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**Review of Community-Based
Management of Acute Malnutrition
Implementation in Mauritania**

March 7–18, 2010

Hedwig Deconinck
Serigne Diene
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November 2010



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Table of Contents

| | |
|--|-----------|
| Acronyms..... | i |
| 1. Introduction..... | 1 |
| 1.1 Objectives..... | 1 |
| 1.2 Methods..... | 1 |
| 1.3 Country Background..... | 2 |
| 2. Review Findings | 3 |
| 2.1 Environment for CMAM Enabling | 3 |
| 2.1.1 MOH Leadership for CMAM | 3 |
| 2.1.2 MOH Coordination..... | 4 |
| 2.1.3 CMAM Integration into National Health and Nutrition Policies and Strategic Plans..... | 4 |
| 2.1.4 Advocacy for CMAM..... | 5 |
| 2.1.5 National Guidelines for CMAM | 5 |
| 2.1.6 National Repository | 5 |
| 2.1.7 CMAM Technical Support Team | 6 |
| 2.1.8 Accountability for Health Care Providers..... | 6 |
| 2.1.9 Sustainability of Funding | 6 |
| 2.1.10 Free Treatment for Children with SAM..... | 7 |
| 2.2 Competencies for CMAM | 7 |
| 2.2.1 Pre-Service Training..... | 7 |
| 2.2.2 In-Service Training and Mentoring | 8 |
| 2.2.3 Learning Sites: Learning Visits and Internships | 10 |
| 2.2.4 Peer-Exchange of Information and Interactive Learning Forums..... | 10 |
| 2.2.5 Operational Research..... | 11 |
| 2.3 Access to CMAM Services | 11 |
| 2.3.1 Initial Implementation and Scale-Up of CMAM Services..... | 11 |
| 2.3.2 Community Outreach for Community Assessment and Mobilization, Active Case-Finding, and Referral | 12 |
| 2.3.3 Expanded Outpatient Care in Decentralized Health Facilities | 13 |
| 2.3.4 Inpatient Care in Health Facilities with 24-Hour Care Capacity | 13 |
| 2.3.5 M-MAM, the Referral System between M-MAM and M-SAM, and Prevention | 14 |
| 2.3.6 Referral System between Inpatient and Outpatient Care..... | 14 |
| 2.3.7 Qualified Health Care Providers..... | 15 |
| 2.3.8 CMAM Integration into Routine Health and Nutrition Services | 16 |
| 2.3.9 CMAM Linkages with Informal Health Systems: Traditional Healers and Birth Attendants..... | 16 |
| 2.3.10 CMAM Linkages with Other Community Services..... | 16 |
| 2.4 Access to CMAM Equipment and Supplies..... | 17 |
| 2.4.1 Procurement and Supply Management of CMAM Equipment and Supplies | 17 |
| 2.5 Quality of CMAM Services | 18 |
| 2.5.1 Adherence to Standardized Treatment Protocols | 18 |
| 2.5.2 Standardized Job Aids and Training Materials..... | 18 |
| 2.5.3 Support and Supervision | 18 |
| 2.5.4 Monitoring of Individual Care..... | 19 |
| 2.5.5 Monitoring and Reporting of Service Performance and Integration into the National Health Management Information System..... | 19 |
| 2.5.6 Evaluation of CMAM Services, including Coverage and Barriers to Access | 21 |
| 3. Conclusions | 23 |

| | |
|--|-----------|
| 4. Recommendations | 25 |
| 4.1 General Recommendations to Support the MOH/NS and Implementing Partners in CMAM | 25 |
| 4.2 Specific Recommendations for OFDA and Its Implementing Partners | 26 |
| Annex 1: Map of Mauritania Site Visits | 28 |
| Annex 2: Mauritania Schedule of Meetings and Site Visits | 29 |
| Annex 3: Mauritania Contacts | 32 |
| Annex 4: CMAM Components and Integration Framework | 35 |

Acronyms

| | |
|---------|---|
| CAC | centre d'alimentation communautaire (community feeding center) |
| CAP | consolidated appeals process |
| CBO | community-based organization |
| CERF | Central Emergency Response Fund |
| CHW | community health worker |
| CMAM | Community-Based Management of Acute Malnutrition |
| CNC | centre de nutrition communautaire (community feeding center) |
| CNDN | Conseil national de développement de la nutrition (National Council for Nutrition Development) |
| COGES | Comité de gestion (Health Management Committee) |
| CRENAM | Centre de réhabilitation et de l'éducation nutritionnelle pour la malnutrition aiguë modérée (nutrition rehabilitation center for MAM) |
| CRENAS | Centre de réhabilitation et de l'éducation nutritionnelle pour la malnutrition aiguë sévère (nutrition rehabilitation center for SAM outpatient care) |
| CRENI | Centre de réhabilitation et de l'éducation nutritionnelle intensif (nutrition rehabilitation center for SAM inpatient care) |
| CSA | Commissariat de sécurité alimentaire (Food Security Commission) |
| CSPS | centre de santé et de promotion sociale (health center) |
| DRASS | Direction régionale de l'action sanitaire et sociale (Regional Health Directorate) |
| ECHO | European Commission Humanitarian Office |
| FANTA-2 | Food and Nutrition Technical Assistance II Project |
| FAO | Food and Agriculture Organization |
| GAM | global acute malnutrition |
| GOMau | Government of Mauritania |
| IMCI | Integrated Management of Childhood Illness |
| IYCF | infant and young child feeding |
| MAED | Ministère des affaires économiques et du développement (Ministry of Economic Affairs and Development) |
| MAM | moderate acute malnutrition |
| MASEF | Ministère des affaires sociales, de l'enfance et de la famille (Ministry of Social, Child, and Family Affairs) |
| M-MAM | management of moderate acute malnutrition |
| MOH | Ministry of Health (Ministère de la santé et des affaires sociales) |
| NS | Nutrition Service (service de nutrition) |
| M-SAM | management of severe acute malnutrition |
| MUAC | mid-upper arm circumference |
| NGO | nongovernmental organization |
| OFDA | Office of U.S. Foreign Disaster Assistance |
| PADS | Programme d'appui au développement sanitaire (Health Development Support Program) |
| PNDN | Politique nationale de développement de la nutrition (National Policy for the Development of Nutrition) |
| REACH | Renewed Efforts Against Child Hunger |
| RUTF | ready-to-use therapeutic food |
| SAM | severe acute malnutrition |
| SBCC | social and behavior change communication |
| SFP | supplementary feeding program |
| SMART | Standardized Monitoring and Assessment of Relief and Transitions |
| SNIS | Système national d'information sanitaire (National Health Information System) |
| TOT | training of trainers |
| U.N. | United Nations |
| USAID | United States Agency for International Development |
| USB | Unité de santé de base (Basic Health Unit) |
| USN | Unité spécialisé de nutrition (Specialized Nutrition Unit) |

| | |
|-----|---------------------------|
| WFH | weight-for-height |
| WFP | World Food Programme |
| WHO | World Health Organization |

1. Introduction

The United States Agency for International Development (USAID) Office of U.S. Foreign Disaster Assistance (OFDA) requested Food and Nutrition Technical Assistance II Project (FANTA-2) assistance to review the state of Community-Based Management of Acute Malnutrition (CMAM) in four West African countries (Burkina Faso, Mali, Mauritania, and Niger) to help identify OFDA 2010 and 2011 program priorities, including those where OFDA investments should be directed to support CMAM. The goal was to review CMAM program implementation and its integration into national health systems to provide OFDA with a status report for each country; draw lessons learned; and make recommendations on challenges, best practices, gaps, and priority areas for OFDA support during 2010 and 2011. The review was intended to provide OFDA with information for its program planning processes and potentially as an advocacy tool to guide other donors in planning CMAM support in the region. After all four countries have been reviewed FANTA-2 will develop a synthesis report. This summary report will discuss the management of acute malnutrition, including CMAM, in Mauritania only.

1.1 OBJECTIVES

The review had the following objectives:

- a) Review the overall status of CMAM implementation in Burkina Faso and Mali, and if the political situation on the ground allows, Niger and Mauritania and provide a status report of CMAM efforts in each country
- b) Review the performance and effectiveness of CMAM programs. If sufficient data are unavailable, develop recommendations for strengthening monitoring and reporting systems
- c) Analyze the relevance of OFDA-funded activities and the extent they are contributing to viable national health systems
- d) Identify challenges, opportunities, gaps, best practices, and lessons learned in CMAM implementation in each country
- e) Make recommendations to OFDA on how to address challenges, pursue opportunities, and fill identified gaps, on best practices that should be incorporated into other programs, and on how to build on lessons learned in the region and globally

1.2 METHODS

An examination of existing nutrition policy and strategy papers, national protocols, and performance information from some selected programs was conducted to understand the CMAM program context, structure, and performance.

The FANTA-2 review team (Hedwig Deconinck, Senior CMAM and Emergency Nutrition Advisor, FANTA-2; Serigne Mbaye Diene, Senior HIV and Nutrition Advisor, FANTA-2; and Paluku Bahwere, Community-Based Therapeutic Care Advisor, Valid International) visited Mauritania from March 7 to March 18, 2010. During the visit, the team reviewed CMAM implementation at the national, subnational, and district levels, with the aim of documenting how CMAM implementation was taking place 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 of 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 to scale up CMAM programs.

The review team conducted site visits for observation and held meetings and interviews at the national, subnational, and district levels with representatives from the *Ministère de la santé et des affaires sociales* (Ministry of Health [MOH]), UNICEF, the World Food Programme (WFP), USAID, nongovernmental organizations (NGOs), and national training institutions.

The review team visited CMAM program sites of the two NGOs that were conducting CMAM programs in Mauritania. Sites were selected based on convenience and were prioritized based on the scheduling of

weekly activities so that team members could observe service provision. The team matched these observation visits with visits to implementing partner and/or MOH offices and health centers in the same catchment areas. The team also visited a number of MOH sites not receiving external support. At the community level, health facilities with inpatient care and outpatient care sites, and supplementary feeding program 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 prepared and adapted for different informants. Interview questions followed themes taken from the CMAM analytical framework, developed by FANTA (FANTA-2's predecessor program) during a 2007 three-country review of CMAM integration. The CMAM analytical framework includes five categories that are critical to successful CMAM implementation:

- The enabling environment for CMAM
- Competencies for CMAM
- Access to CMAM services
- Access to CMAM supplies
- Quality of CMAM services

CMAM is the approach that includes the management of severe acute malnutrition (M-SAM) in outpatient care (for children 6-59 months with severe acute malnutrition (SAM) without medical complications), M-SAM in inpatient care (for children 6-59 months with SAM and medical complications and children under 6 months of age with acute malnutrition), the management of moderate acute malnutrition (M-MAM) (for children 6-59 months with moderate acute malnutrition (MAM)), and community outreach for community involvement and early detection and referral of cases of acute malnutrition. The review team feels that it is important to point out that the term "CMAM" is not always possible to be used correctly in the Mauritanian context, because M-SAM and M-MAM are very separate concepts and because community outreach for early case detection, referral, and follow-up, is not always supported as integral part of M-SAM or M-MAM. Moreover M-SAM in Mauritania mostly refers to M-SAM in outpatient care, as very few inpatient care sites exist. This report uses therefore "CMAM", "M-SAM" in inpatient care, "M-SAM" in outpatient care and "M-MAM" according to their specific definitions.

