TECHNICAL REPORT

FANTA·2
FOOD AND NUTRITION TECHNICAL ASSISTANCE

USAID
FROM THE AMERICAN PEOPLE

Review of Community-Based Management of Acute Malnutrition Implementation in Mali

November 18–December 3, 2009

Hedwig Deconinck
Paluku Bahwere
Diane De Bernardo

November 2010

AED
Ideas Changing Lives

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Acronyms

ACF	Action contre la Faim
APH	Actions de Promotion Humaine
ASACO	association de santé communautaire (community health association)
ATN+	USAID/Assistance technique nationale
CHW	community health worker
CMAM	Community-Based Management of Acute Malnutrition
CSCOM	centre de santé communautaire (community health center)
CSREF	centre de santé de référence (referral health center)
DCHA	Bureau for Democracy, Conflict, and Humanitarian Assistance
DHS	Demographic and Household Surveys
DN	Division de Nutrition (Nutrition Division)
DNS	Direction National de la Santé (National Health Directorate)
DRS	Direction Régionale de la Santé (Regional Health Directorate)
GAM	global acute malnutrition
GMP	growth monitoring and promotion
GOM	Government of Mali
HMIS	health management information system
HIV	human immunodeficiency virus
HKI	Helen Keller International
IMCI	Integrated Management of Childhood Illness
INRSP	Institut National de Recherche en Santé Publique (National Institute for Public Health Research)
M&R	monitoring and reporting
MAM	moderate acute malnutrition
MDG	Millennium Development Goal
MOH	Ministry of Health
M-SAM	management of severe acute malnutrition
MSF	Médecins Sans Frontières
M-MAM	management of moderate acute malnutrition
MUAC	mid-upper arm circumference
NCHS	National Center for Health Statistics
NGO	nongovernmental organization
OFDA	USAID Office of U.S. Foreign Disaster Assistance
PRODESS II	Health and Social Development Program
PRSP	Poverty Reduction Strategy Paper
RUTF	ready-to-use therapeutic food
SAM	severe acute malnutrition
SFP	supplementary feeding program
SIAN	Semaines d'Intensification des Activités de la Nutrition (Intensive Nutrition Activities Weeks)
TBA	traditional birth attendant
USAID	United States Agency for International Development
WFH	weight-for-height
WFP	World Food Programme
WHO	World Health Organization

1. Introduction

The United States Agency for International Development (USAID) Bureau for Democracy, Conflict, and Humanitarian Assistance, Office of U.S. Foreign Disaster Assistance (DCHA/OFDA) requested Food and Nutrition Technical Assistance II Project (FANTA-2) assistance to carry out a review of Community-Based Management of Acute Malnutrition (CMAM) in four West African countries—Burkina Faso, Mali, Mauritania, and Niger—to help identify DCHA/OFDA 2010 and 2011 program priorities, including where DCHA/OFDA investment should be directed to support CMAM. The goal was to review CMAM program implementation, including institutionalization and promising practices, and its integration into national health systems to provide DCHA/OFDA with a status report per country; draw lessons learned; and make recommendations on challenges, promising practices, and gaps to be addressed with DCHA/OFDA support during 2010 and 2011. The review was intended for DCHA/OFDA program planning purposes and also potentially as an advocacy tool to guide other donors in planning CMAM support in Mali.

1.1 OBJECTIVES

The review had the following objectives:

a) Review the overall status of CMAM implementation and provide a status report on CMAM efforts in each country.
b) Analyze the effectiveness of CMAM programs in terms of improved nutritional indicators (e.g., prevalence of global acute malnutrition [GAM]).[1] If sufficient data are unavailable, develop recommendations for improved data collection.
c) Analyze the relevance of DCHA/OFDA-funded activities and the extent to which they are contributing to viable national health systems.
d) Identify challenges, opportunities, gaps, promising practices, and lessons learned in CMAM implementation.
e) Make recommendations to DCHA/OFDA on how to address challenges, pursue opportunities, and fill identified gaps; on promising practices that should be incorporated into other programs; and on how to build on lessons learned in the region and globally.

1.2 METHODS

The FANTA-2 review team (Hedwig Deconinck, Senior CMAM and Emergency Nutrition Advisor, FANTA-2; Diane De Bernardo, CMAM and Emergency Nutrition Specialist, FANTA-2; and Paluku Bahwere, Community-Based Therapeutic Care Advisor, Valid International) examined existing nutrition policy and strategy, national programs, national protocols, performance information from some of the selected programs, and health and nutrition studies done in Mali to understand the CMAM program context, structure, and performance.

The review team visited Mali November 18–December 3, 2009. During the visit, the team reviewed CMAM implementation at the national, subnational, and district levels, with the aim of documenting how implementation is occurring in terms of access to services and supplies, quality of services, and health staff competencies, including a basic understanding of procedures to identify acute malnutrition and implementation of the national protocol. The team also looked into how CMAM was being integrated into the health system at all levels, the extent of the enabling environment for such integration, and the development of strategies for its replication.

To accomplish this, the review team conducted site visits and held meetings and interviews at the national, subnational, and district levels, with representatives and staff from the Ministry of Health (MOH), UNICEF/Mali, the World Food Programme (WFP)/Mali, USAID, nongovernmental organizations (NGOs),

[1] This was not possible for the following reasons. Data were not available to assess the impact of CMAM on GAM rates. Coverage is still low and the program is too new to have had a real impact on GAM rates. CMAM is mostly a therapeutic intervention and does not affect incidence. It can therefore only affect GAM rates if the coverage is good. In addition, the review team could not control for the food security situation and many other confounding factors. Doing so would have required a full, formal evaluation as opposed to a short review.

and national training institutions. Since few NGOs are currently working in the management of severe acute malnutrition (M-SAM) in Mali, it was possible to visit sites of each program, with the exception of one program operating in a region that had become too insecure to visit. Sites were prioritized based on the scheduling of weekly activities so the team would be able to observe service provision. The team also visited MOH offices and health centers in the same catchment areas, including a number of MOH M-SAM sites not receiving external support.

For each NGO-supported CMAM program, health facilities providing inpatient care and outpatient care and supplementary feeding program (SFP) sites were selected for visits. The team conducted site observations, key informant interviews, and focus group discussions with health managers, health care providers, community outreach coordinators and workers, beneficiaries (mothers and caregivers), community leaders, and community members. Key questions on CMAM implementation and integration for the review of programs and services at the national, subnational, district, and community levels were adapted to the informant. Interview questions followed themes taken from the CMAM analytical framework (see Annex 4) developed by FANTA during a 2007 three-country review of CMAM integration. The CMAM analytical framework includes five categories that are fundamental to successful CMAM implementation: 1) the enabling environment for CMAM, 2) CMAM competencies, 3) access to CMAM services, 4) access to CMAM supplies, and 5) quality of CMAM services.

1.3 COUNTRY BACKGROUND

Despite not currently being in a state of crisis, Mali suffers from persistently high acute malnutrition rates as a result of structural problems, including chronic food insecurity, lack of clean water, high infectious disease rates, and harmful infant and young child feeding and care practices. The malnutrition rates among children under 5 years old in Mali surpass internationally accepted thresholds for serious concern[2] and for emergencies[3] in many areas. Nationwide, 15.2 percent of children under 5 suffer from wasting, a prevalence warranting urgent action.[4] These indicators are much worse in the regions of Gao, Kidal, and Timbuktu, and, ironically, Sikasso, the nation's breadbasket. In these regions, wasting rates among children under 5 years old are 16 percent or higher.[5] More than two-thirds of babies are born with low or very low birth weight, and children aged 12–23 months are the most malnourished group in Mali, due mainly to inadequate weaning and complementary feeding.[6]

The Government of Mali (GOM) and the Direction National de la Santé (DNS) (National Health Directorate) have long recognized that nutrition issues significantly affect the country's development. For more than a decade, malnutrition has been regarded as a priority, and the will of the GOM to address this public health threat has been renewed in different government strategic papers. The fight against malnutrition is a top priority of the current MOH Health and Social Development Plan II through 2011. Meeting the country's nutrition requirements through specific interventions is also among the health sector priorities in Mali's 2002 and 2006 Poverty Reduction Strategy Papers (PRSPs), developed to guide International Monetary Fund investments. Nutrition strategy in Mali has traditionally exclusively favored preventive interventions and the control of micronutrient deficiencies. Only prevalence of stunting is retained among key indicators for evaluating the GOM health program and PRSP progress toward reducing malnutrition rates.

The national guidelines on the management of acute malnutrition have a strong inpatient care focus with limited coverage of the community-based aspects of CMAM. In addition, the MOH Division de Nutrition (DN) (Nutrition Division) and all nutrition partners in Mali refer to the programs as *la prise en charge de la malnutrition aiguë sévère* (the management of severe acute malnutrition). For these reasons, the review team felt it was inappropriate to use ~~"~~CMAM" and instead refers to ~~"~~M-SAM." NGO-supported sites are referred to as CMAM sites in case the CMAM approach is implemented.

[2] Ten percent GAM, measuring the overall prevalence of wasting based on weight-for-height (WFH) z-score (< -2 z-score National Center for Health Statistics [NCHS] reference population) and presence of bilateral pitting edema.
[3] Fifteen percent GAM.
[4] 2006 Demographic and Household Surveys (DHS).
[5] Ibid.
[6] Ibid.

