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Report on the Review of the Integration of Community- Based Management of Acute Malnutrition into the Ghana Health System, August/September 2010

Dr Paluku Bahwere
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Acronyms and Abbreviations

ADRA	Adventist Development and Relief Agency
BMC	budget management centre
C-GMP	community growth monitoring and promotion
CHIM	centre for Health Information Management
CHN	community health nurse
CHO	community health officer
CHPS	Community-Based Health Planning and Services
CMAM	Community-Based Management of Acute Malnutrition
CMV	combined mineral and vitamin mix
CRS	Catholic Relief Services
DC	District of Columbia
DHMIS	District Health Information Management System
DHMT	district health management team
ENA	Essential Nutrition Actions
EPI	expanded programme of immunisation
FANTA-2	Food and Nutrition Technical Assistance II Project
g	gram(s)
GDHS	Ghana Demographic and Health Survey
GHS	Ghana Health Service
GMP	growth monitoring and promotion
GOG	Government of Ghana
HIRD	high impact rapid delivery
HMIS	Health Management Information System
ICD	Institutional Care Department (Ghana Health Service)
IMCI	Integrated Management of Childhood Illness
IMNCI	Integrated Management of Neonatal and Childhood Illness
IYCF	infant and young child feeding
kg	kilogramme(s)
LEAP	Livelihood Empowerment Against Poverty programme (Government of Ghana)
LOS	length of stay
M&R	monitoring and reporting
mm	millimetre(s)
MOH	Ministry of Health
MUAC	mid-upper arm circumference
NGO	nongovernmental organisation
NHIS	National Health Insurance Scheme
NID	National Immunisation Day
NRC	nutrition rehabilitation centre
PML	Princess Marie Louise (Hospital)
POW	programme of work
PPME	Policy, Planning, Monitoring, and Evaluation (Directorate) (Ghana Health Service)
RCH	reproductive and child health
ReSoMal	Rehydration Solution for Malnutrition
RHA	Regional Health Administration
RHD	Regional Health Directorate
RHMT	Regional Health Management Team
RUF	ready-to-use food
RUTF	ready-to-use therapeutic food
SAM	severe acute malnutrition
SAM ST	Severe Acute Malnutrition Support Team
SAM SU	Severe Acute Malnutrition Support Unit
SAM TC	Severe Acute Malnutrition Technical Committee
SBCC	Social and Behaviour Change Communication
SOW	Scope of Work
SWAP	Sector-wide approach
TB	tuberculosis
TBA	traditional birth attendants

TMP	traditional medicine practitioners
US\$	United States dollars
USAID	United States Agency for International Development
WFH	weight-for-height
WFP	World Food Programme
WHO	World Health Organisation

1. Context

Community-Based Management of Acute Malnutrition (CMAM) was first introduced to Ghana in June 2007 at a workshop organised by the Ghana Health Service (GHS), UNICEF/Ghana, the World Health Organisation (WHO)/Ghana, and the United States Agency for International Development (USAID)/Ghana. Until then, the GHS addressed the needs of children with severe acute malnutrition (SAM) in nutrition rehabilitation centres (NRCs) that provided cooked foods using locally available ingredients and nutrition counselling. These NRCs did not follow the WHO 1999 treatment protocol for the management of SAM¹ or provide specialised therapeutic foods for children with SAM.

Based on recommendations on initiating the CMAM approach in a limited set of sites prior to its adoption as a national policy, which were provided at the June 2007 workshop, in April 2008, the GHS established CMAM learning sites in two districts—Ashiedu Keteke sub-metropolitan area and Agona District—and later expanded the learning sites in March 2009 to include Ga South Municipality. The Severe Acute Malnutrition Technical Committee (SAM TC), led by the GHS and composed of representatives from Korle Bu Teaching Hospital (representing the academic institutions), UNICEF/Ghana, WHO/Ghana, USAID/Ghana, and the USAID-funded Food and Nutrition Technical Assistance II Project (FANTA-2), provided technical guidance to set up and implement the learning sites. UNICEF/Ghana provided therapeutic supplies (e.g., ready-to-use therapeutic food [RUTF], combined mineral and vitamin mix [CMV], therapeutic milks) and anthropometric equipment, and USAID/Ghana provided financial support to set up the learning sites.

In 2009, a Severe Acute Malnutrition Support Unit (SAM SU) was established by the GHS to provide technical assistance countrywide as CMAM scales up. Guided by the SAM TC, the SAM SU provides day-to-day guidance to the regions and districts on all aspects of CMAM. In 2010, the SAM TC and SAM SU initiated a phased process to scale-up CMAM services in the country. The phased scale-up process splits the country's 10 regions into two groups: Group 1 includes Central, Northern, Greater Accra, Upper East, and Upper West Regions and was initiated in Phase 1 in 2010; Group 2 includes Ashanti, Brong Ahafo, Eastern, Volta, and Western Regions and is scheduled for initiation in 2011 depending on resource availability. With guidance from the SAM SU, Severe Acute Malnutrition Support Teams (SAM STs) were formed to plan, manage, and provide technical support at the regional and district levels as CMAM scales up in the regions. Each region has commenced CMAM service implementation in one or two districts within a limited number of outpatient care and inpatient care sites. These will act as learning sites for the region to inform gradual scale-up to other districts in the region.

The SAM TC requested a review of CMAM activities at the learning sites, including plans for scaling up. The general objectives were to assess the integration of CMAM services into the learning sites, assess learning sites' performance, review recent plans and initiatives to scale up CMAM in Ghana, and provide information for strengthening those plans.

1.1. SPECIFIC OBJECTIVES

This review had the following specific objectives.

1. Review the integration of CMAM services into the health system at the learning sites. Include the integration of CMAM into other health and nutrition initiatives, such as infant and young child feeding (IYCF), Integrated Management of Neonatal and Childhood Illnesses (IMNCI), community growth monitoring and promotion (C-GMP), and expanded programme of immunisation (EPI), at the national, regional, facility, and community levels.
2. Assess recent plans and activities for scaling up CMAM within Group 1 scale-up regions (Central, Greater Accra, Northern, Upper East, and Upper West).
3. Review the status of integration of CMAM into the health system at the national and regional levels, including plans and strategies for scaling up CMAM to the rest of the country; a sustainable capacity development strategy for outpatient care, inpatient care, and community

¹ WHO. 1999. *Management of severe malnutrition: A manual for physicians and other senior health workers*.

outreach for the management of SAM; and the integration of CMAM into other health and nutrition policies and plans.

4. Identify and document challenges with integration, lessons learnt, and opportunities and gaps identified in CMAM implementation in the learning sites and at the national level.
5. Make recommendations to the GHS, SAM TC, and partners on how to address challenges, pursue opportunities, address and fill identified gaps, and build on lessons learnt in the country as the phased scale-up of CMAM integration continues.

2. Methods

The review team was comprised of an external consultant (not based in Ghana) who lead the review, a consultant based in Ghana, and representatives from the SAM TC and SAM SU.

Document review and interview questions were guided by the CMAM Framework, developed by the Food and Nutrition Technical Assistance (FANTA) project (FANTA-2's predecessor) during a 2007 three-country review of CMAM integration.² The CMAM Framework includes five domains whose strengthening is critical to successful CMAM implementation:

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

2.1. DOCUMENT REVIEW

The review team examined existing information on CMAM implementation, integration, and performance in Ghana, particularly within the learning sites, to understand the context, structure, and performance of CMAM services. The documents reviewed are listed in **Annex 1** and included health and nutrition information; CMAM guidelines and protocols; CMAM documentation and information (e.g., progress reports, monitoring reports, review and evaluation reports, workshop reports, training materials and job aids), additional information on CMAM components, logistics, and management; and strategic national nutrition documents, such as:

- *Imagine Ghana Free of Malnutrition*
- *National Infant and Young Child Feeding For Ghana*
- *Nutrition Facts for Ghanaian Families*
- The Ministry of Health (MOH) Programme of Work (POWs) for 2009 and 2010
- The 2007 National Health Policy
- The 2008 Ghana Demographic and Health Survey (GDHS)

2.2. FIELD VISITS

Prior to the field visits, the review team prepared a schedule of key informants it wanted to interview at the national, regional, district, sub-metropolitan area, and municipality levels. Key informants included representatives of national and international agencies, including the MOH, the GHS, the SAM SU, UNICEF/Ghana, USAID/Ghana, WHO/Ghana, and the World Food Programme (WFP)/Ghana; representatives of training institutions, including the University of Ghana Nutrition and Food Science Department and the Rural Health Training School at Kintampo; development partners; and regional- and district-level personnel involved in CMAM. Meetings and interviews were conducted using key questions on implementation and integration, found in the interview guide in **Annex 2**, that were adapted to each level and information source.

² Hedwig Deconinck, Anne Swindale, Frederick Grant, and Carlos Navarro-Colorado. 2008. *Review of Community-based Management of Acute Malnutrition (CMAM) in the Post-emergency Context: Synthesis of Lessons on Integration of CMAM into National Health Systems, Ethiopia, Malawi and Niger, April – June 2007.*

Field visits were conducted at the outpatient care and inpatient care sites to observe the implementation of CMAM services. The Community-Based Health Planning and Services (CHPS) zone/compound³ was also visited. Selection of the sites visited as part of the review was done using random and purposive sampling to achieve the desired objectives and methods, especially for observations to be made on days when CMAM services were provided to clients.

The learning sites visited are listed in **Table 1**. At each of these sites, key informant interviews were conducted and records were reviewed. CMAM services were observed at Kwanyarko Health Centre, Nyarkrom Health Centre, Oboom Health Centre, and Ga South Municipal Hospital. Focus group discussions with mothers, other caregivers, and community volunteers were held at Nyarkrom Health Centre. To assess the quality and competencies of the implementers, the review team made observations using a checklist based on the expected competencies for provision of CMAM services and reviewed records of SAM cases at both inpatient care and outpatient care sites.

Table 1. List of Sites Visited during the Review

Location	Facilities with Inpatient Care	Facilities with Outpatient Care
Asheidu Keteke Sub-Metropolitan Area	Princess Marie Louise (PML) Hospital	PML Hospital
Ga South Municipality		Municipal Hospital, Kokrobite Community Health Centre, Oboom Health Centre
Agona West Municipality	Municipal Hospital	Bobikuma Health Centre, Nyarkrom Health Centre, Nsuansa CHPS zone
Agona East District		Nsaba Health Centre, Kwanyarko Health Centre

2.3. LIMITATIONS OF THE STUDY

The review team was not able to adequately review Objectives 2 and 3 listed in **Section 1.1**. The reasons for this were:

- The review team was informed that the SAM TC revised the scope of the review and restricted its objectives to only assess the learning phase. Consequently, it was not possible to assess the scale up plans.
- The short duration of the consultancy limited the capacity of the review team to include all the objectives, especially additional field visits.

3. Findings

3.1. ENABLING ENVIRONMENT FOR CMAM AT THE DISTRICT, REGIONAL, AND NATIONAL LEVELS

To review the enabling environment for CMAM implementation, integration, and scale-up, the review team assessed whether or not the following situations were in place.

- Government institutions at the national, regional, and district levels show a commitment to CMAM and are actively involved in activities related to the prevention and care of acute malnutrition that translate into the allocation of financial and human resources to CMAM-related activities from the national budget and from support from humanitarian agencies and long-term developmental partners.
- Prevention and management of acute malnutrition are listed among the country's priorities, and national health policies pave the way for CMAM inclusion in annual plans, budgets, and promotion strategies.

³ 'Zone/compound' is the term given to the health post in an area covered by CHPS.

- A national SAM SU is created, and task forces at the national and sub-national levels are created and chaired by MOH representatives.
- Specific advocacy plans and activities to mobilise CMAM resources exist.
- National CMAM guidelines exist and are adhered to by all national and international partners.
- There is a functioning national data repository for CMAM.
- CMAM activities are included in health care providers' job descriptions and are among the topics covered during supervision visits.
- Health care services are free for children under 5, including those with SAM. The national public health system and the government adhere to this and compensate health care providers/health facilities for the loss of income.

3.1.1. Political Environment

The review of the MOH POWs for 2009⁴ and 2010⁵ showed that nutrition is high on the political agenda. In both POWs, the mission of the MOH included 'ensuring access to quality health and nutrition services for all people living in Ghana'. In those 2 years, the list of expenditure priorities included clear emphasis on nutrition interventions, which translated into the following clear specific strategic objectives/priorities for nutrition interventions:

- In 2009: '...rapidly scale up high impact health, reproductive and nutrition interventions and services targeting the poor, disadvantaged and vulnerable groups and bridge the gap between interventions that are known to be effective and the current relatively low level of effective population coverage...'
- In 2010: '...bridge equity gaps in access to health care and nutrition [services]...'

The review team's analysis of the POWs demonstrated that nutrition interventions and activities for women and children, both preventive and curative, and nutrition policy work received 3.3 percent (240,000 of 7,357,000 cedis) of funds allocated by the Government of Ghana (GOG) for health service delivery⁶ and 4.6 percent (13,978,000 of 304,280,000 cedis) of the total budget that includes funds from the GOG, cost recovery scheme,⁷ and development partners. The funds allocated to nutrition exclude personal emoluments or salaries, which are paid centrally. It was difficult to isolate the proportion of personal emoluments attributable to nutrition activities, as most nutrition activities at the peripheral levels are integrated into the routine activities of the health personnel.

Nutrition interventions and activities received smaller proportions of total funds for service delivery than malaria (12.2 percent), EPI (6.3 percent), and family planning (6.1 percent), but similar proportions to HIV and AIDS (4.5 percent) and more than the tuberculosis (TB) programme (0.6 percent). These figures confirm that nutrition is among GOG priorities and shows that at the current caseload and with effective advocacy and lobbying, CMAM costs can gradually be integrated into the national budget, replacing the need for development partners and humanitarian organisations to provide funding, as USAID and UNICEF have done during the initial phase. Indeed, 10 percent of the budget can secure CMAM supplies for almost 20,000 children, which is much more than the current CMAM caseload. Moreover, as CMAM activities expand, it will become more challenging for GOG to meet CMAM costs with the current level of funding.

⁴ Ghana MOH. October 2009. *2009 Programme of Work: The Ghana Health Sector*.

⁵ Ghana MOH. October 2010. *2010 Programme of Work: The Ghana Health Sector*.

⁶ The vast majority of 2010 GOG budget funds (94.3 percent) were allocated to personnel emoluments, as the GOG met almost all of the costs of that budget line.

⁷ Funding provided by the cost recovery scheme includes fees paid by patients for health services.

3.1.2. Ministry of Health and Ghana Health Service Coordination

The Ghanaian health sector has a split arrangement whereby the MOH is responsible for policy formulation and resource mobilisation and the GHS, among other government agencies, provides health services at the regional, district, and community levels. In terms of integrating CMAM into the national health system, the GHS has assumed a strong leadership role. The GHS Nutrition Department coordinates CMAM activities, and the GHS established the SAM TC to oversee the implementation of CMAM at all levels.

Separate from the SAM TC, the GHS nominated a CMAM Coordinator and set up a national-level SAM SU housed in the Nutrition Department that receives support from FANTA-2, UNICEF/Ghana, and WHO/Ghana. The CMAM Coordinator manages all SAM SU activities, including administration and coordination, advocacy and lobbying, providing technical guidance, overseeing capacity strengthening, field supervision and mentoring, and overseeing the monitoring and reporting (M&R) system. The SAM SU coordinates CMAM capacity building at all levels, including addressing implementation and technical issues. At the time of the review, the national SAM SU had only one staff member with a technical background who benefited from technical support provided by FANTA-2.

At the regional level, SAM STs were established and their capacity built to coordinate and oversee the implementation of CMAM in the learning sites. District-level activity is coordinated by nutrition officers who are part of the district health management team (DHMTs). The presence of district nutrition officers is key to the successful implementation of CMAM at the learning sites, as a district officer dedicated to nutrition activities will be committed to initiating and scaling up CMAM, and having a district nutrition officer is one of the criteria the SAM SU required before accepting a request from districts to implement CMAM. Therefore, deployment of nutrition officers in the districts will be a determinant of success in the scale-up process.

There is positive, complementary collaboration between health development partners, including USAID/Ghana, UNICEF/Ghana, and WHO/Ghana, in providing technical assistance and CMAM supplies in Ghana. The review team noted that the development partners listed above, including WFP/Ghana, had committed nutrition officers. This collaboration and commitment is the foundation for an important enabling environment that includes partnership, technical support, and advocacy for the sustainability of CMAM.