1.3 COUNTRY BACKGROUND

Like the rest of the Sahel, Mauritania has a high GAM prevalence rate due to the complex causes and structural factors typically associated with this public health problem. Nationwide, 11.9 percent of children under 5 years old are acutely malnourished, with several regions above the WHO crisis threshold of 15 percent. With its arid environment, agricultural production is challenging, leaving Mauritania in a permanent food deficit, with diets that lack diversity. Ranked 154 in the list of 182 countries in the Human Development Index, Mauritania has widespread poverty. Access to basic services, such as primary health care, sanitation, and clean water, is limited. Literacy rates are low; only 48.3 percent of women are able to read.¹ Infant and young child feeding (IYCF) and care are inadequate. Only 11.4 percent of infants under 5 months old are exclusively breastfed and a mere 12.3 percent of children 6–11 months old receive the recommended complementary feeding. By 12 months, only 23 percent of children have received the full package of recommended vaccinations. The communicable diseases most associated with malnutrition—diarrhea, acute respiratory infections, and malaria—are common, while only a small percentage of caregivers seek adequate health care for their children.²

¹ UNDP 2009, <http://hdr.undp.org/en/statistics/>.

² UNICEF MICS, 2007, http://www.childinfo.org/mics3_surveys.html.

2. Review Findings

2.1 ENVIRONMENT FOR CMAM ENABLING

2.1.1 MOH Leadership for CMAM

Nutrition has become a priority for the Government of Mauritania's (GOMau), starting with the adoption of the *Politique nationale de développement de la nutrition* (PNDN) (National Policy for the Development of Nutrition) 2006–2015, which has been in place since 2006, along with a National Action Plan for Nutrition. The strong political will and support for nutrition was recently demonstrated with the official launch of the *Conseil national de développement de la nutrition* (CNDN) (National Council for Nutrition Development) and the National Technical Coordinating Group, which is responsible for the overall coordination of nutrition in Mauritania. The CNDN is an intersectoral body composed of 11 ministries that oversees the planning and coordination of the PNDN. The Prime Minister's Advisor for Social Affairs has been tasked with coordinating nutrition activities, and a regional steering committee is also planned. Alongside the PNDN, the GOMau adopted a National Strategy for IYCF (2007–2015); a Behavioral Change Communication (BCC) Strategy (2009–2015); and an Integrated Management of Childhood Illness (IMCI) approach, whose nutrition component has not yet been implemented.

The impetus for this major development in nutrition policy and coordination was the launching of the Renewed Efforts Against Child Hunger (REACH) Initiative, a global initiative that seeks to establish a multisectoral framework bringing government officials, United Nations (U.N.) agencies, and NGOs together to coordinate nutrition- and food security-related activities, including CMAM, to identify gaps, and to form joint strategies to fill those gaps. The initiative has been piloted in Mauritania for about 2 years.³ Mauritania was selected for the pilot due to declines in past progress toward reducing child malnutrition and the current high rates of acute malnutrition and food insecurity. The REACH analysis of the nutrition and food security situation led to a consensus between the GOMau and its partners to scale up nutrition interventions. Thanks to REACH, nutrition and food security coordination in the capital of Nouakchott has improved and government attention to nutrition has increased. Three years of funding was secured to implement and scale up this initiative in two regions.

In addition to the CNDN described above, nutrition is housed in several key ministries, including the *Ministère des affaires sociales, de l'enfance et de la famille* (MASEF) (Ministry of Social, Child, and Family Affairs), where the nutrition component of the World Bank-funded project to assist health and nutrition is also hosted. The *Commissariat de la sécurité alimentaire* (CSA) (Food Security Commission) also has a nutrition directorate; and the Ministry of Education has a directorate for health education and nutrition.

Within the MOH, the *unité de nutrition* (nutrition service) (MOH/NS) falls under the Directorate of Basic Health Services, one of six directorates in the MOH. Since a medical doctor trained in nutrition began heading the MOH Nutrition Office 4 years ago, its leading technical role in nutrition has received a significant boost. The MOH leadership for CMAM stems from one of the four specific action plans or strategic axes implemented under the PNDN: Nutrition in Health Services. (The other three axes are Food Security and Nutrition, Community-Based and Young Child Programs, and School-Based Nutrition.) The MOH's technical leadership for CMAM implementation is well accepted by all stakeholders, but has been hampered by the noncentralized nature of nutrition activities across ministries. The MOH technical leadership also suffers from its limited human and material resources. UNICEF is strongly backing and technically supporting the head of the MOH/NS, but is not in a position to provide overarching nutrition support beyond the MOH.

³ United Nations, "Scaling up the fight against child hunger and malnutrition in south-east Mauritania," accessed at <http://sdnhq.undp.org/opas/en/proposals/suitable/1825>.

2.1.2 MOH Coordination

The MOH's coordinating role in CMAM was strengthened during the CMAM protocol adaption process in 2007, with technical and financial support from UNICEF. The MOH/NS set up a national training team, for the rollout of CMAM activities nationwide. The Nutrition Focal Points in the *Directions régionales de l'action sanitaire et sociale* (DRASS) (Regional Health Directorates) played a similar role at the regional levels.

CMAM implementation has not been harmonized in the field, because its components are scattered around different ministries. On the one hand, the CSA is technically responsible for the community screening and the M-MAM in the *centres d'alimentation communautaire* (CACs) (community feeding centers) and the *centres de réhabilitation et de l'éducation nutritionnelle pour la malnutrition aiguë modérée* (CRENAMs) (nutrition rehabilitation centers for MAM). WFP provides support to the CSA for supplying supplemental food rations (dry rations) in 9 of 13 regions, and the Italian government provides support in the remaining 4 (northern) regions. On the other hand, the MOH is in charge of the M-SAM, including *centres de réhabilitation et de l'éducation nutritionnelle pour la malnutrition aiguë sévère* (CRENASs) (nutrition rehabilitation centers for SAM outpatient care), and *centres de réhabilitation et de l'éducation nutritionnelle intensif* (CRENIs) (nutrition rehabilitation centers for SAM inpatient care). Community outreach for CMAM is divided between the CSA-run CAC and CRENAM sites and the MOH-run CRENAS and CRENI sites. Despite the significant progress in coordination efforts at the central level through the REACH platform, the CMAM rollout has been ineffective because of the lack of coordination among actors at the field implementation level. At the time of the review team's visit, a plan to address this major flaw was being considered at the central level.

At the regional level, the MOH coordination role is more efficient in many regions, in particular where NGO support is effective. For example, some regions (*wilayas*) have coordinating cells that include government, U.N., and NGO partners. These cells organize monthly meetings to share information and experience in CMAM implementation, among other issues.

2.1.3 CMAM Integration into National Health and Nutrition Policies and Strategic Plans

The integration of M-SAM into the newly defined *paquet minimum d'activités* (minimum health activity packet) is the main avenue through which CMAM integration into national health and nutrition policies is taking form. As described in Section 2.1.2, activities that fall under the MOH mandate include the CRENI and the CRENAS, which are being effectively integrated into mainstream MOH operational plans. Incorporation of M-SAM has also had some positive effect in the health sector because almost all health service providers have been extensively trained, using the national protocol as a reference document. As a result, a large proportion of the 542 health facilities in theory could routinely screen for SAM and could treat most SAM cases on an outpatient basis, with the rest seen on an inpatient basis. However, estimated coverage of M-SAM is below 50 percent (that is, less than 4,000 of 8,000 annual SAM cases). Integration of M-MAM is unclear because it is not part of the MOH's mandate.

The process of integrating M-SAM faces major challenges, including the following.

- There is insufficient technical and operational capacity for adequate service quality to treat SAM with medical complications in health centers with CRENI.
- Because of the nonfunctioning community outreach system, caseloads are low. Unless there is extensive NGO support, active case-finding is not happening at the community level. With UNICEF support, consultants and mobile teams were provided to four at-risk regions in an attempt to overcome this challenge. The twice-yearly vitamin A supplementation campaign is also being used as an opportunity to screen for SAM and MAM cases.
- Drugs for the systematic treatment of medical complications in SAM cases are not accessible free of charge on a consistent basis throughout the country. One of the partners in charge of providing these drugs did not follow through.
- There is only a weak network of community health workers (CHWs). Nevertheless, this network could be linked effectively with the health sector, as it seems to have been in the past. The review

team heard of a plan to revive the former *unités de santé de base* (USB) (basic health units) (in 5 regions and 53 districts with support from UNICEF and other partners in the context of the New Child Survival strategy planned by MOH and its partners. Two NGOs are already using the comprehensive CMAM approach in their catchment areas, linking M-SAM and M-MAM and community outreach.

Screening for acute malnutrition and the M-SAM is also being integrated into the *Système national d'information sanitaire* (SNIS) (National Health Information System) and pre-service training. With UNICEF support, a deliberate effort is being made to strengthen the SNIS and to include CMAM indicators in it. Acute malnutrition data are recorded in health post monthly reports and transmitted on a regular basis to the regional level, where they are integrated into a computerized system. In addition, twice-yearly Standardized Monitoring and Assessment of Relief and Transitions (SMART) surveys, stratified by region, are conducted to better understand and monitor the food and nutrition situation.

M-SAM is also about to become an integral part of an important initiative to integrate nutrition into the pre-service curriculum of medical and paramedical schools (in Nouakchott and Kifa) and the School of Sciences and the Master of Public Health program (in Nouakchott). Preliminary assessment work has been completed, and implementation is expected to begin soon.

2.1.4 Advocacy for CMAM

Even though specific advocacy plans and activities are not in place, the CMAM approach has great potential to benefit from the REACH Initiative for advocacy and support once institutional hurdles and coordination problems are resolved. It would be helpful for the MOH and its partners, including UNICEF, to use the Gorgol region case study planned for REACH activities to develop and implement a bold advocacy strategy for CMAM. Recent partner evaluation and review efforts (including this one) have provided more visibility for CMAM and could contribute to renewed interest and support for CMAM. The high visibility and strong support for nutrition by policy makers could also serve as a basis for increased attention and additional support for implementation of CMAM.

2.1.5 National Guidelines for CMAM

In 2000, the MOH, in collaboration with international experts, developed the first national SAM treatment protocol, based on the World Health Organization (WHO) 1999 protocol. In 2006, a new national protocol on M-SAM was proposed, updating the technical contents. It also became a reference document for training. The 2006 protocol, proposed by an international expert and a small team of international technical facilitators, allowed the MOH and its partners (e.g., UNICEF, WHO, WFP) to quickly design and implement a comprehensive training plan, secure supplies and equipment, and put in place supervision and monitoring systems. As a result, almost all targeted health care providers have been trained using these protocols within a very short time.

In 2007, the national protocol for CMAM (national protocol) was revised, including an effort to harmonize and standardize concepts of where, when, and how to treat different types of acute malnutrition. The national protocol stresses the importance of community mobilization, early and massive community screening for acute malnutrition, the need for contingency planning for emergency situations, and coordination and partnership. After 3 years of implementation, officials recognize that the national protocol needs to be revised and updated to better reflect the CMAM approach and to adapt it to the socio-demographic (nomadic and disperse) epidemiologic context of Mauritania and to improve the quality and coverage of CMAM services.

2.1.6 National Repository

The GOMau, with strong support from its partners, has made a deliberate effort to strengthen the SNIS and the integration of data collected from CMAM services. New software, along with necessary associated tools, has been made available to the SNIS at both the central and regional levels.

The central-level SNIS has already transferred the responsibility of storing data collected to regional SNIS teams and is in the process of further decentralizing the system by having data repositories at the district level, starting with Nouakchott district, where all district-level data will be stored. Staff at the regional level has started to use the new software, which is allowing them to perform their own preliminary analysis of the data collected. This analysis shows disparities in data collection coverage, reflecting the inconsistencies in the current CMAM data reporting system. In spite of encouraging developments in the area of information systems, a number of issues need to be resolved relating to the promptness, correctness, and completeness of the CMAM data collected.

2.1.7 CMAM Technical Support Team

So far there is no specific CMAM technical support system in place that consolidates technical expertise to improve the quality of services for the management of SAM and MAM. A technical team of trainers and supervisors was set up in the initial phase of CMAM implementation, and includes the head of the MOH/NS, the head pediatrician from the National Hospital in Nouakchott, national and regional MOH representatives, and others.

