



SLEAC/SQUEAC Coverage Survey Report Agona West Municipal District

October 2013











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Abbreviations and Acronyms

AACF	Active and Adaptive Case Finding
CHN	community health nurse
CHPS	Community-Based Health Planning and Services
cm	centimetre(s)
CMAM	Community-Based Management of Acute Malnutrition
CWC	child welfare clinic
DHMT	District Health Management Team
FANTA	Food and Nutrition Technical Assistance III Project
FGD	focus group discussion
GHS	Ghana Health Service
IPC	inpatient care
IYCF	infant and young child feeding
KII	key informant interview
km	kilometre(s)
LEAP	Livelihood Empowerment against Poverty
LQAS	Lot Quality Assurance Sampling
MICS	Multiple Indicator Cluster Surveys
mm	millimetre(s)
MOH	Ministry of Health
MUAC	mid-upper arm circumference
OPC	outpatient care
RHMT	Regional Health Management Team
RUTF	ready-to-use therapeutic food
SAM	severe acute malnutrition
SLEAC	Simplified Lot Quality Assurance Sampling Evaluation of Access and Coverage
SMART	Standardized Monitoring of Relief and Transitions
SQUEAC	Semi-Quantitative Evaluation of Access and Coverage
TBA	traditional birth attendant
USAID	U.S. Agency for International Development
WHO	World Health Organization

Executive Summary

In September 2010, a review of the integration of CMAM into the Ghana health system conducted by the Food and Nutrition Technical Assistance III Project (FANTA) at the early learning sites found that CMAM had been effectively integrated into these sites. The Ghana Health Service's (GHS) leadership and co-ordination of CMAM services has led to strong integration with child health and nutrition activities. However, this review also noted challenges, including a high default rate and low caseload, both attributed to weak community outreach. To further investigate these challenges, the review recommended that a survey be carried out to estimate coverage and identify barriers to access and uptake of CMAM services.

The Ministry of Health (MOH)/GHS plans to conduct coverage surveys in the five scale-up regions (Central, Greater Accra, Northern, Upper East, and Upper West) where CMAM was first introduced in Ghana. Surveys in Central and Greater Accra Regions were undertaken in July 2013, and surveys in Northern, Upper East, and Upper West Regions will take place in October/November 2013. These coverage surveys are based on the Semi-Quantitative Evaluation of Access and Coverage (SQUEAC) and Simplified Lot Quality Assurance Sampling Evaluation of Access and Coverage (SLEAC) methods.

This report presents the results of the coverage survey that took place in Agona West Municipal, in Central Region from July 8, 2013 to July 26, 2013. The report then presents recommendations based on the results.

Using the identified number of 24 SAM cases, Sphere standard-based cut-off values for the number of SAM cases receiving CMAM services (covered cases) required for each threshold were calculated to be a maximum of 7 covered cases for low coverage and a minimum of 17 covered cases for high coverage. Because only 3 of the 24 SAM cases were receiving CMAM services at the time of the survey, Agona West was classified as having low coverage (< 30%).

Total admissions have decreased each year in Agona West following the scale-up of CMAM within the district. In Agona West, 60% of all admissions happened in the first 2 years of CMAM implementation. Most of the admissions were noted to have come directly from their communities, but information was missing on the admission cards to identify if these were self-referrals or if clients were referred by community volunteers.

The majority of admissions had a mid-upper arm circumference (MUAC) value ≤ 11.5 cm. Data also showed that values of MUAC at admission were frequently rounded to the closest 0.5 value, indicated by spikes at rounded intervals when MUAC values are plotted. This issue points to a lack of rigor from health care providers in the measurement of the MUAC of admitted children.

Facility catchment area was found to be a key issue in Agona West. A mapping of admissions revealed that most clients travelled only a distance of 2 km to access CMAM services. The only exception to this was in the Swedru town area, where clients travelled up to 4 km to access services. Transport was considered to be an important potential explanation of the Swedru facility's unique situation, as it is much easier and cheaper to cover 4 km in Swedru than it is to travel to other facilities located in rural areas.

Defaulting is an issue in Agona West. When analysing default rates in terms of clients discharged as defaulted or cured, default rates reached as high as 46% in Agona West. Further analysis of defaulters showed that most clients default treatment only once, indicating a possible lack of follow-up of defaulters.

Analysis of contextual data showed that social and cultural beliefs and livelihoods had strong influences on clients' ability to access CMAM services. The belief that acute malnutrition is associated with witchcraft or curses is quite strong in Agona West.

Agricultural livelihoods limit clients' ability to access services during peak farming seasons in Agona West. Caregivers have limited time to access health services during the day. Health care providers offering CMAM services close early in the afternoon, around 14:00. When caregivers return from work or from the farms, health facilities are already closed and they are unable to access services.

The analysis of service and contextual data was used to guide the development of focus group discussion (FGD) and key informant interview (KII) guides. FGDs and KIIs were undertaken in two areas in the district. Findings from KIIs and FGDs confirmed the information gathered during the two previous analysis steps. From the combination of analysis of service data, contextual data, and field data, topics were identified as priority areas for action and recommendations were made to improve CMAM service coverage in the district.

1.0 Introduction

1.1 CMAM in Ghana

Community-Based Management of Acute Malnutrition (CMAM) is an innovative approach for managing severe acute malnutrition (SAM) in children 6–59 months of age. CMAM classifies SAM in children as 'complicated' and 'uncomplicated'. 'Complicated' cases represent approximately 10%–20% of all SAM cases. 'Complicated' cases are stabilized in 24-hour inpatient care (IPC) facilities before referral to continue with treatment at decentralized outpatient care (OPC) facilities, whereas 'uncomplicated' SAM cases are managed at home with weekly visits at a nearby health facility. By offering case management at decentralized sites and providing ready-to-use therapeutic food (RUTF) and medication for outpatient treatment of SAM without medical complications, CMAM can result in increased coverage and access to treatment. High coverage, which is one of the most important CMAM service effectiveness indicators, requires working closely with communities to detect and refer cases for treatment.