3.1.3. CMAM Leadership under the Ministry of Health

The SAM TC includes representatives of the GHS Nutrition Department (chair); the GHS Policy, Planning, Monitoring, and Evaluation Department (PPME); the GHS Institutional Care Department (ICD); Korle Bu Teaching Hospital (representing the academic institutions); UNICEF/Ghana; WHO/Ghana; USAID/Ghana; and FANTA-2. The Nutrition Department, through the national CMAM Coordinator, has shown extraordinary commitment and has been critical in fostering the needed leadership for implementation at the learning sites. This commitment has trickled down to the regional and district nutrition officers and the regional and district health management teams. The GHS, from the office of the GHS Director General to the CHPS level of the health services delivery system, therefore feels an expressed sense of ownership of CMAM.

The MOH is not featured prominently during the CMAM learning period. The SAM TC does not include representation from the MOH. This has been identified as a weakness and is being addressed at the scale-up phase, as the representation of the MOH is vital for advocacy, resource mobilisation, and sustainability.

3.1.4. CMAM Integration into National Health and Nutrition Policies and Strategic Plans

Though the national health policy discusses ensuring access to quality and affordable nutrition services, no specific details about nutrition policy or advocating future nutrition policy are outlined. However, the national health policy noted that the development of a national nutrition policy to reposition nutrition as a development policy is on the agenda of the MOH and its partners and that the World Bank is providing financial and technical support to this initiative.

Despite the absence of a nutrition policy, the GHS has created strategic documents, such as *Imagine Ghana Free of Malnutrition* and *National Infant and Young Child Feeding for Ghana*, to address the problem of poor nutritional status in the country. *National Infant and Young Child Feeding for Ghana* aims to promoting exclusive breastfeeding, appropriate complementary feeding, and optimal feeding for children 2–5 years of age, including children in difficult situations (defined as children with HIV and those in refugee camps, foster care, and orphanages). *Imagine Ghana Free of Malnutrition* was developed before CMAM was introduced to the country. Strategic Objective 3⁸ in the concept paper for this publication addresses the establishment of feeding centres, the strengthening and implementation of supplementary feeding programmes, and the identification of good models of supplementary feeding and advocacy for their replication in districts and communities. Strategic Objective 9⁹ in the same document captures the management of protein energy malnutrition (PEM) at NRCs, which was the approach used to manage SAM before the introduction of CMAM. Though the creation and publication of these documents are landmark achievements focusing on the prevention and rehabilitation of malnutrition, CMAM and the rehabilitation of malnutrition have not been adequately addressed in them.

Integrated Management of Childhood Illness (IMCI) is now called IMNCI and is one of the strategies adopted by the GOG to improve child survival. IMNCI aims to improve the management of diseases responsible for more than 70 percent of childhood deaths. Malnutrition is one of the conditions targeted by the strategy because it is directly or indirectly associated with more than 50 percent of deaths in children under 5. Since the adoption of the CMAM approach by the GOG and GHS, the algorithm of the IMNCI strategy has been adjusted to reflect the shift from the hospital-based approach for the management of SAM to the CMAM approach, and CMAM is now addressed in IMNCI guidelines and manuals following the review of initial IMNCI implementation in the country.

The SAM SU coordinated a meeting with the regional nutrition and public health nursing officers from Central, Greater Accra, Northern, Upper East, and Upper West Regions to review regional scale-up plans and provide feedback to regional managers. As of this review, these regional scale-up plans were still being completed by the Regional Health Directorate (RHD). However, with funding from UNICEF/Ghana and USAID/Ghana, the three northern regions and Greater Accra Region have already started implementing the proposed 2010 scale-up plans while the regional plans are being completed. Also as of this review, Central Region was completing budgets for funding by UNICEF/Ghana to also begin implementation.

3.1.5. Advocacy for CMAM

Though the implementation of CMAM in Ghana has been designed with a learning phase for identifying key operational issues that will enable successful national scale implementation, CMAM services have been delivered through other existing services and not in parallel with the normal health services. Currently, there is little advocacy for CMAM at the ministerial level and no proactive mobilisation of resources for nutrition or CMAM, evidenced by the lack of funds allocated by the GOG to CMAM in the national budget. The GOG budget does not have a budget line itemising all nutrition activities/programs. The release of funds for nutrition activities/programs is from the GHS's global budget based on specific requests from the Department of Nutrition. With the exception of staff salaries and routine health service activities, most of the current CMAM costs, such as for supplies and capacity development, are met by partners and not through the GOG budget. The review team noted that the preparation guidelines for the MOH 2011 planning and budgeting process also do not include CMAM.

USAID/Ghana, WHO/Ghana, and UNICEF/Ghana support CMAM advocacy and can continue to advocate for and obtain support for CMAM from the GOG and other development partners, especially those who contribute to the health sector budget requirements. This would ensure that CMAM receives a sufficient proportion of the amount allocated to nutrition activities from that pool of resources (which was US\$9.8 million in 2010, 83 percent of which was from a fund supported by international partners). Obtaining a separate budget line for nutrition interventions, both preventive

⁸ Strategic Objective 3 in *Imagine Ghana Free of Malnutrition* is 'improve nutritional status of children under 5 years of age and pregnant and lactating women in all deprived districts nationwide through supplementary feeding'.

⁹ Strategic Objective 9 in *Imagine Ghana Free of Malnutrition* is 'Improve the Management of Protein Energy Malnutrition (PEM)'.

and curative, should be the advocacy objective given the effect of undernutrition on morbidity and its direct and indirect implications in up to 50 percent of deaths in children under 5.

The review occurred at an opportune time, as the GOG was about to commence developing the national nutrition policy. The review helped sensitise many of those participating in the development of the national nutrition policy on the public health importance of CMAM. Strong advocacy for incorporating policy issues related to CMAM is necessary, as the nutrition policy will guide the revision of all related strategic documents and the scaling-up of CMAM and will be used by the MOH and its agencies, including the GHS, for advocacy and financial resource mobilisation purposes.

Disseminating information on CMAM success stories at regional and district review meetings at the learning sites triggered a demand for CMAM. As a result, six additional districts in Central Region and two in Greater Accra Region demanded CMAM. At the time of the review, plans for scaling up CMAM in these districts was at an advanced stage, and some limited training has already been carried out.

3.1.6. National Guidelines and Job Aids for the Management of SAM

The GHS and the SAM TC approved the *Interim National Guidelines for CMAM in Ghana* in February 2010, which paved the way for interim CMAM protocols and job aids to be endorsed at the regional and districts levels. This endorsement was critical in enabling the implementation of CMAM at learning sites. Interim inpatient care and outpatient care job aids support the Guidelines and guide health care providers in diagnosing, identifying, and treating SAM. The Guidelines cover approaches to organising community outreach, outpatient care for the management of SAM without medical complications, inpatient care for the management of SAM with medical complications in children 6–59 months of age, inpatient care for the management of acute malnutrition in infants under 6 months of age, and M&R. Health personnel expressed their satisfaction with the protocols and the individual client monitoring forms and enjoyed the systematic approach to the management of SAM.

3.1.7. National Repository for CMAM Data

The GHS's Centre for Health Information Management (CHIM) serves as a national repository for health sector morbidity and mortality data. The CHIM manages the District Health Management Information System (DHMIS), which collects health service delivery information at all levels of the health system. The data collection form that is used only allows a single diagnostic entry and is biased toward infectious diseases, making it difficult for the DHMIS to capture diverse data on nutrition activities, including CMAM. As a consequence, SAM's contributions to reductions in morbidity and mortality are underestimated.

The SAM SU discussed with CHIM how to capture CMAM data at the national level and how data can be managed at all levels. Following this discussion, CHIM conducted a survey and found that some regions had designed their own data collection forms, the most detailed of which was found in Upper West Region. CHIM adapted the form for capturing nutritional status indicators; however, the SAM SU was not sufficiently involved in this process since CMAM is still not fully scaled-up in Upper West Region. There is now a form available to adequately capture data on nutrition activities, but it is not yet officially in use within all districts implementing CMAM. In fact, the CHIM has not officially disseminated this form due to inadequate funds, especially for printing. Nevertheless, the learning sites and some districts have felt the need for it and are printing and using this form themselves.

At the time of the review, the most adapted database for capturing CMAM data was a Microsoft Excel database developed for the SAM SU and the GHS Nutrition Department. It was developed based on the revised monitoring tools included in the *Interim National Guidelines for CMAM in Ghana*. Although developed as an interim solution for capturing data on CMAM activities at the learning sites, its use will continue during the scale-up phases until the DHMIS is adapted and fully functional, allowing its use for CMAM planning and performance assessment.

DHMIS is migrating to a web-based application, DHMIS2. This will improve the capacity to capture CMAM data by using a form developed jointly with the SAM SU. At the minimum, important data from the Microsoft Excel database will be incorporated. The flow of data transmission will also be improved as data will be made available without requiring printed copies.

3.1.8. SAM Support Unit and Regional SAM Support Teams

The SAM SU's commitment to CMAM through its direct involvement in implementation at the learning sites through continuous supervision and technical support at the national-level created the favourable conditions for rapid uptake of the programme at the regional and district levels. The review team found that the success of CMAM has depended on the motivation created by frequent visits from the SAM SU and regional SAM STs (twice a month for a period of 2 to 3 months). Mentoring implementers to ensure high quality CMAM service provision helped build the confidence of implementers and contributed to creating conditions for rapid uptake of CMAM activities and strengthening the capacity of these implementers to advocate for CMAM during biannual regional-level review and dissemination meetings. From discussions with the implementing teams, the review team concluded that the same intensity of mentoring (two supervisory and mentoring visits per month) will be required during the scale-up phase to create the sense of the importance of the programme and gain implementers' enthusiasm and confidence, which contribute greatly to rapid uptake of CMAM activities and to strengthening the capacity to advocate for CMAM during regional dissemination meetings. With increasing geographical coverage of CMAM, this intensity of supervision will only be achieved through the active involvement of the regional health management teams (RHMTs) with the support of the regional SAM STs. The RHMTs will also need to increase their contributions to include funding for CMAM mentoring and supervision.

Given the level of SAM SU staffing, the CMAM Coordinator had to focus on providing technical guidance, including overseeing capacity strengthening and conducting field supervision and mentoring. However, his advocacy and lobbying role is as important as his technical role. The review team, SAM TC, and the head of the GHS/Nutrition Department discussed the difficulties that the CMAM Coordinator will face in fulfilling all the managerial, advocacy, and technical responsibilities as CMAM scales up to new regions and districts. Thus, it will be necessary to reinforce the capacity of the SAM SU as suggested above so that the CMAM Coordinator will be more able to be involved in lobbying and advocacy for CMAM.

3.1.9. Sustainability of Funding

USAID/Ghana and UNICEF/Ghana currently provide the majority of funding for CMAM. The GOG contribution is currently limited to paying the salaries of health workers implementing CMAM. UNICEF/Ghana supports the procurement of ready-to-use therapeutic food (RUTF) and provides funding for some capacity strengthening activities. USAID/Ghana has been invested in nutrition since 2007, realising that Ghana has the world's fifteenth-highest burden of SAM. As such, part of its 2010 budget for maternal and child health was allocated to nutrition, and it intended to increase this funding in 2011. USAID/Ghana is also working with WHO/Ghana and UNICEF/Ghana to develop a consistent plan to leverage resources from other partners to fund nutrition programmes that concentrate on the prevention and management of malnutrition. The challenge is gauging how long these agencies would support CMAM implementation, especially UNICEF/Ghana supporting the procurement RUTF and related supplies.

Financial procedures applied by the main partners to support the GHS varied from one organisation to another. UNICEF/Ghana channelled its funding through the existing GHS financial system managers at the national, region, or district levels; managed the funding using the procedures set by the GHS; and oversaw the expenses and financial reports. USAID/Ghana, through FANTA-2, had its own procedures and was not using the GHS financial system. GHS authorities, the SAM TC, and DHMTs indicated that the UNICEF/Ghana approach enabled them to become familiar with CMAM funding requirements, while FANTA-2's use of a different system prevented them from having a global picture of CMAM funding requirements and reduced the sense of CMAM ownership. They indicated that their wish is to see FANTA-2 adopt the same system as the other donors in using the GHS set of financial systems and procedures.

A more sustainable funding source will require that the MOH and GHS have more effective ownership of CMAM. Currently, there is no specific budget allocation for nutrition at the operational level. All health service departments are given a global budget from which they make allocations depending on their priorities. There is no plan in place to absorb CMAM costs, but this situation is not particular to CMAM; the existing nutritional rehabilitation programme has not received funding from the health sector budget for a long time. Despite supportive statements in strategic documents and the allocation

of some national-level funds, nutrition is seen as an off-shoot of other health issues by much of the health sector, including regional- and district-level managers, rather than an independent department within the health sector. Also, apart from the basket funding to the health sector, other funding coming to the health sector is already tagged.

As CMAM scales-up, the MOH and GHS might explore using a portion of national-level funds allocated for nutrition activities and 'high impact rapid delivery' (HIRD) (i.e., interventions with the potential of accelerating the achievement of the Millennium Development Goals) for the operational-level CMAM activities. The GHS also might explore how funding could be made available by providing an allocation for RUTF as a health commodity in the health sector budget using the 'ring-fencing' mechanism, which the MOH uses to set aside funds specifically for certain priority programs and activities.

3.1.10. Free Treatment for Children with SAM

In the past, children under 5 were exempted from having to pay for medical treatment and the GOG reimbursed the cost incurred by health facilities for the services. This exemption policy was not repealed under the National Health Insurance Act adopted in 2003, which currently regulates health care financing. The law, however, does not mention funding the treatment of children with SAM, which has left the issue of funding CMAM activities rather unclear. Thus, children whose parents are not insured do not always receive free treatment, as the decision to provide free treatment has been left to the discretion of the managers of the health facilities. The problem of free treatment is more critical when children with SAM are referred to hospitals for inpatient care. Many health facility managers are reluctant to provide the expensive treatment required during inpatient care for free because since the Act became law there are no provisions for reimbursing service providers for the costs of SAM treatment.

The new health insurance bill before parliament recommends that all children under 18 be exempt from paying for health care. Therefore, these children would not be reliant on their parents' abilities to contribute and would automatically be insured under the scheme. Apart from this, the MOH is collaborating with the GOG's Livelihood Empowerment Against Poverty (LEAP) programme to make provisions for medical treatment for identified poor families. Although under the new bill SAM has not been factored into the criteria to qualify for free treatment, children with SAM are likely to benefit as they are under 18 years of age. Opportunities still exist to advocate for the incorporation of SAM since the bill has not been signed.

3.1.11. Contingency Planning for Potential Crises

The Comprehensive Food Security and Vulnerability Analysis¹⁰ conducted in November 2008 showed that, although Ghana is less affected by food insecurity than other West African countries, 1.2 million Ghanaians are food insecure and 2.0 million are vulnerable and could experience food insecurity during adverse weather conditions, such as floods and droughts. The GOG, MOH, GHS, and development partners should, therefore, have a contingency plan on how to respond to a sudden deterioration of nutrition conditions. The review team learned that the food security and nutrition situation of the regions considered the most vulnerable are closely monitored, but there is no concrete contingency plan. The review team learned that the GHS, with support from UNICEF/Ghana, WHO/Ghana, USAID/Ghana, and FANTA-2, has ensured that CMAM scale-up will include a contingency plan to guide how to respond to nutrition emergencies by including it in the scale-up strategy and in the annual SAM SU workplans.

3.1.12. Performance Appraisal System and Staff Motivation

The review team learnt that the Ghana policy for health worker career development and promotion values participation in in-service trainings and nurses are asked to report on the in-service training they have attended on their performance appraisal forms for consideration for career promotion. All health workers have a log book to record all trainings they have attended. This policy creates an enabling environment for introducing new interventions, as gaining new knowledge and learning about

¹⁰ The Comprehensive Food Security and Vulnerability Analysis is a country-wide survey that analyses the current food security situation and its underlying causes.

new interventions contributes to career growth. The review team had evidence that CMAM training was included in nurses' log books.

3.2. COMPETENCIES FOR CMAM

For successful and sustainable CMAM integration and scale up, the country has to have a good and efficient strategy for developing in-country competencies. The review team considered this achieved when:

- The MOH has a core team of CMAM trainers who have access to and utilise standardised and well-developed training modules and has CMAM mentors with practical CMAM experience.
- All sessions of classroom in-service training for those not previously exposed to CMAM are systematically coupled with mentoring for 2 weeks or longer.
- CMAM has been included in the pre-service training curricula of health professionals.
- There are established learning sites for exchange visits, internships, and mentors training available.
- Access to CMAM-related documents is organised and health workers are proactively encouraged to individually engage in continuous learning on CMAM.
- Documenting promising practices through operational research and disseminating lessons learnt is formalised.

