International Workshop on the Integration of Community – Based Management of Acute Malnutrition

Washington DC, April 28 – 30, 2008

Workshop Report

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Notes on Terminology

CMAM, or community-based management of acute malnutrition, refers to 1) inpatient care for children with severe acute malnutrition and complications or below 6 months of age, 2) outpatient care for children with severe acute malnutrition without complications, 3) community outreach and 4) services or programmes addressing moderate acute malnutrition depending on the context and links with initiatives preventing undernutrition.

For the purposes of this document, as in the workshop itself, the term CMAM focuses particularly on the community-based management of severe acute malnutrition (SAM) in children 6-59 months of age.

We are also making a distinction between CMAM, or community-based management of acute malnutrition and CTC, or community-based therapeutic care. In effect, the term CMAM is used as a more generic term that evolved from CTC, which is a community-based approach for the management of acute malnutrition in emergency settings, and comprises inpatient or stabilisation care, outpatient therapeutic care, supplementary feeding and community outreach. In some country-specific cases, the term CTC is being used appropriately, as the services are provided in or have evolved from an emergency setting, as opposed to services provided in a longer-term development context with the aim of integrating them into existing health systems. Other variants of CMAM include Ambulatory Care or Home-Based Care for SAM.

For additional guidance, please refer to the list of acronyms and abbreviations and a CMAM glossary provided as Annexes A and B, respectively.

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Contents

Executive Summary 5

Session I: Introduction 6

1.1 Welcome and outline of themes and process of Workshop 6
1.2 Review of CMAM evolution and development 6
1.3 Integration of CMAM into National Health Systems – Summary of Results from Ethiopia, Malawi and Niger 7
1.4 Panel Discussion 8

Session 2: District Level Integration 9

2.1 Summary of Outcomes from Localised Efforts in Malawi 9
2.2 Case Study: Integration in Urban Health Services (Zambia MoH) 9
2.3 Lessons from CMAM outreach 10

Session 3: Integrating at Scale 11

3.1 Integrating CMAM into Policies and Health Care System in Malawi 11
3.2 CTC Advisory Service Model: Experience to Date (Malawi MoH) 11
3.3 CMAM Scale-up in Ethiopia (Belaynesh Yifru Mulugeta, Ethiopia MoH) 12
3.4 Panel Discussion: Recent National Scale-Up Experiences 12
3.4.1 Recent National Scale up Experience of CMAM in Mozambique 13
3.4.2 Scaling up in a system in decline. Community-based nutrition care/ community therapeutic care in Zimbabwe 13
3.4.3 Madagascar: Detection and treatment of wasting to guide the scaling up of efficient management of acute malnutrition 14
3.5 Integrating at a Scale: Group Work and Reporting 15

Session 4: Case Studies: Integration in Post-Emergency Settings 16

4.1 Table Summary of Working Group Findings based on Case Studies 16
4.2 Summary of case studies (continued): commonalities and differences 17
4.3 Plenary Discussion 18
4.4 Contingency Planning – the Case of Pandemic Influenza 18

Session 5: Linkages with Primary Health Care 19

5.1 Links with Health Extension in Ethiopia 19
5.2 IMCI Integration: Results from Field Test 19
5.3 Linking outreach to Existing Monthly GMP in Bangladesh 20
5.4 Links to Nutrition Counselling 20
5.5 Linking CMAM with Inpatient Management: Building Health Service Capacity to Manage SAM in Tanzania 21
5.6 Integrating CMAM with Child Survival and Development (Netsanet Walelign, UNICEF) 21

Session 6: Panel Discussion: CMAM and HIV LINKS 23

6.1 Findings of Three-Country Study: Nutrition and HIV (Bruce Cogill, UNICEF) 23
6.2 CMAM and HIV Counselling and Testing 23
6.3 CMAM and OVC Programming 24
6.4 Panel discussion 24

Session 7: Recent CMAM Research 25

7.1 Use of proportional weight gain as a discharge criterion in CTC 25
7.2 New Coverage Measurement Tool 25
7.3 MUAC Growth Study 26
7.4 Strategies for High-Incidence Countries 26
7.5 Mass Treatment Model (RUTF) 27

Session 8: RUTF Supply and Scale up 28

8.1 Scaling Up RUTF Production 28
8.2 Lessons and Propositions for RUTF Scale-Up 28
8.3 RUTF Procurement and Logistics Strategy 29
8.4 CMAM, RUTF and Aflatoxin 29

Session 9: Next Steps 31

9.1 Strengthening Information Sharing 31
9.2 Feedback and Discussion 31
9.3 Closing remarks 31

Annex A Acronyms and Abbreviations 32
Annex B CMAM Glossary 33
Annex C List of Workshop Participants 37
Annex D Workshop Agenda 40

Executive Summary

The International Workshop on the Integration of Community-Based Management of Acute Malnutrition (CMAM), held between 28th and 30th of April 2008, was the third in a series of workshops on CMAM over the past five years. Due to the growing demand for implementation and integration of CMAM in many countries, the overall goal of this workshop was to "share experiences and identify the main challenges to integration and scale up of CMAM at country level."

The workshop was successful in providing a clear idea of where and how CMAM is being implemented, as well as in raising a number of issues regarding the scale up of CMAM and its integration with national programmes. Key findings from the workshop are as follows.

Integration of CMAM and the process through which it is achieved is context specific and can occur to various degrees and through different means. Community-based management of severe acute malnutrition services can be integrated into all or some routine health services, or throughout the health system as part of the health service delivery strategy or essential health care package mandated by the MoH. There are also contexts where integration will not be appropriate and services will run in parallel to the MoH. This does not, however, preclude CMAM services from falling under the technical leadership of the MoH.

MoH leadership is always essential for successful integration. Other key elements necessary for successful integration have been identified and elaborated upon through the development of an **integration framework.** This framework – which summarises key elements for CMAM and encompasses the enabling environment, access to services and supplies, and quality of services and competencies – can be used to assess capacities, available resources and gaps that need to be addressed to facilitate successful integration of CMAM.

Capacities need to be strengthened at most levels of a health system to achieve successful integration and scale up of CMAM within that system. Lack of qualified health care providers creates heavy workloads within existing health systems. Integration of CMAM within these health systems will serve to exacerbate these work loads and strain existing health systems, as the acquisition of new skills and adoption of new procedures will be necessary.

Simplicity is a key factor in integration, sustainability and scale-up. There is a need for simple protocols and M&E tools to facilitate implementation, quality assurance and capacity strengthening. Despite the need for further research on the role of MUAC as an indicator for monitoring and discharge, its use as an indicator for admission is a viable way of promoting sustainability of services because of its simplicity and compatibility, with easy and early case finding and referral in the community.

Low production and transportation costs for RUTFs and RUSFs are essential for successful integration of CMAM. Achieving low costs will require increasing the economies of scale. This, in turn, is reliant on increasing demand for CMAM and programme to address Moderate Acute Malnutrition (MAM) through supplementary feeding. Given the need for capacity strengthening to integrate CMAM successfully, a delicate **balance must be maintained between matching supply of, and demand for,** CMAM services.

There are numerous outstanding questions and gaps in the knowledge regarding scale up and integration. These include broad questions like whether existing Sphere Standards are applicable to large-scale CMAM programming, what models exist for financing scale up and integration, and what are the long-term outcomes of programmes which have been scaled up and integrated within existing systems. More specific questions include explanations for disparities in outcomes between HIV-positive patients in outpatient therapy versus hospitals, and the role of proportional weight gain as a criterion for discharge from programmes.

Open and frequent sharing of information is critical. Sharing information and experiences in real time – between implementers in the field as well as between implementers and more-experienced practitioners or scientific experts – is critically important. There may be a variety of mechanisms for achieving this, including the establishment of an interactive electronic forum where field staff can post experiences and queries, and where those with appropriate experience and expertise can provide support and advice.

Session 1 Introduction

The opening session started with a welcome and an outline of workshop objectives and the agenda. This was followed by a brief historical review of the key developments in the evolution of CMAM, and a summary of a recent survey of the integration of CMAM into national health systems in Ethiopia, Malawi and Niger.

1.1 Outline of Themes and Process of Workshop

(James Lee)

The international workshop on the integration of community-based management of acute malnutrition (CMAM) was officially opened by the Food and Nutrition Technical Assistance (FANTA) Project Director, Anne Swindale and the USAID/OFDA Health/Nutrition Adviser, Caroline Abla. This workshop was the third in a series of workshops on CMAM and had a substantially wider forum than previous workshops, with representation from over 20 UNICEF offices and Ministry of Health (MoH) offices. The presence at the meeting of the Ethiopian State Minister of Health, Dr. Shiferaw Teklemariam, was an indication of the strategic importance of the integration of CMAM for governments, as well as for UN agencies and INGOs. Following the release of *Community-based Management of Severe Acute Malnutrition: A Joint Statement by the World Health Organisation, the World Food Programme, the United Nations System Standing Committee on Nutrition and the United Nations Children's Fund* in 2007[1], interest has grown in addressing acute malnutrition through CMAM outside of emergency contexts through the existing health infrastructure. Treating acute malnutrition in the community has led to increased sustainability and measurable health gains. It has also meant that treatment of acute malnutrition increasingly falls within the remit of the health sector, and in particular, child survival programmes.

Due to the growing demand for integration of CMAM in many countries, the overall goal of this workshop was to "share experiences and identify the main challenges to integration of CMAM at country level." It was hoped that the knowledge and skills acquired in implementing CMAM at different levels and in different contexts (e.g. district level, country level, and post emergency) would feed into the discussion on future scale-up. Experiences of linking CMAM to primary health care (PHC) activities and HIV programmes would also be addressed during this workshop. Important developments in CMAM-related research and in the scaling up of local production of Ready to Use Therapeutic Food (RUTF) would also be presented. The workshop would close with a discussion on "the way forward" in CMAM and how to strengthen information- and experience-sharing within the sector. It was hoped that the workshop would lead to identification of key integration issues and where a greater knowledge base is needed.

1.2 Review of CMAM Evolution and Development

(Carlos Navarro-Colorado)

This presentation described the evolution of the treatment of severe acute malnutrition since the mid 1940s, when mortality rates of 70-80 percent from acute malnutrition occurred following World War II and the liberation of people from the concentration camps. In emergency settings like Biafra in the late 1960s, mortality rates had decreased but were still extremely high at around 40 percent.

The first revolution in the management of severe acute malnutrition occurred in the mid-1990s with the introduction of specialised milks (initially F100 and later F75) and improved protocols introduced by the World Health Organisation (WHO). The combination of the specialised milks, the use of antibiotics and better management of fluids reduced mortality substantially, reaching as low as 5 percent. This improvement was a direct consequence of substantial research on acute malnutrition conducted in Jamaica and Uganda during the 1980s. Methods pioneered in these countries were scaled up during the 1990s and were predominantly centre-based and within inpatient facilities.

The second revolution in the management of severe acute malnutrition occurred at the beginning of 2000 with introduction of a decentralised community-based model involving RUTF. Trials involving this approach were supported by Concern Worldwide, Valid International, and Save the Children. The approach involved

[1] http://www.fantaproject.org/downloads/pdfs/WHO_Statement_CMAM.pdf

management of severe acute malnutrition within the community following a period of community sensitisation and mobilization. A primary aim of decentralisation of treatment (largely made possible through the use of RUTF) was to improve the coverage of programmes beyond those levels achieved with centre-based programmes. However, the approach was still mainly dependent upon humanitarian agencies operating in emergency settings.

A third revolution is currently unfolding, with the aim of managing severe acute malnutrition in the community in **non-emergency** settings.

Navarro-Colorado emphasised the many issues to consider with regard to rolling out and scaling up such programmes in non-emergency contexts. Questions posed included: How can programmes be implemented with less qualified staff? How can protocols be simplified? What is the best way to integrate programmes with health services? How can the high price of commodities for National Health Service budgets be managed, and how can effective contingency planning be put in place in the event of an emergency?

1.3 Integration of CMAM into National Health Systems

– Summary of Results from Ethiopia, Malawi and Niger (Hedwig Deconinck, FANTA)

This presentation was based upon a FANTA-led study of lessons learned in post-emergency contexts on the integration of CMAM into national health systems. The study involved country reviews conducted in Ethiopia, Malawi and Niger in 2007.

The main objectives of the review were to assess integration of CMAM into the national health systems and factors that influence level of integration, and to document challenges of integration and lessons learned. Although integration was at different stages for each of the three countries, there were many similarities and cross-cutting issues. In Malawi, integration has occurred mainly at the district level with support from international non-governmental organisation (INGO) implementing partners and UNICEF, while in Ethiopia, although there had been less scale up and coverage, the process was mainly supported by the MoH and UNICEF. In Niger, CMAM implementation was still mainly implemented as an emergency approach, with many NGOs running structures parallel to the MoH.

Similarities between the three countries included:

- The presence of pilot CMAM interventions prior to emergency interventions.
- Different partners involved in inpatient and outpatient care in all settings.
- Health infrastructure undermined by lack of qualified health staff and high staff turn-over.
- Need for initial and continuous training in CMAM with inclusion of the treatment of acute malnutrition in the health staff job descriptions.
- Need for financial resource commitment to support CMAM at all levels, including supplies.
- Supply interruptions negatively affected programming.
- Lack of standardised protocols and weak monitoring and reporting systems.
- Issues of community access, e.g., distance from health facilities, preference of traditional care system.
- Poor understanding of malnutrition at the community level (i.e. not perceived as a medical or dietary problem).

The main differences to integration revolved around the extent of MoH, UNICEF and INGO leadership and coordination, and the varying strategies for strengthening capacities and transferring responsibility for CMAM to MoHs.

A framework which summarises key elements for CMAM integration was used covering the five domains:

1) Enabling environment for CMAM;
2) Access to CMAM services
3) Access to CMAM supplies
4) Quality of CMAM services, and
5) Competencies for CMAM.

1) The overarching requirement for a successfully integrated CMAM programme is the need for an 'enabling environment.' Within this enabling environment there are elements that, when in place at all levels of the health system, are more likely to ensure success and sustainability. However it is instrumental that the MoH take the leadership role and that the different sectors are part of the process (policy makers, managers, paediatricians) so that CMAM is linked to other existing initiatives. A support unit to the MoH for technical guidance on CMAM is helpful for capacity development at national policy and district implementation levels. National guidelines serve as an important policy tool and lead to better harmonisation of CMAM services. Over the long term, commitment by donors to develop and maintain capacities is needed along with planning for future emergencies and for transition of services post-emergency.

2) Access to CMAM services should be assured in priority districts following initial start-up in learning sites and gradual scale-up. Both inpatient and outpatient care needs to be made available by linking with a community-based outreach network of formal and informal healthcare and community systems.

3) While beyond the means of most developing country budgets, it is critical that CMAM supplies of essential drugs and therapeutic foods be secured by MoHs.

4) Quality of CMAM services can be assured through adherence to national CMAM guidelines, continuous support to and supervision of CMAM services, and harmonised monitoring and evaluation tools that are linked to the national health information system.