Community involvement is an integral part of CMAM: In a community whose members are aware of the severity of malnutrition, it is likely that SAM children will be referred early for treatment, facilitating the treatment and increasing the chances of successful treatment outcomes.

The CMAM approach was introduced in Ghana through a June 2007 national workshop organized by U.S. Agency for International Development (USAID)/Ghana, UNICEF/Ghana, and World Health Organization (WHO)/Ghana that targeted senior health managers and senior clinicians. Following that workshop, the Ghana Health Service (GHS) established CMAM learning sites in two districts (Greater Accra and Central Regions) with technical and financial support from multi- and bilateral partners. In 2010, the GHS and its partners began to expand CMAM through a gradual, two-phase scale-up. The first phase, currently on-going, targets selected districts in five regions (Central – 10 districts; Greater Accra – 14 districts; Northern – 15 districts; Upper East – 11 districts; and Upper West – 10 districts), while the second phase, started in 2012, targets the other five regions (Ashanti, Brong Ahafo, Eastern, Volta, and Western). Following those efforts, the Ministry of Health (MOH)/GHS has now scaled up the management of SAM to more than 500 health facilities in 60 districts. Other accomplishments include the development of more than 2,000 health care providers in the management of SAM.

In September 2010, a review of the integration of CMAM into the Ghana health system conducted at the early learning sites found that CMAM had been effectively integrated into these sites. GHS's leadership and co-ordination of CMAM services has led to strong integration with child health and nutrition activities. However, this review also noted challenges, including a high default rate and low caseload, both attributed to weak community outreach. To further investigate these challenges, the review recommended that a survey be carried out to estimate coverage and identify barriers to access and uptake of CMAM services.

The MOH/GHS plans to conduct coverage surveys in the five initial scale-up regions (Central, Greater Accra, Northern, Upper East, and Upper West). Surveys in Central and Greater Accra Regions were undertaken in July 2013 and surveys in Northern, Upper East, and Upper West Regions will take place in October/November 2013. These coverage surveys are based on the Semi-Quantitative Evaluation of Access and Coverage (SQUEAC) and Simplified Lot Quality Assurance Sampling Evaluation of Access and Coverage (SLEAC) methods.

This report presents the findings from the coverage survey that took place in Agona West, in Central Region, from July 8, 2013 to July 26, 2013.

1.2 Agona West Municipal District Profile

Agona West Municipal District is one of the three Municipal Assemblies in the Central Region of Ghana. Agona West Municipal is found in the eastern portion of the Central Region. It has a total land area of 540 km² and a population of approximately 126,422¹, with an estimated annual population growth of 2.8%

The municipal area is bounded to the east and west by Effutu Municipal and Asikuma/Odoben/ Brakwa Districts, respectively. The municipal shares a border to the northeast with Akim West Municipal, to the northwest with Brim-South District, and to the south with Gomoa District.

Agona West Municipal District is predominantly rural; the only urban areas within the district are located in the capital, Agona Swedru. Agona West is divided into five sub-districts: Swedru, Nyakrom, Abodom, Bobikuma, and Nkum.

2.0 Objectives

- 1. To train a core group of regional and national health care providers and managers on SQUEAC/SLEAC survey methods
- 2. To determine the level of CMAM coverage in Agona West Municipal
- 3. To identify barriers and boosters to coverage of CMAM services in Agona West Municipal
- 4. To make recommendations to improve coverage in the region

3.0 SQUEAC/SLEAC Training

Prior to the start of the planned coverage surveys, the MOH/GHS held trainings on the SLEAC and SQUEAC survey methods. The Food and Nutrition Technical Assistance III Project (FANTA), in collaboration with UNICEF/Ghana, provided technical support in the design and conduct of the training, including financial support to conduct the SQUEAC/SLEAC trainings. A SQUEAC/SLEAC training package was developed based on the SQUEAC/SLEAC Technical Reference document, published by FANTA in 2012. The package presents the basic steps of conducting a SLEAC survey and a SQUEAC assessment and teaches the required skills.

The SLEAC training was held at Humility Lodge in Swedru, Agona West, from July 2 to July 6, 2013. A total of 22 nutrition officers from the district, regional, and national levels were trained as data collection supervisors for SLEAC surveys. In addition, 16 community health nurses (CHNs) were trained in SLEAC data collection methods. As part of the training exercise, the participants also field tested the SLEAC data collection tools that were used during the Agona West SLEAC survey. Before the start of the training a pre-test was given. The same test was given as a post-test at the end of the training. The average pre-test score was 42%; the average score increased to 82% on the post-test. In addition, supervisor trainees were asked to train data collectors on the basis of SLEAC methodology and data collection, further confirming their understanding of the material presented during the supervisor's portion of the SLEAC training.

The training on the SQUEAC analysis methodology was combined with the SQUEAC data collection and analysis for Agona West. The SQUEAC training and analysis took place from July 15 to July 26,

¹ Ghana Statistical Service. 2010 'Population and Housing Census'. 2012/13. http://www.statsghana.gov.gh/pop_stats.html.

2013. A group of 23 district, regional, and national nutrition officers, most of whom were previously trained on the SLEAC survey methodology and participated in the SLEAC survey data collection, were trained on SQUEAC analysis methods and conducted a review of routine CMAM service data, contextual data, and key informant interview (KII) and focus group discussion (FGD) data. A group of 10 CHNs were also trained on KII and FGD methods and assisted with the collection of KII and FDG data for the SQUEAC analysis.