3.2.1. In-Service Training

Prior to CMAM, the competency of staff in managing SAM was based on the traditional case management protocols and therefore limited. For the majority of health care providers, CMAM was not covered during pre-service training. Rather, the SAM SU has built capacity at the national, regional, district, and facility levels through in-service training. It organised a series of in-service training on outpatient care and inpatient care of SAM for staff at the learning sites. Also, refresher training on community outreach was carried out for community volunteers.

In preparation for taking on the leadership for in-service training, the Programme Manager for Nutritional Rehabilitation, who is also the national CMAM Coordinator, participated in a 2-week training on CMAM in Malawi in February 2008 and in an International Workshop on CMAM Integration in Washington, DC, in April 2008, which enhanced his knowledge and capacity to organise and lead the in-service trainings for learning sites in Ghana. Also, with support from WHO/Ghana, UNICEF/Ghana, USAID/Ghana, and FANTA-2, an expanded WHO training for facilitators and clinicians was conducted, following which 10 facilitators, a course director, and a clinical instructor received in-service training as part of an effort to build the core team of trainers/facilitators. The in-service training of managers and direct implementers during scale up in the district learning sites is being conducted by this team of facilitators and clinicians.

Table 2 shows the number of staff trained at the learning sites. The learning sites are now staffed with trained and skilled staff, including trainers, supervisors, and implementers (e.g., clinicians, nutrition officers, community health nurses [CHNs], community volunteers). These staff are enthusiastic about CMAM as a result of high-quality training supported by clear protocols and guidelines and intensive supervision and mentoring. The ratio of one community worker per one community nurse shows that there have been insufficient efforts to train community workers. As a nurse covers more than a village/community, the ratio of one nurse to one community worker trained means that many villages did not have trained community workers. The recommendation is usually one to two community workers per village.

Table 2. Summary of Trainings Conducted at the Learning Sites as of May 2010

Regions	Districts	Number of Staff Trained in Inpatient Care	Number of Staff Trained in Outpatient Care	Number of Volunteers and CHWs Trained in Community Outreach
Central Region	Agona West Municipality	30	62	63
	Agona East Municipality	0	34	44
Greater Accra Region	Ashiedu Keteke Sub-Metropolitan Area	26	42	53
	Ga South Municipality	1	97	93
Total		69	252	253

Sources: SAM SU. 2009. *Annual Report*. and SAM SU. 2010. *Mid-Year report on the Integration of Community-Based Management of Severe Acute Malnutrition into the Ghana Health Services*.

With support from UNICEF/Ghana and USAID/Ghana, training of additional trainers and supervisors has already begun to allow smooth scale up in new regions, particularly the three northern regions of Northern, Upper East, and Upper West, as part of capacity strengthening and phased scale-up within Group 1 scale-up regions. A regional managers workshop was organised at the Agona West Municipality learning site for regional nutrition officers and public health nurses from Central, Greater Accra, Northern, Upper East, and Upper West Regions who work in managerial roles. In addition, health staff and community volunteers in the three northern regions are currently receiving training in CMAM corresponding to their level of responsibility; however, the process should be slowed down so that gaps identified at the learning sites are factored into the training process during scale-up to prevent the need for repeated trainings.

Currently, the training institutions are not used for in-service training on CMAM despite having provided such services in the past. For many years, the Rural Health Training School has had experience with running a management workshop on District Health Systems Operations (DISHOP) for district-level managers during holidays; it is therefore well-positioned to organise a CMAM workshop in a similar fashion for health personnel. The SAM SU should consider using the site as an in-service training centre for CMAM. This might give more weight to the certificate of participation delivered at the end of the course, especially if the School's teachers are among the facilitators of the CMAM training. Furthermore, if their capacity to use CMAM manuals and guidelines is built, they can be an additional resource to train facilitators and possibly support mentoring in the upcoming scale-up.

3.2.2. Pre-Service Training

CMAM has not officially been introduced into the training curricula of pre-service institutions in Ghana. For example, the review team's visit to the University of Ghana revealed that the nutrition degree programme housed in the Department of Nutrition and Food Science contained no specific course on SAM. The existing nutrition courses use the traditional approach of teaching, whereas courses on the management of nutrition and diet-related diseases are taught on a topical basis, and CMAM is mentioned as one of the interventions and not taught as a standalone programme. However, the handbook for IMNCI training was revised to include CMAM, and IMNCI was incorporated into the pre-service health institutions curricula, especially those under the MOH. Since then, these institutions have taught CMAM in the schools when the handbook is made available to the institutions and the pupils, which depends on the institutions resources. However, it was not immediately possible to know how many of the institutions are doing so as the review team visited only a limited number of them. Visits to the University of Ghana and the Rural Health Training School indicated that if resources were made available to them, they would be ready for a review of their entire curricula to ensure that CMAM is

appropriately incorporated and thought of throughout the health cadre-specific training programme.

Several examples of how CMAM could be taught as extracurricular modules were presented to the review team. The Department of Nutrition Degree of the University of Ghana provides short courses, including one on the Essential Nutrition Actions (ENA), and is willing to consider a short course for CMAM in collaboration with the GHS. Currently, at the Rural Health Training School in Kintampo, which trains medical assistants, nutrition technical officers, and disease control technical officers, IMNCI is taught as a standalone module at the end of the training programme. The review team suggests that IMNCI and CMAM both be integrated into the normal curricula. IMNCI and CMAM could be taught as their own modules, as is done now, but the duration of training should be shortened. It is important to note that the IMNCI module takes 7 days to complete and that students pay for the course to cover costs for printing the handbook and paying honoraria to instructors who come from outside the institution to facilitate the course. This method is expensive and will require additional funding if training in CMAM mirrors IMNCI training.

3.2.3. Operations Research

Health staff should be encouraged to carry out operations research to sustain interest and provide incentive for CMAM sustainability. The health providers demonstrated interest; there is some capacity to conduct operations research that can further be strengthened. Operations research findings allow for the identification of operational and clinical shortfalls in guidelines and provide evidence to be used to adapt the guidelines to the local context for improved effectiveness and impact. This is also part of QI.

Despite including operations research in past SAM SU annual workplans, there is currently no formal operations research being carried out. For example, the review team noted that despite its capacity to carry out research on CMAM implementation, Princess Marie Louise (PML) Hospital does not include operations research activities. The possibility of conducting research in such a programme does exist. Prior to CMAM, UNICEF/Ghana supported limited operations research in NRCs in the northern regions. Ready-to-use supplementary food (RUSF) was given to children with a mid-upper arm circumference (MUAC) between 125 and 115 mm (indicating moderate acute malnutrition [MAM]) as part of supplementary feeding at the NRCs or in the community over a 5-week period. In addition, RUTF was given to children with MUAC less than 115 mm (indicating SAM). According to the UNICEF/Ghana Nutrition Officer, the positive outcome of nutritional improvement within the 5 weeks of treatment determined the involvement of UNICEF/Ghana in funding CMAM. This shows that operations research is a powerful tool for winning donor support.

From the data and treatment cards reviewed, the following research questions could be addressed.

- Determine the survival and relapse of children 3–6 months after they are discharged when the discharge criterion is 15 percent weight gain. A retrospective assessment of the status of children discharged from the programme easily can be conducted since CHNs demonstrated the capacity to trace most of the children discharged from the programme.
- Determine the treatment outcomes of HIV-infected children treated using the CMAM approach. At PML Hospital, the majority of children with SAM were tested for HIV, so stratification of the treatment outcomes by HIV status is feasible.
- When reviewing the individual monitoring cards of those who returned after defaulting, the review team observed that almost half of children had already recovered by the time they returned, including those who defaulted after less than 1 month of treatment. It is important to confirm this finding by reviewing a bigger number of cards of those who returned and conducting focus group discussions with the caregivers of these children to identify the possible changes in care and feeding practices that might explain the recovery. The findings could help refine the nutrition counselling component of CMAM in Ghana.
- More than half of the children admitted to CMAM services/programmes in Ghana did not receive routine antibiotics since antibiotics were not always available at the site. A retrospective comparison of the treatment outcomes of children who received routine

antibiotics versus those who did not might help expand the evidence base of whether or not routine antibiotics should be given to children with SAM without medical complications.

- In most national health information systems, only one diagnosis is recorded for consultation and hospitalisation. Also, only one cause of death is reported and the underlying condition or co-morbidity is usually ignored. There has been an attempt to correct this by introducing a form that reports all of the conditions present at death. A study assessing the importance that such an approach might have on identifying the major causes of death and health priorities is important. The findings could help influence the epidemiology and definition of health priorities and refine the national health information system.

3.3. ACCESS TO CMAM SERVICES

The main comparative advantage of CMAM over the facility-based approach is that it increases the access to services through several mechanisms, including through service decentralisation and community mobilisation and sensitisation complementing the health workers' capability to provide SAM treatment.

The review team considered access to CMAM services to be optimal when:

- The confidence of actors in the health system is built, protocols are tested, and promising practices are tailored to the country context by establishing learning sites in a limited number of districts prior to starting nationwide scale up.
- The community outreach component is recognised to be important and the necessary human and financial resources are dedicated to it.
- The management of MAM is also prioritised and is formally linked with the management of SAM.
- There are decentralised outpatient units that reduce geographical barriers to accessing SAM and MAM treatment and each outpatient unit is linked to an inpatient unit that is within a day's walking distance.
- There is a functioning referral system ensuring that children are treated on time and are receiving the appropriate treatment for their conditions.
- There is an adequate number of qualified health care providers with appropriate training on the management of SAM and MAM who follow the CMAM guidelines verbatim. The review team determined that the trained health care providers were qualified if they possessed the requisite competencies and qualifications and were satisfied with the programme.
- The risk of disruption to services is minimised by integrating CMAM into the existing minimum health services package.
- Linkages are formalised with the informal health sector, including with traditional healers (herbalists, spiritual therapist) and traditional birth attendants (TBAs).
- There are plans for proactively engaging with preventive interventions, including those aimed at enhancing household food security or healthy environments.
- There are routine growth monitoring activities that focus on identifying and counselling undernourished children, including those with MAM and SAM at static and outreach mobile child welfare clinics.

3.3.1. Initial Implementation of Learning Sites and Gradual Scale-Up of CMAM Services

The review team observed that a phased approach was used to introduce CMAM. Within each region and district, implementation began by setting up learning sites before gradually scaling up

the service within the entity. Two regions, Central and Greater Accra, were selected as learning regions. Then a district was selected within each region, in these cases the urban districts of Ashiedu Keteke sub-metropolitan area and Ga South Municipality in Greater Accra Region and the rural district of Agona District in Central Region.¹¹ In Ashiedu Keteke sub-metropolitan area, CMAM was initiated in two outpatient care sites (PML Hospital and Ussher Polyclinic) and one inpatient care site (PML Hospital). In Agona District, CMAM was initiated in five outpatient care sites (Swedru Rural Community Hospital, Abodom Community Clinic, Duakwa Salvation Army Clinic, Nsaba Health Centre, and Kwanyaku Health Centre) and one inpatient care site (Swedru Government Hospital). In March 2009, all 17 health centres within the Agona West and Agona East Districts were implementing CMAM. New learning sites were also set up in Ga South District of Greater Accra Region to provide more learning opportunities in a peri-urban setting. Ten outpatient care sites (six health centres and four outreach points) were established in September 2009.

The analysis of admission figures shows that access is not yet optimal and more sites need to be opened. The total admission of SAM cases for treatment between April 2008 and March 2010 is shown in **Table 3**.

Table 3. Total Admission of SAM Cases in the Learning Sites' Districts from April 2008 to March 2010

Region	District	Start Date of Learning Site	Date of District-Wide Scale-Up	Total Admissions Before District-Wide Scale-Up	Admissions per Month Before District-Wide Scale-Up	Total Admissions After District-Wide Scale-Up	Admissions per Month After District-Wide Scale-Up
Agona	Agona West Municipality	April 2008	March 2009	38	3	138	11
	Agona East	April 2008	March 2009	58	5	88	7
Greater Accra	Ashiedu Keteke Sub-Metropolitan Area	April 2008	April 2009	70	6	329	27
	Ga South Municipality	August 2009	September 2009	0	0	119	17

Source: Adapted from: SAM SU. 2010. *Mid-Year Report on the Integration and Scale Up of Community-Based Management of Severe Acute Malnutrition Within Group 1 Scale-Up Regions of Ghana, October 2009–March 2010*.

The review team believes that many more children were in need of treatment during the period covered in **Table 3**. Indeed, using data obtained from Agona West Municipality as an example, the comparison between yearly admission (108 in 2009) and expected number of children with severe wasting (594, using the 2008 GDHS prevalence of 1.7 percent for Central Region and a total population of 116,562), the coverage estimated by indirect method is 18.2 percent (108 out of 594). The average monthly admission of 11 children since district-wide scale-up also supports the conclusion of insufficient coverage. This finding suggests that although the geographical scale-up was considered complete for these districts, the need for further decentralisation to improve access persists. In spite of this assertion, **Figure 1** depicts an increase in caseload trend at the learning sites of more than 30 per month beginning March 2009. Before March, admissions were far below 30 per month. This may be an indication of gradually improved access and coverage.

The health workers and managers interviewed disputed the review team's conclusion. They argued that the prevalence obtained from the GDHS used to calculate coverage might not be accurate. For them, malnutrition rates are lower than stated in the GDHS as the general screening of children under 5 during National Immunisation Days (NIDs) and vitamin A campaigns in the CMAM regions resulted in less than 5 children per round being recruited for CMAM despite the screening of 100 percent of expected children within the districts. Their position was supported by the seasonal variation in admission, with more admissions observed during the lean season than the harvest seasons (**Figures**

¹¹ At the time of scale-up, Agona District was split into Agona West Municipality and Agona East District.

1 and 2). This type of increase in service utilisation when service need increases in the community is considered by some to be an indirect sign of good services and geographical and financial accessibility.

Figure 1. Admission and Discharge Trends of CMAM Cases in Central Region, February 2008 to December 2009

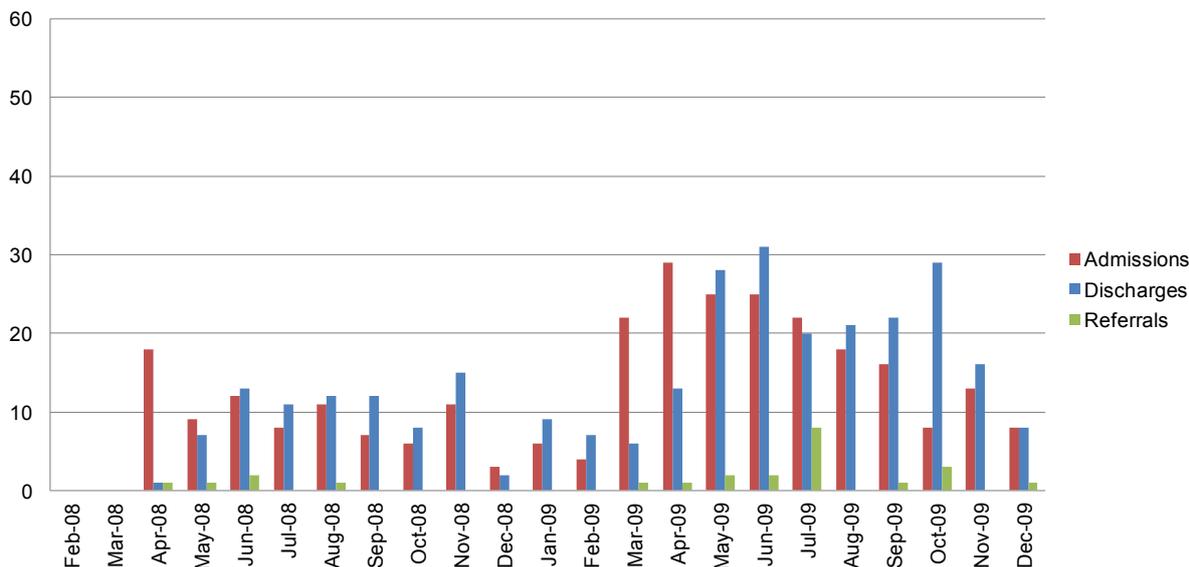
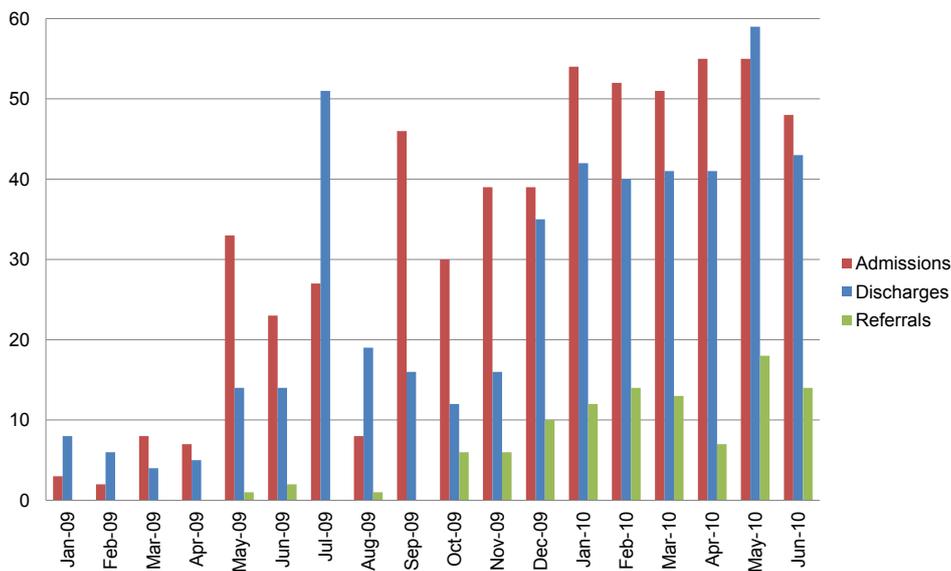


Figure 2. Admission and Discharge Trends of CMAM Cases in Greater Accra Region, January 2009 to June 2010



3.3.2. Learning Site Performance

Figures 3 and 4 show the service performance for the management of SAM in both inpatient care and outpatient care in Central and Greater Accra Regions. The death rates of 6.2 percent in Central Region and 5.2 percent in Greater Accra Region are within the acceptable standard of less than 10.0 percent. However, the cure rates of 49.5 percent in Central Region and 57.5 percent in Greater Accra Region are below the recommended standard of greater than 75.0 percent. The explanation for this could be found in the defaulter rate posted by both regions: 44.0 percent and 36.9 percent respectively, which are higher than the expected stand of less than 15 percent. However, Figures 3 and 4, especially their representation of the defaulter rates, underestimate performance, as many of the defaulters returned and were ultimately discharged cured. For example, for Agona West Municipality District from January 2009 to March 2010, of the 155 children treated, the cure rate,

mortality rate, and defaulter rate were 49.0 percent, 2.5 percent, and 48.5 percent, respectively, when the figures were not adjusted to take into account returned defaulters. The cure rate, mortality rate, and defaulter rate become 73.5 percent, 2.5 percent, and 23.9 percent, respectively, after reclassifying the final outcomes to include returned defaulters. This situation illustrates the need to adjust how programme performance is reported and the final defaulter numbers and rates for a given period should not include those who returned.