5) Finally, CMAM competencies can be strengthened through integrating pre- and in-service training for CMAM into national curricula for all levels of health care providers (community health workers, nurses, and physicians). Training should be augmented through practical learning experiences at CMAM learning sites, post-training on-site mentoring, and regular experience-sharing at technical meetings and other fora.

A health systems approach – during service introduction, expansion or transition from emergency to development contexts – is especially important to ensure that CMAM is integrated into the national health system, while not supplanting other essential services. In countries with a high burden of acute malnutrition, national health policies will have to carefully assess the need for, and situate CMAM within, other essential health care and nutrition services.

At the global level it will be necessary to advocate and attract technical and financial support from donors to integrate CMAM into national health policies and strategic plans. Furthermore, the various approaches and strategies employed globally for CMAM service provision by implementing partners should continue to be documented. Improved sharing of information and documentation should be enhanced through various channels.

1.4 Panel Discussion

A panel discussion around the following questions and issues was conducted with key international experts in nutrition (Dr. Teklemariam Shiferaw, Dr. Andre Briend, Dr. Mike Golden, Dr. Flora Sibanda-Mulder, Tapiwa Ngulube, and Dr. Steve Collins):

1. What are the key challenges today in integration of CMAM, as well as approaches to address these challenges?
2. What can we learn from the past 20 years of experience that can help to guide this process?
3. What do you envision the treatment of acute malnutrition will be in five years?

Main points to emerge from this discussion were as follows:

- Limited geographical coverage of management of acute malnutrition can only be addressed through better integration of CMAM programmes within national health systems. However, it is often more difficult to integrate programmes where INGOs are active. Moreover, there is a need to better understand whether INGO activity is beneficial or detrimental to integration. MoHs must take a lead for roll out and scale up of CMAM to be effective.
- There are a number of constraints to successful integration of CMAM within government health systems. These include:
  - INGO presence that can undermine integration.
  - A lack of community-based health services to enable a seamless transition from inpatient to community-based approaches.
  - A lack of trained health staff and dysfunctional health facilities. Sometimes the right cadre of staff are not available at the community level, or community health workers are not paid to do this work.
  - Large globally funded programmes (such as malaria and HIV) that work in parallel to MoH health structures and divert human resource capacity.
  - Weak health care systems that are easily overburdened by adding CMAM activities.
  - Limited donor interest in managing SAM in non-emergency contexts (where baseline levels can be very high).
- There needs to be a focus on CMAM integration at the household level with efforts to address the local availability of foods. It is also essential to engage the private sector, particularly in the production and transport of specialised foods and supplies.
- CMAM must be demand driven at the community level rather than supply driven. To this end, there is a need for greater awareness of malnutrition within communities, particularly how to prevent it and when to go for treatment.
- The focus must shift to the positive impact of CMAM (e.g., cure rates and coverage). This requires community mobilization at set-up, which can be a slow process but is essential. The most successful programmes are those which have invested resources in community mobilisation and have thereby created programme demand and hence treated many children.
- The recent Lancet series on maternal and child survival failed to mention the substantial increase in global food prices and its consequences related to malnutrition. Because malnutrition is a poverty issue, prevention through education is not enough. There is a need to integrate nutrition interventions into social programmes.
- One future strategy for the effective prevention of acute malnutrition is based on using a micronutrient-dense supplement as a complementary food for all young children.

Session 2 District – Level Integration

The presentations in this session focussed on integrating CMAM at the district level and challenges to increasing outreach, and were chaired by Theresa Banda, Valid International.

2.1 Summary of Outcomes from Localised Efforts in Malawi

(Valerie Gatchell and Nicky Dent, Concern Worldwide)

This presentation by Concern Worldwide discussed two different experiences of CMAM implementation in two districts of Malawi (Dowa and Nsanje). The initial intervention in Dowa district was an emergency response following the 2002 drought. Although it was a joint effort between the MoH and Concern Worldwide, financial resources were mainly provided by Concern, which was responsible for procurement and a high percentage of the transport costs. The approach was initially centralised in nutrition rehabilitation units (NRUs) but increasingly decentralised through the use of Concern Worldwide mobile teams. The cost of the intervention was high.

However, by 2005, Government was increasingly focusing on the treatment of severe malnutrition with a vision to support CMAM through all district health centres and with procurement through the MoH infrastructure. NGO involvement was mainly limited to technical support and joint supervision. Concern Worldwide transferred lessons from Dowa to implementation of CMAM in Nsanje in 2006. They tried to be more strategic and have less of a 'technical presence' so that the intervention was led by district health offices.

The main issues to emerge in implementing this strategy in Nsanje were limited coverage and quality of programming largely as a result of a lack of qualified staff. Data collection performance also varied, leading to gaps in information.

Lessons learned from these two experiences included the need for an analysis of health system capacity to identify and address gaps prior to commencing CMAM and for NGOs to focus on facilitation and technical support rather than implementation. This support should include information management, planning, budgeting, monitoring and supervision. NGOs also have a role to play in operational research.

The outstanding challenges identified for effective integration include limited human resources at the national and district levels, training burdens in terms of time and cost, lack of effective national regulation of nutrition products used in CMAM, limited linkages between MoH and other sectors, the need for incorporation of CMAM into district implementation plans, high mortality rates in NRUs, and the cost of RUTF. Ways forward involve continuing to roll out CMAM in districts with low coverage and have learning sites to assist this process, including CMAM and costs in all district plans, strengthening extension services (home care workers and health system assistants), and integrating CMAM services into pre-service curricula.

2.2 Case Study: Integration in Urban Health Services

(Clara Mbwili-Muleya, Zambia MoH)

This presentation described the management of acute malnutrition in an urban setting, the capital city of Zambia, with a population of around 1.7 million and an acute malnutrition rate of nearly 10 percent. With no district hospitals in Lusaka, malnourished children were referred directly from primary to tertiary care at the main university teaching hospital. There were over 2,500 admissions with severe acute malnutrition annually. Recovery rates were poor (50-60 percent) and the limited numbers of staff were overwhelmed by high case loads. Children were referred late and were usually extremely ill, leading to high death rates. Furthermore, 30-40 percent of the case-load was HIV positive.

In January 2005, the MoH and Valid International started the process of introducing CMAM. All stakeholders were involved in the process of sensitisation and orientation, and agreements were established between implementing partners. By September 2005, CMAM had been established in five of the 26 city health centres. This had been scaled up to 25 health centres by April 2008. Existing health staff and community volunteers trained in the CMAM approach were responsible for the management of CMAM, with technical and logistical support provided by Valid International. MoH took over the storage and distribution of RUTF, with distribution now integrated into the district drug supply system. Outcomes improved dramatically, with cure rates reaching 77 percent by September 2007. A coverage survey

in December 2007 found that CMAM coverage was good and equitable in most programme areas in Lusaka.

The process of establishing CMAM in Lusaka was unusual in that there was no emergency response prior to integration of CMAM within the MoH structure. The involvement of all stakeholders, including the community, from the initial set-up has encouraged ownership and increased sustainability of the programme. The process was facilitated by simple training protocols, prior existence of community health volunteers, adequate supplies of RUTF, and the presence of other stakeholders and partnerships in child health. Although the Lusaka programme suffers from many of the constraints faced by other CMAM programmes (e.g. limited financial and human resource capacity, high turnover of staff, lack of transport, no inpatient facilities for stabilisation), this approach has proven to be effective and may be transferable to other settings when scaling-up CTC/CMAM interventions. However, there is still a catalytic role for NGOs in supporting the process of CMAM integration.

2.3 Lessons from CMAM outreach

(Saul Guerrero, Valid International)

Community mobilisation and outreach are essential for the roll-out and success of CMAM. There are questions regarding how best to address community mobilisation. In NGO-implemented CMAM programmes, paid outreach workers or community volunteers receiving some form of payment in kind (incentives) are normally responsible for community sensitisation, screening, case finding and locating defaulters. The payment or incentive factor ensures that outreach workers or volunteers are accountable to the programme which undoubtedly strengthens the outreach outcome.

There are numerous challenges to achieving good outreach in integrated programmes. First, not all countries have a MoH community outreach network and, where these exist, they may only be active during campaigns. Volunteerism varies considerably and has a limited shelf-life, with personnel often demanding payment or other incentives.

Another challenge to outreach relates to the issue of rejection. Active screening in the community employs Mid Upper Arm Circumference (MUAC) measurement while often the admission criterion for programmes is weight for height, in addition to bilateral pitting oedema. This can lead to high levels of rejection. In a recent review of 12 CSAS surveys, the primary reason for non-attendance of severely malnourished children to a nutrition programme was previous rejection to a nutrition intervention (39 percent). Furthermore, country programmes are often concerned that active community outreach will overwhelm the health system, particularly if there are "false positives" identified through the incorrect use of MUAC.

The future for CMAM outreach in integrated programmes requires a strong focus on sensitisation, initially through a variety of media forums (e.g., mass media using local radio stations). Other means of strengthening outreach include a broadening of the volunteer cadre to include people in the community already involved in looking after health issues. If community networks are dormant it may be beneficial to consider short funding arrangements with a clear focus of activities and timeframe.

Further research is needed to measure the impact of different approaches to increasing community outreach. It may also be useful to consider how establishing linkages between CMAM and traditional health practitioners may strengthen outreach. Answers also need to be found to questions about "acceptable" coverage levels in MoH-integrated CMAM programmes compared to NGO-implemented programmes, and whether it is more effective in the long term to focus resources initially on case-finding or sensitisation.

Session 3 Integrating at Scale

Presentations and discussions in this session focussed on issues related to scaling of CMAM. The session was chaired by Dr. Flora Sibanda-Mulder.

3.1 Integrating CMAM into Policies and Health Care System in Malawi

(Roger Mathisen, UNICEF)

Malawi introduced CMAM in 2002 following a number of pilot studies that demonstrated the many advantages of a community-based approach over the centre-based approach, which had been the mainstay of treatment of severe malnutrition for many years. Scale-up of CMAM only began in earnest in 2005, and involved targeting districts, identified during the national nutrition survey, with high rates of acute malnutrition. In 2006, at a second national CMAM meeting, Malawi formally adopted the approach for treatment of severe acute malnutrition and national guidelines for treatment of severe malnutrition using the CMAM approach were finalised.

Currently, there are only a few districts where CMAM is not being implemented. Many districts are implementing CMAM in more than 75 percent of health centres. In 2007, there were over 32,000 children treated with SAM; almost two-thirds (20,189) of these were managed through the outpatient therapeutic programme (OTP) component of the CMAM programme with acceptable outcomes (a cure rate of almost 86 percent, a death rate of 2.9 percent and a defaulter rate of 9 percent). There has been strong coordination at the district and central levels, with the many key stakeholders involved in the scale-up. A CMAM advisory service was established at the national level to provide technical support as required. Monitoring and evaluation tools have been developed at the national level. CMAM has been mainstreamed into the national health infrastructure and it is now included in the Essential Health Package, the National Nutrition Policy, and the Accelerated Child Survival and Development (ACSD) Policy and Strategy. There are also linkages with other interventions, especially HIV/AIDS services. Studies indicate that around 27 percent of children in NRUs are HIV positive and CMAM is proving to be an important entry point for maternal and paediatric HIV services. Local production of RUTF has been operational since 2002 and the Malawi Bureau of Standards has been working with partners to ensure high-quality foods.

There are still many challenges to scaling up CMAM and integrating programmes into government programmes. Human-resource capacity is limited so that training is an ongoing necessity. DHO organograms do not include district nutritionists. The cost of CMAM needs to be included within each district implementing plan (DIP), while linkages with other sectors need strengthening. However, even with these constraints, there are plans for CMAM to be rolled out in all districts by 2009, with costs included in each DIP and necessary supplies handed over from UNICEF to the MoH.

3.2 CTC Advisory Service Model: Experience to Date

(Tapiwa Ngulube, Malawi MoH)

The CTC Advisory Service (CAS) was set up in response to the decision that CTC should be the main approach for management of severe acute malnutrition in Malawi and would therefore be integrated within routine health services. CAS is a technical support unit under the MoH but is supported by key government institutions, UN agencies and NGO representatives. The MoH is the lead agency. The secretariat includes experts in different components of CTC, including programme design, community mobilisation, training, and monitoring.

The key functions of CAS include:

- Technical support
- Capacity building
- Coordination of CTC activities within the health sector and across partners
- Spearheading development of national guidelines and training materials
- Supporting scale-up by generating evidence of lessons learned
- Role in advocating for resources for CTC
- Strengthening monitoring systems

CAS is housed within the MoH and not only supports the roll-out of CTC, ensuring that monthly statistics are analysed and lessons are learned, but also has a pool of trainers available to carry out the training that is required at the district and national levels.

CAS has been deemed successful in facilitating the integration of the CTC approach within the health infrastructure at the district and national levels. The main achievements have been ensuring a harmonised

approach, developing monitoring and reporting tools, training and coaching district MoH staff, and developing a national database. CAS has also documented and widely disseminated information on best practices.

Discussion

There was a discussion session following the two presentations at which there was acknowledgement of the value of leadership by government at the national and district levels for the roll-out of CMAM. However, there was concern over the regulation of RUTF, with many potential suppliers entering the market and a fear that inferior products may be used. It was acknowledged that a lack of guidelines or regulations on what can and cannot be used made the Malawian government vulnerable to pressures from companies to use their products. Another issue raised was that CMAM monitoring data are currently collected at the district level and passed on to the national level (to the CAS), and that these data are mainly focussed on outputs and not integrated into the MoH health information system.

3.3 CMAM Scale-up in Ethiopia

(Belaynesh Yifru Mulugeta, Ethiopia MoH, Sylvie Chamois, UNICEF, and Emily Mates, Concern)

This presentation was delivered by three of the key partners involved in CMAM in Ethiopia: the MoH, UNICEF and Concern. Malnutrition is recognised in Ethiopia as a public health issue that needs to be addressed to impact on the Millennium Development Goals (MDGs). Strengthening the treatment of severe acute malnutrition is a key element of the government's national nutrition plan (NNP). Around one-quarter of a million children are considered to be severely malnourished each year (DHS 2005), with these numbers rising substantially during recurrent emergencies.

A number of preventive and curative nutrition interventions are in place in Ethiopia. The aim of the HEP (Health Extension Programme) is to bring health services closer to the community by training health extension workers and supervisors, expanding health posts, and upgrading health centres. There has also been a nationwide child survival initiative, enhanced outreach strategy/targeted supplementary feeding (EOS/TSF), in existence since 2004 with six monthly activity campaigns throughout the country. Vitamin A, de-worming and measles vaccination are part of this campaign, with a nutrition screening component in drought-prone areas. Those identified with moderate acute malnutrition receive supplementary food while those with severe acute malnutrition are referred to therapeutic care. There are plans to integrate this programme with the HEP.

CMAM was initially piloted in 2000 in Ethiopia. However, for a number of years it remained an emergency nutrition response. At the end of the emergency in 2004 it was decided to 'hand over' programming to the MoH. There were considerable challenges to effecting such a transfer, particularly relating to ownership, with success depending upon how much 'buy in' or involvement in programming was sought from MoH at the start. It was difficult to transfer a high-resource, emergency-type response to a development-type context.