2.1.8 Accountability for Health Care Providers

The MOH/NS consists of five senior technical nutrition staff members, but their positions are not defined and their job descriptions are not developed, so it is difficult to evaluate performance. The reasons for staying in the job vary, including using the position as a springboard into a political career.

The national protocol defines in general terms different roles health and community agents should play in CMAM implementation, but does not set forth a specific set of roles and responsibilities (job descriptions) for agents at each level of the health system. As a result, health professionals do not show a great sense of accountability.

The review team came across one extreme case, where a pediatrician had to send an ambulance to pick up a nutritionist to deal with a new SAM admission, basically because he lacked the expertise and/or motivation to deal with the case. Partner NGOs have introduced some financial compensation schemes in their catchment areas through which they provide financial and material incentives to GOMau agents to motivate them. But besides these few instances of partner involvement that provide motivation, health professionals do not show great enthusiasm for implementing CMAM. The program is managed top-down and implemented vertically, without having it well integrated in ongoing routine health services, which exacerbates the situation. Because of this, health care providers consider the M-SAM program an additional burden rather than part of their routine duties and tend to feel they need financial compensation for this additional burden.

Motivation is a major issue and significant discrepancies exist among current motivation systems. To increase motivation, some NGOs are topping up salaries of health care providers and community outreach workers. Others provide transportation for supervision and community outreach or other in-kind incentives (e.g., t-shirt and cap, food).

2.1.9 Sustainability of Funding

There is relatively strong donor interest for regional nutrition projects and emergency response from the World Bank; the European Union, including its European Commission Humanitarian Office (ECHO); OFDA; Spanish Development Aid; and the United Kingdom's Department for International Development. A significant amount of financial resources was recently mobilized to support food security and nutrition programs in the REACH context, including US\$7 million from the Government of Spain. CMAM activities have been supported mostly by ECHO and OFDA. However, the question of what will happen when this external support ends remains unanswered. It is not clear to the review team what the GOMau strategy is to ensure adequate nutrition funding, now or in the future. In 2008, only 40 percent of funding needs for nutrition were covered by donors and the GOMau.

The yearly U.N. consolidated appeals process (CAP) and Central Emergency Response Fund (CERF), funded by government donors such as those mentioned above, cover the increased needs during the 3-month lean season. CERF funds were granted in 2007, 2008, and 2009 for five regions, giving the U.N. partners (WHO, UNICEF, WFP, the Food and Agriculture Organization [FAO]) the opportunity to strengthen their support to the GoMau for nutrition, including CMAM. A strong and well-established UNICEF nutrition office is key in supporting the MOH and nutrition partners for M-SAM, while a much weaker WFP nutrition office supports CSA and national and international nutrition partners for M-MAM activities. WHO is virtually absent in nutrition.

The CERF aims to beef up the regular CAP funding to strengthen the country's medical and nutrition needs during the lean season only. CERF funds during the 2007–2009 time frame covered supplies for the management of acute malnutrition during the lean season. Some extra funding from the U.N. Population Fund was recently received for nutrition activities, but it was not clear if CMAM was included.

2.1.10 Free Treatment for Children with SAM

Free treatment for SAM cases is dependent on the availability of drugs provided by partners. Otherwise, the Bamako Initiative cost recovery system is in effect, and family members have to bear the cost of treatment. Frequently, they cannot afford it. Most often, only the ready-to-use therapeutic food (RUTF) is available to patients for free. This has become a serious issue in non-NGO-supported districts, where drugs that WHO should have contributed (along with others) were not available. Some health professionals were obliged to devise ways to overcome this situation through their own means.

2.2 COMPETENCIES FOR CMAM

The March 2007 national training in M-SAM for health managers and health care providers was the turning point for M-SAM in Mauritania. Prior to 2007, few sites were implementing M-SAM with NGO support; therefore, it was difficult to develop M-SAM competencies. Because of the central location of the *Unité spécialisée de nutrition* (USN) (Specialized Nutrition Unit) in the Nouakchott teaching hospital and its link with the medical and nursing schools, there was some knowledge and skill transfer, but no expansion of M-SAM to other sites within the national health system. No CMAM sites existed and no health care providers in-country had CMAM experience.

In 2007, international SAM experts provided initial orientation training. These training sessions were then repeated, with the initial trainees put in charge of training subsequent groups of health care providers. These training sessions were further complemented by other experts who provided short, ad hoc in-service training and mentoring.

One NGO was able to provide continuous training on CMAM because it had an internationally experienced CMAM trainer. This NGO also organized an international learning visit to a neighboring country for their supervisors prior to putting them in charge of M-SAM in Mauritania.

The lack of national expertise in M-SAM prompted the MOH, with support from UNICEF, to bring in short-term consultants to develop capacity and to improve quality of care after the training-of-trainer (TOT) and subsequent trainings. For example, UNICEF, with OFDA funding, provided two consultants for 5 months to strengthen competences in four regions.

2.2.1 Pre-Service Training

Nutrition in general, and M-SAM specifically, is not covered well in the health professions' training curriculum. Limited, 4-hour theoretic lessons on M-SAM were provided during the 3-year education of nurses and midwives. No practical training on M-SAM is offered during the pre-service training, except for those that rotate through the pediatric unit and hence the USN in the capital. In an effort to rectify this situation, curriculum review plans are in place and, as a first step, a situation analysis of nutrition education for health care providers was recently completed.

The situation analysis revealed that the current nutrition courses do not cover M-SAM and that the teachers themselves were insufficiently trained in M-SAM. Moreover, the recently graduated nurses did not recognize malnutrition as an important public health problem. However, the teachers had recognized the gaps and were keen to embark on integrating M-SAM into the training curriculum for nurses and medical doctors. The situation analysis on the health and nutrition education identified other important gaps in pre-service training, such as the need for IMCI. To start to address this gap, one NGO was conducting training in one region on IMCI for newly graduated nurses who are appointed in the region.

A working group has been established, including the MOH/NS, UNICEF, the university and nursing schools, and a national consultant, to guide the process of reforming curricula and training modules development. The working group includes all principal national stakeholders. Unfortunately, there is no indication of there being a plan in place to consult West African regional or international experts to learn from other country's lessons and further build upon and strengthen ongoing similar activities. There is also no defined plan relating to:

- Using existing generic training modules to develop modules for Mauritania
- Field testing new modules prior to adaptation
- Conceptualizing the training format and strategy, e.g., considering the participation of experienced health care providers as mentors in the training of nurses and doctors

There is a plan to include a nutrition component in the formal training of 1,000 CHWs who will start work soon, with funding from UNICEF. However, controversy remains on the final curriculum for the CHW training. The MOH and UNICEF have opted for a 6-week course, while most health professionals advocate for a 6-month course. It was not clear if community screening/early identification and referral for M-SAM and which aspects of IYCF would be covered in the CHW training.

2.2.2 In-Service Training and Mentoring

Numerous in-service training sessions on M-SAM have been provided since 2007. Following the first MOH/UNICEF-facilitated 6-day orientation training, a series of trainings was organized, starting with an interregional TOT and followed by training of health care providers. The training content and the method of the initial training, targeting mostly senior clinicians and scientists, restricted the training to a transfer of highly specialized knowledge on M-SAM, focusing on the patho-physiology of SAM and the treatment of medical complications, and reinforced neither treatment skills nor training skills.

The TOT approach allowed for the training of many health care providers within a few weeks at a reasonable cost (compared to the longer-term use of experienced external consultants) and increased ownership of the training process. However, skepticism was expressed about its effectiveness, first, because the initial training was an orientation, not a comprehensive training on CMAM or a TOT, and second, because the high number of post-TOT training stages (3–4) caused a dilution of the original training contents, when the first set of trainees received their training. Some national trainers and supervisors confirmed the ineffective performance of the training recipients and questioned the training strategy and quality. Health care providers also highlighted the limitations and quality of the training, and expressed the need of intensive follow-up and refresher training thereafter.

While the effectiveness of the TOT training approach has not yet been evaluated, health care providers from NGO-supported sites emphasized the importance of the continuous support, supervision, and mentoring that they received from the NGO partners. They also strongly stated that, in the absence of NGO support, it would have been difficult to correctly apply the national protocol. Unfortunately, the reality is the vast majority of health districts (53 of 63) do not benefit from NGO support.

To address the need for follow-up training, the MOH has a plan to organize a new cycle of trainings for new nurses and staff members of at least three *centres de santé et de promotion sociale* (CSPS) (health centers) in 2010, with financial support from the *Programme d'appui au développement sanitaire* (PADS) (Health Development Support Program), UNICEF, and NGOs. Organizing additional training for health care providers who did not attend the DRAS- or NGO-organized training is difficult, as there is a general reluctance to attend training without the prospect of receiving a per diem, which the GMau is unable to

cover. Regrettably, health care providers who previously received training will not be eligible to participate.

Health care providers reported that the 3-day initial training was too short because, for most of them, this was their first course on M-SAM. They also mentioned that mixing doctors, nurses, and nutrition assistants in the same training sessions was a barrier to learning new knowledge and skills. Experienced staff identified and expressed the need for continuous mentoring and supportive supervision for quality improvement to reinforce the initial training. Unfortunately, most of the current nutrition focal points who supervise M-SAM have limited CMAM practical experience themselves. They can share knowledge, but have limited capacity in problem solving and usually lack clinical skills.

There was interregional variation in duration and content of the M-SAM training offered by the DRAS because the trainers did not use standardized training modules or materials and they had received no training on how to train.

Nevertheless, coverage of this superficial training was excellent in the areas covered by the review visit. All health care providers in the health facilities with CRENAS that the team visited were trained in the national protocol for M-SAM and had received at least one training by the MOH team. In NGO-supported health facilities, MOH staff had received at least one refresher training from the NGO in addition to the initial MOH training, and had benefitted from continuous mentoring and supportive supervision. In one of the programs visited, the NGO was the care provider. Overall, the nutrition partners were very involved in on-the-job training and continuous daily mentoring in their area of operation and were open to sharing these experiences with others.

The difference in type of training and continuous support (i.e., MOH-only or additional NGO support) translated into differences in quality of care related to adherence to the national protocol in such areas as admission and discharge criteria and medical treatment protocols and procedures. The review team found that difficulties in adhering to the protocols were most apparent in the decentralized health facilities running CRENAS, as the MOH training focused mostly on M-SAM provided at the CRENI level.

The two nursing schools the review team visited expressed interest in participating in or including CMAM practical in-service training in their curriculum.⁴ One proposal was to organize extracurricular courses on school premises. School officials felt that this approach may improve the effectiveness of the training by changing the perception of participants and hence creating a demand. Some believed participation in a training session is mostly motivated by the desire for earning a per diem. They assumed that the focus may shift to the desire for increasing knowledge and skills if the training is provided on the nursing or medical school premises. A second proposal was to include teachers from the nursing schools in the team of national and regional trainers. This was actually already done for the IMCI and Reproductive Health extracurricular training courses and/or in-service training.