2. Review Findings

2.1 ENABLING ENVIRONMENT FOR M-SAM

2.1.1 MOH Technical Leadership for M-SAM

In the years following the 2005 Sahel nutrition crisis, the MOH and partners held several consultation meetings on nutrition in Bamako and at the regional level in Dakar. Despite the GOM's reluctance to acknowledge the nutrition crisis, the aim of the consultations was to strengthen the MOH's technical leadership role and coordination capacity for nutrition services and to refine its vision of how to address nutrition better. To underscore the GOM's commitment to eradicating malnutrition, the MOH established the DN, which is housed under the DNS. The GOM recognizes that nutrition is a cross-cutting field that cannot be handled solely by the MOH and plans to elevate the DN to the level of an agency directly reporting to the prime minister to oversee and coordinate multisectoral nutrition efforts in Mali.

The DN has accomplished some impressive achievements in M-SAM integration in a short time. The MOH political commitment to M-SAM started after the DN, with UNICEF/Mali support, organized a training of trainers in M-SAM and subsequently developed national guidelines. The first draft version was released in November 2006 and finalized in 2007. Since then, commitment and efforts to enable M-SAM country-wide have been rolled out. The most notable achievements include:

- The first high-level meeting on nutrition of the DNS and the Direction Régionale de la Santé (DRS) (Regional Health Directorate), held in August 2008, discussed M-SAM.
- The DN appointed nutrition focal points in every DRS and health district in the country to coordinate nutrition services and programs, including M-SAM.
- National guidelines for M-SAM were developed, refined, and disseminated.
- The rapid establishment of national, regional, and district M-SAM training teams that trained several hundred health care providers within a short period, followed by the nationwide rollout of M-SAM services.

During the review visit, the team observed that CMAM implementing partners recognized the leadership role of the national, regional, and district nutrition focal points. Yet, the DN struggles to exert a strong technical lead over the scale-up and quality improvement of M-SAM services. Limited technical expertise and insufficient financial resource capacity undermine the ability of the DN to successfully play a leadership role. To help with these issues, UNICEF/Mali and WFP/Mali have financial resources available to support the DN. But misunderstanding persists between the DN and these agencies on how and which procedures to follow to access available resources.

The DN faces challenges in terms of adequate numbers of qualified nutrition staff for M-SAM at all levels of the health system. As a consequence, at the central level, currently responsibilities are clustered around the DN Director; the other DN staff members have played a limited role. At the lower levels, it is more an issue of qualifications and competency than it is the number of staff assigned to nutrition responsibilities. The DN Director and nutrition partners alike recognize these challenges and initial steps are being taken to address them. For example, requests were made to organize learning visits of DN staff to other countries with more advanced stages of CMAM service scale-up.

The DN and the regional nutrition focal points have taken up their M-SAM supervisory roles, which includes supervisory visits to districts with M-SAM services. The DN Director shared the following findings from the latest supervisory visits.

- Because the team of international experts that supported the development of Mali's national guidelines was biased toward facility-based care, the guidelines do not strongly promote the CMAM approach. They mention the treatment of SAM in outpatient care only as an alternative to use when inpatient care is not possible. Consequently, the quality of implementation of the outpatient component is suboptimal almost everywhere in the country.

- The quality of M-SAM services improves when there are implementing partners who make available extra resources for refresher and CMAM-specific training to health care providers and incentives for community health workers (CHWs) to increase motivation, and so forth.
- Few M-SAM sites have achieved a good level of performance without NGO support. These are sites with motivated health workers and those with staff with prior experience with M-SAM. The vast majority of sites have not received NGO support.

Limited technical leadership hampers the development and implementation of a coherent national strategic plan for rolling out M-SAM. For instance, the selection of intervention areas is not necessarily based on level of need. Currently, many nutrition partners, including those involved in M-SAM, are clustered in certain towns within a few regions. For example, the DN complained that there was a concentration of partners in Mopti, the region with the lowest GAM (12.7 percent), while other more vulnerable regions, such as Kidal, Gao, and Timbuktu (GAM of 27.2 percent, 17.4 percent, and 16.5 percent, respectively), receive little external support.[7] The DN Director mentioned Bandiagara, in the Mopti region, as an example of a location where numerous nutrition partners implement a variety of nutrition programs, which she felt may be a result of convenience and population density. If the DN were able to exert leadership over nutrition activities, it would be able to push for a change in targeting criteria to rationalize geographic coverage, as the DN was convinced that although the WFP survey identified Bandiagara as the most vulnerable region to food insecurity (WFP/Mali found 84 percent of households to be vulnerable), other vulnerable regions should have been considered. Perhaps using GAM rates as primary criteria would have led to targeting other locations.

The DN wants to be in the lead and expects partners to build the capacity of the DN to strengthen its leadership role, something of a —Catch-22" situation. Implementing partners have compensated for the lack of DN capacity by developing their own mechanisms to lead and coordinate nutrition activities, undermining the role of the DN and perpetuating a situation where intervention strategies and programs are driven by donors and implementing agencies rather than by the MOH.

The DN is currently benefitting from WFP/Mali and UNICEF/Mali technical support. Key NGO partners also provide technical and financial support for M-SAM implementation in a few regions, through MOH structures. However, the DN and some implementing partners have disagreements over aspects of the nutrition policy and strategic plan, which undermines the leadership role of the DN. Key issues include:

- While the DN would like to clearly adopt the CMAM approach, some partners would like to see the facility-based approach strengthened and CMAM implemented on a limited scale as pilot programs. As a result, while the DN was planning to request support from international experts with CMAM experience, the partners were planning to bring in experts to focus on strengthening implementation of the facility-based approach.
- While the DN would like to see M-SAM services integrated into routine activities, some partners are still pushing for parallel implementation using an emergency model. This means short-term rather than long-term support, use of staff employed just for the program, and introduction of practices that cannot be sustained, such as monthly allowances for CHW.

2.1.2 MOH Coordination

Various partners have identified and recognized numerous challenges that seem to weaken the DN's capacity to coordinate M-SAM activities. Some challenges are related to human resources constraints, since the DN is understaffed at the national level. The DN members have a heavy workload; they each oversee several nutrition programs at the same time. This state of affairs was apparent at the national, regional, and district levels. Other challenges are related to financial constraints. The DN does not have adequate financial or material resources to fully embrace a coordination role. Although implementing and technical assistance partners all have ideas about how to address challenges, they have discussed these issues without reaching agreement on how to overcome them.

[7] 2006 DHS.

There is clearly a need to strengthen the collaboration and teamwork between the DN and the principal nutrition partners, but no mutually agreeable approach has been identified. This situation has resulted in delayed initiatives; development of parallel initiatives; and irrational use of human, financial, and other resources that are readily available with the partners. As a result, opportunities to strengthen technical expertise and improve quality of services have been missed.

While there have been some coordination meetings at the national and regional levels when an NGO or donor has taken the initiative, at the time of this review no formal forum had been established under DN leadership where stakeholders can meet, coordinate, and share M-SAM experiences. As a consequence, the DN seems prone to being uninformed or misinformed of nutrition partner activities. For example, just prior to the review visit, the DN had agreed with WFP/Mali to conduct a nutrition situation analysis and the DN was under the impression that arrangements were being made to move forward with it. However, according to WFP/Mali, the situation analysis was delayed because the DN had not finalized the proposal. Similar misunderstandings also occur among other nutrition partners. For example, during the review visit, one key partner was not aware of a recent multiagency nutrition coordination meeting that the review team had learned about from other stakeholders.

UNICEF/Mali has started filling the perceived gaps and is taking on an increasingly important leading role in coordinating nutrition activities, but with limited consultations with other stakeholders. UNICEF/Mali has effectively become the leader in M-SAM, but does not always act in agreement with the DN or other key nutrition partners, which has estranged some key stakeholders.

2.1.3 Integration of M-SAM into National Health and Nutrition Policies and Strategic Plans

Although M-SAM is now included in national health and policy papers, the national guidelines for M-SAM are still the only document to specifically address it. Of potential significance to M-SAM is component five of the 2005–2009 National Strategic Plan for Food and Nutrition, which discusses the treatment of malnutrition to reduce infant and under-5 mortality, including advocacy, dissemination of standards and procedures to the regional and district levels, training of personnel, equipping of health facilities, treatment of children born to HIV-positive mothers, and development of community-level treatment programs.

Two other national programs also have the potential for integrating CMAM. While not addressing M-SAM specifically, the National Program for Food Security (2006–2010) includes a health and nutrition section financially representing about 10 percent of the total proposed program. The program outlines activities necessary to improve knowledge of nutrition among decision makers and to reduce acute malnutrition in children under 5 and in childbearing-aged women, as well as many other food security and nutrition interventions.

The Health and Social Development Program (PRODESS II) 2005–2009 holds that the solution to malnutrition is achieving food security. In addition, to reduce malnutrition, the program focuses on the development of a multisectoral national nutrition policy, advocating for the improvement of the status of women and children and for the reduction of GAM and micronutrient deficiencies, particularly iron and iodine.