Nevertheless, there has been a major scale up of CMAM services over the past three to four years, with MoH showing strong leadership and programmes being integrated into existing health systems. Ownership of CMAM has been enhanced by upgrading the skills of leaders at all levels.

However, national coverage is still fairly low. The scale-up has been limited to four out of the nine regions in Ethiopia, with only 21 percent of health centres and 59 percent of hospitals having functioning therapeutic services. The scale up has led to deterioration in performance monitoring and reporting of programmes. In 2003, almost 71 percent of all reports on outcomes of nutrition interventions were completed and submitted; by 2007 this percentage had dropped to only 25 percent.

Nationally, between 2003 and 2007, Sphere Standards were being met for therapeutic feeding/CMAM programmes with cure rates of almost 80 percent and mortality rates less than 5 percent. However, in 2007, when separating out data on management of SAM through the OTP, programme performance indicators were worse, with a cure rate of only 61 percent and high defaulter rates (over 30 percent). This was considered to be linked to a number of factors, including not enough decentralisation of services, insufficient RUTF, and high opportunity costs for beneficiaries.

A National Nutrition Strategy was launched in 2008, and CMAM was an important component of the strategy. CMAM has also been integrated within the Integrated Management of Childhood Illness (IMCI) package, and the management of severe acute malnutrition is contained in pre-service curricula.

The outstanding challenges for scale up and integration in Ethiopia are limited finances, logistics, M&E, and a lack of human resources. There is still a massive gap between current treatment capacity and need, a slow pace of both scale-up and integration, and quality issues around production of RUTF.

It is recognised that ways forward for CMAM involve greater integration within existing Ethiopian health infrastructure, such as developing links with other programmes and including data in the Health Management Information Systems (HMIS). Universities should take the lead in developing training courses, materials and teaching aids, while research should be conducted on the optimal means of CMAM programming at health post/community level. Other developments which need to occur include ensuring RUTF and other supplies are on the essential supplies/commodity list, updating the job descriptions of health extension workers to include screening and management of SAM, and agreeing on standardised admission criteria when using MUAC. Long-term international funding commitment for scale up and integration is also essential.

Discussion

A short discussion following this presentation raised the following issues:

- The need to ensure that interventions being introduced fit within existing systems.
- Whether the same Sphere Standards should apply to both outpatient and inpatient care. One view was that it is wrong to apply Sphere standards to outpatient care alone and that data collected from beneficiaries in both inpatient and outpatient care must be combined.
- At the same time it is important to have data on the different programme components (e.g., inpatient care, outpatient care and supplementary feeding) so that it is possible to strengthen individual components when necessary.

3.4 Panel Discussion: Recent National Scale-Up Experiences

This panel discussion commenced with presentations of CMAM scale-up experiences in Mozambique, Zimbabwe and Madagascar.

3.4.1 Recent National Scale up Experience of CMAM in Mozambique

(Bernadette Feeney, Save the Children US)

Mozambique is a vast country with a low population density. Global Acute Malnutrition (GAM) rates are low at 4 percent (severe acute malnutrition (SAM) 0.9%), but HIV prevalence is high at 16.2 percent. In Mozambique, MoH interest in CMAM is linked to the high rates of acute malnutrition associated with HIV-positive children in Southern Africa, low coverage of existing inpatient systems, and high case fatality rates (4-35 percent). There have been a series of meetings within the MoH about CMAM, as well as training in inpatient management of SAM (2004), outpatient care (2007) and community mobilisation (in some districts in Nampula). Facility-based treatment preceded community mobilisation.

At present, outpatient care is targeted at hospitals and health centres with HIV services, as well as sites where there are good linkages with other services such as IMCI and growth monitoring.

There have been no recent major nutrition emergencies in Mozambique to trigger scale up of the CMAM approach. The low population density and malnutrition rates mean that health staff have had limited exposure to, and experience in, the management of acute malnutrition. Obtaining buy-in/ownership of the CMAM approach by MoH is a challenge, with government worried about CMAM sustainability (e.g. high cost of RUTF). There is also a lack of coordination at the national level around CMAM; one nutrition meeting was not attended by the MoH. There are no formal links between the nutrition department and other sections within the MoH. Although CMAM is implemented in all provinces, it is only occurring in those districts which have HIV services (87 out of a 144 districts) and in central health centres or hospital locations. From January 2007 to September 2007, mortality rates in inpatient care averaged around 11.2 percent (6.4-21.2 percent).

Major policy challenges for the roll-out of CMAM include a lack of MoH buy in and objections to pilot approaches in selected provinces, as well as the need to validate MUAC admission criteria.

Major operational challenges include a lack of staff with experience of treatment of SAM and logistical difficulties of scaling up in a vast country.

Discussion

A short discussion following this presentation raised the following issues:

- All the services need to be better integrated so that patients need to only attend one facility (i.e. 'one-stop care'). There can be many entry points but one location for all services.
- Where one-stop shops are being implemented, it is working well. At the community level, Community Health Workers (CHWs) implement and follow up Directly Observed Treatment Short-course (DOTS) for tuberculosis. These same workers could implement community mobilisation.

3.4.2 Scaling up in a System in Decline: Community-based Nutrition Care/Community Therapeutic Care in Zimbabwe

(Nozizwe Chigonga, UNICEF)

In Zimbabwe, CMAM was introduced to address low coverage of SAM treatment, late presentation of cases, and high prevalence of HIV (15 percent), with up to 70 percent of SAM cases being HIV positive. The approach established from the start aimed to create linkages with HIV services and to serve as an entry point for broader prevention and care programmes. The programme is delivered through the Ministry of Health and Child Welfare (MoHCW), with inpatient care in existing therapeutic care units at central and district hospitals and outpatient care in health clinics. Outreach is implemented through community-based volunteers. The programme has involved substantial capacity building and training of trainers at the national level, cascading down to the district level. Supervision is through district nutritionists with support from the National Nutrition Unit and UNICEF. There are also linkages to other services such as Infant and Young Child Feeding (IYCF), livelihoods programming, micronutrient interventions, voluntary counselling and testing (VCT) and prevention of mother-to-child transmission of HIV (PMTCT). Linkages are also planned for Home Based Care (HBC) where NGOs support implementation.

However, at national levels there is no Food and Nutrition Policy or strategy to direct the process of scaling up, although nutrition has been included in HIV policy documents and there are national CMAM guidelines.

CMAM was initially piloted in eight districts in 2005, but quality was poor due to low numbers of sites per district. This led to low coverage and limited capacity to

supervise and monitor (and report adequately). The programme was expanded to the urban centres of Harare and Bulawayo in 2007. Expansion plans for 2008 include rolling out to 40 sites in 10 districts and scaling up integration with HIV services.

There are, however, many constraints to scaling-up in the context of a collapsing health system. There are many empty posts in MoHCW, high staff turnover, limited supervision and weak monitoring capacity, as well as resistance to external support. In late 2007, the MoHCW agreed to allow NGOs to support community-based nutrition care programmes (CBNCPs), and processes are under way to ensure a coordinated and harmonised approach for all partners. Resources are an especially limiting factor; only short-term donor funding is available for Zimbabwe. Pre-prepared formulations apart from RUTF are not allowed, while fuel shortages and lack of communication systems between national and district levels has meant frequent gaps in RUTF supplies at inpatient care and outpatient care sites. Government reticence in allowing external NGO support has also affected scale-up. It is now being suggested that scale-up should be limited to those districts already implementing CMAM but increasing coverage and sustainability through greater community involvement (e.g. through village level action plans). With increasing NGO interest in CMAM, more resources may be mobilised from donors to support the CBNCP process.

Discussion

A short discussion following this presentation raised the following issue:

- Rolling out CMAM and use of RUTF is not as political in Zimbabwe as implementing Supplementary Feeding Programmes (SFPs). This is because CMAM is perceived as a targeted medical intervention where RUTF is a component of medical treatment. In contrast, NGOs have to negotiate and argue the case for feeding some and not others through SFPs.

3.4.3 Madagascar: Detection and Treatment of Wasting to Guide the Scaling up of Efficient Management of Acute Malnutrition

(Simon Rakotonirina, Madagascar MoH)

There are seasonal and geographical variations in rates of acute malnutrition in Madagascar. In 2004, prevention and treatment of malnutrition was deemed a priority in the National Nutrition Action Plan. In 2007 a protocol for management of acute malnutrition was developed, which has now been integrated into the community health and nutrition networks at the primary and secondary levels of the health system. The protocol involves the early detection and follow up of diagnosed cases of SAM at community nutrition/health sites, diagnosis and treatment as outpatients in PHC facilities (systematic drugs and RUTF), and inpatient care for cases with SAM with complications in stabilisation centres at district hospitals.

Although there is enthusiasm and willingness to implement CMAM within the health sector, there are many challenges, including weak coordination between partners, poor knowledge of services amongst families, insufficient access to quality community- and facility-based health care, and weak outreach and referral systems. The planned implementation phase between November 2007 and December 2008 involved building on existing programmes, strengthening partnerships using a national task force to increase synergies, expansion of outreach systems, and reinforcement of skills and managerial capacity. Implementation was planned for seven out of the 22 regions. By April 2008, extensive training of Community Health Assistants (CHAs), health centre and district hospital staff and regional health and district management teams had been completed. There has also been extensive supervision and monitoring at the central and district levels, showing that all staff are knowledgeable about CMAM and that recording and reporting systems are functioning well. However, initial findings have shown that there is low coverage and low adherence to treatment, and that in spite of considerable investment in human and financial resources, time is needed to establish trust between the community and the health system and to improve the quality of the health system.

A number of measures are planned to accelerate programme scale up. These include 60 days of health and community mobilisation at the beginning of the lean season, focussing on high food insecure regions with the greatest population densities. All children between 6-59 months will be screened by MUAC and those <110 mm will be treated with RUTF at the community level. Children between 6-24 months will be given RUSF for 60 days as a preventive measure. Children between 25-59 months are to be given a supplementation with a multi micro-nutrient powder (MNP) while all pregnant and lactating women are to be supplemented with multi-micronutrients. The estimated cost for this programme in 2008 is 889,000 USD. It is hoped that the programme will protect 114,000 women and children in the most vulnerable areas from malnutrition.

Discussion

A short discussion following this presentation raised the following issues:

- In Ghana, implementation of CMAM is just beginning but a major issue is who pays for the cost of treatment.
- The earlier Essential Nutrition Action (ENA) strategy implemented in Madagascar was a preventive strategy involving considerable training of health staff at all levels. It petered out due to lack of funding. However, the ENA approach, which involved outreach and detecting malnutrition at the community level, is coherent with the current CMAM strategy. Challenges in Madagascar include that RUTF production and supply are not being integrated within the central medical system, so that long-term resourcing will be an issue. Furthermore, the health system needs considerable strengthening to enable CMAM integration.
- In Zimbabwe, the Clinton Foundation and UNICEF pay for RUTF. The MoHCW is pushing for local production, as they are concerned about long-term sustainability of the programme. Although integration of CMAM has been implemented by the MoHCW, it

is now trying to bring in NGOs who face the challenge of creating an enabling environment where health staff have increased motivation.

3.5 Integrating at a Scale: Group Work and Reporting

During this session, participants were split up into a number of small groups and asked to answer the following three questions based on the earlier presentations and their own country experiences:

1. What are the main limiting factors/'bottlenecks' to expansion of CMAM?
2. What are possible solutions to these bottlenecks?
3. What are three concrete steps for moving forward on these solutions?

At the end of the session, three groups reported back on the above issues and additional points were raised by other groups. Below is a summary of answers from all groups.

1. Main limiting factors/bottlenecks
   - Ownership and political will at country level
   - Lack of resources (human, financial and supplies)
   - Lack of national policies, strategies and guidelines
   - Weak health systems
   - Lack of appropriately qualified staff and training
   - Lack of integration of malnutrition within wider child survival programmes
   - Lack of standardised M&E tools
   - Over-burdened community volunteers
   - Logistics constraints
   - High cost of RUTF
   - High rates of rejection at admission that affect coverage.

2. Possible solutions to these bottlenecks
   - Strengthen advocacy on the management of acute malnutrition at the national and international levels.
   - Boost sensitisation related to CMAM at the local, national and international levels using the body of available material (and continue to research and publish data to draw upon).
   - Use the WHO/WFP/UNSC/UNICEF joint statement on CMAM as an advocacy tool.
   - Advocate for longer-term funding and use opportunities to tap into funding already available.
   - Develop national/international strategies, policies and guidelines (technical and operational).
   - Incorporate CMAM in health budgets at the national level; governments should commit to cover part of the budget.
   - Expand production of RUTF at the national/regional level to reduce cost. Remove import tax from RUTF and consider it as a medical product.
   - Consider local products in researching future RUTF products to further reduce costs.
   - Consider ways of supporting community workers and volunteers, including 'basket funding' from all programmes.

3. Concrete steps for moving forward on these solutions
   - Include CMAM in global child health agenda.
   - MoH takes on role of coordination of CMAM within the broader health care system.
   - Finalise WHO and national guidelines.
   - Develop unified, simple messages for advocacy.
   - Develop simple tools for training.
   - Increase pre-service training and ongoing in-service training on CMAM.
   - Strengthen logistics, with MoH responsible for the process.
   - Strengthen reporting systems.
   - Improve community mobilisation and consider how to support community volunteers.
   - Include CMAM costs when developing new health budgets at the national level.

Discussion

A discussion following this session raised the following issues:

- If external sources of funding for CMAM are located, governments may shift resources elsewhere. One strategy is for governments to stipulate a minimal amount of overall costs that their budgets must cover, and then bring in other resources to fill the gap. To justify and receive donor funding, however, it is essential that CMAM is considered by governments to be a priority, reflected by the government's financial contribution as well it taking a lead role in advocating for improved management of acute malnutrition. If governments are seen to make CMAM a priority, then donors are more likely to provide complementary funding.
- Clear messages on CMAM and its important role in the management of acute malnutrition needs to be standardised for governments and other non-technical staff, to reduce confusion and contradictory messages from the humanitarian sector.
- Cost-effectiveness data may help to convince governments to make CMAM a priority. More cost-effectiveness data are therefore needed to make the case. However, it could be argued that waiting for such data and evidence delays action. Furthermore, there are ethical issues around conducting case-control studies to provide robust evidence where there is a high risk of death.
- Programmes should be nested in child survival programmes. There is a need to engage with other health systems.
- Relying on volunteers for implementation can be problematic. However, in emergency situations, volunteerism can work for short periods and CMAM can be a tool for linking the community to health systems. Over time, volunteers need incentives and there is a risk of overburdening them as they already support many programmes. Some kind of payment may be necessary.

Session 4 Case Studies: Integration in Post – Emergency Settings

The aim of the session was to learn from the growing body of experience of CMAM implementation in post-emergency contexts. To this end, 11 case studies were prepared in poster format (available posters can be found at www.fantaproject.org) and presented to 11 separate discussion groups that had been formed for this session. Group members were then allowed to ask questions of the presenters, and were also tasked with discussing four questions (below) based upon the case study presentation. Although all groups were asked to address the same four questions, each group was also asked to focus on one of the questions in particular. Two of the groups gave feedback to the plenary group at the end of the session.