4.0 Methodology

4.1 SLEAC Survey

The SLEAC method provides a measure of CMAM service coverage by estimating the proportion of SAM cases admitted to CMAM services out of the total number of SAM cases identified through field data collection. It uses Active and Adaptive Case Finding (AACF) as the method for tracing SAM cases in a sample of communities throughout the target geographical area.

To actively trace SAM cases, AACF uses information about the local understanding of SAM and CMAM services to construct a case finding question. This question is asked to a community guide, who then takes the data collection teams to households with children fitting the description asked in the case finding question. The generic version of the question is 'Can you take me to see children who are sick or thin, have swollen legs or feet, or are receiving CMAM services or getting Plumpy'nut[®] (RUTF)?'

Prior to the start of data collection, FGDs and KIIs were conducted in several communities to enable the teams to construct an AACF strategy and adapt the generic case finding question to the local context. Data collection teams spoke with mothers, community members, opinion leaders, a traditional healer, a traditional birth attendant (TBA), and health workers and volunteers. See Annex 3 for AACF data.

4.1.1 Sample Size

The total estimated population for Agona West used for this survey was 126,422. With a regional SAM prevalence of $1.6\%^2$, a total of 269 SAM cases are expected to be found in the district at any given time. Using the SLEAC Sampling Calculator (see Annex 1), a minimum sample of 35 SAM cases (50% coverage expected) was set for the data collection.

The 269 calculated cases were expected to be distributed throughout the 168 communities within Agona West District. This provided an average of 1.6 cases per community, requiring that 22 communities be surveyed to reach the minimum sample of 35 cases.

As a list of all communities in Agona West, including population sizes, was available, a simple random sampling method was used for community selection. First, a sampling interval was calculated by dividing the total number of communities in the district by the number of communities required to reach the survey sample size. The 168 communities in Agona West divided by the 22 required communities provided a sampling interval of 7.6. Communities were placed in a list, stratified by sub-district. A random number from 1 to the sampling interval was selected using a random number table as the starting point for sampling. See Annex 2 for the table of selected communities for Agona West.

² Measure DHS. 'Ghana 2011 Multiple Indicator Cluster Survey'. http://www.measuredhs.com/what-we-do/survey/survey-display-398.cfm.

4.1.2 Data Collection

Four data collection teams were assigned to Agona West, each with four team members (two data collectors and two supervisors). The supervisors were regional and national health managers who had been trained in the SLEAC method prior to the start of data collection. The data collectors were nurses who were familiar with the selected communities and local languages. Each team met a guide, typically a community health volunteer, to guide them through the community. See Annex 5 for the data collection schedule.

The teams recorded the nutritional status of each case identified during field data collection. If the child was identified as having SAM (defined as mid-upper arm circumference [MUAC] < 11.5 and/or bilateral pitting oedema), a questionnaire was filled in to identify if the child was currently receiving CMAM services. If the child was not receiving CMAM services, the questionnaire asked a series of questions to understand the reasons for not seeking services (Annex 4). Each time a SAM case was identified, the caregiver was asked if he or she knew of any other children suffering from the same condition and, if so, if he or she could indicate where to find those children. This method of continuous information gathering about SAM cases is the adaptive component of AACF.

4.1.3 Data Analysis

The analysis of the SLEAC survey data provided the rates of CMAM coverage for the whole district and an initial list of causes as to why the children were not covered.

A simple database was created that captured key information about each child that underwent a nutritional assessment: sex, age in months, MUAC measurement, and grade of oedema (if applicable). If the child was identified as a SAM case, information about services being received was also recorded in the database.

At the end of data collection, the total number of SAM cases was counted. For the purposes of analysis, all children with oedema or MUAC ≤ 11.5 were counted as SAM cases. This is because CMAM service providers in Ghana are instructed to admit borderline cases (i.e., those with a MUAC ≤ 11.5) to the program, even though they do not technically meet SAM criteria. The total value of cases is then compared to a cut-off value, calculated by multiplying the total number of identified cases by the Sphere minimum standards of 30% for low coverage and 70% for high coverage.

4.2 SQUEAC Analysis

A SQUEAC analysis was employed as the second step of the coverage assessment. SLEAC and SQUEAC were used together to provide a thorough analysis of barriers to coverage in the case of low coverage. Figure 1 illustrates the association between the two methods.



Figure 1. Combination of SQUEAC and SLEAC for evaluation of coverage of CMAM services

The SQUEAC analysis used a combination of qualitative and quantitative methods to analyse barriers and boosters to the coverage of CMAM services. Data of various types and from various sources was analysed using a triangulation process.

First, all routine service data were collated and analysed to provide an understanding of CMAM service effectiveness and the profile of clients attending services. Through the analysis, it was possible to identify:

- 1. If clients were receiving CMAM services early or late in their malnutrition episode (very severe anthropometric status at admission may indicate late admissions)
- 2. Where the CMAM clients were coming from (allows for geographical mapping of coverage)
- 3. The proportion of clients who are discharged as defaulters, cured, or dead
- 4. The stage at which clients default early or late in the course of treatment

Next, contextual data analysis provided an understanding of the features of the targeted area and helped confirm or disprove the initial assumptions drawn from the routine service data analysis. The contextual data were also used to further understand the profiles of CMAM clients.

The third type of data collected and analysed was qualitative data that was obtained from communities within the targeted area through FGDs and KIIS. The data were collected from CMAM service personnel, clients, and lay people to further understand their perspectives of CMAM services and malnutrition. This final step of analysis was meant to fill in any information gap following the routine service data and contextual data analysis.

Based on the qualitative and quantitative data analysis, a comprehensive understanding of barriers and boosters to coverage was reached and recommendations were made to improve coverage of CMAM services.