Figure 3. Total Discharged CMAM Cases in Central Region, 2008–2009

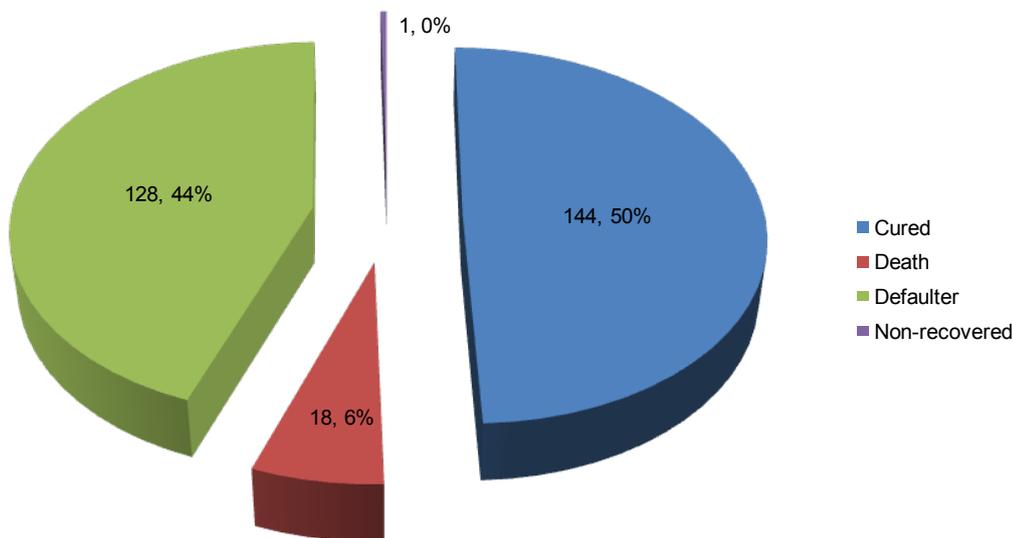
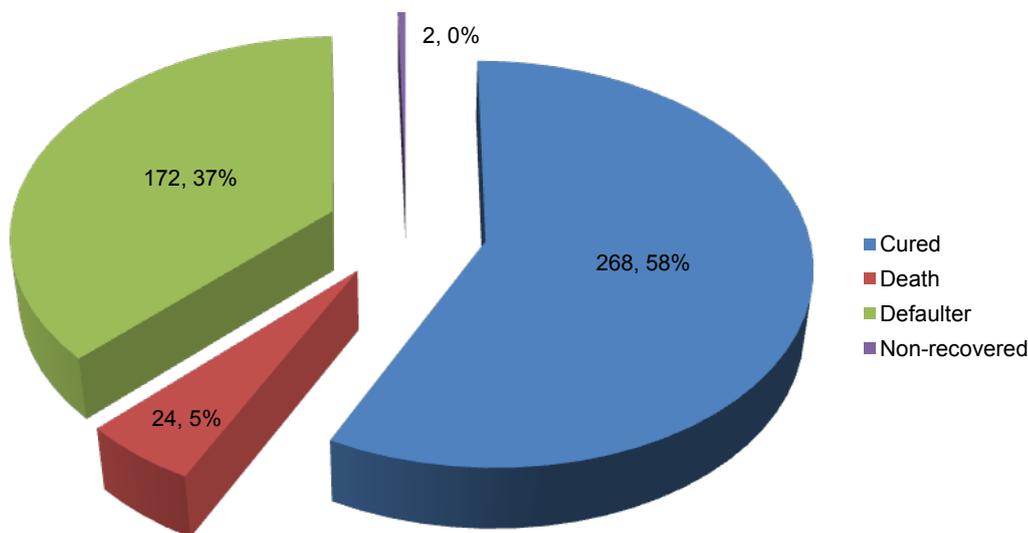


Figure 4. Total Discharged CMAM Cases in Greater Accra Region, 2009–2010



Even when reclassifying the final outcomes to exclude returned defaulters, the defaulter rate is likely to remain higher than the expected standard of less than 15 percent, mainly due to barriers to access, such as distance that mothers/caregivers had to walk to care sites, transport costs, some residing in neighbouring districts where a follow-up home visit cannot be carried out when a child is absent, and lack of resting/sleeping facilities at inpatient care sites. The other reasons mentioned included beliefs that malnutrition can be treated more successfully by traditional medicines and, for urban areas, the fact that many mothers/caregivers rely on casual jobs or small businesses for work and have limited flexibility to miss a working day.

The review team noted that efforts are made to address the high defaulter rates, which have translated into a higher number of returnees. In Agona West Municipality District, for example, half of the defaulters (38 of 75) returned after being traced and sensitised by community health workers. However, when data from all the learning sites is combined, the proportion of those who returned is

only 36.3 percent (103 of 284), according to the SAM SU CMAM programme report released in May 2010. In addition to strengthening the follow-up of absentees and defaulters, which was relatively effective in Agona West Municipality District, innovative approaches are needed to curb the high default rate. Approaches to test could include sensitising and collaborating with traditional medicine practitioners (TMPs) (e.g., herbalists, spiritualists, TBAs) to increase the referral of their clients with SAM to CMAM services; organising the provision of services to suit the characteristics of the population, especially in areas with the majority of the affected population rely on casual jobs or small businesses; and establishing linkages with private clinics located in strategic locations for CMAM clients, such as those near marketplaces or business centres where most of those relying on casual jobs or small businesses spend most of their daytime, as mothers go with their youngest children to sell their produce on market days and/or in search of casual jobs. Experience in the learning sites and in other countries has shown that growth monitoring and promotion (GMP) attendance increases when the activity day is linked with the market day and that this linkage could help minimise absenteeism and defaulting.

Weight gain greater than or equal to 4.0 kg per day is also used as a criterion for assessing the quality of care. The review team assessed the weight gain data of 166 children admitted at PML Hospital’s outpatient care site either directly or after initially being treated in inpatient care. The average weight gain of 5.6 g per kg of bodyweight per day exceeded the recognised standard of more than 4.0 g per kg of bodyweight per day. However, despite the adequate weight gain, children were maintained longer than needed in the programme, translating into an average length of stay (LOS) of 60.4 days, which is above the usual 42 days reported in most countries, even after the switch from the use of 2 months stay in the programme as discharge criterion to the current discharge criterion of greater than 15 percent weight gain. Some CMAM providers disclosed that they deliberately tended to keep a child longer than required for fear that they might relapse. This situation has led to an underestimation of the weight gain during the period of catch-up growth that occurs in early stages of treatment. This is illustrated by **Figures 5 and 6**, which show that overall weight gain decreased with the increase of the LOS, while the percentage of weight gain increased as the LOS increased.

Figure 5. Trends in Weight Gain According to the Length of Stay

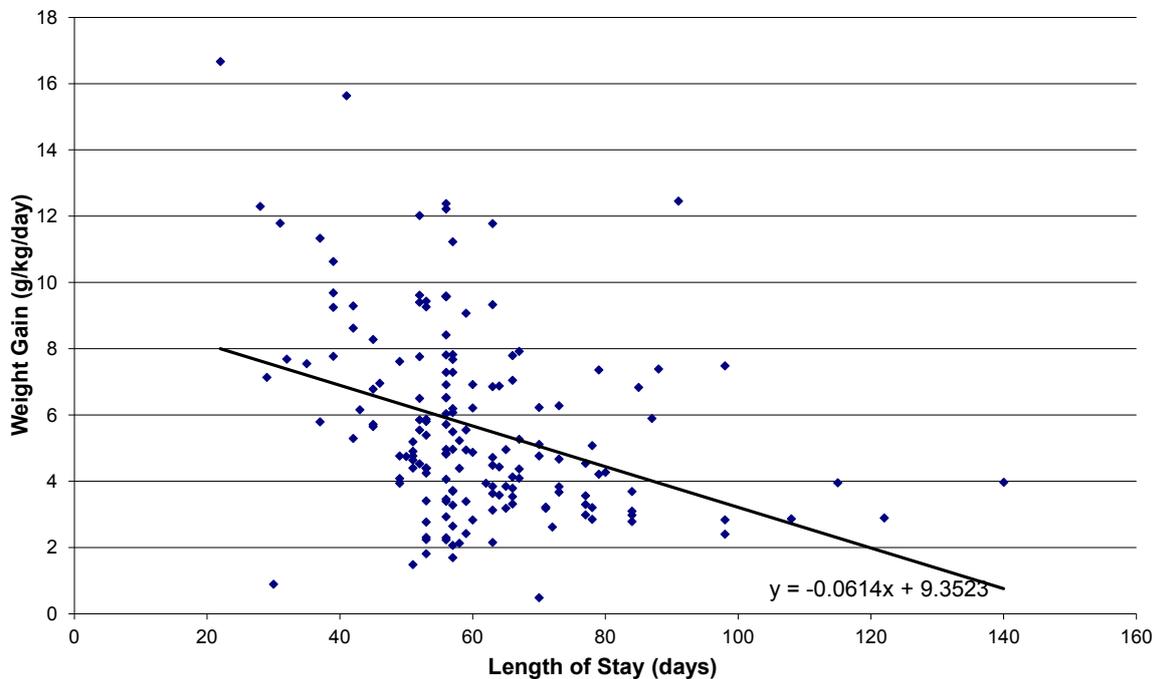
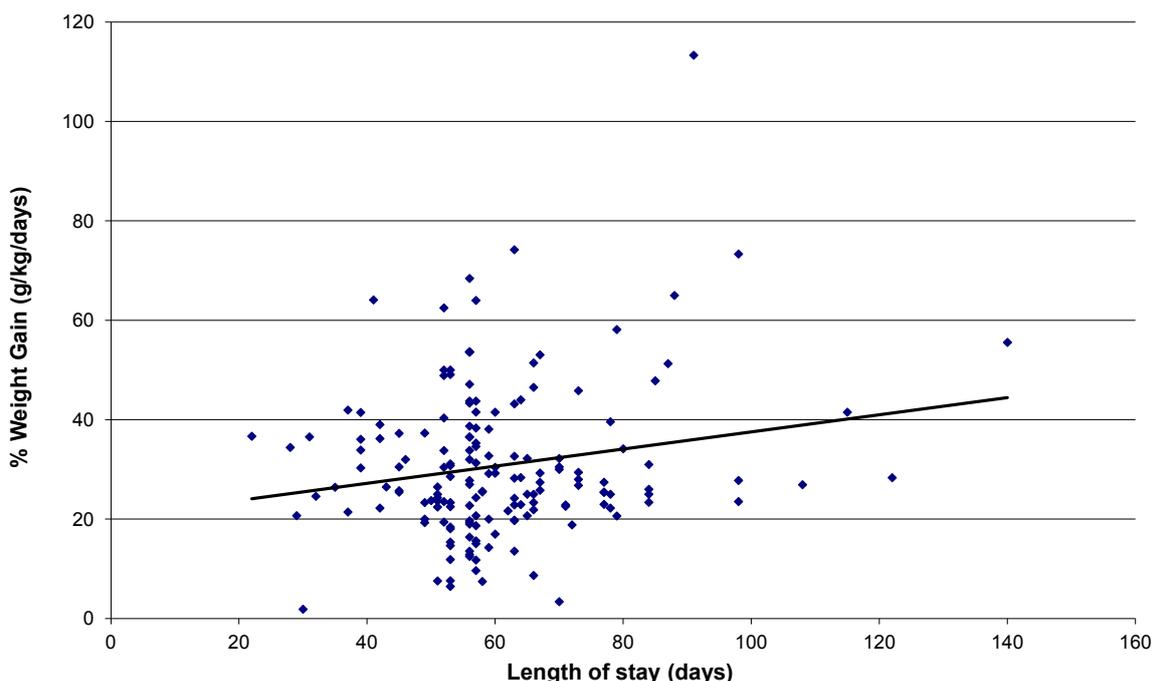


Figure 6. Trends in Percentage of Weight Gain According to the Length of Stay



Worldwide, CMAM programmes not using weight-for-height (WFH) as the discharge criterion for children admitted using MUAC measurements of less than 110 or 115 mm use either a percentage weight gain (15 or 20 percent weight gain) or a fixed LOS time criterion (usually 2 months). These criteria are considered promising practises and are based on the analysis of a limited number of CMAM programme data. But, the evidence behind the main 2 discharge criteria—2 months stay in the programme and greater than 15 percent weight gain—is still limited. Also, the consequences of staying in SAM treatment programmes for 2 to 3 weeks after meeting discharge criteria are not well documented. The review team felt that data from the Ghana CMAM programme could be used to reinforce the evidence base for using these two criteria. The review team comfortably drew the following preliminary conclusions.

- Because children continued to experience accelerated weight gain during the period they overstayed in treatment after meeting the discharge criterion of 15 percent weight gain, the additional stay in the programme was still associated with the deposition of reference tissue (lean mass). Excess energy and nutrient intake in children without nutritional deficits will be associated with more fat deposition and lower relative weight gain. This was not the case in the Ghana sites visited, and this means that the criterion of 15 percent weight gain leads to discharging children before full recovery.
- The discharge criterion of 20 percent weight gain might be more appropriate for settings like that of the learning sites in Ghana because this target was reached by 80 percent of the children in the dataset analysed and occurred within an acceptable LOS of 2 months.

3.3.3. Community Outreach for Community Assessment and Mobilisation, Active Case-Finding, and Referral

Community outreach is carried out by community volunteers, CHNs, and CHOs. Existing volunteers used for NIDs, vitamin A supplementation, community surveillance, guinea worm eradication, and other health initiatives are being used for CMAM community assessment and mobilisation. This ensures the efficient use of volunteers and takes advantage of the motivation arrangement for CMAM implementation, as volunteers are given an incentive package to support the NIDs. The volunteers are selected among the members of the communities and are assigned to specific communities. Depending on the size of the community and the distance between communities, some volunteers support two or three communities, but most support only one.

The outreach component of CMAM is implemented as part of public health outreach activities. Community volunteers are key for that component. They screen children at the household level by measuring MUAC and checking for oedema. They refer those with signs of SAM to the nearest health facility. The CHNs, CHOs, and field technicians (in Agona East District and Agona West Municipality) also participated in active case-finding of children with SAM when carrying out child welfare clinics (usually once per month) and during NIDs and child health weeks with the support of the community volunteers. This was in addition to their normal duties of reproductive and child health (RCH) outreach activities and management of the weekly CMAM clinics at the health facility level. In communities where there are CHPS zones/compounds, the community volunteers work in close collaboration with the CHOs. The CHPS was established to improve access to health service delivery in hard to reach areas; the referrals first go to the CHPS zone/compound and the CHO decides either to retain client at the outpatient care or further refer for inpatient care.