Below is a summary table of the group work deliberations and their answers to the four following questions.

1. In the context of the case study, which key elements and factors seem most important in terms of facilitating integration of CMAM?
2. In the context of the case study, which CMAM key elements seem most important in preparation for the next emergency?
3. Which opportunities were available and could have promoted integration?
4. Identify a major point, highlight or innovation to be briefly presented during the plenary.

4.1 Table Summary of Working Group Findings based on Case Studies

Country/ Region Case Study	Most Important Factors Facilitating CMAM Integration	Most Important Factors for Preparation for Next Emergency	Opportunities Available to Promote Integration	Major Point, Highlight or Innovation
Democratic Republic of Congo	- MoH involvement - Decrease in malnutrition rate - Strategic plan - Endorsement of National protocol with CMAM included	- MoH leadership - Community outreach/ nutrition education - Surveillance	- NGO coordination - Community mobilisation in place - Integrated training - Minimum nutrition package in place	- MoH/UNICEF pilot study analysis was important for policy change
Kenya	- MoH leadership - Setting targets for integration - Planning and appropriate adaptation of programmes	- Clear roles and responsibilities (MoH and other partners) - MoH clinic staff capacity building	- UNICEF support to technical staff - CHW network - Trained health staff - Integration plan from start with MOU	- Situation analysis at start ensured a model of CMAM appropriate to country context
Malawi	- Pilot as first step (learning) - CMAM MoH led - Technical assistance available - MoH health staff present and technically strong	- Prepositioning (logistics) - Guidelines - Joint emergency plan - Training in emergency response and supervision	- Surveillance in place	- Availability of broader skills set
Niger	- National standards endorsed - Standardised training module and MoH training supervisors - Inter-agency collaboration - Intensive learning/sharing knowledge	- Strengthened training, monitoring and supervision - Improved coordination - Nutrition Division leadership	- PHC and community services in place - Established relationships between MoH and others - High demand for services	- Leadership of Nutrition Division key to CMAM integration
Pakistan	- All other health services are provided - Community involvement with workers from community - Funding for wider programme	- National guidelines - Roll-out strategy and plan of action - Increased number of CHWs - Strong PHC system - Supply of RUTF	No data	- Importance of strong community structures in place
Sierra Leone	- MoH motivated and taking leadership - UNICEF Support - SAM services free - Issue of incentives for volunteers being addressed	- Access to services and supplies - MoH capacity-all level - Early warning system - Referral & transport	- Transition/exit strategy with NGOs - Volunteer incentives addressed	- Initiation by government - Technical support/ assistance

Sri Lanka	- Government commitment - Strong health system including strong surveillance system - Strong social mobilisation - UNICEF support - Adapted to local context	- Surveillance system - Active case finding in GMP - Training in curriculum for all levels of staff	- 2.5% National SAM so integration possible - Existing SFP	- Government commitment - Strong health systems - Part of National Nutrition Policy - Scale-up through PHC
Sudan	- Clear definition of integration - Priority on child survival - Integrate within wider health programmes	- Capacity to expand and increase coverage - Well-trained staff - Community structure	- Many actors but lack of integration	- In some emergency contexts integration is not the priority - Integration should be demand driven
Uganda	- MoH buy-in - MoH-UNICEF coordination	- Endorsement of national guidelines - Contingency plan	- Programmes in HIV, IMCI and child survival exist - UNICEF coordination	- Integrate within existing programmes such as HIV/child survival and child health campaigns
West Africa	- Technical support in-country - MoH interested and involved - Community structures in place although weak - Training in place	- CMAM monitoring indicators in place - More community programmes - Guidelines and protocols available - Trained staff	- Guidelines and protocols in place - Logistics and data systems in place - Emergency was opportunity to increase advocacy in nutrition	- Strong coordination mechanism

4.2 Summary of Case Studies: Commonalities and Differences

Key Elements and Factors for Facilitating CMAM Integration

All of the case studies highlighted the critical importance of government and MoH commitment to facilitate integration of CMAM. Most case studies also identified the need for strong health services, functioning surveillance systems and national strategies, polices and guidelines. Community involvement and mobilisation to support integration was highlighted in about half of the case studies. Other key factors were training, technical support and learning. The Sierra Leone case study identified the need to address the issue of incentives for community volunteers, while the Malawi country case study indicated that piloting of CMAM was important as a first learning step prior to implementation and integration. The Sudan case study demonstrated the need for a clear definition of integration so that targets and goals could be set for integration within existing health services.

Most Important Factors for Emergency Preparedness

A common finding amongst the case studies with regard to emergency preparedness was the need for MoH leadership, with clear roles, responsibilities and strong coordination. Many of the case studies indicated a need for standardised protocols and guidelines and for a functional surveillance system. Staff training and capacity building were also considered important by many of the groups. Pre-positioning (especially of RUTF) was recognised as important in two case studies. In the case of Sierra Leone, an early warning system was considered key for emergency preparedness, while for Malawi, joint emergency plans were identified as critical. Training in emergency response and supervision was highlighted by another group.

Opportunities Available to Promote Integration

There were fewer commonalities amongst working groups in response to this question. The main opportunity identified to promote integration was the existence of a mobilised community network (in one case the issue of volunteer incentives was raised). In West Africa, the existence of guidelines/protocols and functional logistics and data systems were considered to be important. The Sudan discussion group considered that the multiplicity of actors involved in nutrition in the Sudan should have provided greater opportunity for integration but poor technical coordination prevented this from occurring. Existence of HIV, IMCI, PHC and child survival programmes in Uganda and Niger were considered to offer opportunities for integration, while in the Niger case, the high demand for services (due to elevated levels of SAM) was also considered to provide an opportunity for integrating CMAM within health systems.

Major Points, Highlights or Innovations in Case Studies

There was little overlap between the discussion groups in the way this question was answered, with different groups identifying different issues. A brief synopsis of issues is presented below:

- CMAM integration needs to be initiated by government with strong commitment by government and MoH.
- Strong health systems need to be in place.
- CMAM needs to be part of national nutrition policy.
- MoH/UNICEF pilot studies of CMAM in-country are important for policy change.
- Situation analysis at the start can ensure CMAM is appropriate for the context.
- Availability of broader skills sets is needed.
- Strong coordination is essential.
- Integration/scale-up should be within existing health interventions such as HIV, child survival, IMCI and PHC.
- Strong community structures need to be in place.

4.3 Post-Case Study Discussion (Plenary)

Following the presentation of discussion group findings on the case studies, a plenary discussion was held around the three questions listed below.

1. What have we learned to date about CMAM integration in post-emergency contexts?
2. What needs to be better understood about the integration process in emergency and post-emergency settings in order to guide good practices?
3. From what was learned in the case studies, is integration a reasonable objective in all circumstances? When is it acceptable not to integrate?

Discussion groups were asked to discuss these questions, focusing on their one of choice mainly, and then to present their thinking in a plenary discussion. Main points from the plenary discussion were as follows:

What have we learned to date about integration post-emergency?

- There are different types and levels of integration (e.g., location inside a health centre, integration in minimum health services, or integration in health information systems).
- Different skill sets are needed, so partnerships are important.
- Mobile teams have an important role and should adopt a horizontal programming approach (e.g. be able to do IMCI, vaccinations, etc., as well as screening for OTP admissions).
- Integration should start at the national policy level.
- There is a need for trained national staff at decentralised levels (e.g. CHWs), and training and capacity building in emergency and post-emergency situations should be linked to existing training where this is taking place.
- There are circumstances where parallel systems with geographic demarcation may be necessary (e.g. the government is responsible for health centre catchment area but NGOs work outside this area).

What needs to be better understood about the integration process in emergency and post-emergency settings in order to guide good practices?

- To what extent can we cope with integration and scale up without sacrificing standards?
- How do we ensure that emergency responses do not damage health systems that are already stretched?
- How do we finance (and access finance for) integration and scale-up?
- What are the models of integration for different contexts (e.g., a pastoralist versus settled population)?
- What kind of strategy is necessary for ongoing training (e.g., how do we integrate CMAM training into current trainings within health structures)?
- What are the long-term outcomes of efforts to integrate CMAM?

From what was learned from the case studies, is integration a reasonable objective in all circumstances? When is it acceptable not to integrate?

- Some form of integration is feasible in every setting, although in some contexts integration ambitions may need to be lowered.
- In complex emergencies (e.g. civil strife, major displacement) fractured communities quickly re-establish some form of 'community' so that CMAM becomes feasible but may, however, need to be more vertical.
- It is difficult to integrate where health systems are very weak.
- It is necessary to begin the process of integration early in an emergency, otherwise it is harder to integrate subsequently (e.g., Madagascar experience).
- Sustainable integration has proven feasible for pastoralist populations in the transitional post-emergency stage.

4.4 Contingency Planning – The Case of Pandemic Influenza

(Ronald Waldman, USAID)

This presentation began with the supposition that an acute emergency (such as the one that occurred with the outbreak of electoral-related violence in Kenya) can cause widespread disruption to services. In the Kenya case, people were cut off from services such as schools, health services and markets, and many had to flee without medicines or food. The impact was particularly worrying for those patients on TB and HIV treatments who were unable to access treatments in the areas to which they migrated.

This experience highlights the need for contingency planning prior to a disaster like pandemic influenza, to prevent excess mortality (a 2 percent case fatality rate would result in 60-80 million deaths), and to protect beneficiaries in CMAM programmes as well as any gains made in integrating CMAM services into the national health systems. During an influenza pandemic, the best approach is to isolate people to prevent the spread of the virus. This contrasts with other typical disasters where it is logistically easier to bring people together when supporting an emergency response.

Preparedness is key to limiting excess mortality during a pandemic. It can be assumed that country capacity will be exceeded and that vaccines and anti-virals will not be available in adequate supply. Limiting the impact of a pandemic will be dependent upon community-level actions. Ensuring food security will be critical and should address providing food supplies for the sick, targeting the most vulnerable (urban populations, malnourished children and migrants), stockpiling non-perishables, planning distribution networks, and implementing planned market policies.

When developing and integrating CMAM within health systems, there is a need to build in an emergency-response capacity so that resources, processes and procedures are in place to save lives in an acute emergency like a pandemic. Lessons can be learned from the Pan American Health Organisation (PAHO) experience of developing emergency capacity response.

Session 5 Linkages with Primary Health Care

Presentations in this session addressed experiences of linking CMAM with different components of PHC systems and relevant issues. The session was chaired by Hana Nekatebeb of FANTA.

5.1 Links with Health Extension in Ethiopia

(Teklemariam Shiferaw, Ethiopia MoH)

Ethiopia has a population of around 90 million, with 85 percent living in rural communities. To improve access to and quality of health services, the government has decided to strengthen PHC through the Health Expansion Programme (HEP). This will involve accelerated expansion of facilities (e.g. building and equipping 15,000 new health posts and 3,200 health centres). Six- hundred-and-twenty-five primary hospitals are also being established. Female health extension workers (HEWs) have been trained – two per kebele (one for around 500 households) – to support the process. Supervisors to support the HEWs have also been trained and are placed at the health centre level. At the community level, volunteers/community promoters are supervised by the HEWs. This strong community structure at the grassroots level will support family health, disease prevention and control, hygiene and environmental health, and IEC/BCC activities. It is anticipated that this will enable households and communities to control their own health and gain better access to health services.

At the mid-level, health service capacity building is being accelerated with ongoing training of non-physician surgeons, physicians and nurses. Capacity at the university level is being strengthened to allow an increase in the yearly intake of this level of professional health staff. Other initiatives include strengthening of Health Management Information System (HMIS) systems and ongoing training of mid-level health workers through pre-service and refresher courses.

The National Health Policy contains a nutrition component with a clear National Nutrition Strategy and Programme. There are 16 components in the Health Extension Programme, with nutrition embedded in the family health component.

The National Nutrition Programme is currently being scaled up using a community-based approach. There is an ongoing effort to improve multi-sectoral linkages between nutrition interventions and PHC services. The aim is for programmes to develop into preventive and sustainable community-based approaches. The components of CMAM services under the programme include:

1. community nutrition promotion and outreach programmes,
2. services addressing moderate acute malnutrition,
3. outpatient care for severe acute malnutrition without complications through health posts and health centres, and
4. inpatient care for severe acute malnutrition with complications at the heath-centre level. The government envisages that the way forward will be to continue strengthening capacity at all levels, but also to empower communities to "own the management of malnutrition."

5.2 IMCI Integration: Results from Field Test

(André Briend, WHO)

This presentation focussed on the need to update the current generic IMCI generic chart, which is not consistent with the latest WHO/UNICEF/WFP Joint Statement on community-based management of Severe Acute Malnutrition. Currently the IMCI charts do not include MUAC as a tool for identifying severe acute malnutrition and do not recommend that the treatment of severe acute malnutrition without complications can take place at home using RUTF, with the need to admit only the complicated cases to inpatient care. It was therefore decided to update the IMCI chart following field-testing. Ethiopia was chosen as the site for field testing, as there was already a substantial amount of in-country experience in the community management of severe acute malnutrition, RUTF is available locally, and a draft IMCI algorithm for management of SAM has already been developed.

Prior to the field testing, discussions were held with local experts on various changes to the chart. A decision was made to remove the criterion of 'visible wasting' for children above six months of age, as this is time consuming and relatively subjective as an admission criterion and therefore poorly understood by mothers.

Appetite test was also discussed. It was suggested that 30 minutes should be sufficient for the test duration and that there was no need to conduct the test on children identified with complications as they would, in any case, be eligible for inpatient referral.

Local experts also discussed the assessment of bilateral pitting oedema and the fact that training on grading of bilateral pitting oedema takes a minimum of two hours, which is not compatible with the present half-day IMCI training on malnutrition. It was therefore decided that practitioners should check for bilateral pitting oedema of the feet but not be required to grade the oedema. There were also discussions about which complications should lead to inpatient treatment and acknowledgement that those currently on the list would probably be associated with anorexia and failed appetite, which in themselves indicate eligibility for referral to inpatient care. It was also suggested that any child identified as eligible for inpatient care should not receive vitamin A prior to transfer, in order to safeguard against overdosing with vitamin A and the associated increased risk of mortality. Finally, there was agreement that staff involved in IMCI should only be responsible for identifying which children to refer to inpatient or outpatient care, as training on the management of SAM requires about two days. However, IMCI staff could be able to treat SAM without complication if RUTF is available and if no referral to outpatient care is possible.

The IMCI chart was revised again following these discussions to reflect the views of local experts, and the field test commenced. The field test involved training of nine health workers on the new IMCI chart who went on to examine 28 children and conduct 15 appetite tests. The time taken to complete the new IMCI chart was the same or less than before, largely due to the fact that measuring MUAC is quicker than checking for visible wasting. It also appeared that where outpatient care is not available, health workers would be prepared to treat uncomplicated cases of SAM with RUTF.

In debriefings at the WHO in Geneva, it was concluded that integration of SAM management in IMCI in Ethiopia could work if RUTF and outpatient care were available or if IMCI workers received additional training. Because these conditions are not met at present, it is too early to change the generic IMCI chart; however, the situation is rapidly changing in Ethiopia, so integration may well be feasible in the near future. In the concluding remarks of the presentation, there was an invitation for countries to request technical support from WHO if there was interest in revising the IMCI generic chart at national level.