5.0 Results

5.1 SLEAC

The target sample size of 35 cases was not achieved during data collection. This was most likely due to the unreliability of population data and the possible lack of homogeneity in the distribution of SAM cases throughout the district. Data collection teams noted that many of the communities visited were much smaller in population size than had been anticipated during the community sampling process.

When conducting future coverage surveys, data from district nutrition surveys, such as Standardized Monitoring of Relief and Transitions (SMART) surveys, could be used to provide a more accurate SAM prevalence at the district level.

However, because the measure of coverage provides only a classification of coverage that is below or above a threshold as per the Lot Quality Assurance Sampling (LQAS) methodology employed by SLEAC, the lower-than-expected sample does not significantly affect the reliability of the results presented.

During the SLEAC survey, the data collection teams assessed a total of 190 children, 24 of whom were identified as SAM cases. Of these cases, **three were currently receiving CMAM services** (covered cases). Two defaulters were traced and one child was still receiving treatment for SAM, but no longer met SAM classification criteria (recovering case). Of the 24 SAM cases, 14 had bilateral pitting oedema, 5 had combined low MUAC and bilateral pitting oedema (marasmic/kwashiorkor), and 5 had a MUAC \leq 11.5 cm.

Using the identified number of 24 SAM cases, Sphere standard-based cut-off values for the number of SAM cases receiving CMAM services (covered cases) required for each threshold were calculated to be a maximum of 7 covered cases for low coverage and a minimum of 17 covered cases for high coverage. Because only 3 of the 24 SAM cases were receiving CMAM services at the time of the survey, Agona West was classified as having **low coverage** (< 30%).

Each caregiver of an identified SAM case not receiving CMAM services was asked to answer a questionnaire detailing why he/she was not seeking treatment. The most common response for not seeking care was that the caregiver did not think the child was malnourished (see Figure 2).



Figure 2. Reasons for not seeking treatment for SAM at health facility

The results presented in Figure 2 suggest that awareness of acute malnutrition and CMAM services is very low, which could explain, in part, the reported low coverage. The SQUEAC analysis conducted after the SLEAC survey provides further insight into the reasons for the low coverage in Agona West District.

5.2 SQUEAC

5.2.1 Service Design

CMAM services were first initiated in Agona West district in April 2008. At the district level, CMAM services are managed by the District Health Management Team (DHMT), which includes the district director, the disease control officer, the public health nurse, the nutrition officer, and the district health information management system officer. The district nutrition officer is also the district CMAM focal person.

CMAM services are delivered as part of routine reproductive and child health services in government and Christian Health Association of Ghana health facilities, which include the district hospital, polyclinics, health centres, and Community-Based Health Planning and Services (CHPS) compounds. In total, 9 of 12 health facilities throughout the district provide weekly OPC services and the Swedru Government Hospital provides 24-hour IPC services.

OPC services are provided by CHNs under the supervision of public health nurses and/or health facility in-charges. For IPC, clinical nurses working in the paediatric ward manage SAM cases, and the medical assistant/officer provides daily review of the SAM cases while they are in IPC.

There is a strong theoretical linkage between inpatient and outpatient care services; a CHN referring a SAM child to IPC normally accompanies the caregiver to the IPC facility. Upon stabilizing the SAM child in IPC, the IPC nurse provides a referral form to the caregiver and, when possible, makes contact with the OPC facility.

Community outreach activities, which include active case finding, referral, and follow-up of SAM cases are conducted by community volunteers under the support and supervision of CHNs.

Screening of SAM cases is conducted during child welfare clinics (CWCs), growth monitoring sessions, National Immunizations Days, and child health weeks. Identified SAM cases are admitted for treatment on any day of the week with follow-on visits conducted at the health facility on a particular day of the week (CMAM OPC day). Community mobilization activities are often conducted through community *durbars*.

At the start of CMAM activities in Agona West, a community assessment was conducted to identify potential barriers to community outreach to inform the planning of community outreach activities in the district. The community assessment was followed by several trainings of health care providers and community volunteers. A total of 106 health care providers have been trained on the management of SAM in IPC and 169 community volunteers have been trained on active case finding and referral. Thirty traditional healers and fetish priests have also been trained on how to identify and refer children with SAM.

The DHMT, working closely with the Regional Health Management Team (RHMT), is responsible for conducting monthly and quarterly supportive supervision visits to health facilities and also organizes quarterly or half-year review meetings with the health facilities.

5.2.2 Service Data

All CMAM OPC treatment cards from April 2008 to February 2013 were collected from implementing facilities within the district. Information from the treatment cards was compiled into a database that was then used to conduct an analysis of the routine service data. Collected cards were then compared to the figures provided from monthly statistics reports combined at the district level for each facility. This comparison showed that a small number of cards were missing, although not in a great enough proportion to bias the following analysis.

Admissions

Figure 3 shows that admissions to CMAM services in Agona West peaked during the first year of implementation and decreased in following years, reaching a very low level as of early 2013.

It was noted that 60% of all admissions in Agona West happened in the first 2 years of implementation.



Figure 3. Total annual admissions

Low total admissions in 2008 are due to the fact that only two of the nine sites were providing CMAM services. These two sites also started operating mid-year.

Such a low level of admissions confirms the low coverage rates measured during the SLEAC survey.

The Agona West team then analysed the referral origin of the clients admitted for CMAM services (see Table 1). Most of the admissions were noted to have come directly from their communities, but information was missing on the admission cards to identify if they were self-referrals or if they were referred by community volunteers.