2.1.4 Advocacy for M-SAM

No formal or informal national plan exists to actively advocate for M-SAM. However, the review team observed that many of the current M-SAM implementers from the government and implementing partners have become strong advocates for promoting M-SAM in Mali. Moreover, there is a clearly defined interest from various donors to support nutrition interventions, including M-SAM. The MOH and UNICEF/Mali organized a series of cascade trainings on M-SAM in 2006, which can also be considered as a major advocacy event, as it effectively served as a launch pad for the dissemination of the first draft of national M-SAM guidelines and the rollout of M-SAM implementation throughout the country.

Other discrete events, such as the Semaines d'Intensification des Activités de la Nutrition[8] (SIAN) (Intensive Nutrition Activities Weeks), are good advocacy forums. During the last SIAN, screening for acute malnutrition based on mid-upper arm circumference (MUAC) was integrated in five districts in Koulikoro Region, where an NGO-supported CMAM program operates. Planned national nutrition forums will also serve as important platforms to scale up advocacy activities.

2.1.5 National Guidelines for M-SAM

With UNICEF/Mali support, national guidelines for M-SAM were developed in November 2006 and finalized in 2007. The national guidelines have been disseminated nationally and are used as the reference document for most implementers, except for one NGO piloting admission criteria based on World Health Organization (WHO) child growth standards.

Some critical elements in the national guidelines hamper scale-up and sustainability of quality services because some of the implementation strategies and monitoring and reporting (M&R) are not well adapted to integrated services. Some of these elements are summarized below.

- The guidelines have a strong inpatient care focus with a limited emphasis on the community-based aspects of CMAM. The DN confirmed that initially the national guidelines were developed with the view that M-SAM would essentially follow the facility-based approach with daycare where 24-hour inpatient care was not feasible. In daycare centers, children do not stay at the facility overnight, so there is no nighttime health care provider monitoring. Daycare centers use a modified feeding schedule either by condensing or reducing the number of therapeutic feeds.
- The guidelines propose the daycare approach as an exceptional case for health facilities that are unable to adhere to the inpatient care schedule or for patients unable to be admitted to 24-hour care. Some *centres de santé communautaire* (CSCOMs) (community health centers) and *centres de santé de référence* (CSREFs) (referral health centers) use daycare as the preferred approach. Unfortunately, daycare is characterized by low service performance because of weak management, high default rates, and condensed or modified feeding schedules.
- The guidelines prescribe community-based screening using the MUAC measurement to identify SAM, while facility-based screening and admission are based on either the weight-for-height (WFH) indicator or MUAC. All observed facilities used only WFH for admission, even when MUAC was used for the initial screening at the community level. The use of different criteria for screening and admission leads to many children who are screened and referred by CHWs and volunteers being turned away upon admission. The confusion likely results from the language used in the version of the guidelines that is most widely circulated, which allows for admission based on WFH ~~a~~nd/or" MUAC. Most implementers seem to interpret the ~~a~~nd/or" wording to mean MUAC for screening in the community and WFH for admission to the service. Using only the WFH indicator for admission has the further disadvantage of placing a heavy burden on the health facility during the admission procedure, since it requires more equipment, is more complicated, and takes more time.
- The guidelines do not provide for a concise and simplified monitoring system. Record keeping is duplicative and cumbersome, with staff filling out multiple registries and individual cards with the same information. One district even added an extra record (a little booklet with all the same information for the mothers to carry home and bring back at each visit) to make reviewing the child's history easier by avoiding the need to search through multiple, complicated registries.

In addition to confusing elements in the guidelines, misunderstandings are common about procedures due to lack of adequate training. For example, the guidelines call for the use of ready-to-use therapeutic food (RUTF) for M-SAM at the CSCOM level; however, some confusion in interpretation exists at some CSREFs, where RUTF was used for the management of moderate acute malnutrition (M-MAM). The misuse of RUTF was reported from January to October 2009, representing an important waste of limited resources (estimated value of US$50,000).

[8] A partnership of USAID/Assistance technique nationale (ATN+), UNICEF/Mali, and Helen Keller International to strengthen the MOH micronutrient supplementation strategy.

Some implementing partners have expressed their dissatisfaction with some aspects of the national guidelines. UNICEF/Mali requested that partners list suggestions for changes they believe should be made. The proposed changes will be discussed in a guidelines revision meeting planned for the first quarter of 2011.

The DN is in favor of adopting the new admission and discharge criteria based on the new WHO child growth standards and related cutoffs. While there is resistance from some partners, one NGO has already adopted them. Moreover, after more than a year of implementing M-SAM services, the DN considers the community-based approach (the full version of CMAM) as the preferred model for Mali. Toward this end, the DN is seeking international CMAM expertise to assist with and guide the revision of the national guidelines to further strengthen the community and outpatient care components.

2.1.6 National Repository

The MOH struggles in general with health data collection and quality issues from the national level to the health district level. During the review visit, the same challenges for M-SAM were highlighted on several occasions. It was clear that monitoring data were not used to interpret service performance at either the health facility or the health district level. Moreover, it was unclear if the monitoring data at the national level were made available for general use either to link with nutrition surveillance data or for interpreting performance and for quality improvement of services.

The M&R system for M-SAM consists of a monthly collection of key monitoring data that are sent to the health district and DRS before being forwarded to the national level. At the national level, M-SAM indicators are not included in the national health management information system (HMIS), but remain in a parallel system managed in a UNICEF/Mali-operated national repository. Separately from the HMIS, the *système d'alerte précoce* (early warning system) does have monthly bulletins to report malnutrition rates; the bulletins present information simply as a percentage of cases, with no information on admissions, recovery rates, defaults, deaths, relapses, etc.

2.1.7 M-SAM Technical Support Unit/Team

The MOH has no technical support structure or expertise in place to strengthen the M-SAM capacity of the MOH and partners for implementation, scale-up, and quality improvement. The DN recognized the advantages of strengthening M-SAM technical expertise within the DN, but no plan is in place to do so. The DN has a national focal point for M-SAM and regional and district nutrition focal points are in place, but none of the focal points has sufficient in-depth expertise, and they are inexperienced in M-SAM and even more so in CMAM.

Aside from MOH structures, various international implementing partners have their own national- and regional-level or district-level experts. UNICEF/Mali, for instance, has recently reinforced its own nutrition unit with two additional staff members who are in charge of monitoring M-SAM activities. WFP/Mali has hired an M-SAM officer with coordination and research experience in Niger. Apart from a few implementing partners with expertise and experience in CMAM, technical assistance to cover all the community aspects is limited.

2.1.8 Accountability for Health Care Providers

The national guidelines for M-SAM describe the roles and responsibilities of the different care providers and the activities for each level of care, including the community. But, in reality, job descriptions do not yet reflect M-SAM activities. Health care providers are expected to carry out M-SAM in addition to their many other responsibilities, but they are not held accountable for M-SAM performance. This weakness is best illustrated by an observation in a Bamako CSCOM, where the medical officer in charge of M-SAM was on maternity leave. The medical officer who assumed responsibility for M-SAM in the interim had not been involved in M-SAM and readily admitted to lacking the necessary expertise to properly implement M-SAM. Instead of following the guidelines, he improvised the treatment and did not monitor individual treatment or services or report on performance.

2.1.9 Sustainability of Funding

Sustainability of funding for M-SAM remains a significant challenge in Mali. Consistent with the growing prioritization of nutrition, the national budget received a direct contribution from the GOM to fight malnutrition. However, all the funds are for food security interventions. Currently, the GOM contribution for financing M-SAM activities is limited, covering mainly the payment of MOH salaries up to the CSREF level. CSCOMs, where the majority of M-SAM activities take place, are managed by the community and funded through *associations de santé communautaire* (ASACOs)(community health associations) that work at the catchment area level with the mayor's office and the CSCOM, implementing the Bamako Initiative of cost recovery. These ASACOs depends on the income earned from their own activities. In fact, the MOH's mandate of free services for children under 5 with SAM has added a significant financial burden on already strained ASACOs, even if supplies and drugs are made available free of charge.

It is expected that financial support for NGO-supported M-SAM services will fade when donor funds dry up. Major emergency donors have provided extensive funding to UNICEF/Mali for M-SAM support, especially for therapeutic food and drug supplies, including its distribution to the point of care, coordination, training, and operations research, and to implementing partners to scale up M-SAM implementation. These financial contributions for M-SAM represent significant budgetary support to the health facilities involved, and typically could include salary top-up and payments of fixed amounts for each SAM case treated. Unfortunately, none of these sources is sustainable in the long run.

Moreover, the primary source of donor funding for M-SAM support continues to be a humanitarian donor with short-term, emergency-oriented mandates, goals, and objectives. This encourages implementing partners to adopt the emergency CMAM model. The emergency CMAM model is very effective at saving lives and treating many children, but it also often results in establishment of systems parallel to the national health system and employment of a broad base of international staff. A partner may implement such a program with great success; however, the long-term sustainability of the program is questionable.

Furthermore, by their very nature, emergency grants are for short periods and extensions are uncertain, since they are meant to respond to a temporary crisis and save the greatest number of lives in a short time while the situation stabilizes. Under these conditions, it is impossible to promote long-term development strategies.

2.1.10 Free Treatment for Children with SAM

M-SAM services totally free of cost to the patient seem to occur only in very few areas with NGO support. Mali applies the Bamako Initiative cost recovery approach in the health system, so CSCOM health activities are funded by their own income derived from service provision. The MOH and international donors have mandated providing M-SAM services free of charge without a national-level budgetary contribution to offset the financial burden to the ASACOs. The national guidelines mandate free treatment for children with SAM. Despite the good intentions behind the mandate for free services, the harsh reality is that the ASACOs lack resources to actually provide the free services, despite the support in therapeutic food, equipment, and drug supplies. Moreover, in areas with strong community outreach, the introduction of M-SAM was associated with increased attendance to already busy CSCOMs.