Training quality has also had an impact on the quality of management of SAM cases. Health care providers mentioned that the training did not give a clear message on the use of mid-upper arm circumference (MUAC). They were told that MUAC can only be used for screening in the community. However, the national protocol uses MUAC as an independent criterion for diagnosis of acute malnutrition. This misinformation causes treatment to be denied to children with a weight-for-height (WFH) above 70 percent but with a MUAC below 110mm. In some of the regions visited, the use of the Nabarro thinness chart was also recommended during the training as an alternative to the use of the WFH look-up tables. The use of the Nabarro thinness chart, which does not require exact measurement

⁴ Guidance note on training strategies for CMAM: Pre-service training is part of a curriculum, provided during the training for a health profession. Training can be theory-based (knowledge) and practical (skills). It can take place in a classroom and/or in a ward. Extracurricular training courses (e.g., summer courses) are organized as extra training sessions (usually private and for payment). In-service training is defined as training provided to health care providers while on duty. Training can be theory-based and in the classroom, practical and on-the-job, and/or provided through continuous mentoring. Refresher training is in-service training when provided in addition to an initial training. When introducing new services, both knowledge and skills need to be strengthened through theoretical and practical, on-the-job training sessions. A system of continuous support and access to new knowledge also needs to be established for continuous quality improvement.

of height, is regarded as a way of simplifying the diagnostic process. In addition to the well-known readings errors associated with the chart, confusion on the meaning of the different colors in the chart can lead to nutrition status misclassification.

In NGO-covered areas, NGOs, CHWs, and/or volunteers have been trained in the use of MUAC for screening of acute malnutrition and for referral to the CRENAM and the CRENAS/CRENI. The CHW training also covered how to fill out the CRENAM register. When NGOs were involved, the CHWs were also trained in social and behavior change communication (SBCC). The review team found that the trained CHWs were very capable of identifying and classifying children with acute malnutrition based on MUAC and identifying conditions that required referral for treatment.

Some health care providers were critical of selecting illiterate people as CHWs and of the need to have consistency between the depth of training and the tasks they perform. Specifically, they expressed concern related to illiterate CHWs who were trained for a few days and then asked to run services requiring different skill sets that may be too complicated for people with little or no formal education.

2.2.3 Learning Sites: Learning Visits and Internships

There has been an attempt to establish learning sites, but this has not yet been formalized and at the time of the visits no site was ready for this purpose. However, the USN in Nouakchott and some regional NGO-supported CRENI had the potential to provide learning opportunities in a quality service environment. Some of these sites already received learning visits from health care staff from other health facilities (e.g., the Nouakchott USN and the Kaedi CRENI), but did not have all the elements of community outreach, inpatient care, outpatient care, and M-MAM in place to fully qualify as CMAM learning sites. However, if they were linked with the missing components they could qualify.

In the past, the NGO-supported CRENI in Guidimakha must have been a unit with high levels of expertise, treating more than 650 children with SAM. Total numbers treated in the CRENI slipped to 37 in 2008. However, since a new NGO started supporting the CRENI, the number has risen to 111 children with SAM treated in 2009. The major problem is the significant lack of clinical staff. Currently, the only remaining staff member is a highly skilled nutritionist who is the only national clinical SAM specialist in the region. Her skills were developed over the years with intensive NGO support.

There is a plan to establish learning sites that could serve as in-service refresher training and pre-service practical training for the nursing and medical schools in Nouakchott and Kifa. There was no indication if certain criteria for learning site selection would be developed, e.g., access for/to training institutions, availability of qualified mentors, bed capacity of the inpatient care site, priority area with high prevalence of acute malnutrition, and quality of the community outreach component.

There was no immediate plan to organize international learning visits or internships for the national health and nutrition trainers and managers. Prior to the launch of M-SAM, one NGO organized international visits for its own staff.

2.2.4 Peer-Exchange of Information and Interactive Learning Forums

Opportunities for sharing expertise and experience among partners have been underutilized. Some regions have started to hold regular health or multisectoral coordination meetings. The current coordination meetings proved to be great opportunities to bring partners together and discuss activities, but these meetings were not yet being used for strengthening knowledge or exchanging experience and lessons. The REACH platform is supposed to be replicated at the regional level and could provide a formal structure for multisectoral coordination for nutrition; however, this has not yet happened.

Most health managers, health care providers, and nutrition focal points have limited to no access to CMAM-related information and publications that could help them learn about new developments, problem solving, or lessons learned from other countries. An illustration of this is that some key implementers were unaware of the international guidance on the use of MUAC (i.e., WHO/UNICEF 2009 Joint Statement),

informative websites, interactive discussion groups, or journals (e.g., Field Exchange) that offer a wide range of technical support to CMAM field implementers (regardless of the dominance of the English language).

2.2.5 Operational Research

There was no ongoing research on M-SAM at the time of the review visit. Apart from the USN, no site seemed to be collecting data on M-SAM with the objective of evaluating performance and sharing lessons learned with the national and international nutrition community. As a consequence, it was difficult to accurately list and quantify the problems experienced with M-SAM implementation.

Some experiments in further decentralizing M-SAM had been conducted, but they were not sufficiently documented. This was a lost opportunity; even brief experience could have informed future research. Also, with good documentation, it would have been possible to explore the impact of prescribing routine antibiotics on use and outcomes, as most sites did not have access to free antibiotics.

Plans for operational research that were cited included:

- Assessing the impact of blanket feeding with Plumpy'doz[®] during the lean season for children between 12 and 35 months in areas with high food insecurity
- Assessing the possible impact on caseload in transitioning from the National Center for Health Statistics reference to the WHO child growth standards
- Assessing the predictive value of anemia at admission for mortality

Some questions that warrant further research or could be addressed with the current practices include:

- Use of Positive Deviance/Hearth as an alternative to supplementary feeding programs
- Innovative approaches for treating children with SAM in nomadic communities
- Evaluation of service performance and effectiveness using the day-care approach
- Impact of a 6-month blanket supplementary feeding program with Plumpy'doz[®] on stunting
- Impact on coverage of M-SAM of routine screening every 2 months or quarterly for acute malnutrition of all children

2.3 ACCESS TO CMAM SERVICES

2.3.1 Initial Implementation and Scale-Up of CMAM Services

The national teaching hospital in Nouakchott was the only site involved in the case management of SAM from the 1980s onwards. It received occasional support from nutrition partners for hospital-based M-SAM. Prior to the 2007 country-wide training on M-SAM, only two M-SAM units were functional. One was the USN in the Nouakchott National Hospital, which officially opened in 2001. The other was the Selibaby therapeutic feeding unit that opened in 2004. Both received sporadic NGO support.

This situation for M-SAM changed swiftly in 2007 with the nationwide TOT training of health managers and health care providers and the supply of therapeutic foods and routine drugs for M-SAM. The GoMau, with UNICEF support, led the national nutrition response that replicated the strategy and approach from the Niger 2005 emergency response. It included a replication of capacity development strategy and tools used, without giving much attention to the differing political, geographical, cultural, and epidemiological contexts of the country.

Effective MOH and UNICEF support for M-SAM started in earnest during the summer of 2008. While there were only 10 CRENAS/CRENAM in 2007, another 300 were added by August 2009.

The objective of the capacity development and integration strategy for M-SAM was to enable all health managers and health care providers in all health facilities in the country to implement M-SAM as quickly as possible. This top-down strategy of imposing M-SAM onto the health system resulted in weak motivation among health care providers, all the more so because of the small numbers of SAM cases

treated per health facility. The need for the service is not recognized and a driving force was missing; thus, it became difficult to remain motivated and keep up the quality of care. Moreover, during the early stage of implementation and scale-up, services were not provided, as the skills for M-SAM were not yet acquired. Supplies were therefore underused and/or misused. A gradual improvement in M-SAM implementation took place in areas with additional NGO support. Areas without NGO support still provide low-quality services or no services at all. This strategy was opposite to the proven good practice of a phased integration and start-up through creating learning sites and consolidating learning and quality before scale-up. While M-SAM is CSA-run, the strategy for implementation and scale-up is different.

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

Mauritania is missing a national community outreach strategy for acute malnutrition. Instead, the MOH (with M-SAM partners) and the MASEF and CSA (with M-MAM partners) have varied, fragmented community outreach initiatives in place. As a result, the overall CMAM approach is plagued by ineffective and insufficient active case-finding in the community. Some examples of community outreach strategies are:

- **MOH:** includes active case-finding of SAM during biannual child survival weeks as its only community screening initiative, identifying children with SAM based on MUAC <110mm and referring children with MAM. It was not clear if presence of oedema well integrated in community screening systems. This is the only initiative where the MOH is involved in community outreach.
- **MASEF:** the GOMau ministry in charge of community outreach and initiatives, involving community-based organizations (CBOs) with CSA/WFP support for active case-finding for MAM and organizing M-MAM, identifying children with MAM based on MUAC ≥ 110 mm and < 125 mm and referring children with SAM.
- **NGOs:** have a parallel community outreach system or rely on existing CHWs, using different motivation modalities and usually effective in linking M-MAM and M-SAM.

Because of the different organizing bodies responsible for M-SAM and M-MAM, the two systems of community screening are not successfully linking with each other.

Two types of outreach workers conduct community visits: 1) CHW if they are MOH staff and *animateurs* if they are NGO staff, and 2) volunteers known as *relais communautaires*. The former are from the existing GOMau system, and the latter are volunteers who have a formal position either in the NGO (NGO-appointed in collaboration with the community and receiving minor incentives) or in the *Comité de gestion* (COGES) (Health Management Committee). In the best-case scenario, they receive a small contribution from the cost recovery system or some kind of informal motivation, such as increased respect, higher chances for promotion, access to training, or increased community support.

The lowest level of the health system is the USB, Health care providers at the USB supervise the CHW that are involved in community outreach. The USB structure was partially abandoned but will be revived with support from UNICEF, starting in 5 regions and 53 health districts. USB are staffed with CHWs and birth attendants who are not employed by the MOH, and without any formal training (some of them may have received a very basic training of 6 weeks). However, they are supervised by the health center head nurse. Currently, the CHWs at the USBs are involved in basic primary health care and safe deliveries, and they play a crucial role in community sensitization for different health programs. The plan in the newly proposed USB expansion is to involve the CHWs in SBCC activities and in the blanket supplementary feeding (distribution of Plumpy'doz[®] to children 12–35 months in target areas for prevention during the lean season). CHWs will also be involved in the accelerated child health weeks, including in screening for acute malnutrition using MUAC. It is not clear how the system would link to M-MAM. In some instances, CHW involvement in M-SAM is clear, but not in M-MAM, except where NGOs provide support to both activities.

The MOH, with UNICEF support, has taken on opportunities for community outreach by integrating active community screening into the national biannual accelerated child survival days, where a team of outreach

workers provides essential health and nutrition actions door-to-door. However, the child survival activities are top-driven, and there seems to be no real engagement from the local authorities or communities to support and improve the access and quality of these activities. There is no other system in place through which the MOH conducts community outreach activities, as all responsibility for community work falls under the responsibility of the MASEF, not the MOH. The MOH circumvents these obstacles through putting in place parallel community outreach systems organized from the USB.

In NGO-supported areas, paid outreach workers are involved in active door-to-door screening using a system that refers cases to the nearby CBO- or NGO-run CRENAM. In non-NGO-supported health districts, the link of community structures and activities to the CRENAM and the CRENI/CRENAS is made through the CBOs, and is effective, weak, or absent. The obvious disconnect between the CRENAM (with M-MAM situated outside the formal health system) and the CRENI/CRENAS is noticeable, and obvious opportunities for screening and referral are missed. Some NGOs had put a rigorous system of twice-monthly door-to-door screenings into place and could also provide follow-up home visits.

Community sensitization and home visits to follow up on problem cases are more essential to correcting harmful practices and promoting behavior change. For instance, many stories surfaced that RUTF is commonly shared at the household level, and that small children suffering from SAM eat from the family plate. There was no system in place to tackle these challenges.

Community-based IYCF practices are very weak. Some NGOs and CBOs implement IYCF activities and some messages are provided during the biannual accelerated child weeks.

2.3.3 Expanded Outpatient Care in Decentralized Health Facilities

In principle, all health facilities with trained health care providers in the country can access supplies and were expected to provide M-SAM services. Health centers with a qualified clinician or nurse were entitled to have a CRENAS in place.

