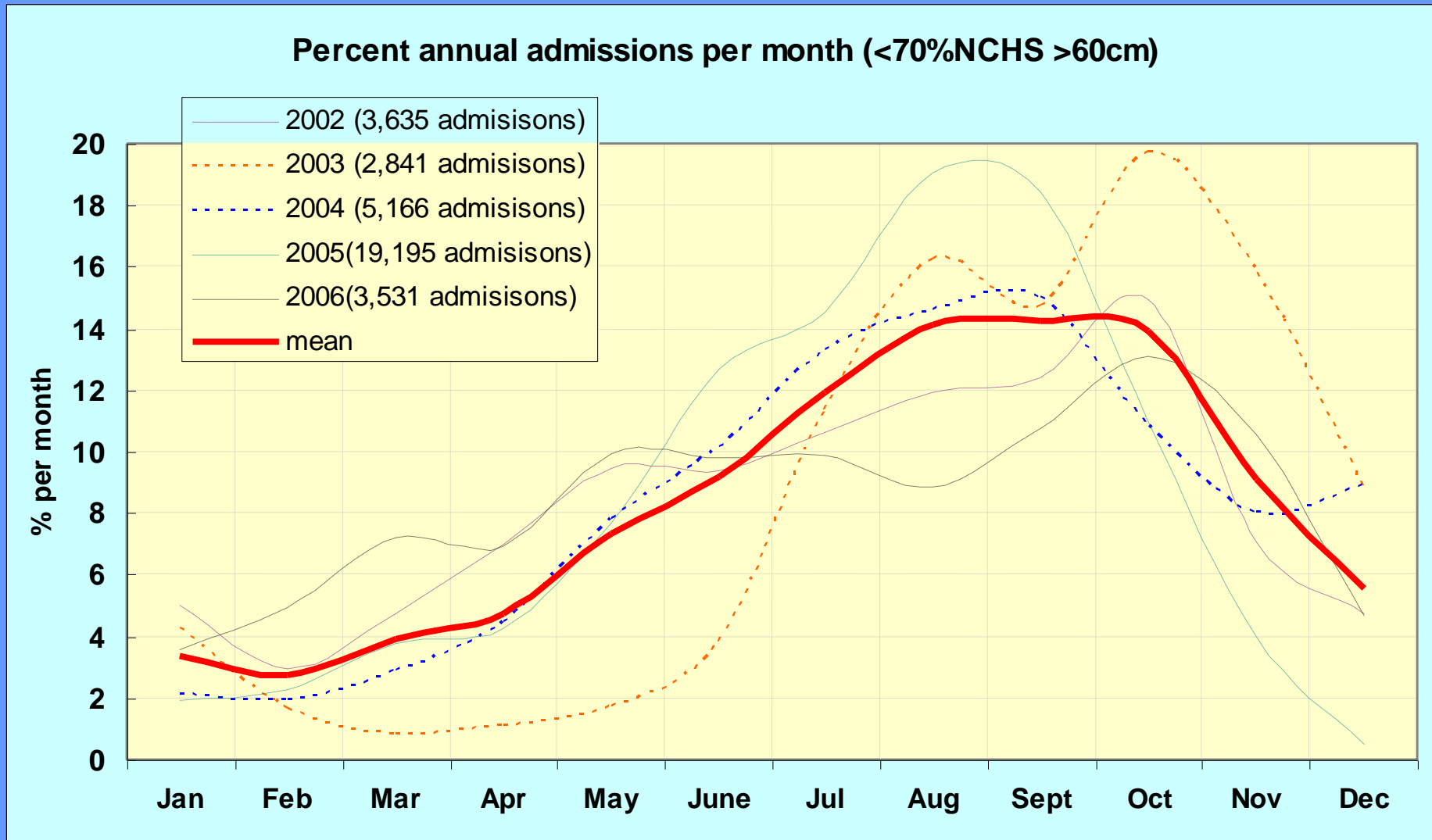


Odds ratio for mortality by weight-for-height Z-score



Source: Data from: Black et al. Lancet 371: 243, 2008.