Many CSCOMS charge for the first consultancy when children are screened and admitted, and most CSCOMS also charge for the drugs if they do not receive them regularly from UNICEF/Mali. Some NGOs provide medicines and other supplies to enable at least partially free service provision.

2.1.11 Contingency Planning

UNICEF/Mali alleged that it was sufficiently prepared to respond to any unexpected worsening of the nutrition situation in the country. Some NGOs had plans to cover temporary supply disruptions in drugs and therapeutic and supplementary foods. Some NGO warehouses already had a buffer stock of essential supplies. For instance, during the review period, one partner was able to continue to provide M-

SAM services under insecure conditions in Northern Mali with local staff only, while international experts were temporarily evacuated. This demonstrated effective contingency planning.

On the other hand, preparedness not only includes securing buffer stocks and funding, but also strengthening capacities of health managers and health care providers. In cases of rapid scale-up for managing increased caseloads or in situations of hindered access, the most important aspect of a response is that all health care providers in place need to be competent to provide scaled-up, quality care. In addition, an increase in the number of qualified health managers and health care providers will be needed. None of the major partners said that this issue was being addressed in a strategic manner.

2.2 COMPETENCIES FOR M-SAM

M-SAM is relatively new in Mali, where it was first introduced in 2006. Prior to 2006, the country had a very narrow base of national health managers and health care providers with exposure to facility-based M-SAM. Currently, only limited national expertise in the full CMAM approach is available. Expertise and experience still reside with a few international experts who have been exposed to CMAM prior to providing services in Mali. Implementing partners are gradually strengthening national M-SAM capacity by deploying international experts. UNICEF/Mali has even added funding for NGOs that implement UNICEF/Mali-funded services to maintain an experienced international nutritionist in place.

In recognition of this lack of national M-SAM technical expertise at every level of the health system, the DN is requesting immediate, rapid capacity strengthening support. In particular, the DN's request for support for a learning visit to a country advanced in CMAM implementation is a reflection of DN determination to gain greater understanding of CMAM integration and scale-up by meeting field actors with CMAM experience and to learn lessons to apply to the development of similar capacity strengthening strategies in Mali.

2.2.1 Pre-Service Training

A professor at the Institut National de Recherche en Santé Publique (INRSP) (National Institute for Public Health Research) is taking the lead in formalizing a course in M-SAM at the faculty of medicine in Bamako. The 6-hour M-SAM module covers theory, and is supposed to be accompanied by practical training in a rural hospital. Currently, fifth-year medical and pharmacy students participate in a 6-hour training module on M-SAM within the public health course. This is the third year that this course has been offered.

The high number of students per class (600); the high cost of living per student during the stay, which has to be covered by the school (35,000 CFA Francs); and the supervision fees for each of the doctors who mentor students (for a grand total of 100,000 CFA Francs) make it impossible to offer this practical skill learning experience to all the students. Furthermore, the modules have not been reprinted since 1998 and are now outdated, since best practices based on latest evidence are not incorporated.

Attempts have been made to introduce the 6-hour M-SAM course in nursing schools, but this has not yet materialized. Discussions are ongoing between some MOH departments and training institutions for the formal introduction of nutrition into the nursing curriculum. Suggestions include a master of sciences degree in nutrition, a post-graduate course in nutrition, and a specialization in nutrition in nursing schools. Some international partners, including UNICEF/Mali, have been approached to support these initiatives, but they have not responded yet.

The DN Director is very much in favor of integrating CMAM into the national teaching and research institutions for health professional pre-service training. She would like to explore the capacity of these institutions to participate in and eventually provide CMAM in-service training for MOH staff.

2.2.2 In-Service Training and Mentoring

In 2006, the MOH, with UNICEF/Mali support, initiated a 6-day orientation training on clinical M-SAM with medical complications, including principles of CMAM, for senior clinicians, health managers, and nutritionists. A series of cascade trainings followed this facilitators training for national, regional, and district-level staff, reaching all health care providers implementing M-SAM nationwide. Impressively, a total of 108 clinicians, 85 midwives, 436 nurses, 536 nurse assistants, and 1,064 CHWs received training on M-SAM following the national guidelines. The head of each health facility was expected to provide training for the CHWs in their catchment area, but no specific financial support was provided to do so. Additional training to expand geographical coverage continued in 2008 and 2009.

Implementing partners provided further in-service training for clinicians in their implementing areas in the form of classroom training followed by on-the-job mentoring. NGOs have also trained CHWs and other volunteers on community mobilization and screening and health care providers on M&R tools.

At all sites visited by the review team, health care providers were trained in M-SAM as part of the cascade training. Also, staff at all sites visited had received supervisory visits from the national or regional trainers. Still, the need for continuous mentoring by experienced staff was evident, especially in sites not receiving NGO support.

2.2.3 Learning Sites: Learning Visits and Internships

Nobody at the national level has participated in national or international learning visits or internships. At the time of the review visit, no site could be used as a learning site. However, one site in Koutiala might have some potential for certain aspects of the M-SAM approach. The site would serve for only certain aspects because, although it provides emergency CMAM services of high quality, they are only partially integrated into the MOH structures. The same program receives significant donor and private funding and follows an emergency model involving a large number of international staff and using the WHO child growth standards and cutoffs rather those from the national guidelines. It also has a well-developed community outreach component, which is reflected in a high caseload with many severely malnourished children being identified in the communities it serves. Unfortunately, this model does not reflect the sought-after integrated CMAM approach following a development model. Important lessons might also be learned from a Bamako CSCOM that has successfully integrated M-SAM into the routine health services and is providing quality care without additional resources or external support (see Box 1).

Box 1. A Success Story

A Bamako CSCOM provides a good case study of the importance of the level of staff interest and quality of staff training in M-SAM services. The physician in charge of pediatrics at the CSCOM had received several years of NGO support and capacity strengthening when working in the Gao region. Actually, it was she who had initiated the nutrition recuperation service in Gao prior to the NGO offering to collaborate and provide support. Later, at the CSCOM in Bamako, she began implementing M-SAM services, adhering to the national guidelines and providing high-quality services. Under her supervision, health care providers at the CSCOM receive intensive on-the-job mentoring. Quality services are provided despite the absence of external support and facing the same resource constraints as other non-NGO-supported CSCOMs. In fact, the quality of M-SAM services surpasses most NGO-supported services.

This illustrates how quality M-SAM services can run without external support. Moreover, the quality of care provided at the CSCOM makes the CSCOM eligible to be a learning site.

There is a plan to establish six learning sites in the coming year. A visit to one of the proposed learning sites indicated that all the proposed sites still need significant expert support and restructuring to serve this purpose. Areas needing improvement included:

- Community mobilization must be established or greatly improved to ensure early presentation and improve coverage.
- Inpatient care facility capacity must improve to ensure quality care and adequate working conditions that serve as an example of how such a unit should be organized.
- Adherence to national guidelines must be ensured.

2.2.4 Peer-Exchange of Information and Interactive Learning Forums

The team observed no evidence of *systematic* information sharing, interactive learning forums, or meetings. However, in one region, implementing partners had started to organize regular meetings on M-SAM activities. These meetings could potentially serve as an opportunity for exchanging experiences and learning from each other.

2.2.5 Operational Research

Implementing partners in Mali have a strong interest in operational research. Research related to CMAM currently planned or under way includes:

- Comparative merits of various supplementary feeding strategies using local foods, lipid-based nutrient supplements, and fortified blended foods.
- Operational issues affecting SFPs (research began in 2009).
- Communities contributing to improved coverage and identifying other community approaches. UNICEF/Mali will also coordinate and monitor four different supplementary feeding settings in four different regions (one setting in each region) where communities are actively involved in the management of SAM.
- Linking Positive Deviance/Health with CMAM.
- Effectiveness of community mobilization methods.
- Involving women's groups in M-SAM in the communities, to allow further decentralization of services.

Some new interventions and approaches that have not yet been validated by research evidence have been introduced. Aspects of such innovative programs that warrant further research include:

- Impact on caseload by the use of the new WHO growth standards.
- Long-term outcomes of cases with moderate acute malnutrition (MAM) when left untreated.
- Service performance and effectiveness using the daycare approach.
- Integration of M-SAM into the SIAN. During the first attempt to do so, 961 children with SAM were identified, of whom 100 had bilateral pitting edema. A quick analysis of health facilities information suggests that the majority of these children did not present for treatment.
- Comparing facility-based approaches (i.e., referral to inpatient care until full recovery) to the mass treatment model (i.e., treatment and follow-up by CHWs in the community).

2.3 ACCESS TO M-SAM SERVICES

2.3.1 Initial Implementation of Learning Sites and Gradual Scale-Up of M-SAM Services

M-SAM was rolled out nationwide following the cascade training in 2006–2007. Most health care providers received 6 days of training on the treatment protocol, which included aspects of the CMAM approach. M-SAM supplies were then distributed to all the health districts in the country, even though some of the health care providers had not yet acquired the knowledge or skills to use them. They were then expected to deliver the services.