There were 142 functional CRENAS. Considering the limited capacity development and the quasi-lack of continuous support for quality improvement, the team was amazed that many primary health facilities (health centers and health posts) were capable of providing M-SAM outpatient care services and that nearly all sites function in an almost total absence of inpatient care sites.

To improve coverage in areas with low population density and absence of supporting partners, UNICEF activates temporary mobile teams of (national) consultants to increase access to services during the lean season in underserved areas. In this way, areas identified most at risk of increased caseloads (high prevalence of acute malnutrition during the annual nutrition survey) are served by UNICEF and supported by mobile teams providing 21 days of treatment over two visits. It was not clear if mobile teams covered the same areas every year. Questions remain about whether the local population had been informed or exposed to the M-SAM service during the mobile visits or whether people would know how to access and use the service that will be provided during the next lean season. It was reported that M-SAM services were interrupted during periods of heavy rainfall.

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

One could argue that the national protocol promotes M-SAM in inpatient care (CRENI) until full recovery, rather than in outpatient care (CRENAS). However, the realities of the national health system in Mauritania result in M-SAM functioning with very few operational CRENI. As a result, very few children with SAM and poor appetite and/or medical complications are admitted to the CRENI (Note: Most infants under 6 months of age with acute malnutrition probably will go unnoticed).

This phenomenon of CRENAS with limited existence of CRENI has been puzzling and even scaring CMAM specialists. There are numerous possibilities that could be causing this situation: sparsely populated regions, low coverage of primary health care, weak health-seeking behavior for using the formal health system, low coverage of M-SAM, or dispersed cases. Whatever the reasons, the results are

that few cases are presented to the CRENI. This in itself also creates a vicious cycle of non-attendance that perpetuates low coverage, because a low caseload reduces the sense of need for these services, reduces the motivation of health care providers, and reduces the quality of care.

The review found that only in the national USN and the few NGO-supported CRENI was treatment free, supplies were present, training and supportive supervision was provided (ensuring quality care), and transportation to and from the health facilities was assured.

2.3.5 M-MAM, the Referral System between M-MAM and M-SAM, and Prevention

M-MAM was directly coordinated and implemented by WFP and the CSA, with NGO and CBO partner support. The national or regional MOH was not involved in M-MAM at all. The disconnect between CRENAM, where M-MAM was uniquely dealt with outside the formal health system, and the MOH CRENI/CRENAS pointed out obvious missed opportunities for improving quality M-SAM, ensuring linkage for referral, and increasing coverage. Several regions had a multisectoral coordination system in place (to increase with scale-up of REACH), which offered the opportunity for collaboration between the M-SAM and M-MAM systems. But this coordination was not always institutionalized and depends much on the interest and good will of individuals. Moreover, the strategy of offering M-MAM in regions identified as food insecure (based on annual vulnerability assessments) targeted regions and households that do not necessarily coincide with the highest vulnerability to acute malnutrition, since factors other than food security, such as IYCF and health care seeking, are often the primary causes of acute malnutrition.

In NGO- or CBO-supported areas, paid community workers were involved in active door-to-door screening and ran the CRENAM. It was not clear how community structures and activities in non-supported health districts (in the absence of the NGO or CBO) organized screening and referral or the management of children with MAM. In some instances, the review team observed that M-MAM was linked to the health facility, as the COGES had appointed the health center's head nurse to be in charge of M-MAM at the health center and/or USB management, in addition to M-SAM and other primary health care activities.

Overall, communities the team visited were very involved in M-MAM and were active and motivated in its organization. It could be that M-MAM was easier to understand and therefore the interest was greater than for M-SAM. It may also be because the food supplement for MAM is a food commodity that is recognized and appreciated in a food-diversity-deprived environment.

As a radical preventive measure for acute malnutrition, UNICEF was planning to provide Plumpy'doz[®] as a preventive supplement to all children 12–25 months of age for 3 months during the lean period in targeted areas of three regions for a first time.

2.3.6 Referral System between Inpatient and Outpatient Care

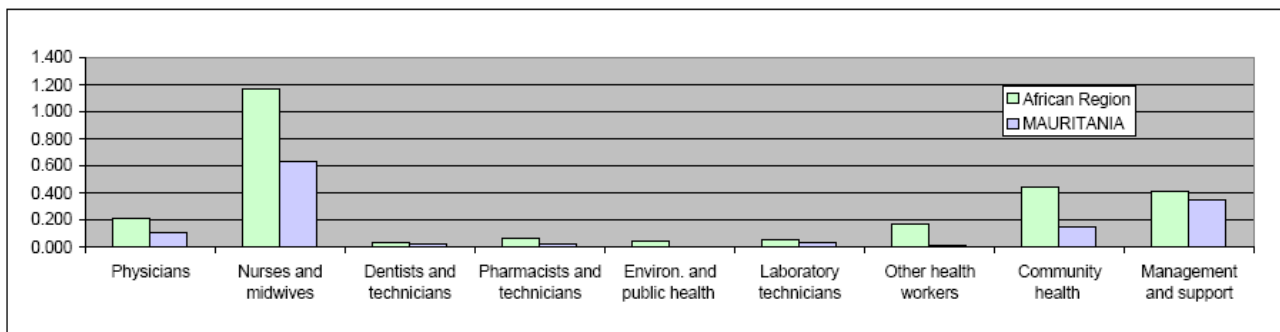
From the above discussions, it is already clear that the referral system between the CRENI and the CRENAS (see Section 2.3.4) was not effective and that the referral system to the CRENAM (see Section 2.3.5) is virtually nonexistent, with the exception of when the same NGO, health care providers, and/or community members are involved in the related activities. The referral and counter-referral system among primary, secondary, and tertiary health care is also dysfunctional, so M-SAM and M-MAM cannot rely on it.

To overcome barriers to access and utilization of M-SAM, some NGOs have made available a cart for caregiver transportation or they refund transportation costs to the CRENI. But, again, this system does not work for counter-referral, since no agency was willing to pay for transportation costs. This gap has created problems, such as causing cases to needlessly stay longer in the CRENI and other cases to get lost between the two systems and never return to the CRENAS.

2.3.7 Qualified Health Care Providers

The most critical issue in Mauritania is the huge shortage of qualified health care providers, a significant barrier to implementation, quality assurance, and coverage of health services, including M-SAM (Figure 1). The 2008 SNIS annual report (December 2009) lists 4,321 health workers across 13 regions, of whom 244 are nutritionists (as part of “other health workers”). One-third of the medical doctors and specialists are based in the capital. The number of medical doctors and specialists in the other regions ranges from 5 to 29.

Figure 1. Densities of Health Workers in Mauritania and in the African Region per 1,000 People



Source: WHO 2006, Country Health System Fact Sheet, Mauritania

To address the specific needs of nutrition, nutrition focal points have been appointed in the regions and the districts since 2008. This enables the health system enormously. This system also provides supervision and support and monitoring and reporting of nutrition activities at the regional level. This does not necessarily make the nutrition system strong, but at least it is a starting point from which nutrition capacities can be maintained and further strengthened.

Some regional health directors are perceived as very engaged in M-SAM, but much less so in M-MAM since this is not part of their responsibilities.

Most health care providers participated in the M-SAM training. Unfortunately, the trainees did not learn enough to provide and maintain quality care. Moreover, acquiring expertise comes with experience, and the limited support and low number of cases treated in the health facilities means that there are fewer opportunities to strengthen health care provider skills.

The partial dismantling of the CHW-run USB system further weakened the health system. This is especially a setback for community outreach for M-SAM.

The CHWs selected by the communities were supervised by the health center head nurse and received at most 6 weeks of training. Some CHWs received no training at all.

Volunteers played a crucial role in filling the gaps at the different levels of the health system. Occasionally, these volunteers received some informal health education or training, but more often they developed their skills on the job.

In one regional hospital, a nutrition assistant (two years of education) headed the pediatric department and the M-SAM unit, working at the medical officer level. She was assisted by volunteers who also carried out night duties, working at the nurse level. Fortunately, this arrangement seemed satisfactory, as both the nutritionist and the volunteers were skilled and motivated. The nurse had a decade of on-the-job training by NGOs and experience with managing high caseloads. This gave her the necessary experience and expertise within its confined limits. It was unclear whether the performance of the M-SAM service was acceptable, but it seemed that she was very skilled.

2.3.8 CMAM Integration into Routine Health and Nutrition Services

The aggressive M-SAM scale-up strategy did not leave time for strategic integration of M-SAM and M MAM into the health system. It created a situation in which M-SAM was not formally included in the basic health package, but instead was forced on it. The placement of M-MAM outside the health system discouraged any integration or linking with health services and initiatives.

The review team found a willingness of health care providers to integrate M-SAM into routine health services (e.g., outpatient department, IMCI) in principle, while M-MAM was considered as an outside-MOH entity. Nevertheless, they struggled to integrate it. For instance, such simple matters as systematic screening and admission (or referral) to M-SAM or M-MAM was not routinely practiced in most health facilities.

Overall, all health initiatives were weak. Linking M-SAM to a weak system will not have a significant payoff. Discrete opportunities to link and strengthen health services are worth exploring. For instance, there were successful efforts to link M-SAM with nutrition prevention activities, such as the accelerated child survival weeks. Some initiatives to link M-SAM with IMCI and reproductive health initiatives were successful in some regions.

Successful links between the baby-friendly hospital initiative and IYCF nutrition messages with the accelerated child survival campaigns were made, but there were no specific messages included on awareness raising for detecting and referring acute malnutrition cases for treatment. On one occasion, the team visited a wet feeding site run by missionaries that was established in a room at the back of the health center. However, the head physician in charge of that health center admitted that no systematic screening was done during the consultations and that children with SAM were rarely identified and referred. Basically, they forgot to do it.

To make CMAM integration successful, specific training needs to accompany the different health and nutrition initiatives. But training is costly, so integration is limited.

On several occasions, the very high neonatal mortality rate with complications from malaria was brought up for discussion. This situation was perceived as a much bigger problem than acute malnutrition, and integration of M-SAM was perceived as a lesser need.

2.3.9 CMAM Linkages with Informal Health Systems: Traditional Healers and Birth Attendants

In general, caregivers and communities do not perceive malnutrition as a nutrition or health problem, and caregivers with an acutely malnourished child commonly seek care from a traditional healer as a first-line service deliverer who is easily available in the community. On many occasions, caregivers and community members confirmed that they first seek assistance from the traditional healer.

Health care providers of the MOH or NGO do not usually collaborate with the informal health system. They do not tend to consider or recognize the important role that the informal health system can play in influencing access to services, delaying the use of services, or inhibiting the use (and continuation) of treatment for SAM. The CMAM literature has repeatedly underscored the importance of involving the informal health system in CMAM in one way or another to break down barriers to access and improve utilization of services.

2.3.10 CMAM Linkages with Other Community Services

Integration of CMAM with other community services was very limited, with the exception of some initiatives of a few NGOs that link M-SAM and M-MAM to food security and nutrition prevention activities.

CBOs and community committees of various sorts deal with multisectoral issues as they are often represented or influenced by the same individuals. In addition, the district- and regional-level coordination efforts create opportunities for linkages. However, the fragmentation at the national level does not promote linking CMAM to other services, as different management approaches and strategies are not compatible at the national level. This has direct implications at the field level. For instance, M-MAM is scaled up in the most food insecure areas based on food security indicators, while M-SAM is mostly supported in areas with high SAM prevalence. This means that linking two related services for acute malnutrition is nearly impossible. However, with the current initiative to link M-SAM and M-MAM with food security and livelihood activities through the multisectoral platforms at the national and soon regional levels, of which REACH will become a driving force, this situation may improve.