Seasonal Malnutrition



Developing evidence base on new products

- **Issue:** Limited information available from rigorously designed, comparative studies of community-based, dietary treatment of children with MM or its prevention
- **Goal:** to develop a UNICEF strategy for moderate acute malnutrition
- **Objectives**
 1. Preventing nutritional deterioration RUF (Plumpy'doz blanket feeding)
 - **Target children 6-36 months**
 - Somalia
 - South Darfur (Sudan)
 - Madagascar
 - Djibouti
 2. Treatment of moderate malnutrition RUSF (Supplementary Plumpy)
 - Uganda
 - Mali
 - **Randomized controlled trial of SP**

Definition of LNS

- Lipid-based nutrient supplements
 - Key defining feature is that lipid is the primary source of energy (there may be other types of RUF in which lipid is less dominant)
 - Fortified with multiple micronutrients
- Encompasses wide range of products, e.g.
 - RUTF = LNS with large daily ration, designed for treatment
 - RUF (Nutributter or Plumpy'doz) = LNS with moderate daily ration (20-50 g), designed for supplementation/home fortification
 - Grandibien = LNS with very small daily ration (5-10 g), designed for home fortification

Advantages of lipid-based nutrient supplements (LNS)

- Stable, resistant to spoilage, micronutrients don't interact
- Provide additional energy and increase energy density of complementary foods
- Provide essential fatty acids
- May enhance absorption of fat-soluble vitamins
- Taste good; masks taste of strong-tasting nutrients
- Can be consumed alone or mixed with other foods
- Can easily divide the dose during the day
- Demonstrated to improve linear growth of infants
- Can be locally produced: potential economic benefit

Range of Products

- **RUTF**
 - Peanut-based, fortified lipid-based nutrient spread
 - Equivalent to F100, 500 kcal/sachet
 - Treatment of severe malnutrition
- **RUSF**
 - Soya based product
 - Treatment of moderate malnutrition, 500 Kcal/sachet
- **RUF (Plumpy'doz)**
 - Peanut-based, fortified lipid-based nutrient spread
 - 3 tsp, 3 times per day~ 46 gms and 247 Kcal/day
 - Prevention of malnutrition
- **Improved Dry Ration**
 - Under-twos (CSB++)
 - Pregnant/lactating women and children 2-5 years (CSB+)

Target groups for LNS

- Infants and young children
 - Severely malnourished
 - Moderately malnourished
 - Those born to HIV+ mothers
 - General population (prevention)
- Pregnant and lactating women
 - General population
 - HIV positive
- People living with HIV and AIDS

Convergence of approaches for treatment (SAM/MAM) & primary prevention using LNS

- RUTF (LNS in large doses) effective & feasible for treatment of SAM in the community
- LNS (moderate dose) more effective than cereal-legume blends for supplementary feeding of moderately malnourished children
- LNS for home fortification (small daily dose) more effective than preparations with micronutrients only

Daily ration of LNS can be chosen based on needs of target population and cost constraints

Challenges

- Difficulties in raising funding to support OR activities
- Large numbers of children with MM pose logistical and financial challenges for government services in the longer term
- Difficulties in mobilising adequate resources (human and financial) to ensure effective MAM and reduction in SAM
- Food prices and economic crises increase the risk of acute malnutrition
 - relatively larger numbers of moderately acutely malnourished children slip into severe malnutrition

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Objectives of OR efforts

- ❖ Increase the evidence base, to inform policies, strategy and programme design, implementation, monitoring and evaluation

Ready to Use Food (Plumpy'doz)

Three major areas to investigate

- *Effectiveness on individual level*
- *Effectiveness on population level*
 - prevent malnutrition in vulnerable populations in general or associated with hunger season
- *Programmatic evaluation*
 - acceptability, distribution timing, consumption patterns, cost and feasibility