Referral point	Number of referrals	Percent of total referrals
Community	130	73
Health facility	30	17
Inpatient centre	19	11
Total	179	100

Table 1. Referrals

MUAC at Admission

Analysis of MUAC at admission revealed that many clients were admitted with a very low MUAC value (Figure 4). This usually indicates a low level of awareness from community members about the features of acute malnutrition and the importance of seeking treatment at a health facility as early as possible. Data also showed that values of MUAC at admission were frequently rounded to the closest 0.5 value (see spikes in admissions at 10, 10.5, and 11 cm values), indicating a lack of rigor from CMAM personnel in the measurement of the MUAC of admitted children.



Figure 4. MUAC at admission

Catchment Area

Analysis of the distances covered by clients to reach the facility highlighted that most clients travelled only a distance of 2 km. The 4 km value in Figure 5 is specific to the facility located in Swedru town. Transport was considered to be an important potential explanation of the Swedru facility's unique situation, as it is much easier and cheaper to cover 4 km in Swedru than it is to travel to other facilities located in rural areas.

Figure 5 shows that beyond 2 km, SAM children do not access CMAM services, providing a very small geographical coverage area for the facilities.

Agona West district is 319 km^2 . Eight facilities with 2 km coverage and one facility with a 4 km coverage means that the nine facilities together cover a surface area of approximately 150 km², which is less than 50% of the district.



Figure 5. Distances travelled to access services

Reasons that coverage do not extend beyond 2 km could be due to the fact that outreach activities do not go beyond this zone or that transport costs and time constraints prevent caregivers from seeking CMAM services in the facilities.

Figure 6 provides a spatial representation of the coverage for the nine functional facilities in Agona. Three now-closed OPC sites, two of which are newly established CHPS, have also been included in the mapping.



Figure 6. Mapping of cases and service catchment area

Discharges

When analysing the effectiveness of CMAM services in terms of discharges, the survey team identified high rates of defaulting that were well over the maximum acceptable rate of 15% set in the Sphere minimum standards for humanitarian practice. Defaulting rates have been consistently high throughout the years, fluctuating between 29% and 46% of all discharges. These rates directly affect recovery rates, which fluctuated from 54% to 87%. Figures show that 2008 was the only year with acceptable levels of effectiveness (Figure 7) in terms of default rates.



Figure 7. Annual comparison of cured vs. defaulters

Length of Stay/Treatment

The average length of stay of recovered cases was measured at 69 days, while the average length of stay for defaulters reached 65 days. This long length of stay for both types of cases may be indicative of low levels of compliance from facility personnel and/or caregivers, but can also be a direct result of the very low MUAC values of children at admission. When children are admitted in a very severe state, it can take longer for treatment to improve children's nutritional status to the point where they reach the discharge criteria.



Figure 8. Length of stay – defaulters vs. cured (in weeks)

Defaulters

Defaulting is defined as being absent for treatment for two consecutive weeks.

Due to the high rates of defaulting identified in the CMAM data analysis, the teams analysed the profile of the defaulters.

First, most cases that default from CMAM services default only once. This indicates that the majority of defaulted cases never return for treatment, highlighting the potential weakness of outreach and follow-up activities. Defaulters are supposed to be traced by outreach actors who should try to

convince them to come back to the treatment site. Only 19% of those who defaulted eventually returned to treatment; of this number, 73% defaulted for a second time and did not return.

Analysis was then conducted on the average length of stay of defaulters, which reached 65 days. Such a long length of stay disproved the initial assumption that having to pay a fee at admission or being treated rudely by health facility personnel would be a cause for defaulting. If these examples had been the reason for defaulting, a larger number of defaulters would have defaulted after only 1 week of receiving services.

It was noted that the average length of stay of defaulters was associated with the number of times clients were absent for receiving services. Those who were absent once and never came back had a length of stay of 42 days (n=49), those who were absent twice reached 87 days (n=8), and those absent three times reached 125 days (n=3) (Figure 9).





Figure 10 shows the value of MUAC at discharge for defaulters and highlights two possible scenarios. Many cases defaulted when having a MUAC \geq 11.4 cm. Combined with the long length of stay noticed for defaulters, this may indicate that caregivers decided not to attend the treatment anymore because the child seemed to be getting better. The second scenario is for a large number of defaulters who defaulted after having spent several weeks receiving services without seeing any improvement in the MUAC status of the child. A large number of children indeed defaulted with a MUAC \leq 11.0 cm. Local nurses and team members suggested that for many people malnutrition is associated with witchcraft. Due to this belief, caregivers may have decided to change the treatment option for their children and left to seek treatment with traditional healers instead of staying at the CMAM facility. In that case, defaulting hides a high number of non-responding children, which is often associated with non-compliance to treatment protocols from facility personnel and/or caregivers.



Figure 10. MUAC at discharge – defaulter cases

5.2.3 Contextual Data

Following the analysis of routine service data, contextual data were reviewed to help provide further insight into the patterns seen in the service data. Contextual information includes disease and morbidity data, climate and weather patterns, social and cultural norms, and agriculture and livelihoods information. Using this information, either specifically for Agona West District or for Central Region, depending on availability of data, a profile was created of the population and communities within the district. Presented here is a sample of the main aspects revealed by the analysis of the contextual data.

Morbidity and Disease Data

Malaria and diarrhoea are the most prevalent diseases during the rainy season (June–September). Upper respiratory tract infections and skin rashes are most prevalent throughout the lean season from April to September.

Access to Services

Access to services is low, mainly in communities located more than 2–4 km from the health facility that they depend on. Absence of health insurance prevents many from being able to afford the consultation fees and the cost of drugs. Transport costs also hamper access to health services.

Climate

The highest rainfalls occur between June and September.

Agriculture and Livelihoods

Caregivers have more time to access health services during non-farming seasons, as labour demands are lower. During the planting and harvest seasons, time available for caregivers to attend CMAM facilities is much lower. Caregivers who are working on farms and later selling products in markets may not have extra time to go to a health facility until late in the afternoon, when facilities are likely to be closed. However, on taboo days, no work is done outside of the home, providing time for caregivers to travel to the facilities.