Active volunteers indicated that their motivation to participate in CMAM activities and continue working with health personnel to deliver CMAM services stems from the facts that they are helping their communities and that children are treated in a short period of time and recover quickly when enrolled in CMAM. Also, the house-to-house visits offer them the opportunity to interact and socialise with the community members. In spite of these incentives, there are problems with volunteers dropping out, especially in urban areas. This is because in the urban areas volunteers are able to get alternative jobs much more easily than in the rural areas. In general, most complain of the absence of income generating activities that can help them cover their basic needs or incentives that at least compensate part of the time invested in the voluntary work, especially in the rural areas, and often the volunteers had to leave their spouses and children at home for the whole day without being given any money for subsistence. The SAM SU has been considering providing incentive packages for volunteers that include T-shirts, wellington boots, and raincoats to use during the rainy season and identification tags to instil community confidence. Providing identification tags is especially important in the urban areas, where communities are becoming more cosmopolitan.

When asked about the reasons for the possible low uptake of CMAM that translated into lower number than expected admitted to the CMAM services, the volunteers gave several explanations, including that some referred cases do not go to treatment because of transport difficulties. Regarding referrals to inpatient care, the lack of adequate facilities and financial resources in the hospital to cater to mothers'/caregivers' needs were cited as reasons for mothers'/caregivers not going. They also mentioned that because of fear of stigmatisation, some caregivers with children with SAM hide them or do not allow the volunteers to assess these children. Instances where volunteers had to report cases of hidden children with SAM to CHNs for follow-up visit to the households were reported. Finally, volunteers pointed out that the frequency in which they conduct case-finding might be suboptimal. Because of the lack of means of transport, they are limited in the frequency they can carry out case-finding and in the geographical area they can cover. The problem was more critical for those serving several communities. This was a common situation given the one-to-one ratio of CMAM trained volunteers to CMAM trained nurses (see **Table 1**), compared with CHNs who typically cover several communities (up to 5 villages and 4,500 people).

3.3.4. Expanded Outpatient Care in Decentralised Health Facilities in the Reviewed Districts

All the health facilities visited had an outpatient department that provided both preventive and curative activities. The preventive activities are organised by the RCH Department and are run by public health nurses, CHNs, and nutrition officers. Although CMAM comprises mostly curative activities, it has been integrated into RCH activities, which include, among others, antenatal care, growth monitoring, nutrition counselling, and vaccination. This integration created an environment for CMAM success because the RCH Departments were well staffed (an average of 6 CHNs serving an area of about 10,000 people), the CHNs were already working with community health volunteers on a daily basis, and outreach activities were conducted on a weekly basis for the other RCH activities. Also, unlike nurses providing curative care who are used to having only one contact with the patients per episode of disease, those in charge of RCH activities are used to having multiple contacts with their clients, depending on service provided. Including the curative intervention in their minimum activity package was very motivating for CHNs as it was the only activity in which they could directly observe the benefit that occurred within days or a few weeks. CMAM outpatient care services are provided once

per week at these facilities. Children brought to the facilities are monitored, and mothers/caregivers collect the weekly ration of RUTF.

According to health personnel and confirmed by some satisfied mothers/caregivers with whom the team had focus group discussions, difficulties remain despite the fact that the current decentralisation level reduced the distances that mothers/caregivers had to travel to get to the health facilities weekly. The distances are still long to walk and it is not always possible to get transport money to bring children in for CMAM services. This is the main disincentive to mothers/caregivers, and in some instances led many to stop accessing treatment, which contributed to the defaulting rates observed with the CMAM programme. To address this problem, expanded outpatient care as part of the outreach clinics has been introduced by CHNs in areas where the defaulter rates are high. Outreach clinics where CHNs provide child welfare, family planning, and antenatal services are part of the GHS routine health service delivery. When CMAM activities are integrated in these outreach clinics, two to three CHNs work with community volunteers to identify SAM cases and treat the cases right in the community. However, staff complained about carrying the RUTF to get it to the communities due to lack of transport: currently, they have to carry a certain amount of RUTF on their heads even if they have to walk a distance as long as 20 km. Thus, the integration of CMAM activities into outreach clinics will have resource implications. There will be a need for a reliable transport method from the health facilities to the communities where outreach services are provided.

The NRC was the model used for the nutritional rehabilitation of children in Ghana, including in the regions and districts where learning sites are located. In most places, there were no standardised admission criteria and treatment protocols, and the same treatment protocol was used to treat MAM, SAM, and underweight. Children were mostly treated as outpatients, and the frequency of visits to the NRC varied from site to site. The review team noted that a few sites are concurrently running NRCs and CMAM services despite the fact that the SAM TC has been discouraging this and recommended that NRCs be closed in areas served by the CMAM learning sites. For these few sites, no clear guidance has been provided on how to integrate the two activities, so confusion on admission criteria and the objectives of the care provided easily occurs. Hopefully, the planned external review of the NRCs will help clarify the situation by identifying their needs and roles in the context of national CMAM scale-up.

3.3.5. Inpatient Care in Health Facilities with 24-Hour Care Capacity

As noted earlier, 24-hour CMAM inpatient care services are provided at PML Hospital in the Ashiedu Keteke Sub-Metropolitan Area and at Agona West Municipal Hospital. During the fixed facility and outreach clinics, children are screened for SAM, and those with medical complications are referred to one of the hospital facilities. As of the review, the CMAM programmes in Agona East District and Ga South Municipality did not include inpatient care, but used the nearest inpatient care facility. However, Ga South Municipality has a paediatrician experienced in the inpatient management of SAM and who is a national trainer, thereby contributing to efforts to establish an inpatient care facility by the end of 2010. This is necessary because the current geographical accessibility to inpatient care services is poor.

Accessibility to inpatient care services affected the programme differently from one region to another. In Central Region this translated into a low case load, especially in the only inpatient care facility (19 admissions in 24 months representing 0.5 percent of total admissions into the CMAM programme for the region). In Greater Accra Region this translated into the high proportion of initial inpatient care admissions of 27.1 percent (157 of 580 of total admissions into the CMAM programme in the region). According to doctors, nutrition officers, CHNs, and volunteers, in both regions the limited accessibility also translated into a high proportion of those who refused the transfer to the inpatient care facility (data to calculate the rate of transfer refusal were not available). Though the Sphere Standard for case fatality rates is less than 10 percent, 19.5 percent (22 of 113 admissions into inpatient care for SAM) in Greater Accra Region and 20.0 percent (4 of 20 admissions into inpatient care for SAM) in Central Region were reported.¹² This is certainly due to the late presentation of SAM cases, mainly

¹² According to the WHO's *Training course on inpatient management of severe malnutrition* (2002), a case fatality rate greater than 20 percent is considered unacceptable, 10–20 percent is poor, 5–10 percent is moderate, and less than 5percent is acceptable.

from limited geographical and/or financial accessibility, as noted by health workers, volunteers, and caregivers.

3.3.6. Referral System between Inpatient Care and Outpatient Care

A system of referral has been put in place in all the learning sites and scale-up districts based on the CMAM guidelines. Children with SAM identified through active case-finding during NID campaigns and at the community level by volunteers are referred to outpatient care at the outpatient care site; a decision is made to refer children with medical complications to inpatient care. There was a continuum of care and referrals occurred both ways. Clients discharged are referred back to continue with appropriate services needed; discharged inpatient care clients are referred to outpatient care and in some cases for rehabilitation services to continue treatment. After discharged cured from outpatient care, clients are referred to preventive services at child welfare clinics.

Nutrition officers follow-up with cases of children who were referred to inpatient care facilities; however, there was no evidence that children referred back to outpatient care from the inpatient care facilities were followed up with. Although at some sites nurses confirmed that some children referred back to the outpatient care site did not report there, the analysis of the national- and site level information databases did not confirm this as there was no sub-criteria recorded indicating where the children are returning from, and those returning from inpatient care, those returning from defaulting, and those move from one site to another are all recorded as old cases. Also, it is important to mention that contrary to old models of databases, the databases currently used do not give an indication on the effectiveness of tracing defaulters. Realising the programmatic importance of this information, the Central Region nutrition officer was obliged to set up a parallel tool to record children returning from defaulting.

3.3.7. Qualified Health Care Providers

In all the outpatient care sites visited, all qualified staff were trained on CMAM according to their level of responsibility. This was not the case, however, in all the inpatient care sites, where some nurses and doctors still had not received CMAM training. The success of the programme has been attributed to training all staff at the outpatient care sites of the RCH Department of health facilities providing both fixed and outreach services. Staff were able to partake in various tasks so that, most importantly, there was continuity of service provision in case a staff member was absent. This approach is considered a positive strategy in getting CMAM integrated in routine GHS services when compared to other interventions in which only focal persons were trained to provide the intervention.

3.3.8. CMAM Integration into Routine Health and Nutrition Services

There was ample evidence that CMAM has been well integrated into pre-existing routine activities of the GHS and is not implemented as a vertical stand alone programme at the learning sites. All fixed and outreach public health activities, growth monitoring, and routine EPI have a CMAM component. The staff were enthusiastic about the programme as a result of the rapid recovery of cases, creating a sense of accomplishment. At PML Hospital, management was able to find solutions for the provision of free services and medication for the first week of admission (most of the children are stabilised within 1 week and stay less than 1 week in inpatient care) and was making plans to increase the number of beds and their size to allow mothers/caregivers to stay with their children with SAM and attend to them during inpatient care. This is important as mothers/caregivers sleeping with their children will improve chances of recovery as they provide warmth for the children, a solution to hypothermia, which is common in children requiring inpatient care. In Agona West Municipality District, the level of integration of activities is elevated in that all the opportunities are used to strengthen CMAM implementation. For example, all meetings and trainings organised by any member of the DHMT were being used as an opportunity to talk about and train on CMAM.

CMAM also has been integrated with some vertical programmes that were been run at the learning sites, such as the NIDs. NIDs are used to strengthen active case-finding of SAM cases. Also, the integration has gone as far as incorporating CMAM into handbooks and training materials of some pre-existing programmes, such as IMNCI and World Bank-supported GHS Nutrition and Malaria Programme. For IMNCI, the review team learnt that the next stage is to provide health personnel with refresher training using the revised handbooks and training materials. The constraint now is funding;

though there is funding through HIRD, competing demands limit funding availability for the acceleration of IMNCI scale-up. For the Nutrition and Malaria Programme, training modules have been modified to include the identification of SAM using MUAC and the presence of oedema.

The review team noticed that the curative wings of many facilities' outpatient departments were behind in integrating CMAM in their routine activities. Children were not being systematically screened for acute malnutrition by clinicians when they presented with other complaints, and SAM was only identified based on visible signs. The review team considered that this was because health personnel in these settings have not been trained, though some were given an orientation on CMAM. This leaves much to be desired, as there is a high likelihood of missed opportunities to refer children who need treatment.

3.3.9. Linkages between CMAM and Informal Health Systems (Traditional Healers and Traditional Birth Attendants)

Communities hold the belief that SAM, especially marasmus (or wasting, known in local parlance as 'asram' or 'owee') is a spiritual curse. As a result, having SAM carries a stigma and children with the condition are hidden from the public. Most children with SAM that were identified through community outreach screening had been taken by the children's parents to the TMP for consultation. There has not been a formal link to the TMP system by training the TMP on identifying acute malnutrition and referral children to facilities, though community sensitisation had been done by CHNs and volunteers to enhance understanding about acute malnutrition and CMAM. TMPs constitute a formidable constituency and require an appropriate strategy to reach them.

At the learning sites, CMAM is gradually being linked to the traditional systems through local initiatives. At the Agona West Municipality learning sites, the review team learnt that dialogue with TMPs has been initiated by the nutrition officer and CHNs and a compromise has been reached in that TMPs will refer cases to the health facilities to deal with the somatic aspects of SAM whilst they take care of the spiritual aspect. This agreement is being followed, and cases are referred back to the TMPs, after nutritional recovery as agreed, for them to continue with the spiritual aspects of treatment.

The Agona Municipal DHMT is planning a workshop for the TMPs in the municipality to address the issue of collaboration between TMPs and the formal health system in a comprehensive manner. This is laudable and must be encouraged and supported within the context of the health sector policy of integrating traditional medicine into the existing allopathic¹³ health system.

3.3.10. Linkages between CMAM and Livelihood and Food Security Initiatives

The review team noted that inter-ministerial collaboration and linkages are limited from the national level (policy level) to the operational level. There was no immediate evidence of CMAM linkages with other community-based initiatives in the learning regions that were not organised by the GHS. As a consequence, the CMAM managers and implementers had not and were not proactively looking for information on livelihoods and food security interventions implemented in the learning regions with which to link. If such information was available to the implementers, mothers/caregivers of children for whom the CHNs believed that the likelihood of relapse was high could have been linked to a preventive intervention. Linking caregivers with livelihoods and food security interventions may be the most cost-effective approach to prevent relapse compared to prolonging the duration of treatment as relapse rate is low in children recovering from SAM and studies have found an association between participation in community-based nutrition programmes that include food security components and a reduction of the incidence/prevalence of undernutrition.

The review team learnt about existing WFP/Ghana initiatives and programmes in Ghana's three northern regions that focus on moderately malnourished children in deprived communities. If linked with CMAM, these initiatives and programmes could improve the effectiveness of case-finding or the long-term impact of CMAM services. These initiatives are:

¹³ In Ghana, allopathic medicine refers to the broad category of medical practice that is sometimes called Western medicine, biomedicine, scientific medicine, or modern medicine.

- Food provision as an incentive to participate in maternal and child health services: In this programme there is contact twice per month that can be used to screen children for acute malnutrition. Also, the food provision might help prevent relapse in children discharged from CMAM if their caregivers are linked to it upon discharge.
- Milling and fortification programme: This provides assistance to groups of women (40–100 women per group) to commercialise fortified grains to address micronutrient deficiencies in the three northern regions and thereby generate income. The risk of relapse and of the occurrence of acute malnutrition in siblings might be reduced if the caregivers of children discharged from the CMAM programme are included among the beneficiaries of this programme.
- Salt rebagging to address endemic goitre due to iodine deficiency: This activity also involves selling to generate income. It might have similar benefits of improving income and minimising risk of relapse and new episodes of acute malnutrition in the beneficiary households.

The review team also learnt about a new initiative that is trying to bring together actors from several government ministries who are concerned about food security interventions or who implement nutrition and food security interventions. This initiative aimed to reinforce coordination between the Ministries of Health, Agriculture, and Education and local governments, which all have nutrition and food security activities. It will be important that the discussions on issues to address include how relevant aspects of CMAM can be integrated in all the nutrition and food security activities of other ministries. Such linkages could strengthen the preventive component of CMAM and case-finding.

3.3.11. Accessibility to Free Services

The principle of free services for the management of SAM was accepted by almost all the CMAM implementers in the learning sites visited. PML Hospital did not charge clients for services provided for the first 7 days of stay. However, all the learning sites had limitations in providing free medications as funding for medications comes exclusively from the Drug Revolving Fund, whereby facilities use income generated from the sale of drugs to purchase more drugs for use by the facility.

Parents/caregivers have to pay for medications at the inpatient care facilities, but are often unable to pay. And, most families with children SAM are not enrolled in the NHIS. Not being able to pay for medications is a barrier to accessing appropriate care and contributes to mothers/caregivers defaulting in treatment. Some inpatient care facilities have offered concessions, ranging from free medication to requiring only half the cost depending on the client's level of poverty. At PML Hospital, care is provided for free for the first week a child is enrolled, and thereafter clients have to pay for inpatient care services. In the case of Agona West Municipality Hospital, inpatient care is free and mothers are provided with food from the hospital kitchen that otherwise would have been given to the children, as children with SAM are not fed with the hospital kitchen food but with therapeutic food prepared at the nutritional rehabilitation ward. Managers of the inpatient care facilities are concerned about the loss of revenue as a result of not being reimbursed for medications, but this has not been an issue because of the facilities' currently low SAM case loads.