Somalia Plumpy'doz: Generating the Evidence Base

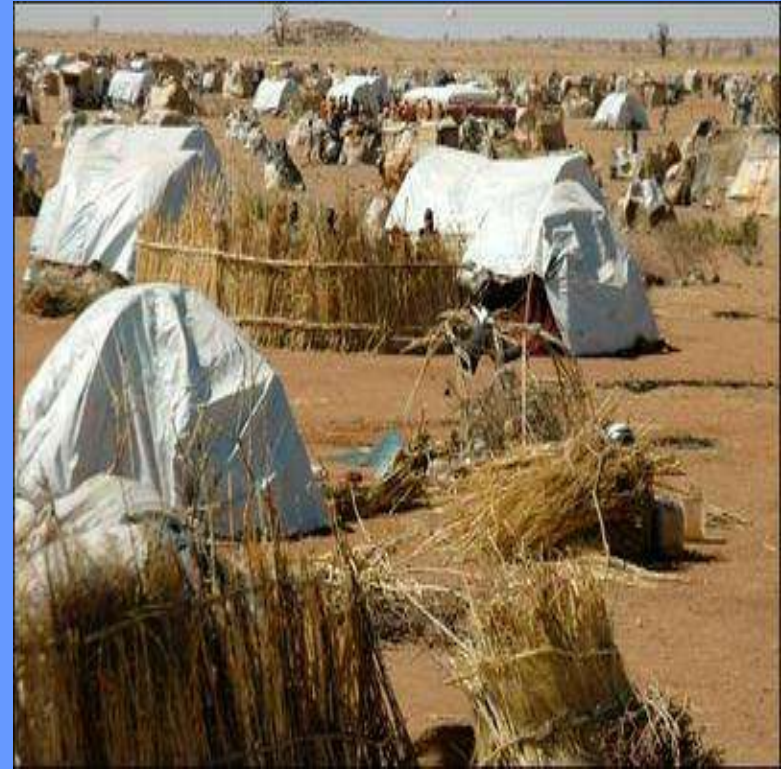


Main Objective

- Increase coverage, access and, a preventive measure against acute malnutrition, through the use of ready-to-use (RUSF) foods at scale

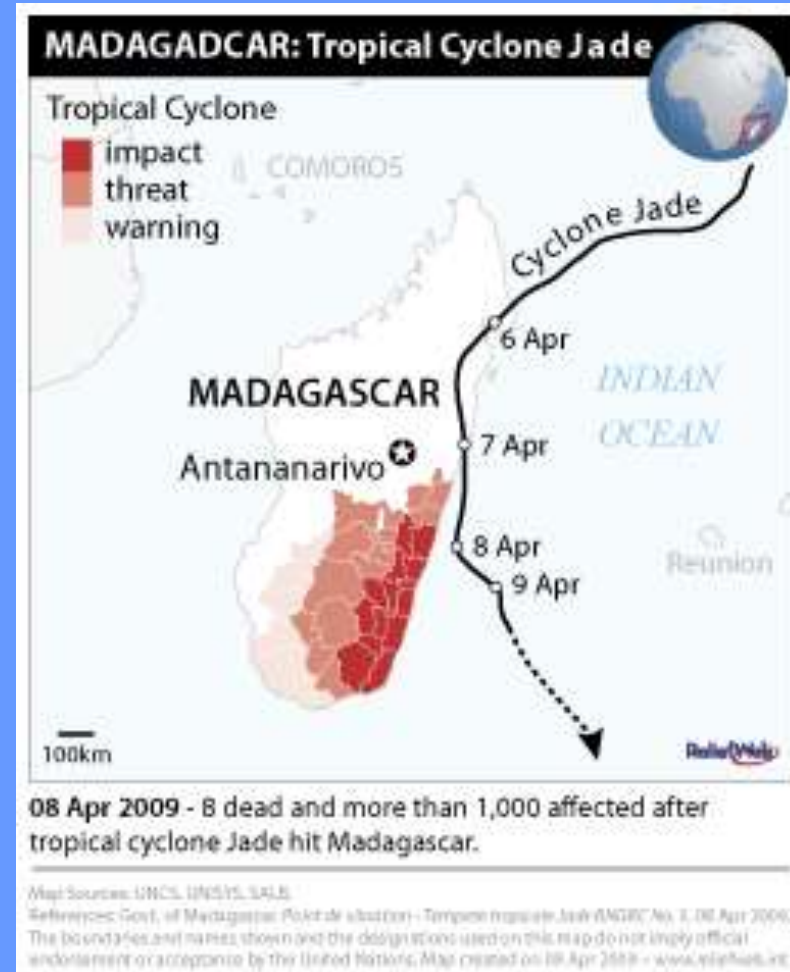
Darfur: Plumpy'doz

- Plumpy'doz v FBF
- 2 IDP camps South Darfur
- Targeting 26,000 children
- GAM 16%
- 4 month distribution lean season
- Cohort of 900 children for each intervention
 - Monthly follow-up
 - Follow-up 2-4 month post distribution