2.4 ACCESS TO CMAM EQUIPMENT AND SUPPLIES

2.4.1 Procurement and Supply Management of CMAM Equipment and Supplies

UNICEF and WFP are the lead agencies for providing therapeutic and supplementary food supplies and equipment. UNICEF has the responsibility for routine drugs for M-SAM and child survival activities, while WHO provides drugs to a few targeted CRENI. In addition, some NGOs have organized their own supplies or buffer stocks to cover the risk of unexpectedly running out. The role of the *Centrale d'achats de médicaments essentiels, matériels et consommables médicaux* (Center for Purchasing Essential Drugs, Equipment and Medical Supplies) in managing therapeutic supplies was not clear. NGOs have been very outspoken in advocating for strengthening the supply system. Many stakeholders confirmed that, at the central level, drug had never run out, while at the field level, they had.

In theory, all health facilities have access to medical and therapeutic supplies and anthropometric equipment for M-SAM, while M-MAM provided in the communities has no access to medical supplies, but instead relies on the accelerated child weeks to cover the medical intervention package.

A major wastage of therapeutic food supplies and drugs happened at the nationwide rollout of M-SAM in 2007/2008, because the national needs were overestimated. The pendulum has swung back and supply requests are now carefully monitored. Regular equipment and supply outages are the result of various challenges, which also interact with each other, such as inadequate skills to estimate needs. Overestimation of one request can penalize a subsequent request, making the system more vulnerable to inadequately providing supplies based on needs. Some informants suggested that an improved collaboration and coordination among the MOH, DRASS, and UNICEF would prevent outages.

Outages and major delays in cost refunding were highlighted as being very common in M-SAM services. At the national level, funding constraints were identified as the major issue in securing an uninterrupted supply. At the field level, another major issue was the defunct cost-refund system for essential drugs for the vulnerable groups. Apparently, the nationwide community financing system for essential drugs (Bamako Initiative) and the cost-refund system for free treatment for children under 5 are not applied. Free treatment for SAM was guaranteed in the USN in the capital and in some health facilities where drugs were supplied by partners. Otherwise, caregivers have to buy them.

Sadly, M-SAM did not make good usage of the MUAC indicator, so MUAC tapes were often absent. If present, they were underused or ignored.

Outages and quality of the supplementary food were also major concerns for M-MAM. The inconsistent M-MAM approach, where vulnerable areas were far removed from strengthened screening and M-SAM, and the different logistics systems (some NGOs have full or partially owned supplies and others rely entirely on WFP supplies) made the M-MAM supply system vulnerable and pipeline cuts were common.

Despite the weaknesses, the review team encountered many good examples of well-organized community-based M-MAM supply management under CBO responsibility, linked to the CSA/WFP supply system.

2.5 QUALITY OF CMAM SERVICES

2.5.1 Adherence to Standardized Treatment Protocols

For many reasons, there was great variation in adherence to and interpretation of the national protocol for M-SAM. For example, the availability of essential drugs at the health facility, and whether they can be distributed for free, led to variation in use of antibiotics. Some variation could be traced back to the initial training and to whether refresher training or additional technical support was provided and underscored more or less certain guidance. For instance, because the training did not promote the use of MUAC, it was never used as an independent criterion for admission, whereas the national protocol leaves room for the use of MUAC for admission.

Many small technical shortcomings that were identified in the national protocol can have major implications in the field and were often observed as being a source of confusion to the health care provider. For instance, some very young children with SAM and no medical complications were unable to benefit from outpatient care because of the use of the 65cm height cutoff as a proxy for estimating 6 months of age for the infant. In stunted populations, a considerable group of children will be shorter than 65cm, but above the age of 6 months. If a young child is classified as an infant below 6 months, s/he gets referred to and treated in inpatient care. The barrier to inpatient care may be significant because, e.g., the opportunity cost for the caregiver is higher, the distance is far, or the quality of care is not acceptable. Also, we do know that few CRENI were functional in the country.

2.5.2 Standardized Job Aids and Training Materials

There was no standardized training package adapted for use in Mauritania. A generic package of slides existed, which was used in the initial orientation training, and was also used for different audiences and purposes in the subsequent training. In addition, the TOT used the same training materials for the implementers' training without adapting them to include facilitator training guidance or practical case management.

The available job aids were very useful, both as training materials and as job aids, but they were incomplete and not always adapted to the different levels of use in the health facilities. The package of job aids covered both the CRENAS and the CRENI, which was confusing for the health care providers. For instance, the job aids in CRENAS included F75 and F100 look-up tables and daily RUTF look-up tables, but therapeutic milks were not used in the CRENAS. The weekly RUTF look-up tables in the package should have been used instead, but the health care provider was not aware of it. One job aid was impossible to use because it was too complex (i.e., the appetite test table) and needed specialized weighing equipment that was not available. Other important information was not part of the job aid, such as admission and discharge criteria and the definition of different discharge categories. One great job aid was provided by a partner in a poster format that clearly showed the admission criteria and triage for M-SAM.

2.5.3 Support and Supervision

A national and regional supervision system was in place and used standardized supervision tools. However, it was a classical supervision system that provided limited technical support and hence missed opportunities for strengthening the newly acquired knowledge and expertise, which is essential for supporting a superficial initial training. In addition, the nutrition focal points lack the detailed expertise so they cannot make up for the limitations of the supervisory tool to improve quality of M-SAM.

Some partners said that a standardized supervision tool did not exist at all; the team did not encounter one. Health care providers at all sites visited during the review acknowledged receiving supervisory visits from the regional and district nutrition focal points and head physician.

More comprehensive technical support was provided in NGO-supported health facilities, where a continuous mentoring system was put in place. NGO support could include:

- **Technical support:** through mobile teams consisting of a supervisor and/or coordinator, a clinician and/or nutritionist, and a social worker for community outreach.
- **Management and administrative support:** national-level management and technical support and participation in national activities dealing with coordination, advocacy for free care for children under 5 years, review of protocol, and participation in other national-level discussions and meetings as appropriate
- **Transportation support:** directly by the mobile support team (cars, motorcycles, and bicycles) or means made available to the communities (bicycles, carts)
- **Supply support:** making essential drugs, therapeutic food supplies, and buffer stocks available
- **Funds:** for training, transportation of referrals and supplies, and buffer stocks

2.5.4 Monitoring of Individual Care

It was difficult to understand the standard individual monitoring system, as old and new registers and old and new forms were either being used or missing altogether. In addition, the different registers and forms in circulation were very commonly either not filled in or only partially filled in, with the exception of those health facilities receiving NGO support.

Occasionally, innovations overcame monitoring challenges. For instance, on several occasions, old and new registers were being used as individual monitoring systems and, in the absence of individual monitoring cards, health care providers had transformed the registers into tools to monitor cases.

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

The monthly screening and M-SAM reporting system is automatically part of the SNIS. Monthly reporting sheets are filled out and shared with the district and then the regional focal points, and then the regional epidemiologist in charge of reporting regional health information to the SNIS. The SNIS has developed a specific database (using Maurisis software) to manage data compilation and analysis. The screening for acute malnutrition and the M-SAM performance reporting system for two age groups (6–59 months and other) is integrated into the SNIS monthly report of health activities. There is reporting on neither M-MAM nor IYCF.

The SNIS plans to issue nutrition bulletins each semester and annual analysis reports starting some time in 2010.

Because of the well-managed and relatively strong SNIS, which has undergone major reforms since 2000 and has received support from various donors and UNICEF, the integration of acute malnutrition information into the SNIS was relatively easily accomplished. At the national and regional levels, there was commitment and motivation. Moreover, the newly appointed regional- and district-level SNIS focal points are former heads of health centers. Thus, they are well aware of the data collection difficulties their colleagues face in completing the reports. As the SNIS Director said, where there is funding available, there is improved support and a greater motivation.

With OFDA funding, since 2008, the national nutrition surveillance system has been strengthened to further support the SNIS to include routine nutrition information, as well as to support the National Statistics Office to conduct biannual SMART nutrition surveys, disaggregated by region.

In spite of external support, the SNIS suffered from shortcomings in timely submission, accuracy, and completeness of information. Other elements of weaknesses observed and reported in the service monitoring and reporting system for M-SAM from the health care provider implementation perspective included a mix of different monitoring tools, incomplete use of monitoring and reporting sheets, misunderstanding and confusion of terminology of categories, and weak motivation to fill in the forms.

Monthly reports were filled out without the use of a tally system, and it was not clear which method was used to transfer the information from the individual monitoring system to the monthly reporting system, i.e., how the numbers per reporting category were added and entered in the sheets. No indicators were summarized and the health care provider and nutrition and epidemiology focal points could not readily interpret service performance. However, when NGOs were present, the service monitoring and reporting system was much better organized and, on some occasions, tally sheets were used. It was not possible for the review team to review the M-MAM reporting system.

It is not surprising that the service monitoring and reporting did not function well, as it was based on a weak individual monitoring system, treatment quality, and service coverage. Various solutions were being considered to improve this. The national SNIS software helped. The use of instant short message services was being considered as well. At the national level, the SNIS and UNICEF were aware of the shortcomings of reporting of CMAM and of nutrition information specifically in the SNIS, and they were actively looking into strategies for quality improvement by further simplifying reporting forms and by increasing accuracy and coverage in feasible and sustainable ways.

As an illustration, a detail of the SNIS report (*rapport spécifique de la nutrition 2009*) is pictured in Figure 2, which shows the SNIS reporting on nutrition activities for the first semester of 2009. The upper table reports on the nutritional status of children (per age group of 0-59 months, others and totals) identified with wasting based on MUAC (classified in normal nutrition, moderate, and severe wasting). The second table summarizes the M-SAM activities of children with SAM (per age group of 0-59 months, and others) CRENI and CRENAS combined. Categories reported on are entries (under treatment at start of the month, referred from other sites, new cases, total in treatment), and exits (cured, died, defaulted, non-recovered, transferred, referred, total exit, under treatment at end of the month, gender-not clear of which group). Coverage of reporting varied between 40 percent and 80 percent.

Figure 2. Detail of a SNIS report on nutrition activities (first semester of 2009)

(République Islamique de Mauritanie 2009)

Etat nutritionnel des enfants

| | Classement | | |
|-----------|----------------------------------|----------------------|------------------------------|
| | Vert ($\geq 12,5\text{mm}$) | Jaune (11-12,5mm) | Rouge ($< 11\text{mm}$) |
| 0-59 mois | 8 466 | 2 758 | 779 |
| Autres | 504 | 481 | 214 |
| Total | 9 060 | 3 239 | 993 |

Activité des CRENI / CRENAS

| Ages | Entrées | | | | Sorties par Causes | | | | | | | sous surveill. fin mois | Decomposition par sexes | |
|-----------|------------------------------------|----------------------|-----------------|----------------------------|--------------------|-------|---------|------------------|------------|---------|--------------|-------------------------------|-------------------------|--------------|
| | Sous surveillance début du mois | Références recues | Nouveaux cas | Total Malnutris sévéres | Guéris | Décès | Abandon | Non Repondant | Transférés | Référés | Total Sortie | | Total Garçons | Total Filles |
| 0-59 Mois | 1 342 | 360 | 992 | 2 694 | 857 | 10 | 180 | 34 | 7 | 15 | 1 103 | 1 591 | 53 | 62 |
| Autres | 25 | 0 | 1 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 0 | 1 |

As the table above suggests, information is collected and reported on screening and M-SAM activities. The results of screening are represented by category of wasting based on the MUAC indicator. There is no information on nutritional edema. The M-SAM information shows many categories, the labeling of the categories does not conform to common monitoring practices, and the representation is not very informative (see monthly report proposed by UNICEF 2008, in the FANTA-2 Training Guide for CMAM). Categories include admissions (in treatment, entering as referral, entering as new cases, and totals), exits (recovered, death, defaulter, non-response to treatment, transferred, referred, and totals), totals in treatment at the end of the month, and disaggregation by sex. Unfortunately, no immediate information on performance indicators is provided (i.e., cure, death, defaulting, and non-recovery rate); only absolute numbers are provided, not proportions.