M-SAM scale-up has advanced enormously in the past 2 years in comparison to the situation prior to 2007, when there was only one MOH-implemented, permanent therapeutic feeding centre in Mali. But there are shortcomings in a scale-up approach that is linked to a weak comprehensive strategy for strengthening M-SAM capacities.

The MOH chose a phased approach for scaling up M-SAM in the country. Six regions were to be covered in the first phase: Gao, Mopti, Sikasso, Kayes, Koulikoro, and Bamako. During the review visit, the team observed that within the priority regions, region-wide M-SAM coverage was planned but not achieved, due to human and financial resource constraints. Thus, the scale-up within these six regions is far from complete, and achieving adequate geographic coverage and quality services at this pace will likely take another few years. The establishment of learning sites with quality services and the availability of mentors could potentially accelerate the learning and scale-up of the CMAM approach and could offer opportunities for in-service learning and skills strengthening. One learning site in one region was being planned for this purpose, and a few others had the potential of being selected.

The integration of M-SAM into routine health services is patchy with variable service quality. NGO-supported districts are at more advanced stages of integration. Until recently, the teaching hospital in Bamako did not have a well-organized unit dedicated to M-SAM. Integration in NGO-supported districts has also progressed more, in spite of donor pressure to adopt the CMAM emergency model, which means using NGO-employed health care providers, NGO-supported field supervision, NGO financial motivation for CHWs, and often temporary NGO-built structures. This model successfully detects many children with SAM, resulting in high caseloads. This approach has demonstrated that the prevalence of SAM is high and that treatment through CMAM is possible and efficient. On the other hand, extensive reliance on the emergency model could give the impression that CMAM is only manageable with extensive NGO support and is unable to be sustained in the long run.

Another factor affecting scale-up of management of acute malnutrition services is the uneven geographical and resource distribution in different regions between M-SAM and M-MAM (or supplementary feeding). For instance, different areas are targeted for WFP/Mali-supported SFPs for M-MAM services than are targeted by UNICEF/Mali for M-SAM services. This discrepancy stems from differing targeting criteria: WFP/Mali uses food security-based criteria to select intervention areas, while UNICEF/Mali uses prevalence of acute malnutrition.

2.3.2 Community Outreach for Community Assessment and Mobilization, Active Case-Finding, and Referral

No community assessments have been carried out specifically for informing M-SAM community outreach strategies. The head of the health facility and/or the health district nutrition focal point in charge of CHWs provides limited and nonstandardized training for active case-finding through screening with MUAC and referral for treatment. In reality, where no NGO support exists, health facilities do not perform active case-finding in the communities. In areas without NGO support, CHWs are too busy, untrained, or unsupervised, or have stopped performing their duties at all. Information is shared mainly by word of mouth or through limited information provided to the community, and caregivers come at their own initiative. In NGO-supported districts, different and sometimes innovative versions of community screening exist, including using women's groups or mothers' and grandmothers' groups. In general, in NGO-supported districts, training and support of the CHW networks is provided by the NGO.

Despite community outreach efforts, caregivers often do not go to the CSCOM for further treatment after identification. Also, staff at most sites described extremely high default rates and few efforts are made to locate defaulters or to determine how to overcome barriers to access. These problems are not surprising. Like most health initiatives, M-SAM relies on a pre-existing CHW network. A quick evaluation of the workload of CHWs, some of whom stated that they covered as many as 35 households each (although 15 is more typical), showed that they have too heavy a burden of daily tasks. CHWs are responsible for the expanded program of immunizations and many other health activities, each of which takes a significant amount of time. For instance, the program promoting 12 essential family practices requires 2 hours per session. The demands on the unpaid CHW or other volunteers are similar to those of a full-time job, but these people also need to earn a living. It is also worth noting that all of these unintegrated CHW activities take a significant amount of time on the part of the service recipients, since they make multiple visits to deal with separate topics, rather than a single visit, or at least fewer visits, to deal with several topics.

In NGO-supported areas, the limited geographical coverage of the interventions complicates home visits for following up on problem cases. Children with SAM from outside the catchment area also gain access to services and cannot be followed up on in their own communities. These children are often prone to disrupted treatment due to absenteeism or defaulting, since they live far away in communities where M-SAM community mobilization and outreach are not organized. Some implementing partners responded by initiating alternative community mobilization strategies in parallel to existing CHW networks, e.g., establishing new volunteer structures, such as women's groups, to take on some of the sensitization and screening work. Additionally, in most NGO-supported areas, a monetary incentive is provided to CHWs. It is hard for non-NGO-covered areas to ensure CHW participation without a similar incentive system.

Another element that significantly and negatively affects community outreach is the use of only WHF as the criterion for admission to treatment, following screening with MUAC. During the review visit, the team observed that in areas where CHWs refer cases based on MUAC, the rejection rate upon admission is high. This has undermined the confidence of communities in the CHWs and the services. In other areas, the CHWs were requested to use the WFH criterion in the community, adding unnecessarily to the workload, limiting the screening capacity to cover large numbers of children, and risking high numbers of faulty measurements, all of which lead to rejections upon admission.

2.3.3 Expanded Outpatient Care in Decentralized Health Facilities

The CSCOM is the lowest level where M-SAM services are provided. And because of the limited numbers of CSCOMs concentrated in areas with high population densities, outpatient care is not adequately decentralized, resulting in limited access and coverage. Depending on the location, children with SAM without medical complications might either enter outpatient care or be directly referred to inpatient care. In some health districts, SAM cases start treatment in inpatient care at the CSREF, even in the absence of medical complications. One reason for direct admission is that facility-based treatment is still promoted. Sometimes the CSCOMs do not offer M-SAM services, leaving the CSREF as the only option.

The DN recognizes the need to further decentralize outpatient care given the persistently low coverage and the incapacity of the country to scale up services nationwide primarily using a burdensome facility-based approach to treat all children with SAM until full recovery. Decentralization would allow certain services to be provided at lower levels of the health system and would reduce the burden at the CSCOM and CSREF levels.

Underscoring the need for decentralization and scale-up of M-SAM are the last SIAN results, where a very high number of children were diagnosed with SAM (MUAC < 110 mm) (7,282 out of 211,813 screened) in areas known to have the lowest prevalence, and the fact that a corresponding number of children were not in treatment in those areas, as noted above. This phenomenon strongly suggests a need for revising the guidelines to mandate outpatient care for SAM without medical complications to expand coverage and access, to enable better compliance, and also to explore more innovative approaches to increase community outreach and service coverage.

2.3.4 Inpatient Care in Health Facilities with 24-Hour Care Capacity

During the review, the team visited six health facilities with M-SAM inpatient care (five CSREFs and the Bamako teaching hospital). The Bamako teaching hospital did not have a separate unit for M-SAM. According to the national guidelines, these health facilities should offer caregivers the possibility to choose between the inpatient approach of short hospitalization followed by outpatient care, operated from the same health facility, or the facility-based approach in which hospitalized care is provided until full recovery. But most districts favored the facility-based approach until recovery, with an average length of stay of 3 weeks. Various reasons for a preference for facility-based care were provided: convenience, desired adherence to the guidelines, absence of outpatient care at the place of origin, presumed reduction in the risk of defaulting, presumed minimization in the risk of relapse, uncertainty about the quality of care at the CSCOM, and presence of medical complications requiring prolonged medical treatment. Maintaining M-SAM as facility-based care also justifies investment in support and/or extra resources for the health facility. The tendency to prefer the facility-based approach is also due to low

service access and coverage, and the implied preference in the guidelines, which was further enforced during the training.

It appeared that the number of inpatient care sites was inadequate in rural areas. However, local initiatives exist to correct this situation by opening complementary inpatient care sites in CSCOMs that have a medical officer onsite. This often means that children with SAM and medical complications are treated in a daycare center at the CSCOM, while only the CSREF is equipped or has the expertise to provide this level of care. As with 24-hour inpatient care, children in daycare receive periodic feeds of therapeutic milk throughout the day. However, because the children come in the morning and leave in the evening, the advised feeding schedule for the therapeutic milk diet (8 daily feeds, once every 3 hours in 24-hour care) is condensed into a maximum of 10 hours. This results in larger volumes per feed during the daytime and in omitting feeding and close monitoring of the metabolic status during the night.

Staffing in most of the health facilities with inpatient care was adequate given that the number of admissions were low in the majority of them (fewer than 10 children per month in four of the six facilities). Extra staff was hired in NGO-supported sites with more admissions. The ratio of health workers to patients was good, but this was also due to low coverage (i.e., a small number of children with SAM access treatment).

2.3.5 Referral System between Inpatient and Outpatient Care

CSCOMs that do not have the capacity for inpatient care, without a qualified clinician or laboratory facilities present, refer patients for inpatient care in the CSREF or regional hospitals. Once a child with SAM has been stabilized and eats the RUTF diet (that is, passes the appetite test), he or she should be referred to outpatient care sites. However, that is rarely the case, as most sites keep children in treatment until full recovery.

Referral and counter-referral is usually well organized when the sites receive NGO support. With areas with NGO support, transportation to and from the inpatient care sites is usually organized or the fee is covered. In the other areas, the referral/counter-referral system is based on the regular system already in place. The weakness of the regular referral system was discussed with health care providers, who highlighted the many challenges beneficiaries face with costs and time associated with traveling to the site. The review team assumes that a high proportion of cases do not arrive at the site after being referred/counter-referred.