Social and Cultural Norms

It is a prominent belief in communities that acute malnutrition is linked to spirits or witchcraft. Many believe that acutely malnourished children, especially those that are wasted, are cursed.

There are also specific beliefs related to nutrition and food consumption that have an important impact on the development of children. First, it is a cultural practice to give the better portion of meals, such as protein, to the father or male head of household. If families have limited resources, this may mean that pregnant women and children are not able to consume proteins as often as other family members. It is also believed that pregnant women should not eat eggs, thus limiting their intake of a readily available and inexpensive source of protein. Finally, initiation of breastfeeding may be delayed due to the belief that colostrum is 'dirty milk'.

5.2.4 Field Data

The analysis of service and contextual data was used to guide the development of FGD and KII guides.

FGDs and KIIs were held in two communities that were selected based on their proximity to a health facility. Kwaman (Nyakrom sub-district) was chosen for its closeness to a facility and Abodom (Abodom sub-district) for its distance from a facility. Laypeople, grandmothers, and mothers participated in the FGDs. KIIs were held with a traditional healthier, OPC CHNs, a beneficiary who was currently receiving CMAM services, and a community health volunteer.

Almost all FGD and KII data mention a higher occurrence of acute malnutrition during the farming season. It was consistently mentioned that caregivers are too busy farming to travel to the facility for treatment or even to provide proper child care during this period. This confirms that higher labour demands affect the ability of caregivers to access services, which is likely to lead to more cases of acute malnutrition and a higher severity of cases during the farming period, making the condition more apparent to community members. CHNs noted that caregivers would often arrive late on OPC days if they were working on farms. It was also noted that the taboo day for that community aligned with CWC day; however, mothers were less likely to come to the clinic that day because it was busy and they feared stigmatization.

Cost and distance to health facilities were confirmed as key restraints to accessing CMAM services. Financial constraints were consistently mentioned during FGDs and KIIs. This relates to both the cost of transportation to go to the facility and some incidents of having to pay for certain aspects of treatment. It is common practice to seek the permission of the husband before accessing health services because he typically has to provide money to pay for transportation to the facility or for the service itself. Husbands are found to be supportive to wives that wish to take their children for treatment; however, despite their support, the funds are often not available to allow them to access the services.

A traditional healer and a fetish priest were interviewed and indicated that they both knew about the existence of CMAM services and had referred children to the services in the past. However, they knew very few details about the services provided, including the admissions criteria and the specific OPC day. This limited the effectiveness and ability of the healer to successfully refer cases. Although both the healer and the fetish priest had referred cases, neither had received feedback about the children that they referred. This is a missed opportunity to further motivate them to make future referrals.

CHNs said that most mothers do not self-refer for CMAM services. They also noted that volunteers that refer cases do not make use of referral slips, but rather take the caregiver directly to the facility. CHNs suggested that referral slips be used, as they would help them track the effectiveness of the volunteers and could be linked to a motivation system to improve volunteer effectiveness. They also noted that volunteers were not actively involved in the follow-up of defaulters. CHNs also noted the weak link between IPC and OPC.

The two volunteers interviewed reported very different levels of involvement in the CMAM program. One volunteer reported working on activities twice per week, whereas the other devoted time to CMAM only once every 2 weeks. The more active volunteer reported that he knew how to assess children and would actively follow up with the facility to see if the referred children reported for treatment. The other volunteer stated that she did not know how to assess the children and that suspected cases were brought to her, at which point she would have a nurse assess the child. Both volunteers stated that there was no stigma attached to acutely malnourished children, although groups of mothers from the same communities reported high levels of stigma. The volunteers also noted that they would like to receive additional motivation but that they enjoyed their work. The more active volunteer also stated that it was difficult for him to reach the most distant communities due to the lack and cost of transportation.

Mothers and beneficiaries stated that they must walk between 30 and 60 minutes to reach services and that they wait between 1 and 3 hours to be seen once at the facility. The nurse will spend between 30 and 60 minutes with the caregiver. Beneficiaries and mothers noted that they were not sure how their child was identified as being acutely malnourished. Their description of the experience at the facility shows that nurses spend most of their time explaining how to follow the treatment protocol (how to give the RUTF, what the ration size is, etc.), but less time is spent on counselling or explaining what factors may have led to the condition. Because proper explanations are not given, opportunities are missed to help reduce incorrect beliefs about acute malnutrition (that it is contagious, that it is caused by evil spirits, etc.).

Stigmatization was also identified as a problem. Caregivers will avoid taking children to the facility on busy days, such as CWC days. It is also believed by some that acute malnutrition is contagious. Some communities discard food and water that has come in contact with an acutely malnourished child.

Almost all participants interviewed mentioned that herbal treatments are the first type of treatment sought, even for conditions other than acute malnutrition.

5.2.5 Data Synthesis

Following the analysis of field data, the survey team combined field findings with the findings obtained through the previous analysis steps. From the combined analysis of service data, contextual data, and field data, a table was made showing the main barriers and boosters to coverage. These were used to identify the main priorities for action.

Barriers	Boosters
Stigmatization or shyness	Showing the 'before and after' picture to mothers who visited the health centre on CMAM OPC day
Poor sensitization or awareness on CMAM and malnutrition	CMAM services are free
Poor outreach activities	Availability of supplies (RUTF)
Challenges regarding health insurance (cost of drugs is a challenge for low-income clients)	Mothers' recognition when a child is faring well because of the treatment
Weak orientation system for new staff on CMAM services (screening, treatment, counselling)	Healthy and supportive staff relationships with clients at health facility and home visit
Weak follow-up of defaulters by volunteers	
Need for more CHPS compounds and facilities for CMAM services	
Low volunteer motivation and drive	

Table 2. Barriers and boosters to CMAM coverage

6.0 **Recommendations**

Based on the analysis conducted during both the SLEAC survey and the SQUEAC analysis, recommendations were identified by the survey teams for improving the coverage of the CMAM services in Agona West District.