5.3 Linking Outreach to Existing Monthly GMP in Bangladesh

(Ireen Chowdhury, Save the Children US – Bangladesh)

According to DHS (Demographic and Health Surveys) figures for 2007 in Bangladesh, there is a 2.7 percent prevalence rate of SAM amongst the under-five population. This translates into an approximate case load of 500,000. In Bangladesh, the treatment of acute malnutrition has been centre based in tertiary care facilities. Within these structures, the WHO standard nutrition protocols using F100 and F75 are not routinely adhered to. However, a national level working group has recently been established and has drafted nutrition guidelines on the management of SAM based on the WHO protocols. Although outpatient community care is not included in the present guidelines, another national-level working group has been formed to explore adoption of outpatient protocols. The plan is to move management of SAM into the lowest levels of the health system at health complexes and family welfare clinics, with the identification and treatment of SAM occurring at the community level by community health volunteers.

Save the Children (SC) – Bangladesh has recently conducted a pilot study on the community management of SAM as a component of a large multi-sectoral food security programme covering 2.6 million people. The pilot took place at 20 government EPI (Expanded Programme on Immunisation) sites serving a population of 21,000, and targeted children between 6-23 months who were participating in the food security programme (97 percent coverage). Those identified with SAM using MUAC and without complications were given RUTF and/or intensive nutrition counselling (INC). Moderately malnourished cases were given intensive nutrition counselling and no food supplementation. Cure rates were 85 percent for SAM cases receiving RUTF while only 38 percent of those in the INC cohort recovered. Recovery rates for those with moderate malnutrition were also poor (38 percent recovered).

It was felt that routine community services such as growth monitoring and promotion and EPI were effective sites for screening and management of SAM without complications, and community health volunteers with proper supervision were capable of identifying SAM, detecting underlying infection, referring where appropriate, and providing RUTF to malnourished children without complications. The intensive nutrition counselling alone did not work, underscoring that broader food security packages are needed in order to prevent MAM.

5.4 Links to Nutrition Counselling

(Mary Lung'aho, CARE and Maryanne Stone-Jimenez)

This presentation highlighted the evidence that improved infant and young child feeding (IYCF) practices affect the nutritional status of children under 24 months and discussed how to integrate IYCF into CMAM activities. Research indicates that growth faltering starts as early as three months of age for small infants and that the key window of opportunity for intervention is between pregnancy and two years of age. Improving IYCF practices and linkages with CMAM/CTC activities is therefore an essential activity in combating malnutrition.

In the Dadaab refugee camp in North Eastern Kenya, almost 90 percent of all children in therapeutic feeding were under 24 months and 10-20 percent were under 6 months. Research also indicates that breastfeeding and optimal complementary feeding could reduce malnutrition by 19 percent and save many lives. Formative research in Ghana and Madagascar showed that community-level behaviour change improved IYCF practices substantially over a one-year period.

However, to achieve IYCF gains, it is important that messages are clear and actions are feasible and "do-able." This may mean focussing on a limited number (e.g., two to three) of priority behaviours. Instead of asking the mother to exclusively breastfeed for six months, for example, ask the mother to try not to give her baby water for two days. Longer-term goals can be achieved via small steps. Messages should be adapted to the locality, and peer support has been shown to improve feeding practices.

Linking IYCF support with CMAM is possible. However, a two-day training on counselling and negotiation/communication skills and simple key IYCF messages would be required for CHWs to enhance their effectiveness. Contact points for integration are community outreach, where a brief rapid assessment to establish any child-specific IYCF issues can be implemented. Other contact points include on admission, discharge, and follow-up during CMAM to ensure that good IYCF practices are re-established and age-appropriate feeding practices are being maintained. An important element of this is to ensure that high quality, locally available and appropriate foods are being used.

5.5 Linking CMAM with Inpatient Management: Building Health Service Capacity to Manage SAM in Tanzania

(Chloe Angood, University of Southampton and International Malnutrition Task Force)

This presentation examined the challenges of scaling up the management of acute malnutrition in Tanzania, where there is a 3 percent prevalence of SAM, low coverage of treatment (20 percent) and a high SAM case fatality ratio (30-50 percent). Furthermore, there has been no recent emergency programming involving implementation of CMAM in Tanzania.

Although there is now an integrated policy on the management of SAM in both the inpatient care and outpatient care, this has not yet been integrated with other programmes or within the National Nutrition Strategy. The criteria for admission for either inpatient or outpatient care are standard CMAM criteria (apart from the fact that all children with oedema are admitted as inpatients).

Key challenges to developing the policy include lack of large donors (who are usually present in an emergency), no existing CMAM experience, and reliance on international guidelines and manuals that are not always relevant to the Tanzania context.

The main constraints to implementation are low-quality inpatient management; a possible increase in the burden on hospitals in the short term, as new cases are identified and all cases of oedema are referred; lack of health staff and insufficient training capacity; and resource constraints (e.g. no extra national budget, 'push/pull' factors in RUTF supply, and lack of sustainability of product supply). Training is required at all levels but it needs to be low cost and practical.

Some of the learning points from the Tanzania experience are that it may be necessary to think differently for non-emergency contexts where there has been no prior emergency experience and that other scale-up models may be necessary (e.g. a step-wise progression, as has been occurring in Bolivia). Furthermore, it is important to create a forum for countries to share experiences and learn from each other. To this end, the International Task Force on Malnutrition is setting up a web-site-based forum for this kind of information sharing.

5.6 Integrating CMAM with Child Survival and Development

(Netsanet Walelign, UNICEF)

This presentation examined child survival trends since the 1990s, which indicate that there has been a substantial drop in under-five mortality by up to 25 percent, and that one-third of the 50 least developed countries have reduced under-five mortality by 40 percent or more. However, malnutrition in the form of underweight remains high at 35 percent in the least-developed countries. Underweight is implicated in over 50 percent of mortality in the under-five population. The HIV/AIDS pandemic is concentrated in Sub-Saharan Africa, with 90 percent of infections in this region.

Reductions in under-five mortality rates have resulted partly from developing health care systems and practices. Key global developments include:

- Mass disease control programmes (1950s)
- Primary Health Care (1978)
- Selective primary care and the child survival 'revolution' (1980s)
- Focus on integrated sector-wide approaches and health systems (1990s)
- The MDGs and results-based approaches (2000 and beyond)

Significant strides have also been made in improving access to safe water and sanitation facilities.

The combination of all these initiatives has contributed to the reduction of under-five mortality rates. At the same time, it is clear that community involvement has been an

essential component of these successes, as hospital- or clinic-based approaches would have limited coverage and impact.

To achieve integration of CMAM into public health services, there needs to be significant buy-in from the community, training programmes for community staff/volunteers, and systems of locally appropriate incentives for these community workers. Furthermore, community initiatives need to be appropriately financed and integrated across sectors. Programmes will need to be re-aligned from disease-specific interventions to evidence-based integrated packages with a focus on maternal and child health and nutrition. It will be important to identify potential bottlenecks to achieving good coverage and quality of services, and to resolve these where possible. Resources are key to effective programming and although these may come from government and/or external sources, there needs to be a strong financial commitment from governments if programmes are to be sustainable.

Comments and Discussion

A number of questions were posed to the group by session chair, Lynnda Kiess of Concern Worldwide, regarding "engaging the health sector more in trying to integrate CMAM." These questions related to whether the CMAM community was trying to achieve:

- Reduction of childhood mortality
- Expansion of CMAM
- Expansion of nutrition
- Improvements in health systems

Furthermore, there needs to be greater clarity about whether CMAM should be within the health sector or within the broader nutrition sector (e.g. linked to food security), and there should be clear policies and strategies to make this happen. If CMAM is engaging in the health sector, what is the role of the latter? What partnerships need to be established at the country and global levels? How can integration be effected within organisations? Furthermore, the CMAM community needs to speak the same language as the health sector in order to engage it effectively.

A number of additional points were raised by individuals in plenary discussion. These included:

- The term 'CMAM' should be dropped. However, the emphasis of the CMAM approach is that it is based rather than managed in the community and that this point needs to be continually stressed. If the community understands malnutrition and cases present early, then these cases are easier to treat, thereby reducing mortality and the burden on the health system.
- Management of SAM has been left out of health initiatives. Child Survival Action Plans in UNICEF offices do not cover treatment/management of SAM.

Session 6 Panel Discussion – CMAM and HIV Links

In this session there were a series of presentations which focussed on HIV and its relationship with malnutrition and CMAM programming in particular. This session was chaired by Caroline Tanner, Save the Children US, and Tony Castleman, FANTA.

6.1 Findings of Three-Country Study: Nutrition and HIV

(Bruce Cogill, UNICEF)

A progress review of the nutritional care of HIV-infected children was conducted in Kenya, Malawi and Zambia. Research has shown that HIV and malnutrition are interlinked and that there is a need to address malnutrition in HIV-positive children to reduce mortality. This can only be achieved by strengthening capacity at the service level and increasing the integration of HIV and nutrition. Guidelines and policies are essential for this process.

The integration of HIV and nutrition at different levels (policy level, programme level, monitoring and evaluation, and operations research) was considered through a desk review, stakeholder interviews, and field visits in the three countries. HIV prevalence was highest in Zambia and lowest in Kenya. The percentage of HIV-positive children on antiretroviral therapy (ART) was 13.3 percent in Kenya, which is substantially higher than Zambia at 5.8 percent. Malawi also has a high prevalence of HIV and low paediatric ART coverage.

In Kenya there are National Guidelines on Nutrition and HIV/AIDS (2006) that are linked to national and international guidelines on treatment of SAM. Malawi also has nutrition guidelines, and HIV testing is a component within the CMAM guidelines. Children in CMAM are offered testing and treatment. Another entry point for treatment of malnutrition in HIV programming in Malawi is ART clinics, which offer nutrition support (food supplement) and referral to CMAM in case of acute malnutrition. In all the countries, there are tools and mechanisms in place for the measurement and treatment of malnutrition as well as HIV testing equipment and availability of ART and cotrimoxazole. In Malawi, CMAM services are underpinned by a human-rights-based approach.

Staff capacity building is ongoing in all countries with recruitment and training of new staff for HIV/AIDS and nutrition interventions. Management of malnutrition is included in the curricula of training institutions in all three countries, while local researchers are establishing linkages with international researchers. Although Malawi has incorporated data collected from TFC and SFP interventions into national-level information systems, there is still a need to improve monitoring and evaluation in all countries.

Despite ongoing research initiatives related to malnutrition and HIV, there are many gaps in knowledge that dictate the need for further research that can be used to refine programmes and inform policy. For example, what are the effects of therapeutic care and supplementary feeding on the malnourished in ART programmes and when should ART be initiated in acute malnutrition? Forging stronger linkages between M&E functions and policy development is critical. Transparent analysis of programme data must take place to strengthen existing services. There is also a need to build on strengths. For example, in Kenya, assess and treat malnutrition in paediatric ARV programmes; in Malawi, use CTC programmes to increase coverage of paediatric HIV services and in Zambia, build on pilot integrated systems and produce integrated national guidelines on malnutrition response and scale up.

6.2 CMAM and HIV Counselling and Testing

(Theresa Banda, Valid International)

This presentation reviewed links between HIV and SAM, counselling and testing uptake in outpatient care, outcomes of HIV-infected SAM children and implications for ART management based on experiences in a number of countries. Studies in Malawi, Uganda and Zambia, which have a high prevalence of HIV, reveal high rates of malnutrition in HIV-positive children. One study in Malawi suggested strong links between children starting ART with poor nutrition status and early mortality. Thirty percent of children with severe wasting died within the first three months, while mortality risk dropped significantly with better nutrition status.

In Malawi, voluntary counselling and testing (VCT) was introduced to CTC programmes in Dowa in 2004. All new cases (and their caretakers) were offered VCT while previously admitted children were located and offered VCT. The VCT uptake in both groups of children was over 90 percent and slightly higher in the retrospective cohort.

Adult uptake of VCT was lower, at between 58-64 percent. VCT is now a routine service offered to all SAM patients and included in the national guidelines.

In the Dowa CTC programmes, nutrition recovery was lower in the HIV-positive children at 59 percent compared to 83 percent for HIV-negative children. Data on mortality rates for different sites in Malawi and in Lusaka University Teaching Hospital shows large variations in mortality rates (18 percent to 39 percent). However, preliminary results from Lusaka and Addis Ababa are reporting mortality rates below 5 percent. Other studies have measured CD4 counts in SAM children. In some sites, over 50 percent of children with SAM had a CD4 count under 15 percent, indicating they were severely immuno-compromised and in need of ART. A follow-up study of patients discharged from CTC in Dowa (average 15.5 months post-discharge) showed that approximately 86 percent of children had remained above 80 percent weight for height (above moderate wasting), although there were more relapses amongst HIV-positive children. These studies demonstrate that CMAM programmes should offer HIV services and ART clinics should offer outpatient care. CMAM is a good entry point for HIV services. The majority of HIV-positive children recover from malnutrition and appropriate nutritional care of HIV positive children has the potential to improve ART outcomes. However, there is a need for longer-term support to prevent relapse and improve outcomes, especially for children on ART.

6.3 CMAM and OVC Programming

(Caroline Tanner, Save the Children US)

Based on a similar pool of studies to the previous presentation, this presenter focussed upon lessons from CMAM for HIV programming, and reviewed issues, challenges and opportunities from large-scale nutrition and HIV programming. Three basic premises were set out: 1) the majority of HIV-infected children with SAM recover with appropriate therapeutic care and no ART, 2) a large number of HIV-positive and HIV-exposed children and infants are acutely malnourished, and 3) access to cotrimoxazole prophylaxis and timely ART can radically improve survival and quality of life for HIV-infected children. However, there is low coverage and access to therapeutic feeding and high drop out. HIV-positive infants and exposed infants are at high risk of mortality in the first year, but fall through the programming net and access to testing and treatment is limited.

Studies show that CMAM can substantially increase coverage, can lead to high uptake of testing and increased access to treatment, and that HIV-positive children with MAM may recover better on RUTF. Furthermore, children are identified early in the community through CMAM on the basis of nutritional status rather than HIV status, thereby reducing stigma. In addition, admission to inpatient care from initial outpatient care may mean less serious complications and therefore lower mortality rates. To implement large-scale HIV/nutrition interventions, there is a need for a 'food by prescription'-type approach targeting infected and affected orphans and vulnerable children (OVCs), pregnant and lactating women in PMTCT programmes, and HIV-positive adults (pre-ART/ART). Such an approach will involve challenges including the need to adapt admission protocols for the different age-groups, adapting medical protocols for different demographic groups, and addressing follow-up of remissions. There can be multiple entry points for this type of programming, but a good referral system will be needed that will not overburden the health systems.
Rapid scale-up is possible by continually learning from ongoing programmes and adapting policies and protocols as new evidence becomes available. There is a need to include the private sector in scale up of local production of RUTF and for monitoring and reporting to be standardised and streamlined. Another challenge is that to date, CMAM has largely been rolled out in rural settings, yet prevalence of HIV is highest in urban locations.