2.5.6 Evaluation of CMAM Services, including Coverage and Barriers to Access

When performance results were checked, there were always very few cases being treated, with low cured rates (under 75%), low death rates (it was not well understood how to interpret this), and relatively high defaulter rates (above 15%) (rate could be influenced by unreported deaths). The coverage rate was expected to be very low in view of a limited active screening system outside of the accelerated child health weeks. In contrast, the extended program of immunization and measles vaccination in Mauritania is high, with 75 and 76 percent coverage, respectively. One NGO conducted a coverage survey and found a low coverage rate of 29 percent, despite the relatively good community outreach system in place in that area. The survey identified the following barriers to access and service uptake.

- The discrepancy between MUAC screening and WFH admissions turned away many children whose mothers then got discouraged.
- Acute malnutrition is not recognized as a health problem.
- Opportunity costs for the caregiver to attend services weekly are too high.
- Caregivers do not have the means to pay for hospital care.

The low service coverage suggest that active screening systems were not in place or did not function well and/or barriers to access and service uptake were significant. Moreover, once the children with SAM were in treatment, they tended to default early in the treatment.

In view of the above and given the low population density, and that certain areas had highly mobile populations, health care providers treated few cases and did not perceive management of acute malnutrition as an important need, but rather as a burden (see problems of motivation discussed above), which has led to weak service performance and poor individual care quality.

There was no information on any evaluations of M-MAM.

The absence of community outreach systems and of M-SAM links with M-MAM further weakened communities' ability to understand the essence of acute malnutrition treatment. It also affected the health care provider's interest and his/her ability to feel secure in his/her job performance and to provide quality case management and services. Moreover, the health care provider was in most cases not aware of the overall service performance, except for the immediate results of the individual case management outcome on a case-by-case basis. This did not necessarily highlight the strengths and weaknesses of the care system.

3. Conclusions

Mauritania has the political will and has taken major steps toward providing support for nutrition in general, which offers great potential for improved CMAM implementation. Nutrition has made its presence felt in several ministries, which is a blessing for nutrition as a whole, but hampers M-SAM and M-MAM. The REACH platform's coordination and resource mobilization capacity is an important asset that could benefit the CMAM rollout. The significant gaps in the CMAM program that the review team identified need swift and thorough consideration in the short term. These gaps include:

- An unstructured link between M-MAM and M-SAM
- Weak coordination between MOH services and other GOMau ministries involved in CMAM implementation, in particular the CSA
- The lack of a community-based network of health volunteers for screening and referral of acutely malnourished children
- An insufficient level of funding for CMAM activities in the national budget
- An absence of quality improvement system for M-SAM and M-MAM

The lack of expertise in the management and implementation of CMAM at the MOH and the limited involvement of training institutions are major barriers for successfully integrating CMAM into the health system, improving quality, and enabling scale-up of CMAM in Mauritania. Capacity strengthening, including training of health care providers, improving the training to help in the rapid scale-up, and decentralization, should be one of the top priorities for the MOH and its partners.

The SAM caseload, the characteristics of the population, and the human resources constraints suggest that Mauritania needs a specific CMAM model different from the standard model, and hence an adapted capacity strengthening strategy.

Access to services went from virtually nonexistent to being widespread in 2007, with the nationwide TOT and subsequent provider training and the supply of therapeutic foods and routine drugs for M-SAM. Following this training, the number of CRENAS/CRENAM dramatically increased, from 10 to several hundred nationwide, within a few short years. Yet, most outpatient care sites still do not have corresponding inpatient care sites. This system was imposed from the top down and resulted in low motivation and poorly developed skills among health care providers. The rapid M-SAM scale-up strategy was so aggressive that it did not allow time for strategic integration into the health system or inclusion in the basic health package.

Other challenges also limit access, including a nationwide shortage of qualified health care providers. Rather than a general outreach strategy, the MOH, with M-SAM partners, and the MASEF and CSA, with M-MAM partners, use a variety of nonharmonized community outreach initiatives, which leads to inadequate active case-finding in the community. A disconnect between MAM and SAM services, each of which draw from different funding sources and implementing agencies using different targeting criteria, as well as a weak referral system, also continues to prevent access to the full package of services in most areas.

UNICEF and WFP are the lead agencies for providing therapeutic and supplementary supplies and equipment. UNICEF has the responsibility for routine drugs for M-SAM and child survival activities, while WHO provides drugs to a few targeted CRENI and some NGOs have also organized their own supplies. Regular outages are common and result from such issues as inadequate skills to estimate needs, funding constraints, and a broken cost recovery system.

Adherence to and interpretation of the M-SAM national protocol varies greatly throughout the country. Variations result from availability of supplies, adequacy of training, and vagueness in the protocol itself. Training quality is inconsistent and there is no standardized adopted training package. The job aids are incomplete and not always adapted to the different levels of use at the health facilities. A national and regional supervision system is in place, but it is not effective for improving quality and it does not engage to provide technical support.

Service monitoring and reporting faces many challenges, since it is based on a weak individual monitoring system, poor service quality, and limited service coverage. The standard individual monitoring system is arcane, as old and new registers and old and new forms were either being used all at the same time or were missing altogether. In addition, the different registers and forms were often not filled in. The monthly screening and M-SAM reporting system is part of the SMIS. While the SNIS is well managed and the integration of acute malnutrition information was relatively easily accomplished, shortcomings include inaccuracy, confusion, tardiness, and lack of uniformity and timeliness in its reporting.

In general, one could conclude that a top-down, fast-forward approach to implementation and scale-up of M-SAM that was used across the country (and the region) imposed learning of a new service onto a weak health system. It also imposed the integration of M-SAM with a disconnect between M-SAM and M-MAM and prevention of acute malnutrition, lacking a comprehensive strategy of integration, scale-up, capacity development, and creation of an enabling environment. This resulted in a superficial layer of service provision that does not show signs of sustainably retaining knowledge or providing quality services.

4. Recommendations

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

Enabling environment

- Support the GoMau, MOH/NS, and partners in the effort to adapt the CMAM approach to the country context, and document the context-specific lessons learned in harmonizing M-SAM and M-MAM.
- Strengthen free treatment for children under 5 years with SAM.

Competencies

- Develop a national strategy for capacity development for M-SAM and M-MAM, which should include:
 - Addressing the current limitations of the pre-service and in-service training approaches by improving the nursing and medical school curriculum and developing standardized training packages, which should be adapted to the needs of trainers and trainees of different professions and at different levels.
 - Reinforcing collaboration between academic and health professionals for in-service training of health care providers and pre-service training of students of the different health professions. For example, M-SAM coordinators could be involved in seminars at the teaching institutions. Staff from teaching institutions could also be trained and selected as national trainers for in-service training for health care providers.
 - Establishing learning sites with quality services and qualified mentors to accommodate participants in learning visits and internships.
 - Developing terms of reference for learning sites, including selection criteria, community outreach to promote optimal coverage, and a performance monitoring system.
 - Organizing learning visits and internships. Any M-SAM training should include practical sessions.
 - Adapting CMAM training materials for training of trainers and implementers at various levels.
- Interim solutions to mitigate the lack of national expertise should take into account the limited caseload of children with SAM per health facility by favoring long-term instead of multiple short-term technical support consultancies.
- Support international exposure and learning visits for national MOH M-SAM coordinators and managers and trainers, and increase their access to information on CMAM.
- Extend the curriculum development consultation to regional and international experts to learn from other countries and experiences. Field test the training modules prior to their final adoption.
- Encourage international partners in-country to maximize opportunities for strengthening national capacities in CMAM, including monitoring and evaluation and research.
- Put into place a system for accessing and sharing information and lessons learned in CMAM learning forums or technical working group meetings.

Access to services

- Develop a national strategy for integrating M-SAM and M-MAM, which should include:
 - Advocate for, promote, and support the re-establishment of the USB system with trained CHWs.
 - Rethink the M-MAM strategy and link it with prevention of acute malnutrition and M-SAM, regardless of the responsibilities of different agencies and their respective mandates. Integrate and link the CRENAM with the CRENAS/CRENI.
 - Review roles and responsibilities and strategy for CRENAS/CRENI organization and adapt them to the level and capacity of the health facility, depending on the human resources capacity.
 - Strengthen systems of referral up and down in the health care system and between M-SAM and M-MAM.
 - Involve communities in systematic screening and treatment for SAM and MAM.

- Strengthen routine screening for acute malnutrition at all health facilities.
- Investigate the role of the informal system in barriers to access and service utilization and look for opportunities to strengthen its involvement. Ways of involving the informal system could include raising awareness by sharing knowledge on the prevention and identification of malnutrition, involving constituents in screening and referral, and doing this in ways that respect their informal health role.
- Deploy a mobile M-SAM team for strengthened technical support during the lean season to cover underserved areas and mobile populations. This is very appropriate not only in Mauritania, but throughout the Sahel and deserves to be documented.

Access to supplies

- Strengthen the supply system to increase access to therapeutic and supplementary supplies in a timely manner and prevent outages.
- Disseminate MUAC tapes.

Quality of services

- Strengthen and simplify the M-SAM and M-MAM monitoring and reporting system in the health facility.
- Standardize job aids. Develop separate sets of job aids for the CRENI, the CRENAS, and the CRENAM.
- Standardize training materials. Develop separate sets for regional and district management, the CRENI, the CRENAS and the CRENAM.
- Develop standardized tools for continuous quality improvement. Strengthen the use of MUAC to increase quality care and coverage.
- Test alternative sampling methods for biannual SMART surveys and stratify by district where appropriate. Advocate for SMART surveys to include the MUAC indicator.
- Document innovative approaches to or variants of CMAM or pilots in order to learn country-specific lessons.

4.2 SPECIFIC RECOMMENDATIONS FOR OFDA AND ITS IMPLEMENTING PARTNERS

Enabling environment

- Support the MOH and its partners to strengthen CMAM capacities linked with IYCF and technical expertise that will strengthen the enabling environment, strengthen competencies, improve access to and utilization of services, ensure a comprehensive preventive and curative approach to acute malnutrition, and improve quality of services.

Competencies

- Continue to support the integration of nutrition/CMAM into pre-service training as a top priority.
- Encourage and support learning opportunities for M-SAM and M-MAM. Support national and international learning visits and internships.
- Fund operational research to adjust the CMAM approach to the specific Mauritanian context: seasonal displacement of people, nomadic populations, and the massive shortage of health care providers.
- Advocate at the global level for French translations of generic training materials and tools, informative websites, interactive discussion groups, and journals (e.g., Field Exchange) that offer a wide range of technical support to CMAM field implementers.

Access to services

- Support the GoMau/MOH in its efforts to address the shortage of human resources in the health sector to directly have an impact on CMAM quality improvement.
- Advocate for, promote, and support the re-establishment of the USB system with trained CHWs who could play a much stronger role in screening, referral, and follow-up of problem cases.

Access to supplies:

- Support the existing MOH plan to improve the drug supply and availability for M-SAM.

Quality of services

- Support quality improvement efforts in Mauritania by standardizing training materials, training aids, job aids and strengthening supportive supervision.