Short-Term Recommendations to Be Addressed at the Municipal Level

Limited knowledge about malnutrition and CMAM services was identified as a major barrier to coverage. The first recommendations aim to create better awareness and to mobilize communities.

- CHNs, with support from district and regional health teams, should focus on increasing the knowledge and skills of volunteers on acute malnutrition and CMAM services.
- All volunteers should be equipped with visual job aids (drawings, booklets, flyers, posters, etc.) and MUAC tapes to support active case finding and referral, community sensitization, and raising awareness among community members.
- CHNs should have the capacity to spend more time assisting volunteers during routine sensitization of community members. This requires provision of adequate means for CHNs, such as the possibility to be reimbursed for transportation and accommodation, which would allow them to reach the furthest communities and their volunteers.
- Radio messages should be designed and broadcast on local community radio stations, focusing on educating about the causes and identification of acute malnutrition and on the importance of seeking treatment for acute malnutrition at the health facilities as early as possible.
- Quarterly active case finding and sensitization campaigns should be conducted with the help of students, health facilities personnel, and local volunteers.
- Detection of acute malnutrition should be systematically integrated into annual and biannual mass campaigns, such as expanded programs of immunization and child health weeks.
- Community champions should be identified, trained, and supported to assist with and promote sensitization of communities.
- CHNs, with the support of the district health team, should continuously engage the traditional and spiritual healers during community sensitization to ensure their involvement in SAM case identification and referral to health facilities.

Analysis of the barriers to coverage also identified a number of bottlenecks in the implementation of CMAM services.

To address this, the following recommendations were made.

- As part of strengthening the quality of CMAM service delivery, emphasis should be placed on addressing staff attitudes to ensure that service providers treat SAM children with respect, care, and compassion.
- CMAM services should urgently be integrated in the three newly created CHPS compounds that are currently not providing CMAM services.
- Due to the high staff attrition rate, in-service training and orientation for new health facilities personnel on CMAM protocols and the prevention of acute malnutrition should be conducted on a quarterly basis for all new personnel. Special focus should be given to orienting facilities personnel on counselling caregivers on the importance of attending treatment until its completion.
- On-the-job support from district and regional officers to health facilities should be enhanced and systematized to encourage improvements in CMAM practices, with an initial focus on

facilities with poor effectiveness indicators. Support should focus on defining sustainable and local strategies for reducing default through early identifying and tracing of the defaulters.

- CMAM OPC days and hours should be adjusted to better fit clients' schedules, for example, ensuring that health care providers providing CMAM services are available in the afternoons of taboo days and ensuring that facilities remain open until 17:00 to give caregivers the opportunity to seek treatment in the afternoons. Ideally, CMAM should be made available to caregivers at any time on any day of the week.
- Routine analysis of CMAM service data should be enhanced at the district and regional levels and systematic feedback should be provided to health facilities. Monthly or quarterly performance reports with details of individual facility effectiveness should be made available and feedback should be provided by districts, regions, and national health authorities to health facility personnel.

Longer-Term Recommendations to Be Addressed at the National and Municipal Levels

To improve access to CMAM services in Agona West the following recommendation is made for the longer term.

• New CHPS compounds should be created in areas with poor health facility coverage (as shown on the map in Figure 6). This would increase not only coverage of CMAM services but also coverage of other health services as well.

Finally, recommendations were also made for national-level authorities as a way to sustain and increase accessibility of CMAM services by community members.

- Because acute malnutrition affects predominantly low-income households, transport costs to reach facilities and payment of national health insurance registration fees and drug costs at the facility level combine to limit access to CMAM services. A system should be implemented to ensure the waiving of national health registration fees and drug costs for children with SAM, particularly for those not covered by health insurance. There is a need to link SAM children with social protection programs, such as Livelihood Empowerment against Poverty (LEAP), that can support their enrolment in the health insurance scheme.
- Pre-service education should integrate CMAM for all relevant health professions interacting with caregivers and children at the health facility level. Current progress has seen CMAM integrated into community health, public health, registered nursing, and midwifery curriculums; efforts should be made to ensure that CMAM is integrated in other health professional training curriculums as soon as possible.
- MUAC and bilateral pitting oedema detection should be included in the national Demographic and Health Surveys and Multiple Indicator Cluster Surveys (MICS) to provide accurate prevalence estimates of acute malnutrition that align with the SAM admission criteria.

Total number of cases in the	Target sample size for		
service delivery unit	50% standard	70% or 30% / 70% class threshold	
500	37	33	
250	35	32	
125	31	29	
100	29	26	
80	27	26	
60	25	25	
50	23	22	
40	21	19	
30	17	18	
20	15	15	

Annex 1. SLEAC Sampling Calculator

	Village number	Rounded	Sub-district	Village name	
1	7	7	Swedru	Ekuban	
2	14.6	15	Swedru	Omanikrom	
3	22.2	22	Swedru	Eguabreso	
4	29.8	30	Swedru	Lybia	
5	37.4	37	Swedru	Washington	
6	45	45	Nyakrom	Otsenkorang	
7	52.6	53	Nyakrom	Kwaman	
8	60.2	60	Nyakrom	Араа	
9	67.8	68	Nyakrom	Gyamanfom	
10	75.4	75	Nyakrom	Ekwamase	
11	83	83	Nkum	Ahweam	
12	90.6	91	Nkum	Matthew	
13	98.2	98	Nkum	Amponsah	
14	105.8	106	Nkum	Edinafom	
15	113.4	113	Nkum	Kwapem	
16	121	121	Nkum	Nana Saman	
17	128.6	129	Nkum	Sackeyfio	
18	136.2	136	Nkum	Ekumase	
19	143.8	144	Bobikuma	Jamestown	
20	151.4	151	Abodom	Nkwadum	
21	159	159	Abodom	Baasikwaa	
22	166.6	167	Abodom	Nkubease	