Madagascar: Plumpy'doz

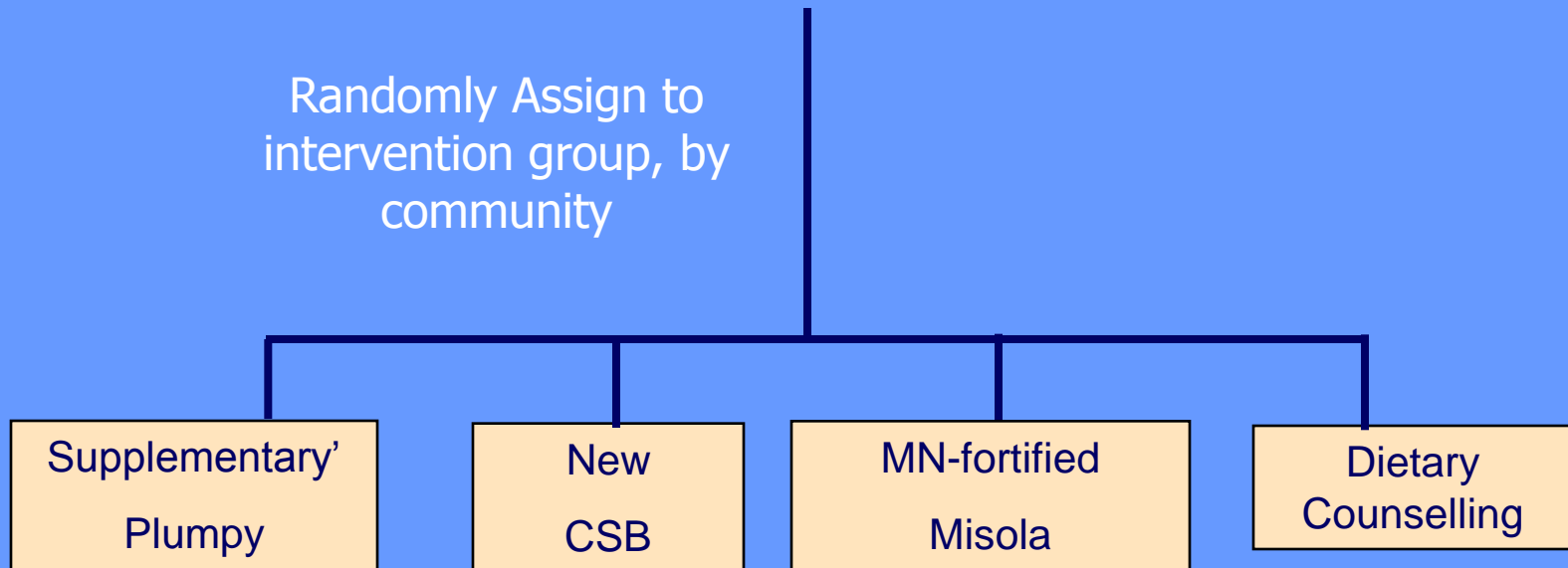
- 3 Cyclones 2009
 - Cyclone Jade April 6
- Drought
- Political & economic turmoil
- High food insecurity
- Large increases in malnutrition during hunger season
- Targeting urban populations



Mali - Objectives

- To compare the impact of different dietary strategies on:
 - continued participation in treatment;
 - rate of recovery from MAM;
 - growth velocity;
 - body composition;
 - micronutrient status of MAM children

Intervention Groups



- All interventions given for 3 months
- Provision of 500 kcal/day (approx 50 kcal/kg body weight on average)

Mapping of organizations using LNS for “prevention” of malnutrition

- Preliminary information - gathering activity to determine where LNS is being used in programmes (but not for treatment of SAM)
 - LNS product being used?
 - Use and distribution mechanism (e.g., blanket feeding)?
 - Any planned evaluation/research of impact or cost?
 - Any particular challenges encountered?