2.3.6 Qualified Health Care Providers

In contrast to many African countries, qualified health care providers seem to be relatively easily available in Mali, except perhaps in the remote areas of the north, where it is difficult to convince qualified, southern doctors to relocate. Several CSCOMs had medical officers and adequate numbers of health care providers with a range of skills. During the review visit, most staff confirmed to have received in-service training by either the MOH or an NGO.

The MOH confirmed that all health care providers nationwide have received training in M-SAM. However, staff competencies are variable and often weak due to resource constraints, lack of pre-service training, and/or poor and/or limited in-service training and supportive supervision. On numerous occasions, health care providers expressed the need to enhance expertise in M-SAM to their managers and supervisors in the role of their mentors.

2.3.7 M-SAM Integration into Routine Health and Nutrition Services

Health care providers and implementing partners clearly want to integrate M-SAM into routine health services, and there are many discrete examples of where integration has taken place. In several health districts, aspects of M-SAM were integrated in Essential Nutrition Actions activities. In other health districts, CHWs integrated community screening with the promotion of the 23 essential family practices, which include practices related to child nutrition, prevention and care, hygiene, and maternal health.

Integration with growth monitoring and promotion (GMP) has been attempted in several health districts, but some problems have arisen. On one occasion during the review visit, it was discussed that, because of the existence of the M-SAM services, where children with SAM are identified and receive treatment, caregivers of children without SAM ceased to attend GMP, since they did not perceive it as receiving a service.

Active screening for acute malnutrition has been successfully linked into the SIAN, but the referral mechanism and decentralization of treatment needs to be strengthened to maximize treatment access for children diagnosed with SAM.

Besides these few examples, for the most part, M-SAM has not been integrated into health and nutrition services, but rather stands alone as a vertical program delivered in the health system. In spite of the good will, health care providers seem to feel uncertain about how to effectively integrate the different services. Even though most of the health care providers in charge of outpatient care claim to routinely check all children under 5 for the presence of malnutrition, it seemed to the review team that this was not always the case. For instance, admissions at CSREF and hospital outpatient departments were rare. CSCOMs and CHWs frequently have separate days for each service they offer. This means that caregivers must come to the CSCOM one day for vaccinations and another for nutrition services, for example. The same caregiver may receive a CHW visit one day for Integrated Management of Childhood Illness (IMCI) and another day for nutrition screening. There was no sign of integration of M-SAM into tuberculosis or HIV services.

2.3.8 M-SAM Linkages with Informal Health Systems: Traditional Healers and Birth Attendants

Malnutrition is not always perceived as a nutrition or health problem, and caregivers with a malnourished child commonly seek care from a traditional healer as a first-line service provider who is easily available in the community. On many occasions, caregivers and community members confirmed that they first seek assistance from the traditional healer.

Collaboration with traditional healers is rare and not considered by most of the implementers. Only one implementing partner with long experience working with traditional healers recognized the important role that they can play in M-SAM, and confirmed involving them.

Traditional birth attendants (TBA) working at the health facilities were involved in the screening and referral of children, but there was no mention during interviews of involvement of TBAs operating in the community.

2.3.9 M-SAM Linkages with Other Community Services

Although many of the M-SAM implementers are also implementing other community-based programs, such as food security and livelihoods (e.g., vegetable production) and other small-scale businesses, the review team found scant evidence of linkages of M-SAM beneficiaries to these activities. One NGO operating in Gao, however, does use high prevalence of acute malnutrition as a targeting criterion for food security programs.

2.4 ACCESS TO M-SAM EQUIPMENT AND SUPPLIES

2.4.1 Procurement of M-SAM Equipment and Supplies

UNICEF/Mali and WFP/Mali, on behalf of the MOH, are responsible for internationally and nationally procuring equipment and supplies for M-SAM and M-MAM, respectively. The district health teams and ASACOs seemed to be in charge of the management of services, even in most of the NGO-supported areas. Thus, the system and procedures followed for equipment and supplies are the same as for already established health services. At the national level, the management system of supplies was less clear. The

review team had the impression that UNICEF/Mali and WFP/Mali play a more important role than the DN in making equipment and supplies available. Additionally, some NGOs have established their own procurement and management mechanisms mainly for supplies and equipment not provided by UNICEF/Mali or WFP/Mali.

In general, health facilities have the required M-SAM equipment and supplies. However, there are exceptions. In Sevare, for example, the CSCOM lacked basic supplies, such as bowls and cups to serve therapeutic milks and pots to boil water. UNICEF/Mali makes therapeutic equipment and supplies available, and the national MOH distributes them to the periphery. Outages of RUTF stock do not currently seem to be a problem in most of Mali. Stock outages and pipeline management issues happen occasionally in Gao though. In some instances, NGOs have used their own funds to cover the costs of therapeutic and supplementary foods and medicines when they ran out or to maintain a buffer stock for contingencies to avoid interruption of the services, which usually has a negative impact on survival and default rates.

UNICEF/Mali makes routine drugs available for M-SAM, but supplies are irregular and there aren't enough of them. Medicines and other inputs necessary for M-SAM are therefore frequently lacking, especially in the non-NGO-supported areas. In Mopti, a senior regional-level MOH official cited this as a major impediment to providing quality services. In some locations, NGOs procure a buffer stock of medicines to avoid running out.

A disparity in the equipment for CHWs also leads to variation in coverage. For example, in some NGO-supported areas, CHWs have been provided with bicycles, but this was not the case in areas without NGO support.

A related issue is the infrastructure through which services operate. Some inpatient care units were operating in buildings that needed to be renovated so that they could offer the basic quality of working conditions. In some sites, it would be more appropriate to build new wards, as the available structures or wards need extensive improvement or are too small.

As part of its Protracted Relief and Recovery Operation, WFP/Mali provides supplementary foods, such as corn-soy blend or Misola (a Malian-produced supplementary food). WFP/Mali uses food security rather than nutrition indicators for targeting, so it supports supplementary feeding only above the 14th parallel, since this zone was identified as food insecure in terms of access and availability. In areas where WFP/Mali intervenes, not all districts are covered, due to budgetary constraints. In other regions where there is no WFP/Mali support for M-MAM and little coordination with UNICEF/Mali, providing services for M-SAM and M-MAM as a full package is hampered. Furthermore, in the recent past, supplementary food stock outages were a serious problem in many locations, although this seems to have been resolved.

2.4.2 National Production Capacity for RUTF

Currently, there is no RUTF production in Mali and there is no plan to establish national production. RUTF is imported from France (and not from Niger).

2.4.3 Information on Other Opportunities for RUF

Research initiatives into various aspects of food, health, and nutrition are ongoing. One randomized, community-based effectiveness trial of selected dietary strategies for the management of children with MAM, in the context of a CMAM program, is ongoing in Koulikoro with international collaborating institutions, an international NGO, the MOH, and the INRSP.

2.5 QUALITY OF M-SAM SERVICES

The quality and extent to which M-SAM services are delivered are variable and depend on the quality of the training, the level of continued external support (technical and financial), the availability of staff, financial resources, and the level of motivation and interest of the health care provider.

Strict use of WFH indices as the sole admission criterion results in:

- The rejection of younger children with SAM with MUAC less than 110 mm but a WFH greater than 70 percent based on the National Center for Health Statistics (NCHS) reference, which increases the risk of death of these children in the following 6 months.
- The difficulty to ensure regular case-finding in the community if the CHW is not very mobile with a scale and height board, leading to delays in detection of SAM and referral for treatment, and increasing the risk of death.
- The rejection of severely stunted children with low MUAC, thus the presence of SAM.

2.5.1 Support and Supervision

National supervision teams visit regional health facilities on a regular basis. Regional teams in turn visit health facilities in the health districts. Nutrition focal points are appointed at the regional and district levels to provide support and supervision. NGOs also provide significant support and supervision in areas where they implement programs, working in close collaboration with the nutrition focal points. Support to services varies greatly, depending on whether services are fully or partially integrated into the MOH health system. While the DN and implementing partners organize support and supervision for the health care providers involved in M-SAM, MOH staff still mentioned that the frequency of these supervision visits needs to increase and include mentoring support. Some MOH staff also expressed dissatisfaction with the quality of support and supervision they receive, as the supervisors themselves lack M-SAM expertise.

2.5.2 Monitoring of Individual Care

For each child with SAM, health care providers fill in an individual treatment card, which is the essential tool for monitoring individual treatment and progress. Treatment cards contain the minimal essential information, which is routinely collected and registered, to monitor treatment progress and guide decision making. Health care providers are also required to fill out registers at the health facility; these registers have limited clinical use and are time-consuming. Some health facilities had double registration systems, one for the health facility and one for M-SAM. The utility of all the registers is not clear, and the increased paperwork and workload distracts health care providers from providing quality treatment and quality monitoring data.

2.5.3 Monitoring and Reporting of Service Performance and Integration into the National Health Management Information System

A rapid check of the latest data available at some of the sites visited suggested that the quality of the data collection and analysis is weak because:

- The rate of reporting of M-SAM sites per health district is low.
- Reports are filled out after long reporting periods without the use of a weekly tally sheet, which increases the risk of inaccurate reporting.
- Multiple changes to M&R formats during the same year caused confusion instead of improving efficiency.
- New forms and a new computerized database were accompanied by neither a user's guide nor an orientation.
- Some tools, such as the registers, are redundant and not useful and others, such as the tally sheets, are missing.