6.4 Panel Discussion

(Bruce Cogill, UNICEF and Steve Collins, Valid International)

Discussion following the three presentations focussed on two main and inter-related themes: the dangers of programming running ahead of policies, and protocols being driven by the availability of resources (e.g. PEPFAR funding).

There was broad consensus that more clear international guidance and protocols are needed for optimal nutrition/HIV programming, especially for people with HIV (PWHIV) and acute malnutrition. Ideally, WHO would take a lead in this, and the process should be expedited. At the country level, national task forces could review nutrition and HIV protocols (for example, in Ethiopia there is a HIV/nutrition working group).

There were a number of programming-related questions where greater knowledge and understanding is needed. The key knowledge gaps include:

- Is there a need for new growth standards for those on ART, given abnormal fat distribution associated with the medication?
- As HIV positive children are more likely to be orphans or in families with low incomes, to what extent is failure of recovery due to socio-economic status rather than biological effects of the virus?
- Should we be judging nutrition/HIV programmes on outcomes broader than weight gain, (e.g. compliance with treatment and less drug resistance)?
- Why are there such disparities in mortality rates for HIV-positive children between OTP and hospital sites and between hospital sites? For example, in Ethiopia mortality for inpatients is only 5 percent, whereas in Durban it is 30-40 percent. Is this due to late presentation, mismanagement, or some other factors?
- What are the stigma-related issues for HIV-positive children with moderate acute malnutrition? If such children receive RUTF (advised) as opposed to the normal ration for those with MAM (CSB, oil and sugar), will this lead to stigma and discrimination?

Session 7 Recent CMAM Research

A number of presentations were given on a range of recent research initiatives and findings that were considered to be significant. This session was chaired by Kate Sadler, Feinstein International Centre, and Andre Briend, WHO.

7.1 Use of proportional weight gain as a discharge criterion in CTC

(Lilly Schofield, Concern)

This presentation summarised a recent study that tested the use of weight gain as discharge criterion from outpatient care. Until recently, low weight for height percentage of the median (NCHS) (WHM) has been the main admission criteria to therapeutic care. However, with the introduction of MUAC as independent criteria for admission to CMAM, there is the possibility that the child's weight for height at admission may be greater than the weight for height discharge criteria. Thus, children admitted on the MUAC criteria can not be discharged based on a weight for height criteria.

During the WHO 2005 informal meeting on community-based management of acute malnutrition, a role for proportional weight gain in discharge was discussed. Available data shows that for a child to increase from:

- 70 percent to 80 percent, WHM required a 14 percent weight gain.
- 70 percent to 85 percent, WHM required a weight gain of 21 percent.

A study was therefore conducted by Valid International and Concern in Ethiopia to address the principle question 'do malnourished children discharged on the basis of a 15 percent weight gain have comparable outcomes to those discharged on the standard WHM under 80 percent?'.

The study was conducted over a 10-month period in 2007. Ten sites were randomly selected and allocated to use the new discharge criteria of 15 percent weight gain (intervention group) while 10 sites employed the WHM discharge criteria (control group). All children between six and 59 months with WHM under 70 percent or MUAC under 110mm were included in the study. Children with oedema, height under 65 cms, 'others', and those suspected to have HIV/TB were excluded from the study. Follow-up after discharge was also a component of the study.

The study found that those children being discharged using percentage weight gain remained in the programme for longer than the control group (5.3 weeks compared to 3.6 weeks). Those with a higher MUAC on admission remained in the programme for a shorter period. There was an error in the discharge timing of the control group in that they remained in the programme longer than needed on the basis of WHM. Although this was corrected, it was not possible to use data on follow-up for this group. Significantly, relapse rates in the intervention group (percentage weight gain) after three months were under five percent, which is similar to other programmes and contexts.

Six of the 10 sites using weight gain were visited and health staff was interviewed. Perceptions were that the method was simpler and less time consuming; however, there was also a perception that using the percentage weight gain would mean children would be discharged sooner and therefore spend less time in the programme. Nevertheless, the results indicate that percentage weight gain as a tool for discharge when using MUAC as an admission criterion is a promising alternative to WHM. However, more studies in other contexts need to be conducted to confirm this, especially given small sample sizes and the lack of valid follow-up data on controls.

7.2 New Coverage Measurement Tool

(Mark Myatt, University College – London)

Dr. Mark Myatt presented a newly developed approach to evaluating access and coverage in selective feeding programmes (SQUEAC). This approach has been developed to complement and to some extent supersede Centric Systematic Area Sampling (CSAS), which is considered fairly resource intensive and therefore best suited to evaluations. SQUEAC is rapid and relatively low cost. It employs a two-stage screening test model and is suitable for frequent and ongoing evaluation of programme coverage and identification of barriers to service access and uptake. Stage 1 identifies areas of probable low and high coverage, as well as reasons for coverage failure using routine programme data (e.g., admissions, defaulters), already available data, quantitative data that may be collected with little

additional work (e.g., home location of beneficiaries and defaulters), and anecdotal data from programme staff and caregivers of defaulting beneficiaries, for example. Stage 2 confirms the location of areas of high and low coverage and the reasons for coverage failure identified in Stage 1 using small-area surveys. However, SQUEAC does not provide a "headline" coverage figure. If one is required then a "light" version of CSAS may be used. CSAS "light" uses Lot Quality Assurance Sampling (LQAS) techniques and stratified sampling, allowing small sample sizes, and is able to classify prevalence over a wide area. It is able to provide a ranked list of barriers to services, but classifies rather than estimates. It is far quicker and cheaper than the standard CSAS approach. Development and testing of this new coverage method is nearing completion.

Discussion

During discussion following the presentation, it was pointed out that SQUEAC should not be used in isolation of monitoring programmes, but can provide invaluable information on variables like outreach that are critical for planning and implementing programmes. The approach also allows project staff to make common-sense decisions at the project/district level. This is a weak aspect of existing monitoring approaches where programme implementers tend to rely upon decisions from central level.

7.3 MUAC Growth Study Results

(Anne Walsh, Valid International and Mark Myatt, University College - London)

This presentation reviewed the potential role of MUAC in discharging patients from selective feeding programmes. The presenters drew on new data from a recent study in Wollo, Ethiopia, as well as data available from a number of other CMAM nutrition programmes. Although there has been agreement since 2005 that MUAC can be used as one of the criteria for admitting patients needing treatment for SAM, three years later few programmes are actually using MUAC as an admission criterion. Furthermore, there has been no research to determine which discharge criteria should be applied using MUAC. Using MUAC for both admission and discharge removes the confusion arising from conflicts between admission and discharge criteria, simplifies measurements and data collection, demystifies admission, monitoring and response, and makes CMAM less restricted by infrastructure.

Using a number of data sets from previous CMAM programmes, it was shown that there are similar patterns in individuals for increase in MUAC and daily weight gain. However, the response is intervention dependent, with beneficiaries in outpatient care programmes showing much higher MUAC and weight gains than beneficiaries in SFPs. New data from Wollo confirms that for individual cases, the pattern of response for weight gain and gain in MUAC are similar. Where rapid weight gain occurs, MUAC increases are also rapid. The converse is also true. These findings confirm that MUAC responds to treatment in a similar way to weight.

The presenters analysed the safest MUAC threshold for discharge based on low mortality risk. The implications of discharging at a MUAC of equal or greater to 120 mm or MUAC of equal or greater to 125 mm were considered. Data from two programmes (Wollo and Lusaka) showed that length of stay in programmes increased by 17 to 20 days when MUAC discharge criteria of equal or greater to 125 mm were applied, and that this is most pronounced in younger children. However, this is dependent on MUAC on admission (i.e. the higher the MUAC on admission, the shorter the length of stay).

It was concluded that present recommendations for a MUAC equal or greater to 125 mm to be used for discharge should be adhered to until further pilots are conducted. Pilot studies should start with a MUAC equal or greater to 124 mm and ensure that operational use of MUAC does not increase in re-admissions or post-discharge mortality. Then, and only then, pilot studies can test a MUAC equal or greater to 120 mm.

Discussion

It was felt that it is premature to include recommendations regarding use and cut-off of MUAC for admission and discharge in guidelines until more research has been carried out. First, the present MUAC admission criteria exclude children under six months and older children over five years. This may be particularly problematic in areas where there is a high prevalence of HIV resulting in malnutrition amongst older children. Second, there is insufficient knowledge regarding rates and proportions of fat deposition for different ethnic groups that may differ substantially so that the same admission and discharge criteria are inadvisable for different groups. Another issue raised was whether MUAC under 110 mm as an admission criterion was too low and may exclude a number of severely malnourished children. At the same time, changing admission criteria to 115 mm could substantially increase case loads (one study involving three countries found an increased case load of 80 percent if the cut-off was raised to 115 mm). However, in spite of the recognised need for more research, there was considerable interest in, and support for, the potential role of MUAC as an indicator for admission and discharge.

7.4 Strategies for High-Incidence Countries

(Susan Shepherd, Medicines Sans Frontieres)

This presentation described the experience of MSF in the Maradi region of Niger between 2002-2007, where there was a seasonal rise in acute malnutrition marked by increases in admissions to therapeutic feeding programmes. MSF had been implementing an ambulatory care approach to the management of SAM, with all children initially admitted in inpatient care and after stabilization referred to outpatient care (2001-2005). Over the five years, programme outcomes improved with high cure and low defaulter rates.

Between 2006 and 2008, MSF investigated two different approaches to addressing acute malnutrition at the population level. Firstly, a targeted treatment programme for all children between six and 59 months with moderate acute malnutrition (2006) and second, a blanket prevention programme for all children between six and 36 months over a six-month period during the hunger gap (2007).

In 2006, MSF introduced this new strategy to address acute malnutrition at an earlier stage. All moderate acutely malnourished children were admitted based on WHM under 80 percent as the criterion for admission, and were given two packets of RUTF daily (1,000 kcal/day). The programme case load rapidly increased from about 3,000 to 60,000 children. The majority of the children were under three years of age. This accounted for approximately 50 percent of all children under three years in the whole district. Recovery rates were greater than 95 percent, with short length of stay and good weight gains (5.3gm/kg/d).

In 2007, a further decision was made to target all children between six and 36 months with a low-daily dose of Ready to Use Supplementary Food (RUSF) during the six months of the hunger gap. Distribution was through 52 sites. During these distributions, MUAC was used for identifying SAM cases that would then be admitted into the therapeutic care. Overall, 62,878 children were admitted into the programme for six months while 7,258 children were admitted to the therapeutic care (approximately 90 percent coverage), where cure rates were 89 percent. Defaulter rates were extremely low at between 0-1.6 percent over the six-month period. As the programme evolved, the incidence of SAM decreased and there was a relative decrease in the severity of SAM cases. Seasonal peaks in SAM admissions also decreased substantially. MSF concluded from this experience that in areas where there is a high burden of malnutrition, blanket low-dose RUSF distributions can mitigate seasonal increases in SAM, as well as the severity of those cases that do occur.

Discussion

Participants raised a number of concerns regarding the blanket distribution of RUSF as an intervention model. Although positive results were seen with the blanket distribution in Maradi, the approach was considered by some as too narrow in that it failed to analyse and address the probable underlying causes of malnutrition that have existed in the region for many years (i.e. morbidity and inadequate caring practices). Furthermore, the intervention failed to address longer-term food security issues and was costly (35 euro per child for over 60,000 children).

Another concern was that MUAC was used as admission criterion for children with a height cut-off of 65 cm. In an area with high levels of stunting, a high percentage of children above six months of age have a length below 65 cms (possibly 15-20 percent of children) and thus would have been excluded. It was discussed that MUAC lower age cut-off should be based on 6 months of age (mothers' recall or as last resort, passing appetite test)[2].

[2] WHO/WFP/UNSCN/UNICEF joint statement on CMAM. Food and Nutrition Bulletin, September 2006.

The discussion ended with some participants recognising the importance of the MSF interventions and how these types of programmes had a positive impact on the whole community. The early diagnosis and mass treatment resulted in a substantial reduction of malnutrition.

7.5 Mass Treatment Model (RUTF)

(Steve Collins, Valid International)

This presentation was on using a mass treatment model for severe acute malnutrition, or in other words, an approach that concentrates more on maximising programme coverage and community-based delivery of services rather than on centre-based services that focus on individual responses to the delivered interventions. The speaker explained that the treatment of acute malnutrition would be integrated within existing health systems so that at each entry point, e.g. EPI, growth monitoring, IMCI, PMTCT, a child would have a MUAC measurement taken and would be treated with RUTF if with SAM. This public health approach would allow rapid scale up and mass diagnosis. There would be limited follow up of children, thereby reducing costs and resources, and increasing number of points of contact would allow early presentation and increase coverage and clinical effectiveness. Monitoring would not need to be too detailed or cumbersome with results based on under-five mortality rates. This approach would be particularly beneficial where SAM prevalence is high. The private sector could be enlisted to support the logistics of supplying RUTF to remote areas.

Discussion

A number of issues were raised following this discussion. They included:

- Evidence for the value of this type of approach is needed. This could take the form of a large-scale study using incidence data (where coverage is good). MUAC is an appropriate indicator for assessing incidence of SAM.
- There will be a need to include referral for treatment of children with SAM with complications to inpatient care and convalescence.
- RUTF is not the right product for treatment of MAM where such cases are identified.
- The present food price crisis will lead to more urban malnutrition, as urban populations are market dependent, and this will increase the need to get the private sector involved in providing solutions for malnutrition.
- The use of short a course of RUSF following an illness or when children have weight faltering could be extremely beneficial for weight catch-up and prevention of children slipping towards acute malnutrition. As communities become aware of the benefits of RUTF, they would seek out this food for their own children whenever there is a health problem.

Session 8 RUTF Supply and Scale – Up

This session involved a number of presentations on current and planned scale-up of RUTF and lessons learned from these experiences. There was also a presentation on issues around aflatoxin contamination and local production of RUTF. This session was chaired by Bruce Cogill, UNICEF and Sandra Remancus, FANTA.

8.1 Scaling Up RUTF Production

(Mamane Zeilani, Nutriset)

Nutriset presented an overview of their experiences and strategies for supplying and scaling-up RUTF and RUSF production. Successes, opportunities and limiting factors were explored. Until 2004, Nutriset production of RUTF and RUSF took place at their factory in France. In 2004, Nutriset began establishing and supporting a network of local production in a number of developing countries. Presently, RUTF and RUSF are being produced in five countries outside of France, with an additional four countries in the process of being accredited. It is hoped that production of RUTF and RUSF in these 10 countries will reach 63,000 metric tonnes by 2011.

Countries are identified and selected following a feasibility study that considers needs and demand for RUTF and RUSF, industrial and financial capacity, availability of local raw produce and in-country capacity for quality assurance involving chemical and microbiological analysis.