3.4. ACCESS TO CMAM EQUIPMENT AND SUPPLIES

Access to equipment and supplies is a prerequisite for quality CMAM implementation and for the adherence of implementers and beneficiaries. Continuity in the access to supplies is crucial to the success of CMAM programmes. Thus, a well-functioning CMAM programme should have:

- Sustainable procurement and distribution systems for CMAM supplies, particularly equipment and RUTF, which is made possible by these supplies and therapeutic food being included in the national list of essential drug and supplies
- A system to manage CMAM equipment and supplies that is integrated into the health system
- Built capacities for national production of RUTF and explored additional opportunities for ready-to-use food (RUF) social marketing

3.4.1. Procurement of CMAM Equipment and Supplies

UNICEF/Ghana is procuring RUTF (Plumpy'Nut[®]), therapeutic milk (F-75), Rehydration Solution for Malnutrition (ReSoMal), and CMV and is supplying them to the learning sites. A total of 2,320 cartons of RUTF were given to the GHS at the start of the programmes in 2008, and an additional 1,000 cartons were given in 2009.¹⁴ To date, there have not been shortages in the supply of RUTF, which was confirmed at the learning sites. Regional and district staff were appreciative to the GHS and its partners for their effort to ensure the continuity of supply and associated the current success of CMAM with that continuity. They mentioned that the sustainability of CMAM will depend on the continuous supply of RUTF. Based on past experience with other programmes, they expressed concerns that access to RUTF could become problematic in the near future when FANTA-2 and UNICEF/Ghana support wanes. Having evidence of a highly successful programme at the learning sites, they are nervous that difficulties in procuring RUTF would interrupt scale-up and the provision of services. The review team indicated to staff that the GHS is currently discussing with partners long-term plans to secure a sustainable supply of RUTF, as UNICEF/Ghana alone cannot procure and supply to all sites in the context of country wide scale-up.

Commercially pre-prepared therapeutic milks (F-75 and F-100) were not available at the start of the programme, but F-75 is now available. To fix the temporary unavailability, hospitals were provided with the ingredients needed to make the milks themselves, including cow's milk, vegetable oil, sugar, and combined mineral and vitamin mix (CMV). PML Hospital and Agona West Municipal Hospital prepared therapeutic milks using locally available ingredients (dry skimmed milk, oil, and sugar) and imported (UNICEF/Ghana-supplied) CMV, in line with the WHO F-75 and F-100 recipe standards.

Also, anthropometric equipment, outpatient care and inpatient care forms, and job aids were available, displayed, and in use at the learning sites. Thermometers were not always available, and where they were available, supply was insufficient. Others complained of batteries frequently needing replacement. GHS received funding for the equipment and forms from various sources, including FANTA-2 and UNICEF/Ghana.

Antibiotics were available in the facilities, but were not always accessible, and the majority of children admitted directly to outpatient care did not receive antibiotics. UNICEF/Ghana provided a stock of antibiotics to the GHS to use in CMAM services at no cost for children with SAM, but it had not yet been distributed, as arrangements on how these free antibiotics will be managed at the health facility level had not yet been made. As UNICEF/Ghana is committed to providing free antibiotics for use in CMAM services, it will be important for the GHS to make arrangements with UNICEF/Ghana to supply the antibiotics to the health facilities until the GOG reinforces the national policy of free health care for all children under 5. It will also be very important to retrospectively assess the impact that low availability of antibiotics has had on the response of children with SAM to the treatment.

3.4.2. Management of CMAM Equipment and Supplies

Upon arrival in Ghana, RUTF and equipment are delivered and stored at a UNICEF/Ghana warehouse in the city of Tema. The supplies are then requested by the GHS and supplied through the GHS system. The need for reports on stocks by the facilities and DHMTs is a major concern, and the SAM SU has put in place a CMAM supply system within the learning sites to address this. Health care providers have been trained on how to use the system, whereby they report on inventory levels on a monthly basis and make requests to the DHMT for supplies when they have only one carton in stock. The stock reporting has been incorporated into the weekly tally sheets and monthly reports to systematise and improve stock control and reduce the risk of running out of supplies due to delay in requesting stock replenishment.

Regional SAM STs have been trained on how to forecast annual RUTF needs for their regions. The regional managers have prepared workplans for 2010 that include RUTF needs for their districts.

¹⁴ SAM SU. 2009. *Annual report on the Integration of Community-Based Management of Severe Acute Malnutrition into the Ghana Health Services, October 2008 – September 2009.*

3.4.3. National Production Capacity for RUTF

Local production of RUTF would allow Ghana to be able to meet national and regional demand. The SAM TC, with USAID/Ghana, UNICEF/Ghana, and FANTA-2 support, coordinated two technical assistance visits to review the options for national production of RUTF, assess the feasibility of national production, and identify potential producers, including their capacity and the market demand. The first visit was from Nutriset in France, and the second was from Steve Jarrett at UNICEF. A feasibility study was conducted, and it was concluded that there is potential for commercial production of RUTF in Ghana.

Athena Foods, located in Tema, was initially selected as the local producer, and a series of meetings and a follow-up visit were held between Athena Foods and Nutriset, the GHS, UNICEF/Ghana, FANTA-2, USAID/Ghana, and the Global Development Alliance. An initial contract was signed between Athena Foods and Nutriset, however, the contract was terminated after the managing director of Athena Foods resigned from the company. Nutriset selected another company, Healthilife Limited, for partnership in the set-up of a local production unit in Ghana, and the process to commence local production was beginning at the time of the review.¹⁵

3.5. QUALITY OF CMAM SERVICES

The dimensions of CMAM performance assessed during the review are those related to the acquisition and adherence to the knowledge and practices that increase the likelihood of meeting internationally recognised performance criteria of a cure rate greater than 75 percent, a mortality rate less than 10 percent, and a defaulter rate less than 15 percent. To meet this level of CMAM service quality, the review team expected that the following conditions would be in place.

- Standardised guidelines, job aids, and training materials exist, have been widely disseminated, and are adhered to by all implementers, including managers, trainers, and direct care providers.
- Responsibilities to ensure support and supervision of CMAM are well defined, and supportive supervision visits are regularly conducted and effective in identifying poor practices and in improving implementer skills.
- CMAM routine monitoring data that include data on caseload and performance are integrated into the national HMIS, which is functioning.
- The set-up and scale-up plans include regular evaluations to inform future plans for service utilisation by the intended beneficiaries, capacity building, protocol adaptations, and impact maximisation.

3.5.1. Adherence to Standardised Treatment Protocols

At the time of the review, the standardised treatment protocols and jobs aids were developed and available at all the learning sites. The majority of direct care providers were using them and had reached a high level of adherence to the standardised protocols, though there was variation from individual to individual and site to site in adherence. The main determinant of good adherence to standardised treatment protocols is the intensity of supervision and support received initially from the SAM SU and the training received by the implementers. The review team observed that the case load influenced the extent to which the standardised protocols were applied and adhered to, as sites with higher case loads learned and improved faster than sites with low case loads. Verbal evidence from interviews shows that the cure rate might be a motivating factor in adhering to the protocols. A proposal to further simplify the treatment protocol to reduce workload was, rejected out of fear that the changes could negatively affect cure rates. The staff are not prepared to sacrifice any aspect of the protocols, but were prepared for additions to them that would enhance their performance. However, the review team is of the opinion that it will be interesting to reassess these aspects after the caseload

¹⁵ Due to a misunderstanding between Nutriset/Plumpyfield Network and Healthilife on the norms of operation in the partnership, an agreement between the two parties on the national production of RUTF ultimately was not signed.

has significantly increased. The review team noted that there was room for simplification of the protocols and procedures, and this should be considered if the case load increases.

3.5.2. Supportive Supervision

Supportive supervision of the learning sites was carried out by the SAM SU twice per month for a period of about 2 to 3 months and was intended to mentor the implementers. The focus of the support and supervision was on adherence to CMAM protocols, admission procedures, use of the action protocol, the quality of screening and assessment of malnutrition using MUAC tapes, testing for bilateral pitting oedema, and the quality of individual and service data recording and reporting. The quality of the management of SAM in the outpatient care and inpatient care sites visited during the review was very high due to the intensive supportive supervision. This was because supportive supervision served as follow-up for on-the-job training to ensure improved understanding of the rationale underlying the protocols. Development of proficiency in CMAM service provision that resulted from the intensive supervision and mentoring was mentioned as the key factor for the observed quality of implementation.

3.5.3. Monitoring of Individual Care

The CMAM monitoring tools for outpatient care include outpatient care treatment cards, tally sheets, and reporting forms. Children with SAM were monitored satisfactorily by the implementers. Weight and MUAC of children were measured in-line with the recommended standard and recorded on outpatient care cards immediately. The review team was impressed by the fact that in most outpatient care cards reviewed, the RUTF amount to be supplied was regularly adjusted to reflect the child's current weight, which might explain the observed good average weight gain and the high number of children achieving adequate weight gain. Record keeping and reporting was also excellent, making it easier to carry out a retrospective analysis of the data.

At the beginning of CMAM implementation, there was resistance to the introduction of CMAM monitoring forms. Filling out the records was cumbersome and time consuming. However, with intensive supervision and mentoring, staff gained confidence. Staff shared that it took about 6 months to build their confidence, but now they can perform the expected CMAM tasks routinely without interference with other tasks. Resistance to taking on the tasks also subsided when staff noted the rapid recovery of children with SAM in contrast to the conventional approach that was previously used to rehabilitate and counsel clients.

The monitoring of individual SAM cases was a shared responsibility. The measurement was done by one health worker and the recording and counselling by another health worker. The review team learnt that this is the usual practice, as staff are always paired to carry out every child welfare and CMAM session. After measurements were taken, staff spent time with mothers/caregivers and counselled them on how to feed the malnourished child at home and on other young children feeding and care topics and mothers/caregivers were given RUTF in accordance with guidelines and based on the recorded weight of the child.

3.5.4. Monitoring of Service Performance and Integration into the Health Management Information System

Using reporting forms that are different from those supplied for the national HMIS, CMAM service performance is reviewed monthly at the sub-metropolitan area, municipality, and district levels. It is important to know that at these levels, CMAM data is managed by the nutrition officers and not yet by the health information managers linked to CHIM who handle other health service data. The review team learnt that this was because the programme was new and at the learning stage. However, the head of the CHIM mentioned that it is possible to include some CMAM indicators and expressed his willingness to modify the data collection tools and web-based database to do so. He revealed that the tools will be revised very soon and promised to involve the SAM SU in the process.

3.5.5. Reporting System

Data on CMAM activities were collected using different data collection tools than for the other health facility's activities, and a slightly different reporting line was used to transmit the information to the higher level. After collection and compilation, the data then were sent to the higher level. At the national level, CMAM information was managed by the CMAM Coordinator, not the CHIM office. Thus, the CMAM reporting system is not yet well integrated into the national HMIS for reporting all health activities.

4. Promising Practices

The learning site approach to implementing CMAM was intended to generate lessons learnt and promising practices that will be useful during the scale-up process. The following promising practises were identified.

- Usually the international partner supporting the intervention takes the lead during the time the intervention is rolled out and its initial phase of scale up. For CMAM in Ghana, the GHS took on this role during the planning, implementation, and early scale-up stages. Because of this, service uptake at all levels has been rapid. The review team observed that after only 2 years, national-, regional-, and district-level structures are in place for the institutionalisation of CMAM. Also, this approach led to CMAM being regarded as a national government-led programme rather than a donor-driven programme.
- The establishment of a SAM TC as a forum for guidance and coordination of CMAM implementation and scale-up was an important step for speeding up understanding of CMAM, developing interim guidelines, and strengthening national competencies. Without this type of coordination, multiple consultative meetings might have been needed to complete the *National Interim Guidelines for CMAM in Ghana*.
- Consensus building prior to rolling out CMAM to enable good coordination between development partners (WHO/Ghana, UNICEF/Ghana, USAID/Ghana, and the GHS) seems to have been the key factor that enabled principal stakeholders to become members of the SAM TC, which is responsible for the overall management of CMAM activities in the country. The good coordination prior to roll out facilitated the access to funding to hire the required technical expertise and purchase supplies. It enabled the selection of learning districts from those already supported by donors represented in the SAM TC, for which funding for CMAM will be easily accessed. Having adequate stock of RUTF and the rapid development of national capacity in training and monitoring for CMAM were also results of the good collaboration and coordination.
- The decision by the GHS to request external and in-country technical and policy expertise from the planning stage allowed the existing national expertise to quickly gain confidence and ensure a good start. It also allowed for the smooth process of adapting guidelines and training materials to the Ghanaian context.
- Exposing the CMAM Coordinator to the experiences of countries that had adopted and scaled up CMAM countrywide and to CMAM international experts was key to building his confidence in CMAM and to enabling him to confidently advocate for CMAM within the GHS Nutrition Unit at the national level, DHMTs, and RHMTs. The confidence he gained from that exposure enabled him to overcome the resistance of some managers to adopt CMAM by confidently emphasising the fact that while CMAM is new, it is already part of the routine health care package. This approach, in addition to the GHS providing leadership through the CMAM Coordinator and the national SAM SU, contributed to the fast integration of CMAM into the routine activities at the learning sites.
- Learning sites should be set up to generate national experience, enhance understanding, and refine strategy. This has increased commitment and confidence and the likelihood of that CMAM will be integrated into the routine health package.

- The use of a phased scale-up approach within the regions and districts allowed the most experienced members of the SAM SU, especially the CMAM Coordinator, to participate in the supervision and mentoring of CMAM care providers in almost all the learning sites. This has the advantage of ensuring that quality is maintained during scale-up and that the implementers are trained and mentored by appropriately trained people to maximise CMAM effectiveness and impact.
- A demand-driven approach was used for scale-up within the regions and districts. This was associated with faster uptake of the protocols as the implementers were keen to demonstrate that their demand was justified and that they had the capacity to implement the programme.
- The integration of CMAM outpatient care into the RCH service package delivered by the public health teams, which mostly includes preventive activities, was very successful in the Ghanaian context. Public health teams were highly motivated by the implementation of a curative activity and rapid clinical improvement of children. Also, they were more equipped to provide services that require multiple regular contacts. Experience in other countries showed that nurses providing ambulatory curative services had difficulties in coping with the needs of the multiple weekly visits required for children following CMAM protocols.
- The approach of training all the CHNs active at the learning sites as opposed to training only 2 to 3 CMAM focal points enhanced team working spirit and support to the programme. It maximised the chances of continuity of care and helped to convince implementers that CMAM is a government-owned intervention with a long-term perspective that requires the involvement of all health care providers.
- Ensuring intensive and close monitoring and mentoring of implementers by adopting frequent supportive supervision visits (2 supervisions per month for 1 to 3 days each) at CMAM initiation was a successful approach. The review team is convinced that the observed good quality of service implementation could not be reached within 2 years without this component of the implementation strategy. This also has been a vital motivator for staff.
- The existence in Ghana of a health workers' national performance appraisal system that includes in-service training among its criteria for awarding career promotion is a motivating factor for CMAM training attendance and introduces some accountability. It also enhances the value of the certificate delivered at the end of the training.
- Since the initiation of CMAM services, RUTF has been distributed using the same channel as other health supplies (same transport and same warehouse). In Ghana, this reinforces GHS ownership, minimises the risk that the intervention will be considered donor driven, and increases the chance of the distribution system's sustainability.
- The CMAM programme did not select new volunteers; they are the same as for other health programmes, especially in the Central Region. This minimises the risk of volunteers requesting a special motivation scheme and enhances the chances for smooth integration of SAM case-finding within the other activities carried out by the volunteers. However, this should be done taking into account the maximum time that an unpaid volunteer can use for volunteering.
- The review team noted that mother-to-mother sensitisation on the existence and effectiveness of CMAM and referral was occurring and has been successful. Indeed, in some sites, some caretakers disclosed that they were referred to the CMAM programme by other mothers. This suggests that the use of this approach, if formalised, could increase programme admission of SAM cases by complementing the case-finding activities of the network of volunteers. It also suggests that the role of women's and grandmothers' groups in CMAM service delivery needs to be explored.
- The use of new information technology (SMS messages and telephones) by CHNs to communicate with community volunteers to prompt them to carry out follow-up of cases, especially of defaulters. This approach, initiated by the implementers themselves, helped to overcome the lack of transport means for regular (weekly) outreach activities and increased

the proportion of defaulters who returned. Unfortunately, the lack of a specific budget to cover the cost of such communication might make it difficult for CHNs to sustain the initiative, as they might not be able to continue meeting the cost with their own money.

- At the district level, collaboration between managers of different interventions ensures the integration of trainings and sensitisation meetings. For example, the review team was informed of resources for TB programmes being used to sensitise community workers on CMAM or provide refresher training to community volunteers. Such synergy optimises the output of the programme, as, in this case, more communities were sensitised and more volunteers trained than the available CMAM budget allowed.

5. Weaknesses and Gaps

Despite the successes of CMAM implementation, there are some challenges or weaknesses that the SAM TC, SAM SU, and partners need to address.