Annex 1: Map of Mauritania Site Visits



Annex 2: Mauritania Schedule of Meetings and Site Visits

| Date | Organization | Location | Purpose |
|----------------|---|-------------------------------------|---------|
| March 7, 2010 | Ministère de la Santé | Nouakchott | Meeting |
| | World Vision | Nouakchott | Meeting |
| | UNICEF | Nouakchott | Meeting |
| March 8, 2008 | Counterpart | Nouakchott | Meeting |
| | Action Contre la Faim | Nouakchott | Meeting |
| | REACH | Nouakchott | Meeting |
| | UNICEF | Nouakchott | Meeting |
| | Terre des Hommes | Nouakchott | Meeting |
| March 9, 2008 | OMS | Nouakchott | Meeting |
| March 10, 2008 | WorldVision | Bogue, Brakna | Meeting |
| | WorldVision Poste de Santé, CRENAS | Ndiorol, Brakna | Visit |
| | WorldVision Foyer DP/ex-CRENAM | Thide, Brakna | Visit |
| | DRAS | Kaedi, Gorgol | Meeting |
| | Croix Rouge Française (CRF) | Kaedi, Gorgol | Meeting |
| March 11, 2008 | CRF Hôpital Regional CRENI | Kaedi, Gorgol | Visit |
| | T1 : CRF Centre de Santé, CRENAS/CRENAM | Kaedi, Gorgol | Visit |
| | T1 : Croissant Rouge Mauritanienne (CRM) | Kaedi, Gorgol | Meeting |
| | T1 : Poste de Santé, CRENAS | Lexeiba, Gorgol | Visit |
| | T1: CounterPart | Kaedi, Gorgol | Meeting |
| | T2: Poste de Santé. CRENAS CRENAM | Agoïnit, Guidemakha | Visit |
| | T2: Action Contre la Faim (ACF) Poste de Santé. CRENAS | Ould M'Bonny Soninke, Guidemakha | Visit |
| | T2: CRENAM | Ould M'Bonny Soninke, Guidemakha | Visit |

| Date | Organization | Location | Purpose |
|----------------|--|----------------------|----------------|
| | T2 DRAS | Selibaby, Guidemakha | Meeting |
| | T2 CRENI | Selibaby, Guidemakha | Visit |
| March 12, 2008 | T2: ACF ONG locales | Selibaby, Guidemakha | Meeting |
| | T2: ACF, ONG locales CRENAM | Adala, Guidemakha | Visit |
| | T2: DRAS | Selibaby, Guidemakha | Meeting |
| March 13, 2008 | T2: CounterPart | Kiffa, Assaba | Meeting |
| | T2: DRAS | Kiffa, Assaba | Meeting |
| March 14, 2008 | T1: PAM | Nouakchott | Meeting |
| | T1: MASEF, PASN | Nouakchott | Meeting |
| | T1: CSA | Nouakchott | Meeting |
| | T2: Wilaya | Kiffa, Assaba | Meeting |
| | T2 : Centre de Santé, CRENI/CRENAS | Kiffa, Assaba | Visit |
| | T2 : Hôpital Regional CRENI | Kiffa, Assaba | Visit |
| | T2 : Ecole de Santé Publique | Kiffa, Assaba | Meeting |
| | T2 : WorldVision | Kiffa, Assaba | Meeting |
| March 15, 2008 | T1 : FAO | Nouakchott | Meeting |
| | T2: Poste de Santé CRENAS | Ghaira, Assaba | Visit |
| | T2 : CounterPart CRENAM | Hasaye Ayara, Assaba | Visit |

| Date | Organization | Location | Purpose |
|----------------|---|---------------------|----------------|
| | T2 : CounterPart Poste de santé CRENAS/CRENAM | Gueller, Assaba | Visit |
| March 16, 2008 | Centre Hospitalier National de Nouakchott, Unite Spécialisé de Nutrition (USN) | Nouakchott | Visit |
| | Centre de Santé, CRENAM | Teyaret, Nouakchott | Visit |
| | MAED, Direction des stratégies et politique | Nouakchott | Meeting |
| March 17, 2008 | Université de Nouakchott | Nouakchott | Meeting |
| | Ministère de la Santé, SNIS | Nouakchott | Meeting |
| | UNICEF | Nouakchott | Meeting |
| | | Nouakchott | Meeting |
| | | Nouakchott | Meeting |
| March 18, 2008 | Comité technique REACH | Nouakchott | Meeting |
| | Groupe élargi REACH | Nouakchott | Meeting |
| | | Nouakchott | |

Annex 3: Mauritania Contacts

| Affiliation | Name | Position |
|--|--------------------------------|---|
| ONG internationales | | |
| CounterPart International | Melanie Thurber | Coordinatrice des programmes |
| | Moustapha Gaye | Représentant Résident en Mauritanie |
| | Salif Diagana | Coordinateur Santé et nutrition |
| | Salif Ouatara | Suivi et évaluation |
| | Tony Ouagara | Sécurité alimentaire |
| | Seydou XX | Chef de bureau, Kiffa |
| | Ousmane Tall | Animateur Santé et nutrition, Kiffa |
| | Amadou Dioumo Dia | Chef de bureau, Kaedi |
| | Ousmane Tall | Animateur Santé et nutrition |
| ACF | Cheikh Hamada Ag Ahmed | Chef de mission |
| | Anne Myaltais | Chef de base |
| | Daouda M'Bodj | Assistant nutrition |
| | Fatimata Diop | Assistante nutrition |
| | Mohammed Baba Cisse | Superviseur IEC |
| WorldVision | Kalidou Ba | Assistant coordinateur Santé et nutrition |
| | Yahya Ali Marega | Agent technique de nutrition |
| | Groupes de femmes, cooperative | Thide |
| | Abou Sow | Charge de programme, Barkheol |
| Croix Rouge Francaise | Thomas Mauget | Chef de mission |
| | Luca Avone | Responsable Nutrition |
| | Diane Ashley | Responsable Nutrition |
| | Florian Jacquelot | Responsable Sécurité alimentaire |
| | Thaim Amadou | Responsable Passation de compétence |
| Croissant Rouge Mauritanien | Baba Mbodji | Représentant (?) |
| ONG locales | | |
| ADIG Association pour le développement intégré du Guidemakha | Oumar Bâ | Charge de programme |
| | Cheikna Koulibaly | Charge d'action |
| OMDEP Organisation mauritanienne pour le développement l'environnement et la population | Cheikh Med Ould Elboy | Président |
| ACTION | Ba Alyom | Charge de programme |

| Affiliation | Name | Position |
|------------------------------|----------------------------------|---|
| Ministère de la Santé | | |
| | Dr Kane M. Moustapha | Chef de service, Direction de santé de base, Service de Nutrition |
| | Dr "Abderrahmane Ould Jiddou | Directeur, Direction de santé de base |
| | | Directeur, DRAS Kaedi Gorgol |
| | Gangue Youssouf | Chef de service information/SNIS, DRAS Kaedi Gorgol |
| | Ibrahim Ba | Technicien supérieur, point focal nutrition, DRAS Kaedi Gorgol |
| | X | Directeur, DRAS Selibaby Ghuidemakha |
| | Sow Moussa | SNIS, DRAS Selibaby Ghuidemakha |
| | Mohamed Ould Sidi | Point focale nutrition, DRAS Selibaby Ghuidemakha |
| | Dr Hamdy Sabary | Wali, Wilaya Kiffa Assaba |
| | Dr Aboubakrim Old Wafi | Directeur, DRAS Kiffa Assaba |
| | Abdallahi Hamadi | Point focale nutrition, DRAS Kiffa Assaba |
| | Dr Diagana Moussa | Pédiatre, chef d'unité, Unité Spécialise en Nutrition (USN) Centre Hospitalier National de Nouakchott |
| | Soufiata Sofi | Nutritioniste - Major service de pédiatrie, Hôpital Régional Selibaby |
| | Sofi | Bénévole, Hôpital Régional Selibaby |
| | Dr Mohamed or Bebaha | Directeur, Hôpital Régional Kiffa |
| | Dr Sidi Mohamed | Médecin chef (MC) , Centre de Santé Kiffa |
| | Ashamaty Adhamatou | Major, Centre de Santé Kiffa |
| | Fatimatou Oumti Sheikh | Assistante nutrition, Centre de Santé Kiffa |
| | X | Infirmier responsable CRENAS/CRENAM, Centre de Santé Kaedi |
| | X | Infirmier chef de poste (ICP), Poste de Santé Kaedi |
| | Dr Laurabolt O Mohamed Mahoud | MC Centre de Santé Teyaret |

| Affiliation | Name | Position |
|---|-------------------------|---|
| | Marieme Bocar Bâ | Nutritioniste, CRENA (CRENSA/CRENAM), Centre de Santé Teyaret |
| | Dieng Hamidine | ICP, Poste de Santé Agoinite |
| | Yahya Ali Marega | ICP, Poste de Santé Thide |
| | Mahmoud Oul Amah | ICP, Poste de Santé Ndiorol |
| | Boye Moussa | ICP, Poste de Santé Ould M'Bonny Soninke |
| UNICEF | Christian Skoog | Représentant |
| | Ines Lezama | Spécialiste de Nutrition |
| | Dr Mohamed Ag Bendech | Spécialiste de Nutrition, chef |
| OMS | Dr Kane Amadou Racine | Charge de programme santé familiale et population |
| Ministère des Affaires Economique et du développement (MAED) | Mohamed Ould Die | Directeur, Direction des stratégies et politique |
| Ministère des Affaires Sociale de l'Enfance et de la Famille (MASED) | Mohamed Ould Beda | Responsable de l'unité, Projet d'appui au secteur de la santé et nutrition (PASN) |
| | Souleyman Kane | Suivi et évaluation, PASN |
| Commissariat Sécurité Alimentaire (CSA) | Medina Bocar Dia | Directeur, Direction de la Nutrition |
| Ending Child Hunger and Undernutrition (REACH) | Ana Perez Zalvidar | Facilitatrice |
| | Aima Mint Saloum Vall | Présidente du Comité Technique REACH, Primature |
| | Membres | Comité technique |
| | Membres | Groupe élargi |
| Programme alimentaire mondiale (PAM) | Marieme Mint Louly | Chargée de Programme Nutrition |
| | Charles Jelensperger | Consultant nutrition |
| Organisation des Nations Unies pour l'Alimentation et la Nutrition (FAO) | Mariano Gomez | Coordinateur des Programmes d'Urgences |
| National Research and Training Institutions | | |
| Université de Nouakchott | Dr Cheikh Ould Dehah | |
| Ecole de santé publique Nouakchott | Dr Amina Ndiaye BA | Directrice |
| Ecole de santé publique Kiffa | Dr Diagana Sheikh Ahmed | Directeur de l'école |
| | Dr Mafoud al Talab Baye | Directeur des études |

Annex 4: CMAM Components and Integration Framework

Figure 1. CMAM and its components

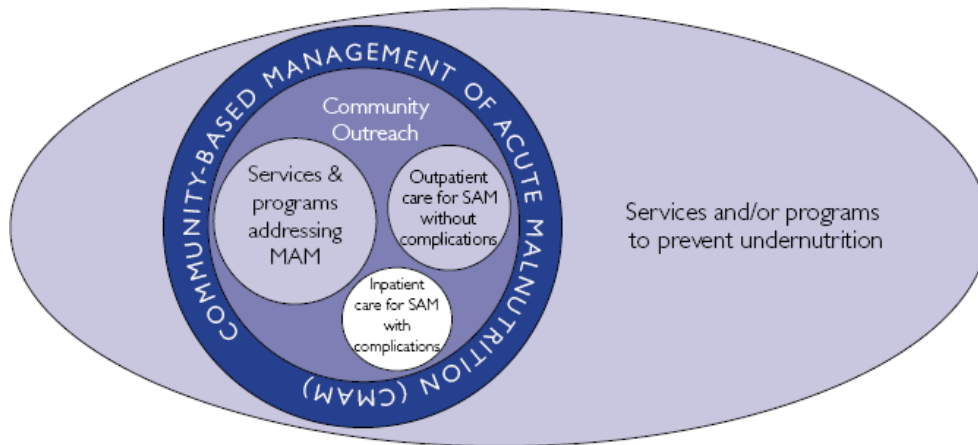


Figure 2. CMAM integration framework domains including enabling environment, competencies, access to services, access to supplies and quality of services