Once potential production partners are identified, Nutriset provides technical support for production set-up (factory) and training in the different management components. Once the production facility is established, Nutriset audits the products to ensure quality. UNICEF and/or MSF and/or MoH also conduct an audit to certify if products meet acceptable international standards. Once the audit process is finalised, the UN and NGOs will purchase the product. Although the climate for scale-up is positive, with the increased interest from Health Ministries and NGOs in CMAM, it is of paramount importance that the locally produced product is of high quality and that systems are in place to maintain and monitor quality. Governments should also support the scale-up process by decreasing or withdrawing export taxes. Social marketing is also critical to increase demand for the product within the general population, although this will be largely dependent on product pricing policies.

8.2 Lessons and Propositions for RUTF Scale-Up

(Steve Collins, Valid International)

Scaling-up production of RUTF is best achieved in developing countries. This will increase sustainability of production and reduce the cost. However, there must be strict quality control of products. Local production will support the local economy and increase demand for the raw materials within the agricultural sector. However, in order for production to be successful, there needs to be a defined market with up-front guarantees for the volumes needed. This up-front investment must come from donors and the UN. At the same time, it is important that over-investment does not lead to 'dumping of food' before communities have been adequately sensitised. Successful local production occurs where demand is high so that product is sold easily. The greater number of local producers, the greater the competition, which brings down product price.

Presently the cost of RUTF is extremely high, with milk powder accounting for 50 percent of the ingredient price and peanuts accounting for 25 percent of the cost. There is a need to consider other suitable local ingredients which may bring down production costs while maintaining product quality. This will also support local food security by linking products to farmers in the community. There is evidence that non-milk RUTF made from chickpea/sesame/maize promotes an increase in lean mass in wasted HIV-positive adults.

It will be necessary to engage ethically with the private sector for scale-up to be successful. Involving large companies will help to reduce costs. These companies are likely to have distribution networks which can be used to supply products. At present, a major scale-up of a number of products is needed to address different nutritional needs in the treatment and prevention of acute and chronic malnutrition. At present, the market is under-developed and there are limited entry points for the private sector to engage. This needs to be addressed.

8.3 RUTF Procurement and Logistics Strategy
(Steve Jarrett, UNICEF)

This presentation began by discussing the four stages in the development of a product.

Stage 1 – Market introduction stage
- Cost high, therefore price high (to recover cost)
- Demand low (prompt customers to buy)
- No/little competition

Stage 2 – Growth Stage
- Sale volume increases and cost reduces (economics of scale)
- Public awareness achieved and profitability increases
- Competition increases and prices reduce (maximise market share)

Stage 3 – Mature Stage
- Costs decrease with less need for marketing and sales volume increases
- Full competition and brand differentiation needed
- Prices drop and profit drops

Stage 4 – Stability Stage
- Costs may increase in proportion to sales
- Sales volume decreases or stabilises
- Prices/profit reduces and profit governed by efficiency

The development of RUTF and RUSF is presently only at Stage 1 of the production cycle. Unless demand for the product is increased, it will remain at this stage. To move to subsequent production stages, there is a need to look at other ingredients to reduce cost and to address constraints like import taxes and export bans. Some of the larger countries (e.g. Democratic Republic of the Congo (DRC) and Nigeria) with greatest needs and potential markets need to be engaged at the government/political level.

There is also a need to increase the variety of products and target different groups moving from treatment to prevention of malnutrition. At the same time, strict standards and controls for quality of products must be safeguarded. The HIV/AIDS pandemic may prove to be the biggest market driver given the recent interest in addressing nutrition within this sector.

Effective and efficient scale-up of demand and supply of RUTF and RUSF will require private-sector involvement. Large commercial companies have already established supply routes which can be used to distribute products right to the community level. Presently, RUTF and RUSF distribution takes place largely through central medical stores which are much less effective.

The goal for the future should be the effective and commercially viable global and national production of RUTF and RUSF, with the focus on affordability and sustainability. There has to be a balanced sourcing between national and global facilities to ensure sustainability of global production for emergencies and safeguard against failures in national production. Furthermore, there needs to be purchase from all certified producers, across a range of reasonable prices, to avoid any exit of producers. There is also a need to ensure active participation of organised community groups in product management.

8.4 CMAM, RUTF and Aflatoxin
(Tim Williams, University of Georgia)

This presentation examined the seriousness of aflatoxin (AF) contamination, how it affects malnutrition, and implications for CMAM programming. AF is a common contaminant which results from fungal action, particularly affecting foods such as maize, rice, cassava and peanut. Drought, pests and disease are catalysts for contamination. AF can develop at all stages of the supply chain and is not destroyed during cooking. In the developed world, strict food controls normally ensure that there is very little AF in food. However, this is not the case in the developing world. Chronic exposure to AF can cause immunotoxicity and nutritional interference (vitamin A and E deficiency are linearly related to AF exposure while exposure is also a feature of kwashiorkor). Acute toxicity can lead to liver cirrhosis, oedema and vomiting.

Studies have shown that level of AF in the diet affects the frequency and severity of malnutrition. It is estimated that in The Gambia, Benin and China, more than 90 percent of the population have chronic exposure while 30-40 percent of staple grains samples in markets in Nigeria and Uganda would not be saleable in the U.S. due to the high level of AF contamination.

There are several measures that can be used for tackling AF contamination. These include AF prevention, detection and removal, and decontamination. Prevention requires avoidance of drought, pests and disease, fast drying and maintaining dryness. This is not always easy in developing countries. Detection and removal requires sampling, extraction and analysis, which in turn depend on a level of infrastructure that may not be present. Decontamination can involve sampling and sorting but is costly and also creates challenges around disposal of discarded grain. There are also food additive solutions, such as Novasil, that can be used. This route is promising as it is effective, selective, low-cost, robust and safe.

CMAM programming offers a potential entry point for AF interventions through local RUTF production, delivery of food additives and education.

Discussion
A number of issues around patents, cost and quality maintenance of RUTF were raised in discussion. Specific points were as follows:
- Nutriset and Institut de Recherche pour le Developpement (IRD) own the patent for RUTF. Nutriset's policy is to share the patent with southern African-based producers. The agreement with Valid Nutrition is to issue licences, which then need clearance from government.

- Nutriset explained that this agreement was set up to safeguard the quality of RUTF production and prevent anarchy in the market place. Valid Nutrition explained that, for their part, the agreement was signed for pragmatic reasons (i.e. if there was a dispute over a patent, then CMAM programme funding would be compromised).
- Is it a bad precedent to set a patent for a humanitarian product?
- There is a real danger of anarchy in the market. Ethical committees do not have the technical expertise to judge the quality of products. What test does a new product have to pass to be acceptable as an RUTF?
- Do we need to set standards for these products before they are accepted by the international community, with products given a kite mark?
- There are already products available with the name RUTF that have never been tested or verified.
- WFP already has an advisory group (as does USAID) so that if a company makes a claim for a food, it has to show evidence to support the claim. A similar model could be used for RUTFs.
- RUTFs are currently too expensive for patients or MoHs.
- Another constraint is programme funding. It is much easier to fund a 'magic bullet' like RUTF but harder to find money for community mobilisation, coverage surveys, and monitoring and evaluation. MoHs are very reluctant to use these products as they assume they will end up paying for them eventually after donors stop funding.

Session 9 Next Steps

The last session included a presentation on information sharing and six questions that were discussed in plenary to move forward in the roll-out of CMAM. The session was chaired by Caroline Abla of USAID and Anne Swindale of FANTA.

9.1 Strengthening Information Sharing (Jeremy Shoham, ENN)

As the CMAM approach is gaining momentum and being increasingly rolled out in a number of countries, it is important to share and learn from experiences, as well as identify cross-cutting issues that may need to be addressed. The challenge is to speed up learning, strengthen institutional memory, identify areas/issues for research and strategising, and provide instantaneous support to field staff. This can be achieved through a number of mechanisms, including international meetings, publications such as ENN's Field Exchange, interactive fora/discussion groups, and other mechanisms for intra-national sharing.

While the sector is well served by international meetings and publications for dissemination of field experiences, there are not mechanisms which can provide instantaneous support for field staff or for intra-national sharing of experiences. Past initiatives like NGONut and NutritionNet foundered for different reasons. It may be time to reinstate some form of interactive forum, especially given development and availability of new information technologies that enable easier communication between the field and 'experts' in different countries. There may also be a need to identify an agency/structure that is mandated to compile reported field experiences, so that these can be analysed and synthesised with other lessons and findings, and ultimately incorporated into best practices guidance material for field staff.

9.2 Feedback and Discussion

The following questions were presented to the workshop participants for feedback and discussion:

1. What have you gotten out of the information and experiences shared at the workshop? What are you going to do with it once you return home? How will you share the information with others and how can the types of information sharing models discussed best support you?
2. What are effective ways to share information within your country? How can we encourage, strengthen and support the generation and exchange of information within countries and among countries?
3. How can we build institutional memory of what works and what does not work? How can we provide instant 'real time' support to groups?
4. What types of information are needed and for whom? How can we target the information that is needed to the people who need it, and in the right form?
5. How can we identify gaps in knowledge and evidence and move forward in a coordinated fashion to address them? How can we document and share 'evidence' most effective in situations, other than formal research studies? How can we document and share lessons learned and best practices? Are there other information sharing models we should discuss?
6. Are there issues with the sharing of some types of reports (e.g. project reports)? Should we and if so, how can we maintain some kind of 'quality control' of the information being shared without erecting barriers to information sharing?

Responses to these questions in plenary discussion included the following:

- Information sharing must strike a fine line between being "technical" and "accessible." The latter is important to ensure inclusiveness (e.g. of donors, lower level field staff).
- There is a need for knowledge management at different levels. At the national level this could be managed by the MoH but should include stakeholders from all sectors (private and public). There is also a need for two-way information flows between the household and central level. The nutrition cluster approach could be used, although at present this is too 'capital city' – based, with not enough connection to grassroots activity.
- Field staff could obtain technical support from either general websites or a dedicated interactive forum like the now-defunct NGONut. The latter could involve sending questions to a moderator who forwards the question to an expert, sending the question to an interactive forum to receive many responses, or sending a question to an expert who then sends an answer to all in the forum/network. Although this latter approach may raise issues of quality control, it was considered to be the best option by many.

9.3 Closing Remarks

Dr. Shiferaw delivered the closing remarks. He thanked all those involved in organising the workshop and noted that the meeting had a good gender balance. He highlighted the need to look seriously at the enormous nutrition challenges we face and in particular, to turn the lens on the developing world, where the needs are greatest.

Annex A Acronyms and Abbreviations

ACT	Artemisinin-Based Combination Therapy
ACSD	Accelerated Child Survival and Development
AED	Academy for Educational Development
AF	Aflatoxin
ARI	Acute Respiratory Infection
ART	Anti-Retroviral Therapy
ARV	Anti-Retroviral
CAS	CTC Advisory Service [Malawi]
CHW	Community Health Worker
CMAM	Community-Based Management of Acute Malnutrition
CMV	Combined Mineral Vitamin Mix
CSAS	Centric Systematic Area Sampling
CSB	Corn Soy blend
CSU	CMAM Support Unit
CTC	Community-Based Therapeutic Care
DHS	Demographic Health Surveys
DIP	District Implementing Plan EOS/TSF Enhanced Outreach Strategy/Targeted Supplementary Feeding
EPI	Expanded Programme for Immunisation
FANTA	Food and Nutrition Technical Assistance Project
F75	Therapeutic Milk, 75 kcal/100ml
F100	Therapeutic Milk, 100 kcal/100ml
GMP	Good Manufacturing Practices
GMP	Growth Monitoring and Promotion
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
HEP	Health Extension Programme
HIS	Health Information System
HMIS	Health Management Information System
IMCI	Integrated Management of Childhood Illness
INC	Intensive Nutrition Counselling
INGO	International Non-Governmental Organisation
M&E	Monitoring and Evaluation
MAM	Moderate Acute Malnutrition
MDG	Millennium Development Goal
MoH	Ministry of Health
MSF	Médecins Sans Frontières
MUAC	Mid-Upper Arm Circumference
NCHS	National Centre for Health Statistics
NNP	National Nutrition Plan
NGO	Non-Governmental Organisation
NRU	Nutrition Rehabilitation Unit
OFDA	Office of U.S. Foreign Disaster Assistance
OTP	Outpatient Therapeutic Programme
OVC	Orphans and Vulnerable Children
PEPFAR	President's Emergency Plan for AIDS Relief
PHC	Primary Health Care
PMTCT	Prevention of Mother to Child Transmission
PVO	Private Voluntary Organisation
PWHIV	People with HIV
RUSF	Ready to Use Supplementary Food
RUTF	Ready to Use Therapeutic Food
SAM	Severe Acute Malnutrition
SC	Stabilisation Centre
SC-US	Save the Children USA
SFP	Supplementary Feeding Programme
SST	Supplementary Suckling Technique or Breastfeeding Supplementer
TFC	Therapeutic Feeding Centre
UN	United Nations
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VCT	Voluntary counselling and testing
WFA	Weight-For-Age
WFH	Weight-For-Height
WFP	World Food Programme
WHM	Weight-For-Height Percentage of the Median
WHO	World Health Organisation

Annex B Glossary

Acute Malnutrition	Acute malnutrition is a form of undernutrition. It is caused by a decrease in food consumption and/or illness resulting in sudden weight loss or bilateral pitting oedema. It is defined by wasting (weight-for-height (WFH) z-score below two standard deviations of the median (or WFH < -2 z-score) of the National Centre for Health Statistics (NCHS) child growth references or World Health Organization (WHO) child growth standards, or by a WFH < 80% of the median (NCHS), or by a mid-upper arm circumference (MUAC) indicator < 125 mm (cutoff being debated)), or the presence of bilateral pitting oedema.
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 Test	Appetite test is the decisive criteria for participation in outpatient care. The test is done at admission and during all follow-up sessions to ensure that the child can eat RUTF. If the child has no appetite, he/she must receive inpatient care.
Bilateral Pitting Oedema	Bilateral pitting oedema, also known as nutritional oedema, kwashiorkor or oedematous malnutrition, is a sign of severe acute malnutrition (SAM). It is defined by bilateral pitting oedema of the feet, verified when thumb pressure applied on top of both feet for 3 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. Categories of bilateral pitting oedema are: Mild : Both feet (can include ankle), Grade + Moderate: Both feet, lower legs, hands or lower arms, Grade + + Severe: Generalised bilateral pitting oedema 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 complications in inpatient care until weight recovery. Prior to the development of CMAM or in the absence of the CMAM approach, children with SAM are exclusively managed as inpatients receiving medical treatment and nutritional rehabilitation until weight recovery.
Community-Based Management of Acute Malnutrition (CMAM)	Community-based management of acute malnutrition (CMAM) refers to the management of acute malnutrition through: 1) inpatient care for children with SAM with complications and infants below 6 months of age with visible SAM, 2) outpatient care for children with SAM without complications, and 3) community outreach. Services or programmes for children with moderate acute malnutrition (MAM) 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 inpatient or stabilisation care, outpatient therapeutic care, supplementary feeding and community outreach. Other variants of CMAM include Ambulatory Care or Home Care for SAM.
CMAM Programmes versus CMAM Services	Agencies implement CMAM programmes. Health care providers at health facilities (or in the communities) provide CMAM services.
Community Outreach	Community outreach for CMAM includes community assessment, community mobilisation, active case finding and referral, and case follow-up.
Community Referral	Community referral is the process of identifying children with acute malnutrition in the community and sending them to 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.
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, Intractable vomiting, Convulsions, Lethargy or not alert, Unconsciousness, Lower respiratory tract infection, High fever, Severe dehydration, Severe anaemia, Hypoglycemia, or Hypothermia. (Other cases needing inpatient care besides severe bilateral pitting oedema, Marasmic kwashiorkor, SAM with complications and infants below 6 months of age with visible SAM, are e.g., infants of 6 months of age or older with SAM and a weight below 4 kg, children with SAM in outpatient care and weight loss for 3 weeks or with static weight for 5 weeks, or upon carer's request).