M&R tools are part of the national guidelines. The M&R system collects monthly monitoring data, which are sent to the health district-level and regional nutrition focal points and the HMIS before they are forwarded to the national level. Data do not always arrive on time and are known to be inaccurate.

The monthly reporting form is not very user friendly and does not provide a direct interpretation of performance at the health facility or health district level, which is an important missed opportunity for enabling the interpretation of performance and understanding trends. To address these issues, there has been an attempt to develop new data collection forms. Unfortunately, the new forms seemed to be less

clear than the old forms. The changes were only in the number of sheets to fill out, while the actual information collected remained the same.

The formats for data collection are still under discussion at the DN. Several earlier versions of reporting forms were already sent to the field, and the numerous format changes have confused field staff. This has affected the motivation of field data specialists and impaired data quantity and quality. In addition, training for health managers, health care providers, and data specialists on M-SAM data management has been very limited, leaving room for confusion and insufficient understanding of the use of M&R forms, the system of data collation, and interpretation.

At the national level, the MOH Planning and Statistics Unit is not involved in M-SAM performance information, and acute malnutrition indicators are not part of the HMIS. The Planning and Statistics Unit in charge of the HMIS is not yet functioning to its full capacity and its managers are not yet open to including nutrition indicators. In the meantime, UNICEF/Mali manages the national M-SAM repository with centralized national-level information to analyze and produce national reports, while there was no inclusion of reporting on M-MAM.

2.5.4 Evaluation of M-SAM Services, including Coverage and Barriers to Access

Barriers to access or service coverage do not seem to have been analyzed in any location. No evaluation of services has been carried out at either the national or the service level. However, UNICEF/Mali is planning an evaluation shortly as part of a 10-country evaluation of UNICEF/Mali-supported CMAM programs in West Africa. Some NGOs have also recently hired consultants to conduct external evaluations of their programs.

3. Conclusions

The CMAM review visit occurred at an early stage in the process of integrating and scaling up M-SAM services in Mali. However, considerable strengths and potential promising practices, as well as some constraints, were identified. There is an opportunity to address these limitations before they become entrenched. Given the high prevalence of acute malnutrition, a well-implemented CMAM program could have a positive impact on Mali's high childhood mortality rates and could become one of the most effective programs to contribute to the acceleration of progress toward achieving the Millennium Development Goals (MDGs).

The GOM has demonstrated its commitment and willingness to effectively fight malnutrition. It is willing to work toward enhancing the quality and coverage of M-SAM services. This momentum should be used to increase efficiency and scale up M-SAM as one of the routine programs included in Mali's child survival strategy. Strong support from international implementing partners is contributing to what can become an effective rollout and scale-up of the CMAM approach. However, the MOH/DN exhibits difficulties in taking a leadership role in technical expertise and coordination for M-SAM. It will be particularly crucial to have an experienced expert team to strengthen capacities for the management of acute malnutrition in the country for the DN and its implementing partners to gain further experience and expertise and to strengthen sustainable CMAM capacities in the country. The DN would benefit from an in-house technical expert to strengthen technical and coordination capacity for M-SAM. While the DN and some partners welcome this idea, it seems unlikely to materialize in the current environment, because some important partners feel that the additional external experts would end up carrying all of the activities and no capacity would remain when the support ended.

The national M-SAM guidelines are the main reference for implementation and advocacy for addressing SAM. The guidelines need substantial technical revisions to better reflect the country-specific context in which M-SAM is implemented, to transition to CMAM, and to maximize the chances of reducing child mortality and accelerating progress toward achieving the MDGs.

Despite the significant efforts made to train a large cadre of health mangers and health care providers, important gaps in the management and quality of services were reported and observed. To strengthen sustainable capacities, national academic training and research institutions need to become more actively involved.

Access to services received a boost from financial subsidies and support provided by emergency donors and NGOs. Equipment and supplies for M-SAM implementation seem to be adequately provided for the time being, even though the question of long-term sustainability remains to be answered.

It is important to recognize the role of traditional healers, as the risk for harmful practices and delayed referral to the conventional health system is real, and to seek strategies for a mutual agreeable collaboration. This is also a missed opportunity for improved community mobilization to promote access.

Promising practices and innovative initiatives have been identified and need to be supported and documented. A forum for M-SAM technical information exchange and sharing of country-specific lessons might take place in the future. Continuous quality improvement for service performance is lacking. The current use of the M&R system is limited. Consolidated information on case management, service performance, and coverage are therefore not readily available, which is a real constraint for informing initiatives for strengthening capacities and improving strategies for scale-up.

4. Recommendations

4.1 GENERAL RECOMMENDATIONS TO SUPPORT THE MOH/DN AND IMPLEMENTING PARTNERS IN CMAM

- Encourage partners to strengthen the CMAM technical leadership role of the DN, regional coordinators, and health district focal points by establishing a support team within the DN. The support team should be strengthened temporarily with an international CMAM expert available for sustainable capacity strengthening covering the following priority activities:

  Strengthen the enabling environment:
  - Establish a CMAM support team (with terms of reference and an annual work plan) and a technical working group of experts (with terms of reference). The CMAM support team would provide technical guidance and advice, plan and support capacity development, and carry out advocacy and monitoring and evaluation. The technical working group would share lessons learned, evaluate and suggest aspects of protocols and implementation strategy that require refining of changing, discuss program results, advise the support team, follow progress of support team work plans, and participate in technical activities.
  - Develop and implement a strategic plan for sustainably strengthening CMAM capacities (expanding the outpatient care and community aspects of the CMAM approach).
  - Strengthen advocacy for CMAM and develop advocacy tools.
  - Revise the national guidelines to international standards and best practices. To improve program performance, revising the guidelines earlier than the currently planned 2011 would be advisable.

  Strengthen competencies:
  - Expand the base of CMAM experts among health managers and health care providers in the management of acute malnutrition.
  - Offer learning visits to CMAM sites in another country in the region and in-country for all levels, starting at the national level, then the regional level, focusing on both CSREF and CSCOM staff.
  - Develop quality learning sites, involving academic institutions.
  - Offer internships at learning sites with specialized mentors. Initially use an international expert to build in-country capacity, then hand over to a support team.
  - Revise and update training materials.
  - Create an information system linking CMAM implementers to share information on international and country-specific best practices and learn from in-country lessons.
  - Facilitate country-specific research.
  - Integrate CHWs into the health care system by making them professionals. They should be well trained, should ~~b~~elong" to the community and not a project/NGO, and should be remunerated monetarily or in goods/foodstuffs. However, solutions for sustainability challenges would need to be investigated.

  Strengthen access to services and supplies:
  - Develop and implement a strategic plan for CMAM scale-up.
  - Test different strategies, and promote promising practices for community outreach. Examples include the grandmother and women groups approach, collaborating with traditional healers and TBAs to raise their awareness and inform them of harmful practices, and enable them to participate in community screening and case referral.
  - Support initial steps to integrate CMAM into the SIAN, the national package of 23 essential family practices and community-based IMCI.
  - Prepare to use the national MOH supply system for therapeutic foods.

  Strengthen quality of services:
  - Explore continuous quality improvement strategies for CMAM.
  - Assess the effectiveness of the referral and counter-referral system.
  - Strengthen the CMAM M&R system.

  - Develop capacities for CMAM supervision
  - Develop capacities for assessing CMAM service coverage.
  - Analyze and use CMAM admission indicators in nutrition surveillance.

- Strengthen the advocacy capacity of the DN for CMAM.

  Given the likelihood that the DN will become a higher-level government agency, it will need to be prepared to influence discussions to ensure that CMAM is taken into account among other nutrition issues that will be discussed, such as the mandate of the future national-level nutrition coordinating agency. Nutrition policies and strategic plans will need to promote and support implementation of community-based approaches to manage acute malnutrition. The DN will therefore need to be able to suggest relevant changes and improvements to foster an enabling environment for a community-based model.

- Organize a national workshop to:
  - Develop a strategy for capacity strengthening.
  - Strengthen information sharing and lessons learned.
  - Review the national CMAM guidelines.

  An international group of experts could assist the MOH/DN for a few months in preparing a national CMAM workshop to revise the national guidelines and promote lesson learning and information sharing. The workshop would provide the opportunity to strengthen coordination and collaboration and to discuss promising practices and challenges from field implementation.

- Use national consultation forums to ensure that all relevant policy and regulatory documents are updated to enable scale-up.

  Policies should include elements regarding drug prescription in community-based programs and the role of CHWs in delivering health interventions at the community level. They must stipulate that health district staff includes a nutritionist as an integral member of the team and must define roles of health care providers at the different levels of M-SAM implementation, from the community to the teaching hospital.

- Support the integration of CMAM into pre-service training to expand the base of health professional expertise in CMAM.

  National academic and teaching institutions interested in participating in CMAM training and research should be encouraged and receive support to:
  - Develop a capacity strengthening strategy for pre-service training.
  - Facilitate curriculum and training materials development.
  - Promote in-country operations research.