- There is no national nutrition policy, though one is needed to provide guidance and momentum for nutrition interventions and to ensure that nutrition is linked to food security.
- There is no specific budget line allocation for nutrition, especially at the operational levels, as the health sector has been using the sector wide approach (SWAP) to health planning and budgeting since 1996. Within this context, budget management centres (BMCs) at all levels are allocated global budgets based on BMC plans. The BMC is a cost centre that can be a management or administration office or a health facility that holds and manages budgets within different levels of the health system, MOH/GHS officers are appointed to manage the BMCs. BMC managers have the discretion to allocate resources in line with their priorities. While this approach has its positives, it also has its negatives, which put marginalised programmes at risk of not receiving adequate funding for effective implementation.
- The review team observed that the selective training of the RCH team led to a passive involvement among the team of clinicians in charge of the curative activities, as they were not trained and were uncomfortable with CMAM protocols. This meant that SAM cases could have passed through health facilities' outpatient departments without being diagnosed or offered SAM treatment.
- Community mobilisation did not specifically target TMPs, who play a vital role in the health delivery system. This segment of the population has not been effectively sensitised or trained on CMAM (with the exception of Agona Municipality District where their tentative involvement was reported), and therefore are not linked to the screening and identification of SAM cases.
- Ghana, like many developing countries, suffers from high rotation and attrition of medical personnel. Hospitals tend to lose experienced staff, including those who have received specific inservice training. This includes experienced CMAM staff who are usually hired by nongovernmental organisations (NGOs) or are transferred to other hospitals. Thus, it is insufficient to base the capacity building strategy solely on in-service training. Building the capacity of the faculty of pre-service training institutions on CMAM and incorporating CMAM into curricula have not yet been carried out. This means that pre-service training institutions will continue to graduate students without CMAM competencies. However, the review team learnt that there was already a plan to engage with training institutions to explore the possibility of integrating CMAM into the pre-service training curricula.
- The learning sites have demonstrated the potential and viability of CMAM. Though there is some documentation on this, more detailed documentation is needed. It should include data collection on programme outputs and outcomes using multiple approaches, such as data recording in a computerised database, video recording, and before and after treatment pictures that can help demonstrate the effectiveness and impact. Such documentation is essential as advocacy tools to disseminate experiences, especially to policymakers to solicit support and funding.

- The review team observed that community mobilisation and case-finding are weak. This is because that, while using volunteers is advantageous, it has its limits, since volunteer enthusiasm wanes with time. Strategies for sustaining enthusiasm and commitment are vital to minimise drop-out and the need to frequently train new volunteers. CMAM is being implemented at the learning sites without a structured strategy for volunteer motivation to ensure sustainability of community mobilisation and active case-finding strategies, which is largely dependent on community volunteers.
- Staff confirmed that the initiation of CMAM integration and ownership was clearly specified and promoted, and health care providers embraced and understood the concept. However, the fact that some partners, including FANTA-2, pay directly for some expenses undermines the sense of ownership and integration and contributes to CMAM services being viewed as a project. This likely explains why the health care providers and managers were reluctant to allocate funds from their Income Generated Fund (IGF) for CMAM and that they still do not budget for CMAM and expect partners to fund the service
- There are no linkages between CMAM and other interventions that impact the population and individual nutritional statuses, such as the initiatives of other ministries and local NGOs.
- Although regional and district SAM STs will help reduce the workload of the national SAM SU, as CMAM expands nationally, the review team believes that the SAM SU is too understaffed to successfully manage the next steps of CMAM scale-up while ensuring that the quality seen at the learning sites remains during the scale up, which will increase the workload at national level.

6. Opportunities

The review team noted that several ongoing or upcoming government initiatives can be used by the GHS and its partners as opportunities to improve the policy environment for CMAM.

- The development of the national nutrition policy, which will commence after the learning sites have demonstrated the potential and viability of CMAM, will put the SAM TC in good position to advocate for the inclusion of aspects that will strengthen CMAM activities and increase the likelihood of sustainable funding.
- Training institutions are open to the idea of integrating CMAM into pre-service curricula and are ready to be involved in the in-service training as facilitators/instructors and/or as organisers of standalone short courses (providing recognised certificates). This offers the opportunity to improve national capacity for CMAM in a sustainable manner. Also, the review team learnt that with advocacy and commitment from the GOG and students, some of the cost of pre-service training or standalone short course in-service training can be met.
- It is important that the government policy of imposing continuous learning and yearly licence renewal for medical doctors and of nurses' promotion based on continued learning include CMAM among the accredited modules. The review team encourages the current efforts to package the CMAM inpatient care training course for clinicians as an accredited module for which attendees would earn credit upon attendance.
- The MOH and GHS recognise the policies providing free services for children under 5 and for pregnant women and newborns as part of the NHIS. This means that the SAM TC can rightly advocate for the inclusion of free provision of medication and RUTF in the national budget and/or among the free services covered by the NHIS.
- There is discussion in Parliament on the adoption of a policy for free health care for all children under 18. The SAM TC should take the opportunity to also advocate for free health care for children with SAM and the inclusion of this into the NHIS mandate. This should be coupled with advocating for the inclusion of RUTF in the national list of medicines whose cost can be reimbursed by the NHIS.

- CMAM supplies, especially RUTF, could be integrated into the national budget through ring-fencing, as is done for other health commodities. This was recognised by GHS managers as a possibility to be explored.
- Satisfied mothers should be used to support community mobilisation and case-finding. The review team noted that most of the satisfied mothers were very keen with the idea of collaborating on community mobilisation.
- Although WFP/Ghana is not implementing its nutrition programme¹⁶ in the learning sites, the review team believes that linkages between the two initiatives should be advocated. This linkage provides an opportunity to strengthen case-finding in the community and reinforce prevention of SAM for caregivers who have already attended CMAM by ensuring access to income-generating activity programmes.
- Most of the key development partners are about to develop their next 5-year country programmes. This offers the possibility of using the results of the present review and the recommended high profile dissemination meeting, which would be attended by the most influential donors, policy makers, academics, and implementers, to secure CMAM funding from the main development donors. USAID/Ghana should take advantage of the various forums and meetings with other major GOG donors to advocate for CMAM. USAID/Ghana is in a good position for doing such advocacy since it has already shown commitment to supporting CMAM with almost 50 percent of the USAID/Ghana budget allocated for nutrition going to CMAM support.
- The opportunity to strengthen the community outreach component of the programme exists because of the willingness of some NGOs to collaborate on this activity. World Vision/Ghana and the Adventist Development and Relief Agency (ADRA) might, for example, introduce and share with the CMAM implementers their experience of using grandmothers and mother-to-mother groups approaches in the community mobilisation and implementation of their health interventions.
- UNICEF/Ghana could provide free medicines for children with SAM as an interim solution. This possibility offers the SAM SU the potential of already improving the adherence to CMAM medical protocols while working on securing more the sustainable funding solutions mentioned above.

7. Sustainability

The sustainability of CMAM activities is dependent on the following critical factors.

- The availability for RUTF must be ensured, which, as the situation stands now, is entirely being supported by UNICEF/Ghana. If the GOG continues to have difficulties absorbing the cost of RUTF, it will require a sustained commitment from development partners.
- Long-term sustainability will be ensured only when DHMTs are keen to incorporate CMAM activities, including refresher training, supervision costs, and community mobilisation, into district plans and budgets. Also, if all the country's RCH teams reach the level of job satisfaction and commitment observed in many of the learning sites visited, this can encourage more involvement from the DHMTs.
- Long-term sustainability of CMAM will depend on the sustainability of case-finding in the community for early presentation in treatment. Developing a strategy to motivate community volunteers is crucial. Sustainable ways of motivating them, such as involving the volunteers in quarterly review meetings and district- and facility-level activities, which come with some monetary or in kind incentives, should be encouraged.

¹⁶ The programme provides food as an incentive to participate in maternal and child health services and targets all children under 5.

8. Recommendations

8.1. SHORT-TERM RECOMMENDATIONS FOR THE LEARNING SITES

- Strengthen the CMAM community outreach component by carrying out a coverage survey to determine the extent of problem of SAM, compare results to the current uptake of CMAM services, and address the barriers to access. It was noted that this activity was in the SAM SU workplans but had not been carried out yet. In addition, TMPs should be sensitised and involved in case-finding and referral to outpatient care. The drop-out rate of community volunteers should be reduced, which can be achieved through a planned incentive package for them, including organising quarterly review meetings with them and giving them identification tags, T-shirts, and, if possible, rain coats and wellington boots. Other approaches for community mobilisation and case-finding, such using mother-to-mother support groups or grandmothers groups, to complement the community volunteers activities should be explored.
- Provision of free services and medicines for children with SAM should be addressed as an interim measure. Medicines donated by UNICEF/Ghana should be used until the national policy of free health care for all children under 5 is revived. The GHS should dialogue with the MOH and NHIS to ensure that SAM is included among the criteria for identifying those poor people who are entitled to free services and medication by under the NHIS.
- CMAM should be integrated into curative outpatient care operations and procedures to increase coverage and minimise missed opportunities. This means that clinical teams at outpatient care sites should be trained to use MUAC and participate meaningfully in CMAM.
- Exchange visits should be organised for both clinical and public health teams to foster the exchange of ideas and capacity strengthening to enhance the provision of quality CMAM services.
- The capacity of the regional officers to conduct supervision and mentoring, especially in Central Region, should be built to enable them to take over these responsibilities from the national CMAM Coordinator. The whole of 2010 was devoted to capacity building, and whilst Greater Accra Region had carried out supportive supervision in the learning sites, Central Region carried out little or no supervision.

8.2. GENERAL SHORT-TERM RECOMMENDATIONS

- Fast track the development of the national nutrition policy to provide the needed direction for nutrition programmes in general and CMAM in particular. The policy should include the provision of free services and medicines for SAM.
- The leadership role of national-level institutions, i.e. the MOH and its implementing agencies, should be strengthened. The MOH should be included in the SAM TC to actively lead resource mobilisation, advocate for CMAM, and reinforce policies favourable to CMAM.
- Organise a national high-profile dissemination meeting to serve as a platform or forum to share the results of initial CMAM implementation in the learning sites, obtain contributions and comments to consider for scale-up, and win internal and external support for funding.
- Identify and implement an improved outreach approach through a strategy that supports effective community mobilisation and social and behaviour change communication (SBCC), ensures linkages with other interventions and actors, and implements methods to motivate volunteers.
- Reinforce human resource capacity at the national, regional, and district levels to ensure effective primary and back-up supervision and monitoring.

- Identify solutions to gaps that affected the adherence to medical protocol in the learning site regions and especially the adherence to the prescription of routine medicines, such as antibiotics.
- Explore the possibilities of channelling FANTA-2 financial support through the established GHS financial system. While increasing ownership, this can also be the first step for the integration of the CMAM into the annual budgets.
- Adjust the database used to capture the quality of referral from inpatient care to outpatient care by including an admission category of return from inpatient care. Adjust the database used to capture the quality of the follow-up and tracing of defaulter by including an admission category of return from defaulting.
- Plan for another short consultancy that will address the unmet objectives of this review. This consultancy should include a desk review to learn about the proposed scale-up plan and strategies. The consultancy should also include a field visit to observe how the plan and strategies are applied on the ground and assess the quality of the integration of CMAM during scale-up.
- The SAM TC should continue dialogue with CHIM on using the planned revision of the DHMIS to ensure that relevant CMAM indicators are included in data collection.
- Establish outpatient CMAM sites at all functioning CHPS zones/compounds to increase the geographical accessibility of CMAM services. This has the potential to reduce the need to rely on a large number of volunteers and maximises the chances of regular nutrition screenings of children under 5.

8.3. LONG-TERM RECOMMENDATIONS

- Lobby project funders to support the sustainable supply of CMAM commodities.
- Explore possibilities of including CMAM in the NHIS and especially RUTF in the national health insurance medicines list. Alternatively, the GHS could lobby the Minister of Health to issue directives for the NHIS to make annual allocations to support CMAM.
- Lobby the GHS and MOH to improve the SAM SU's staffing situation, as CMAM scale-up will put additional workload on the existing staff.
- Increase focus on linkages between CMAM and preventive interventions, including livelihoods/food security interventions and the promotion of good IYCF practices.
- Conduct a cost effectiveness analysis and compare the results with those conducted in countries with higher SAM prevalence.

8.4. RECOMMENDATIONS ALREADY INCLUDED IN THE CURRENT SAM SUPPORT UNIT WORKPLAN

The SAM SU had already included actions that would address a number of the review team's recommendations into its workplan for October 2009 through September 2010, including those listed below. Some have been carried out, and some require further attention.

- Advocate for the inclusion of CMAM in relevant health and nutrition policies. The review team is hoping that these activities will be continued as the task is not yet completed.
- Link CMAM with the informal health system. This objective has not yet been fulfilled, and the review team strongly recommends the implementation of this objective.
- The recommended high-profile dissemination meeting is pending.

- Facilitate the development of pre-service training curricula. By the time of the review, this process had not yet started. The review team hopes that the momentum created and relationship built with training institutions during the review will be used to start this process.
- Reinforce the regional-level capacity to support the national CMAM Coordinator to supervise, coach, and mentor, which is ongoing.
- Case studies and success stories are planned to be included in the 2010 annual report.
- Operations research and an impact evaluation will be planned for, and funds will be made available to enable staff to conduct operations research. Information gathered will be used to improve service delivery and enhance the quality of care.
- The review team welcomed the news that a consultant has been commissioned to assess the role of TFCs in the context of CMAM scale-up. This is urgent, as the absence of clear guidance on this has the potential of damaging CMAM quality by confusing health workers and caregivers.

9. Conclusion

Many stakeholders, including nutrition officers at the operational level, confessed that they were initially sceptical about CMAM, doubted if SAM was a health priority in their areas, and doubted the effectiveness of the approach. With such feeling, any adverse effect during set up in the learning regions could have had devastating impact on CMAM adoption and scale up. The good quality of CMAM implementation at the learning sites has demonstrated that there is an effective method to manage SAM in Ghana. The results demonstrated at the learning sites have stimulated a high sense of interest and commitment among health care providers and, to some extent, volunteers. Mothers/caregivers of children with SAM are satisfied with the CMAM services and the benefits they are deriving from it.

CMAM is effectively integrated into the health system at the learning districts. The integration of CMAM is particularly demonstrated in RCH activities at fixed facilities and during outreach, as well as in NIDs, but not in the curative components of outpatient departments, where children are still not systematically screened for acute malnutrition. This is due to the fact that outpatient care nurses working in the curative components had not been trained on CMAM, though they were informed about it.

The GHS has successfully taken the managerial and technical leadership role and has collaborated with development partners to implement CMAM. This was made possible by the establishment of the SAM TC and SAM SU. However, MOH involvement remains limited at this stage of the programme, and there is no nutrition policy to back CMAM and give direction to reinforce CMAM-friendly policies in the strategic plans of the GOG and all health sector governmental agencies, including the NHIS.

The critical factors to the success of CMAM implementation in the learning sites were:

- Good preparation prior to roll out, including building the capacity of the CMAM Coordinator
- Good coordination among donors from the planning stage onward
- Forming the different coordinating and technical committees and units to ensure timely delivery of directives and technical support
- Using a phased approach to ensure that implementers received appropriate support, in terms of the quality and intensity of the CMAM activities at initiation
- Training all staff, particularly public health teams
- Coupling in-service classroom training and on-site mentoring and support
- Involving community volunteers in active case-finding and follow-up of defaulters
- Using the rapid and visible effect of the treatment and continuity of RUTF supply to motivate staff and ensure caregiver adherence to treatment

The review team encourages the SAM SU to use these same strategies during countrywide scale up to ensure the same success.

Given that the review occurred only 2 years after the introduction of CMAM in Ghana, the observed achievements are impressive and all the actors need to be congratulated for them. Such achievements include the institutionalisation of CMAM in the GHS Nutrition Unit, good adherence to the guidelines, staff motivation and confidence, the effective integration of CMAM delivery into the routine minimum health package at the learning sites, and the integration of RUTF delivery into the national system for health commodities distribution.

Despite the many achievements in implementing CMAM, there are major challenges. These include:

- The reliance solely on in-service training for capacity building on CMAM
- The limited contribution of the national health sector budget and the NHIS to the procurement of RUTF, a critical item for CMAM implementation
- The delay in including CMAM activities among the priorities for funding in the national budget and IGF at the operational level
- The currently weak outreach component
- The absence of a comprehensive strategy to sustain the interest and commitment of community volunteers

Strengthening the outreach component should rank high in the SAM SU's list of priorities, as its weakness partially explains the observed low coverage, high mortality rate in inpatient care facilities due to late presentation, and high defaulter rates.