Coverage	Geographical coverage refers to the availability or delivery of CMAM services (geographical access) through the decentralisation of health facilities with CMAM services. It can be measured by direct methods (population-based surveys using e.g. cluster sampling) providing an estimation of the ratio of children with SAM under treatment to the total number of children with SAM identified in the community at a particular time, or by indirect methods (e.g. coverage estimates calculate the ratio of children with SAM in treatment to the expected number of children with SAM in the community based on current prevalence and estimated incidence rates), sampling service impact areas and non-service areas. Service or programme coverage refers to the use of CMAM services where CMAM services are delivered and accessed by those in need of care. It can be measured by direct methods (population-based surveys using e.g. Centric Systematic Area Sampling (CSAS) - other methods are under development, sampling service impact areas, providing local estimates, mapping of coverage and calculation of a coverage ratio.
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. Children with SAM identified in the community are calculated as children with SAM under treatment (a) plus children with SAM under treatment (b). [Coverage rate = a/(a+b)]. Note: The coverage ratio estimate is reported and interpreted with the confidence interval if obtained through probability sampling. It should indicate if measuring geographic or service coverage. The indirect method for estimating coverage provides neither accurate nor precise coverage estimates.
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).
F100	Formula 100 (100 KCal/100ml) is the milk-based diet recommended by WHO for the nutritional rehabilitation of children with SAM after stabilisation (before RUTF was available). Its main use currently is for children with SAM and severe mouth lesions who cannot swallow RUTF and who are in inpatient care. (F100-diluted is used for the stabilisation and rehabilitation of infants in inpatient care).
F75	Formula 75 is the milk-based diet recommended by WHO for the stabilisation of children with SAM (with complications) in inpatient care.
Global Acute Malnutrition (GAM)	GAM is a population-level indicator defined by wasting (WFH < -2 z-score of the NCHS references or WHO standards) or the presence of bilateral pitting oedema. 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 NGO to the MOH. While the NGO or other partner may continue to provide some financial or technical support (e.g. purchase and transport of supplies, provision of training) following the hand-over, 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.
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 programmes involved in the promotion, restoration and maintenance of health.
Height-for-Age Index (HFA)	The HFA index is used to assess stunting. It reveals how a child's height compares to the height of a child of the same age and sex in the NCHS references or WHO standards. This index reflects a child's past nutritional history rather than his/her current nutritional status.
Inpatient Care for the Management of SAM with Complications	Inpatient care is a CMAM service treating children with SAM with complications until their medical condition is stabilised and the complication is resolving (usually 4-7 days). Treatment then continues in outpatient care until weight recovery. Inpatient care for SAM with 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, developing specific knowledge and skills according to their job qualification, 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 CMAM services	Integration of CMAM refers to the incorporation of CMAM into the national health system. Integration of CMAM services refers to the incorporation of 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 oedema
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 oedema (kwashiorkor).
Marasmus	See severe wasting.
Moderate Wasting	Moderate wasting or moderate acute malnutrition is defined by a WFH ≥ -3 z-score and < -2 z-score of the NCHS references or WHO standards, or by a WFH ≥ 70% and < 80% of the median (NCHS), or by a MUAC ≥ 110 mm and < 125 mm (cutoff being debated).
Moderate Acute Malnutrition (MAM)	Moderate acute malnutrition (MAM) is defined by moderate wasting (WFH ≥ -3 z-score and < -2 z-score of the median of the NCHS references or WHO standards, or by a WFH ≥ 70% and < 80% of the median (NCHS), or by a MUAC ≥ 110 mm and < 125 mm (cutoff being debated)). MAM can also be used as a population-level indicator defined by WFH ≥ -3 z-score and < -2 z score of the NCHS references or WHO standards. In this case, it excludes % WFH median and MUAC.
MUAC Indicator	Mid-Upper Arm Circumference (MUAC) is an indicator for wasting, to be used for a child of 6 months of age. MUAC < 110 mm indicates severe wasting. MUAC ≥ 110 mm and < 125 mm indicates moderate wasting (cutoff being debated). MUAC is a better indicator of mortality risk associated with acute malnutrition than WFH.
Nutritional Oedema	See bilateral pitting oedema
Oedematous Malnutrition	See bilateral pitting oedema
Outpatient Care for the Management of SAM without Complications	Outpatient care is a CMAM service treating children with SAM without complications, through the provision of routine medical treatment and nutritional rehabilitation with RUTF. Children will attend outpatient care at regular intervals (usually once a week) until weight recovery (usually two months).
Outreach Worker for CMAM	An outreach worker is a community health worker (CHW) or community volunteer who identifies and refers children with acute malnutrition from the community to the CMAM services and follows up 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 Supplementary Food (RUSF)	RUSF is a high-energy nutritional supplement intended to enhance the nutritional status of vulnerable groups.
Ready-to-Use Therapeutic Food (RUTF)	RUTF is an energy-dense, mineral/vitamin enriched food specifically designed to treat SAM. RUTF has a similar nutrient composition to F100, which is the therapeutic milk used in an inpatient setting. RUTF is soft, paste-like food that can be consumed easily by children from the age of six 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 programme.
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 to the programme phase, or as part of a strategy to expand geographical coverage to the targeted area or nationally.

Self-Referral	Self-referral occurs when caregivers bring children to the outpatient care or inpatient care site without a referral from outreach workers or community volunteers.
Severe Acute Malnutrition (SAM)	SAM is defined by severe wasting (WFH < -3 z-score of the NCHS references or WHO standards, or WFH < 70% of the median (NCHS), or MUAC < 110 mm) or the presence of bilateral pitting oedema. 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 severe wasting (WFH < -3 z-score of the NCHS references or WHO standards) or the presence of bilateral pitting oedema. In this case, it excludes % WFH median and MUAC.
Severe Wasting	Severe wasting is a sign of SAM. It is defined by a WFH < -3 z-score of the NCHS references or the WHO standards, or by a WFH < 70% of the median (NCHS), or by a MUAC < 110 mm. 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 2 standard deviations of the median of the NCHS references or WHO standards. Stunting results from prolonged or repeated episodes of undernutrition starting before birth. This type of malnutrition is best addressed through preventive maternal health programmes aimed at pregnant women, infants and children under 2 years of age. Programme responses to stunting require longer-term planning and policy development.
Transition	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.
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 standard deviations of the median of the NCHS references or WHO standards. This indicator is commonly used in growth monitoring and promotion and child health and nutrition programmes aimed at prevention and treatment of undernutrition.
Wasting	Wasting is a form of acute malnutrition. It is defined by a WFH < -2 z-score of the NCHS references or WHO standards, or by a WFH < 80% of the median (NCHS), or by a MUAC < 125 mm (cutoff being debated).
Weight-for-Age Index (WFA)	The WFA index is used to assess underweight. It reveals how a child's weight compares to the weight of a child of the same age and sex in the NCHS references or WHO standards.
Weight-for-Height Index (WFH)	The WFH index is used to assess wasting. It reveals how a child's weight compares to the weight of a child of the same height and sex in the NCHS references or WHO standards. The index reflects current nutritional status.

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Annex D International workshop on the Integration of Community-based management of Acute Malnutrition (CMAM)

Academy for Educational Development,
1825 Connecticut Avenue, NW
Washington, DC, April 28-30, 2008

DAY 1 – MONDAY, APRIL 28, 2008

Time	Activity	Presenters
8:00 – 9:00	Check in and Breakfast	
9:00 – 10:30	**1. OPENING SESSION**	
	Welcome of Participants and Introduction of the Presiding Panel (Dr. Shiferaw Teklemariam, State Minister of Health, Ethiopia; Dr. André Briend, WHO; Dr. Mike Golden, Emeritus Professor; Dr. Flora Sibanda-Mulder, UNICEF; Tapiwa Ngulube, Malawi Ministry of Health; Dr. Steve Collins, Valid International)	Anne Swindale, FANTA and Caroline Abla, USAID/OFDA
	Workshop Objectives and Programme	James Lee
	Facilitator Remarks and Practical Issues	Dick Wall
	Review of CMAM Evolution and Development	Carlos Navarro-Colorado
	Integration of CMAM into National Health Systems: Summary of Results from Ethiopia, Malawi and Niger	Hedwig Deconinck, FANTA
	Panel Discussion CHAIRS: Carlos Navarro-Colorado and Hedwig Deconinck	
10:40 – 12:00	**Break**	
10:40 – 12:00	**2. DISTRICT-LEVEL INTEGRATION** **Chair: Theresa Banda, Valid International**	
	Summary of Outcomes from Localized Efforts in Malawi	Valerie Gatchell and Nicky Dent, Concern
	Case Study: Integration into Urban Health Services	Clara Mbwili-Muleya, Zambia MOH
	Lessons from CMAM Outreach	Saul Guerrero, Valid International
	Discussion and Questions	
12:00 – 1:00	**Lunch**	
2:20 – 3:20	**3. INTEGRATING AT SCALE** **Chair: Flora Sibanda-Mulder, UNICEF**	
	Integrating CMAM into Policies and Health Care System in Malawi	Roger Mathisen, UNICEF
	CTC Advisory Service Model: Experience to Date	Tapiwa Ngulube, Malawi MOH
	Questions	
	CMAM Scale-up in Ethiopia	Belaynesh Yifru Mulugeta, Ethiopia MOH; Sylvie Chamois, UNICEF; and Emily Mates, Concern
	Questions	
2:10 – 2:20	**Break**	
2:20 – 3:20	Panel: Recent National Scale-Up Experience	
	Mozambique	Bernadette Feeney, Save the Children US
	Zimbabwe	Nozizwe Chigonga, UNICEF
	Madagascar	Simon Rakotonirina, Madagascar MOH
3:20 – 5:00	Integrating at Scale: Group Work and Reporting	
5:00 – 5:05	Daily Closing	Dick Wall

DAY 2 – TUESDAY, APRIL 29, 2008

Time	Activity	Presenters
9:00 – 9:10	Introduction to the Day	Dick Wall
9:10 – 10:25	**4. CASE STUDIES: INTEGRATION IN POST-EMERGENCY SETTINGS Chairs: Hedwig Deconinck, FANTA and Anne Walsh, Valid International**	
	Democratic Republic of Congo	Marie-Sophie Simon, Action Against Hunger
	Kenya	Vicky Sibson, Save the Children UK
	Malawi	Margaret Khonje, BASICS
	Niger	Kathleen Hill, URC
	Niger	San-San Dimanche, World Vision
	Pakistan	Caroline Tanner & Mohibullah Wahdati, Save the Children US
	Sierra Leone	Sylvetta Scott, Sierra Leone MOH
	Sri Lanka	Rajaradnam Navalogithan, Sri Lanka MOH & Renuka Jayatissa, UNICEF
	Sudan	Hedwig Deconinck & Emily Mates
	Uganda	KD Ladd, International Medical Corps
	West Africa	Svenja Jungjohann, Helen Keller International
10:25 – 10:35	**Break**	
10:35 – 11:30	Group Work and Reporting – Integration in Post-Emergency Settings	
11:30 – 12:00	CMAM and Contingency Planning	Ronald Waldman, USAID
	Discussion and Questions	
12:00 – 1:00	**Break**	
1:00 – 2:40	**5. LINKAGES WITH PRIMARY HEALTH CARE Chair: Hana Nekatebeb, FANTA**	
	Links to Health Extension in Ethiopia	Shiferaw Teklemariam, Ethiopia MOH
	IMCI Integration: Results from Field Test	André Briend, WHO
	Linking Outreach to Existing Monthly GMP in Bangladesh	Ireen Chowdhury, Save the Children US, Bangladesh
	Links to Nutritional Counseling	Mary Lung'aho, CARE and Maryanne Stone-Jimenez
	Linking CMAM with Inpatient Management: Building Health Service Capacity to Manage SAM in Tanzania	Chloe Angood, University of Southampton and International Malnutrition Task Force
	Discussions and Questions	
2:40 – 2:50	**Break**	
2:50 – 3:10	Integrating CMAM into Child Survival and Development	Netsanet Walelign, UNICEF
3:10 – 3:30	Comments and Discussion	Lynnda Kiess, Concern
3:30 – 5:00	**6. PANEL: CMAM and HIV LINKS Chairs: Caroline Tanner, Save the Children US and Tony Castleman, FANTA**	
	Findings of Three-Country Study: Nutrition and HIV	Bruce Cogill, UNICEF
	CMAM and HIV Counseling and Testing	Theresa Banda, Valid International
	CMAM and OVC Programming	Caroline Tanner, Save the Children US
	Panel Discussion	Panelists: Bruce Cogill, UNICEF; Steve Collins, Valid International; Emily Mates, Concern
5:00 – 5:05	Daily Closing	Dick Wall

DAY 3 – WEDNESDAY, APRIL 30, 2008

Time	Activity	Presenters
9:00 – 9:10	Introduction to the Day	Dick Wall
9:10 – 10:40	**7. RECENT CMAM RESEARCH** **Chairs: Kate Sadler, Feinstein International Center and André Briend, WHO**	
	Results from Discharge Based on Weight Gain	Lilly Schofield, Concern
	MUAC Growth Study Results	Anne Walsh, Valid International and Mark Myatt, University College - London
	Discussion and Questions	
	Strategies for High-Incidence Countries	Susan Shepherd, Médecins Sans Frontières
10:40 – 10:50	**Break**	
10:50 – 12:00	New Coverage Measurement Tool	Mark Myatt, University College-London
	Mass Treatment Model (RUTF)	Steve Collins, Valid International
	Discussion and Questions	
12:00 – 1:00	**Lunch**	
1:00 – 2:35	**8. RUTF SUPPLY AND SCALE-UP** **Chairs: Bruce Cogill, UNICEF and Sandra Remancus, FANTA**	
	Scaling Up RUTF Production	Mamane Zeilani, Nutriset
	Lessons and Propositions for RUTF Scale-Up	Steve Collins, Valid International
	RUTF Procurement and Logistics Strategy	Steve Jarrett, UNICEF
	CMAM, RUTF Production and Aflatoxin	Tim Williams, University of Georgia
	Discussion and Questions	
2:35 – 2:45	**Break**	
2:45 – 3:50	**9. NEXT STEPS** **Chairs: Caroline Abla, USAID/OFDA and Anne Swindale, FANTA**	
	Strengthening Information Sharing	Steve Jarrett, UNICEF
	Discussion	Tim Williams, University of Georgia
3:50 – 4:00	Closing Remarks	Jeremy Shoham, ENN