- Encourage the GOM to explore ways to gradually absorb the costs associated with CMAM activities and include them among costs covered either directly by the government or by partners using a Sector Wide Approach to Health.[9] Doing so would decrease dependency on humanitarian donors whose mandate favors shorter-term objectives. A solution to the inability to provide free drugs during treatment of SAM could be to identify a donor or perhaps untapped resources within the MOH to provide continuous funding replenishment on a monthly basis, as some NGOs are currently doing in the health districts they support. However, this also depends on finding sustainable, long-term funding for M-SAM. In the meantime, the DN should lead a coordination effort with UNICEF/Mali and

[9] A Sector Wide Approach brings together government, donors, and implementing partners under the leadership of the MOH in a more harmonized, integrated, and coordinated effort to support national health strategic plans. The main objectives of this approach are to raise quality and accessibility of health services and to improve the financial sustainability and management of the health system.

WFP/Mali to improve their collaboration and on the procedures for accessing UNICEF and WFP funds.

- Determine ways to connect M-SAM and M-MAM to food security, water and sanitation, and behavior change communication activities to prevent malnutrition.

- Place a heavy emphasis on disaster risk reduction in M-SAM programs, given Mali's frequent spikes in GAM rates to above concerning and emergency levels.

4.2 SPECIFIC RECOMMENDATIONS FOR DCHA/OFDA AND ITS IMPLEMENTING PARTNERS

- Although Mali suffers from crisis-level GAM rates, the underlying causes are mainly developmental and require development models with a long-term strategy to address them. Programs to manage acute malnutrition must therefore also follow a developmental model.

- Support the strengthening of sustainable CMAM capacities as a disaster risk reduction measure. CMAM should be viewed as a disaster risk reduction activity in countries such as Mali with an endemic crisis level of acute malnutrition. DCHA/OFDA should therefore build preparedness capacity by supporting the sustainability of CMAM services within national structures. DCHA/OFDA can do so by encouraging and providing funds to implementing partners to strengthen in-country technical expertise to develop CMAM competencies and ensure full integration within routine services to promote sustainability and national ownership. This would reduce dependency on external assistance and enable an early national-level response before acute malnutrition rates reach crisis levels.

Annex 1: Map of Mali Site Visits

Annex 2: Mali Schedule of Meetings and Site Visits

Date	Organization	Location	Purpose
November 18	USAID/Mali	Bamako	Meeting
November 19	UNICEF/Mali	Bamako	Meeting
November 20	Save the Children	Bamako	Meeting
November 20	Helen Keller International (HKI)	Bamako	Meeting
November 20	MOH/DN	Bamako	Meeting
November 20	Action contre la Faim (ACF)	Bamako	Meeting
November 23	Médecins Sans Frontières (MSF)	Koutiala	Site visits
November 24	MOH	Mopti CSREF	Meetings and site visit
November 24	MOH	Mopti CSCOM – Sevare II	Site visit
November 25	Actions de Promotion Humaine (APH)/Christian Aid	Bandiagara	Meetings and site visits
November 25	APH/Christian Aid	Bandiagara District - Kani Gogola CSCOM and Unité de Sante	Site visit
November 26	HKI/Fana	Fana CSREF Kerela CSCOM	Site visit
November 27	MOH	Bamako Hôpital Gabriel Touré	Site visit
November 27	MOH	Bamako CSCOM Boniaba	Site visit
November 27	World Vision	Bamako	Site visit
November 30	WFP/Mali	Bamako	Meeting
November 30	MOH	Bamako CSCOM Boniaba	Site visit
November 30	MOH	Missila Bamako CSREF Commune 2	Site visit
November 30	UNICEF	Bamako	Meeting
December 1	MOH/DN	Bamako	Meeting
December 2	Save the Children	Kolondieba	Site visits
December 3	INRSP	Bamako	Meeting
December 3	MOH	Bamako CSREF Commune 1	Site visit
December 3	Institut Polytechnique Rural	Bamako	Meeting
December 3	USAID/Assistance Technique National (ATN+)	Bamako	Meeting
December 3	USAID/Mali	Bamako	Meeting

Annex 3: Mali Contacts

Affiliation	Name	Position
Donors		
USAID	Bob de Wolfe	Deputy Team Leader/Child Health Advisor
USAID	Joanna Ward	Program Assistant, Economic Growth Team
USAID	Mariama Cire Bah	Health Officer
NGOs		
ACF	Gilbert Manyuku	Technical Coordinator for Nutrition and Health
ACF	Damien Mulenda	Nutrition Coordinator, Gao
ATN+	Fatimata Ouattara Toure	Nutrition and Child Survival Officer, USAID/ATN+
Christian Aid	David Sagara	Head of Mission
Christian Aid/APH	Dr. Marietta Monkoro	Health Coordinator (Nutritionist)
Christian Aid/APH	Yacoundia Guindo	Animator
HKI	Marjon Tuinsma	Country Director
HKI	Dr. Zoumana Berthe	Project Coordinator
HKI – Kerrela (Fana)	Yakuba	Nutrition Focal Point
HKI – Kerrela (Fana)	Osman	Nutrition Focal Point
MSF	Dr Rouafi Oummani	Coordinator
MSF	Cecile Briquet	Project Coordinator
MSF	Dr. Massing	Medical Coordinator
MSF	Fati Oumarou	Mobile Team Leader
Save the Children	Thomas McCormack	Country Director
Save the Children	Dr. Sidibé	
Save the Children – Kolondieba	Parfait M'mbakwa	Nutrition advisor
Save the Children – Kolondieba	Dr. Lazaro	Coordinator
Save the Children – Kolondieba	Dr. Koné Issaka	Monitoring Officer
World Vision	Sans San Dimanche	
United Nations		
UNICEF	Katrien Ghoos	Nutrition Manager
UNICEF	Geraldine	
WFP	Dr. Sidy Traoré	Head of Health and Nutrition Program
WFP	Mahamadou Tanimoure	Assistant Health and Nutrition Program

Affiliation	Name	Position
Ministry of Health		
National Nutrition Division	Dr. Hadja Raki Ba Samaké	Head of Nutrition Division
Koutiala Health District	Dr. Koumare	District Health Officer
Koutiala Health District	Dr. Felix Diarra	Nutrition Focal Point
Koutiala Health District, Zone Konseguela	Dr. Sikasso	CSCOM Health Officer
Mopti	Dr. Nagim Ouarou Diallo	District Health Officer, Mopti and in charge of Mopti CESREF
Mopti	Goly Dia	Nutrition Focal Point, Mopti Health District
Mopti Zone Sevare CSCOM Sevare II	Mme. Sidibe	Head of Nutrition
Mopti Zone Sevare CSCOM Sevare II	Dr. Bakari Traore	Medical Officer in Charge
Fana Health District	Dr Dao Oumar	District Health Officer
Fana Health District	Draman Yuosi (Drama Niyoussi)	Nutrition Focal Point
Fana Health District-Kerala CSCOM	Clasier Isaac Cissouma	Nurse in Charge
Boniaba - Bamako CSCOM	Dr. Cissouma	Medical Officer in Charge
Kolondieba Health District CSREF	Dr. Tji Keita	District Health Officer
Kolondieba Health District CSREF	Dr. Dolo	Medical Officer
Kolondieba Health District Kebila CSCOM	Dr Fuamba	Medical Officer in Charge
Commune 1 CSREF	Dr Habiba Traoré	Head of the Pediatric Unit and Nutrition focal point CSREF
Commune 2 CSREF	Dr Kéré Makan Démbélé	Nutrition focal point
Bamako (Missila) CSREF II	Dr. Sangare Adama Coulibaly	Medical Officer in Charge
Bamako (Missila) CSREF II	Dr. Karema Dembele	Nutrition Focal Point
National Research and Training Institutions		
INRSP	Professor Akory Ag Iknane	Head of the Nutrition Section
Institut Polytechnique Rural	Mouctar Coulibally	Lecturer, Consultant

Annex 4: CMAM Components and Integration Framework

Figure 1. CMAM and its components

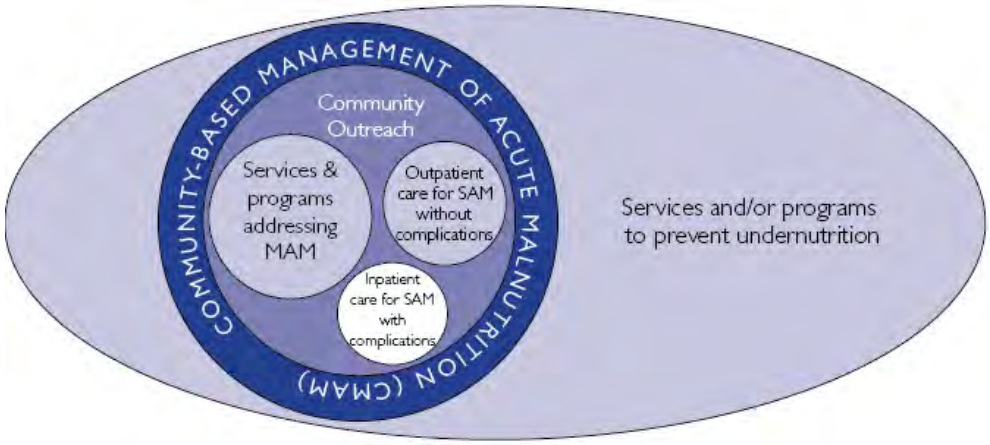

Figure 2. CMAM integration framework domains including enabling environment, competencies, access to services, access to supplies and quality or services.