Lastly, useful lessons have been identified from CMAM implementation at the learning sites that can form the basis for scale-up. Thus, the decision to scale-up is rightly timed, but the review team advises that CMAM scale-up is carried out in a considerable manner to ensure that quality is maintained during scale-up. There is need to reinforce policies that can enhance resources mobilisation, adherence to clinical protocol, financial accessibility, and the chances of sustainability. Sustainability will also depend on the capacity of the GOG to fully or partially cover the cost of CMAM activities. Documents reviewed suggest that this is likely to require a lot of advocacy at the national, regional, and district levels and that the process is likely to be long. The CMAM Coordinator will need to scale up advocacy activities to achieve this.

Annex 1. Documents Reviewed

Emergency Nutrition Network. 2008. *International Workshop on the Integration of Community-based Management of Acute malnutrition, Washington DC, April 20 – 30, 2008.*

Emergency Nutrition Network and FANTA. 2005. *Operational Challenges of Implementing Community Therapeutic Care: ENN Report on an Inter-Agency Workshop, Washington, DC, February 28 – March 2, 2005.*

Ghana Health Service. 2007. *Road Map for Accelerating the Attainment of the MDGs related to Maternal and Newborn Health in Ghana.*

Ghana Health Service Nutrition Department. 2007. *National Infant and Young Child Feeding for Ghana.* Strategy Document.

Ghana Health Service Nutrition Department and Severe Acute Malnutrition Technical Committee. 2010. *Interim Inpatient Care Job Aids for CMAM.*

---. 2010. *Interim Outpatient Care Job Aids for CMAM.*

Ghana Health Service Nutrition Department and UNICEF. 2009. *Nutrition Facts for Families.*

Ghana Health Service Policy Planning Monitoring and Evaluation and Nutrition Departments. 2005. *Imagine Ghana Free of Malnutrition: A Concept Paper for Addressing Malnutrition in Ghana as a Development Problem, Using Health as an Entry Point.*

Ghana Ministry of Health, Ghana Health Service Nutrition Department, and UNICEF. 2009. *Achieving Universal Iodisation: Ghana National Strategy II, 2009 –2011.*

Ghana Ministry of Health Policy Planning Monitoring and Evaluation Department. 2007. *National Health Policy: Creating Wealth through Health.*

---. 2010. *2010 Programme of Work: The Ghana Health Sector.*

---. 2009. *2009 Programme of Work: The Ghana Health Sector.*

Annex 2. Questions on CMAM Integration for Key Informant Interviews

NATIONAL AND SUB-NATIONAL LEVELS

Enabling environment:

1. Which elements of the enabling environment are in place: MOH/GHS technical leadership and coordination, CMAM integrated into policies and strategic plans, active advocacy, national guidelines, national data repository, technical support team, sustainable funding, free treatment for children, contingency plan?
2. What efforts are planned to strengthen the enabling environment, and is there a strategic plan?
3. Does coordination between relevant programmes and partners exist (e.g., improving coverage, consistent protocols, and resources sharing)?

Staff competencies:

1. Is CMAM in the pre-service curriculum? If not are there plans in place?
2. How is in-service training provided and by whom?
3. Which training institutions teach CMAM?
4. Are learning sites and/or a centre of excellence available?
5. Is CMAM part of job descriptions?
6. Is there peer information exchange?
7. Is a national research institution involved in research?

Access to services:

1. What is the geographical coverage of the services?
2. Who is implementing the services and how is the allocation of responsibilities among the GHS and partners?
3. Within the learning sites are services in place in the most vulnerable districts?
4. Is a gradual scale-up done/planned?
5. Is community outreach effectively in place?
6. Is outpatient care decentralized and inpatient care centralized where qualified staff is available?
7. Is there a functional referral system between inpatient and outpatient care? Do services have an adequate number of qualified staff?
8. Is CMAM part of routine health services?
9. Is the informal health system involved with CMAM? Are beneficiaries from CMAM linked with other community services to strengthen access to quality health care and adequate food?

Access to supplies:

1. How is the management, including procurement for CMAM equipment and supplies, organized, and by whom?
2. Is an alternative supply system in place?
3. Is there a national ready-to-use therapeutic food (RUTF) production and does it sufficiently cover the country-needs?
4. Is there a social marketing system for ready-to-use food (RUF) in place and are there additional opportunities?

Quality of services:

1. How is adherence to standardized national protocols?
2. Is a support and supervision system in place?
3. Do CMAM programmes use standard monitoring and reporting (M&R) tools?
4. Is M&R carried out according to the guidelines?
5. Is information generated through M&R put to use programmatically and is it linked to the national health information system?
6. What are the performance indicators (admission trends, recovery-defaulting-relapse-death rates)?
7. Are the services accepted by the community?
8. How is access to services and barriers to access and service uptake assessed?
9. What are reasons for defaulting?

Challenges and opportunities with integrated programming:

1. What has been the operational experience with efforts to integrate CMAM into government health facilities?
2. What challenges have been encountered?
3. Have opportunities for strengthening integration been identified?
4. Where has integration been accomplished successfully; where has it encountered problems and what are the lessons?

FACILITY AND COMMUNITY LEVELS

Enabling environment:

1. Is the district health office coordinating CMAM activities and organizing technical meetings on CMAM?
2. Is there access to a standard guideline/protocol for CMAM, for community outreach?
3. Is treatment for children free?

Staff competencies:

1. Is in-service training and mentoring (refresher training) organized?
2. If so, how and where and by whom was training and/or mentoring provided? Is training sufficient?
3. Is there access to a centre of excellence or learning site?
4. Is there access to CMAM information and a peer information exchange?

Access to services:

1. Who is implementing the services and how is the allocation of responsibilities among the GHS and partners?
2. Is outpatient care decentralized and inpatient care centralized?
3. Is community outreach (community screening, community mobilization, home visits) effectively in place and reaching all communities in the catchment area?
4. Is sufficiently qualified staff available?
5. Is there a functional referral system between inpatient and outpatient care?
6. Is CMAM part of routine health services?
7. Is the informal health system involved?
8. Is health and nutrition education provided?
9. Are CMAM beneficiaries linked with community services to strengthen access to quality health care and adequate food?

Access to supplies:

1. Are therapeutic foods and drugs supplies regularly available as needed?
2. Are there supply disruptions?
3. How is the supply management organized?

Quality of services:

1. Is staff performance monitored and supported on a regular basis?
2. Is a standard protocol being used?
3. What are the performance indicators (admission trends, recovery-defaulting-relapse-death rates)?
4. Is information on performance and strategies discussed with the health professionals concerned?
5. Are the services accepted by the community?
6. What are the barriers to access and reasons for defaulting?

Challenges and opportunities with integrated programming:

1. How has CMAM programming been integrated on the ground (services, staffing, logistics, training, management)?
2. What challenges have been encountered and how have they been managed?
3. What challenges have not been successfully resolved?

Annex 3. Review of CMAM Learning Sites Schedule of Activities

DATE/ TIME	ACTIVITY	PERSONS RESPONSIBLE
WEEK 1 16/8/2010		
8.30 – 9.00 am	Meeting at Headquarters (GHS Director General)	Michael Neequaye
9.00 – 9.30 am	Meeting at Headquarters (GHS Family Health Division)	Dr Sagoe-Moses
10.00 – 11.00 am	Meeting at USAID	Alice Nkoroi
1:30 – 2:30 pm	Meeting at Nutrition Department (programme managers and Mr Jehu Armah)	
3.00 – 4.00 pm	Meeting with PPME (Jehu Appiah / Dan Osei)	
17/8/2010		
9.00 – 10.30am	Meet with Esi Colecraft – University of Ghana	Michael Neequaye
12.00 – 1.30pm	Meet with clinical instructor for inpatient care at Ga South Municipal Hospital	Dr Sagoe-Moses
2.00pm	Travel to Central Region (Cape Coast)	Samuel Sosi
4.00 – 5.00pm	Meet with Regional Director of Health Services/RHMT	
18/8/2010		
8.30 – 9.30 am	Central Region Meeting with Municipal Health Directorate (Agona West) and District Director of Health Services (Assin Fosu)	Michael Neequaye
9.30 am	Travel to Swedru	Samuel Sosi
11.00 – 1.00 pm	Field visit to Kwanyarko outpatient care site (observation)	Cynthia Obbu
2.30 – 4.00 pm	Meet with Agona West Municipal Health Team	
19/8/2010		
8.30 – 9.30 am	Field visit to Bobikuma outpatient care site	Michael Neequaye
10.30 – 11.30 am	Meet with Agona East District Health Team	Cynthia Obbu
11.30 – 12.30 pm	Field visit to Nsaba and Duakwa Health Centre, Outpatient Care	Ernestina Esuon
1.30 – 3.00 pm	Field visit to Nsuansa CHPS outpatient care	
20/8/2010		
9.00 – 11.00 am	Field visit to Nyarkrom outpatient care site (observation) and interact with beneficiaries	Michael Neequaye
12.30 – 1.30 pm	Visit Swedru Hospital inpatient care site	Cynthia Obbu
2.00 pm	Travel back to Accra	
WEEKEND 21-22/8/2010	Travel to Kintampo Rural Health Training School to Meet with Director of Institute, Acting Head of Nutrition and Dr Somua (University of Cape Coast)	Catherine Adu-Asare M.A. Neequaye
23/8/2010		
10.00 – 11.30 am	Greater Accra Region Meet with Regional Director of Health Services/Regional Health Management Team	Michael Neequaye
11.30 – 12.30 pm	Meet with CHIM (Mr Darko)	Gifty Donkor
1.30 – 2.30 pm	Meet with Medical Superintendent at PML Hospital	
3.00 – 4.30 pm	Visit inpatient care site at PML Hospital	
24/8/2010		
9.00 – 10.00 am	Dr Seth Afarwuah	Michael Neequaye
10.00 – 2.00 pm	Meet with Ga South Municipal Health Team Visit Weija and Kokrobite outpatient care sites – Ga South Municipality	Dr Sagoe-Moses
3.00 – 4.00 pm	Meeting with GHS/Institutional Care Department (Dr Cynthia Bannerman)	Samuel Atuahene
25/8/2010		
7.30 – 11.30 am	Field visit to Obom outpatient care site – Ga South Municipality	Michael Neequaye
1.00 – 2.00 pm	WHO	Samuel Atuahene
2.00 – 3.00 pm	UNICEF	
3.00 – 4.00 pm	WFP	

DATE/ TIME	ACTIVITY	PERSONS RESPONSIBLE
26/8/2010 8.30 – 9.30 am 1.30 – 3.00 pm	Meeting at Nurses' Training School – Korle-Bu Teaching Hospital Feedback on assessment so far to SAM TC and other national staff	Dr Sagoe-Moses Michael Neequaye
27/8/2010 9.30 – 11.30 am 1.30 – 2.30 pm	Field visit to PML Hospital outpatient care site (observation) Meet with Prof Jennifer Welbeck – Korle-Bu Teaching Hospital	Dr Sagoe-Moses Michael Neequaye
	Follow-on visits <ul style="list-style-type: none"> • CRS • World Vision • University of Ghana Nutrition Department (Prof Anna Lartey) • University of Development Studies (Kareem Daari/Dr Saaka) • National Health Insurance Scheme 	Dr Sam Akor Dr Sagoe-Moses Michael Neequaye

Annex 4. Key Informants Interviewed

Affiliation	Name	Title
Ghana Health Service (GHS)	Dr Elias K. Sory	Director General
	Dr Gloria Quansah-Asare	Director of Family Health
	Mr Daniel Osei	GHS PPME
	Mr J.G.A. Armah	Former Deputy Director of Nutrition
	Ms Esi Amofo	Programme Manager, Vitamin A Supplementation
	Ms Kate Quarshie	Programme Manager, Anaemia Control
	Mr Daniel Darko	Chief Biostatistician, CHIM
Ministry of Health (MOH)	Mr George Dakpallah	Director, MOH PPME
USAID/Ghana	Ms Juliana Pwamang	Programme Officer, Population, Health, and Nutrition
WHO/Ghana	Mrs Akosua Kwakye	Programme Officer, Nutrition
WFP/Ghana	Mr Maina Munthee	Programme Officer, Nutrition
	Mr Francis Sarpong Kumankuma	Programme Officer, Population, Health, and Nutrition
	Ms Emma Anaman	Programme Officer, Population, Health, and Nutrition
FANTA-2	Ms Alice Nkoro	CMAM and Emergency Nutrition Specialist
	Dr Joseph Akuamoah Somuah	Consultant
University of Ghana	Dr Gloria Otoo	Lecturer, Nutrition and Food Science
	Ms Matilda Sliena Asiedu	Lecturer, Nutrition and Food Science
	Dr Esi Colecraft	Lecturer, Nutrition and Food Science
	Dr Seth Adu-Afarwuah	Research Fellow, Nutrition and Food Science
Kintampo Rural Health Training School	Dr E.T. Adjase	Director
Central Region Health Management Team	Dr J. Eleeza	Deputy Director, Public Health
	Ms Elizabeth Wood	Public Health Nurse
	Mr Samuel Sosi	Regional Nutrition Officer
	Mr Agama Afesi	Nutrition Officer
Agona West Municipal Health Management Team	Ms Christiana Intsiful	Agriculture Municipal Public Health Nurse
	Mr Vincent Anokye Aidoo	Municipal Disease Control Officer
	Ms Cynthia Obbu	Municipal Nutrition Officer
	Ms Vida Quao	Municipal Human Resource Officer
	Mr Eric Essumang	Municipal Health Information Officer
	Mr Anim Boanu	Disease Control Officer
Nyarkrom Health Centre	Mr Johnson Agbezukey	Medical Assistant
	Ms Patient Yankah	RCH In-Charge
	Ms Constance Aku Korsah	Community Health Nurse
	Ms Aba Amissah Hayford	Community Health Nurse

Affiliation	Name	Title
	Ms Benice Yamoah	Community Health Nurse
	Ms Hagar Amoako	Community Health Nurse
	Ms Gifty Sam Bennett	Community Health Nurse
	Ms Vida Brown	Community Health Nurse
	Ms Theresa Eduaful	Community Health Nurse
Nyarkrom Health Centre	Ms Matilda Eyifah	Community Volunteer
	Mr Abraham Abithey	Community Volunteer
	Ms Jane Wilson	Community Volunteer
Agona West Municipal Hospital	Dr Akpetorgbor Dzodzegbe	Medical Superintendent
	Ms Mary Appiah	Nurse
	Ms Rebecca Aikins	Nurse
	Ms Faustina Owusu	Nurse
	Ms Rita Haruna	Nurse
	Mr Mark Avudzivi	Medical Assistant
Bobikuma Health Centre	Ms Abigail Kpakpo	Community Health Nurse
	Ms Cornelia Osardu	Community Health Nurse
	Ms Joana Amankwah	Community Midwife
Nsuansa CHPS	Mr Francis K Acquah	Community Health Officer
Agona East District	Ms Nancy Ekyem	District Director of Health Services
	Ms Ernestina Esuon	District Nutrition Officer
Agona Nsaba Health Centre	Ms Felicia Effah	Community Health Nurse
	Ms Rita Agyei	Community Health Nurse
	Ms Charlotte Ansah	Community Health Nurse
Kwanyarko Health Centre	Ms Grace Anku	Medical Assistant
	Ms Cynthia Nyarko	Community Health Nurse
	Ms Mary Morrison	Community Health Nurse
Greater Accra Region Health Management Team	Ms Gifty Donkoh	Regional Nutrition Officer
	Ms Afua Appiah Kyeremeh	Deputy Regional Nutrition Officer
PML Children's Hospital	Dr Isaac Abban	Medical Officer
	Dr Ramachandra Rao Sudha	Medical Officer
	Ms Priscilla Tete-Donkor	Dietician
	Ms Doris Amartei	Nurse
	Ms Cynthia Gyaama-Poku	Nutrition Officer
	Ms Stella Opare	Technical Officer, Community Health
Ga South Municipal Hospital	Dr Matilda Agyemang	Medical Superintendent/CMAM Clinical Instructor
Ga South Municipal Health Management Team	Mr Samuel Atuahene Antwi	Municipal Nutrition Officer
	Mr John Solaga	Municipal Health Information Officer
Kokrobitey Community Health Centre	Ms Charity Adjei	Medical Assistant
	Ms Christine Antor	Principal Nursing Officer, Public Health
Kokrobitey Health Centre	Ms Patricia Obeng Mireku	Community Health Nurse

Affiliation	Name	Title
	Ms Linda Mensah	Community Health Nurse
Obom Health Centre	Ms Shine Mary Duku	Principal Nursing Officer, Public Health
	Ms Adeline Adzraku	Community Health Nurse
	Ms Naa Dede Sackey	Community Health Nurse
	Ms Rahael Nkansah	Community Health Nurse