Mapping of organizations using LNS for “prevention” of malnutrition

- Work with Nutriset to identify purchasers of LNS products other than RUTF (i.e., RUF or RUSF)
- Follow-up to request additional information
 - “Prevention”: Blanket feeding (non-and malnourished children)
 - Targeted supplementary feeding programmes (SFPs) (moderately acutely malnourished children) with evaluation

Current and proposed programmes: **ACF-USA** (Kenya)

- Evaluation of the impact of RUF (Plumpy'doz) provided as a blanket distribution to children 6-23 months of age (n = 5000) in Mandera Central District on: District-level mortality and morbidity rates and levels of malnutrition
- Individual-level prevention of acute malnutrition, reduction in morbidity, and improvements in appetite and motor skills (sub-sample of overall population, initially not malnourished)
- Intervention: 6 months, 46 g of RUF (Plumpy'doz) per day, provided as a monthly ration

Current and proposed programmes: **ACF-USA** (Kenya)

- Concurrent control areas (with similar SES characteristics and ACF services) will also be assessed
 - Start date Feb. 2009
 - Developing evaluation of RUSF (Supplementary Plumpy) as compared to CSB+ oil in targeted supplementary feeding programmes in same region

Current and proposed programmes: **ACF-USA**

Using RUSF (Supplementary Plumpy) in supplementary feeding programmes (SFPs)

- **Somalia** (Nov. '07-Nov 08): stopped due to security concerns
- **Ethiopia** (Nov '08 to present)
- **Nepal** (pilot, small scale)
- **Sudan, South Darfur** (June –Nov 2007): Previous high default rates and low cure rates using CSB in supplementary feeding programmes
 - Implemented SFP using RUSF
 - Higher cure rates, and lower default rates compared to previous years (no concurrent control)

Current and proposed programmes: **ACF-France** (various countries)

- Comparison of 3 types of supplementary food for treatment of moderate acute malnutrition and SFP performance:
 - a randomised intervention trial in Northern Rakhine State, union of Myanmar:
 - Comparison of RUSF (Supplementary Plumpy) vs. (Plumpy'doz) vs. CSB for blanket feeding - March 2009

Current and proposed programmes: **WFP** (various countries)

- **Ethiopia:** Evaluation of RUSF vs. CSB + oil in supplementary feeding programme on:
 - Recovery time for moderately malnourished children with WFH as main indicator
 - Recovery, default, death, non-response, transfer and re-admission rates
 - Cost-effectiveness (cost per beneficiary): product, storage and transportation costs, length of treatment time required for recovery
 - Feasibility of scale-up in Ethiopia
 - Caregiver exit questionnaire: Acceptability, usage, food sharing practices

Guatemala example

- Very high prevalence of stunting national levels: ~50% of children 6-59 months of age (indigenous children ~75%)
- GoG currently incorporating a fortified soy-maize blended cereal into programme (“Vitacereal” – soy maize blended cereal)
- Acceptability determination and formative research regarding LNS use
- Cluster randomized controlled trial
- Start with communities where Vitacereal not yet being distributed but IEC programme active
- Comparison arms: LNS (Nutributter, 20 g/d)
 - Vitacereal
 - “Control” (i.e., regular nutrition, health activities of IEC programme)
- Target group: children 6-24 mos of age
- Intervention length: 18 mo (6-24 mos of age)

UNICEF-supported OR: Summary

- **Madagascar:** Blanket feeding of children 6-36 mos to prevent nutritional deterioration, PD vs CSB (UNICEF/CDC)
- **Somalia:** Blanket feeding of children 6-36 mos to prevent nutritional deterioration, PD (UNICEF/CDC)
- **Uganda:** Targeted feeding of children 6-36 mos with moderate acute malnutrition SP vs CSB to treat MAM (UNICEF/CDC)
- **Sudan:** Blanket feeding of children 6-36 mos – CSB++ vs. PD to prevent acute malnutrition and treat MAM (UNICEF/WFP/ACF)
- **Djibouti:** Randomised controlled study of children 6-36 mos – PD vs CSB to prevent and treat MAM (UNICEF/Epicentre/Harvard/WFP)
- **Mali:** Randomised controlled study – (UNICEF/HKI/WFP/UC Davis)
 - Children 6-35 months of age
 - Moderate acute malnutrition (Weight-for-height <-2 and >-3 Z), no oedema
 - N=840
 - Screening:
 - Bi-monthly in community
 - Follow up:
 - Weekly in month 1, then biweekly at community-based health centres

Way Forward

- Contribute to the generation and building of evidence base on new products for management of MAM
- Identify the most appropriate and effective product for the management of MAM
- Inform the joint WHO/UNICEF/WFP/UNHCR consultation on programmatic approaches to managing moderate malnutrition in children to be held in December 2009
- Develop a Joint WHO/UNICEF/WFP/UNHCR Statement on improved dietary management of moderately malnourished children for advocacy
- Develop a UNICEF strategy on improving management of moderate acute malnutrition