Annex 2. Sampled Communities

Question	Answers		
What is malnutrition?	Wasting = Kwabiom 'bony, thin' Awirere 'shrinking'		
	Oedema = Kwashiorkor Ahohon 'swollen body' Ahohon yareba 'swelling disease'		
What causes malnutrition?	Not eating good food, Improper feeding, Lack of breast milk, Birth spacing/If the mother has sex too soon after pregnancy, Candidiasis, Heat (from pregnancy), Hereditary, born with it, Poor hygiene, Child not wearing protective clothes, Neglect		
How can we treat SAM?	Doctor, Hospital/health facility, Herbalist, Proper feeding, Neatness/cleanliness, Clean water, Birth spacing, Deworm the child, Time and care		
Which families are the most affected by SAM?	Anyone, Families without family planning, Poor families, Mothers who can't eat well/produce enough breast milk		
Where can we find cases of SAM?	Herbalist, Prayer camp/churches, Spiritualist, Traditional healers, Hospitals, At home, Street		
Who is likely to know where to find cases of SAM?	Health volunteers, Unit committees, Opinion leaders		

Annex 3. AACF Findings

Annex 4. Questionnaire for Households with SAM Cases

Date (DD/MM/YY):		House	Household code:		
1.	Is this child(ren) receiv Yes IPC Ye	ving CMAM services/treatmen es OPC No	t (OPC or IPC)?		
lf Y	ES IPC or YES OPC, skip	to question 5.			
2.	Do you think this child	l(ren) is malnourished?	Yes	No	
If N	If NO then skip to question 6.				
3.	Do you know where the	his child(ren) could be treated	? Yes	No	
	For Yes response,	note specific response if given	(health facility, prayer ca	mp, etc.)	

If NO, skip to question 6.

4. Why is this child(ren) not being treated at a health facility for malnutrition?

Do not read these answers to the respondent. After each answer prompt by asking "Any other reason?" Tick the appropriate box for each answer given. More than one box may be ticked.

Answers	X	notes
Lack of childcare/help with children (not willing to detail why)		
Mother/caretaker sick		
Ashamed to go to the health facility/OPC		
The service is not provided/not running any more		
I need to be referred and there is no-one to do this		
Do not know where to go		
Health facility is too far away		
That service is for people in another village		
It is too dangerous to travel		
My husband or family will not let me go		
Health facility staff request money (detail: heard it, experienced it?)		
Health facility staff are rude or difficult		
Health facility runs on the wrong days		
Waiting times are too long		
Child (or sibling) was rejected previously		
Child (or sibling) was in OPC and discharged		
Child (or sibling) was in IPC and discharged		
Child (or sibling) was receiving CMAM service and defaulted		
Other children were rejected		
Service is not good (detail)		

Record any other reasons given:

Give the caretaker a referral slip and share location of the health facility/OPC site and days on which they can access the services.

Skip to question 6

5. How did the child(ren) come to receive treatment/services?

This question should gather information about the history of the case, local understanding of SAM, treatment behaviours/pathways to care. The interviewer should prompt the caretaker in order to get as much information as possible.

6.	Do you know services/treat	Do you know of any children in your village like your child(ren) that are not receiving services/treatment?				
	Yes	No				
lf Y	ES, go to questi	on 7. If NO, go to question 8.				

7. Why do you think this child(ren) is not receiving services/treatment?

8. If I wanted to find children like your child(ren) and the children we have spoken about, how would I best describe them to other people?

9. If I wanted to find children like your child(ren) and the children we have spoken about, who would best be able to help me find them?

Sub- district	Community	Est. Population	Cluster No.	Assigned team	Assigned supervisors	Assigned vehicle	Date	
Abodom	Nkwadum	624	1	1	Winfred	FHI		
Abodom	Baasikwaa	115	2	3	Rahel	GHS 1		
Abodom	Nkubease	147	3	4	Cynthia	GHS 2	8/7/2013	
Abodom	Jamestown	637	4	2	Roger	GHS 3		
Swedru	Omanikrom	312	17	2	Roger	GHS 3		
Swedru	Ekuban	641	18	1	Winfred	FHI		
Swedru	Eguabreso	1265	19	4	Cynthia	GHS 2	9/7/2013	
Swedru	Lybia	964	20	3	Rahel	GHS 1		
Nyakrom	Араа	1897	14	3	Rahel	GHS 1		
Nyakrom	Kwaman	3449	15	4	Cynthia	GHS 2	10/7/2013	
Nyakrom	Ekwamase	230	16	1	Winfred	FHI		
Nyakrom	Otesenkorang	450	22	2	Roger	GHS 3		
Swedru	Amponsah	126	8	2	Roger	GHS 3		
Nkum	Edinafom	52	9	3	Rahel	GHS 1	_	
Nkum	Ekumase	200	13	1	Winfred	FHI	11/7/2013	
Swedru	Washington	386	21	4	Cynthia	GHS 2		
Nkum	Gyamanfom	488	5	3	Rahel	GHS 1		
Nkum	Mattew	517	6	2	Roger	GHS 3	12/7/2013	
Nkum	Ahweam	516	7	4	Cynthia	GHS 2		
Nkum	Sackeyfio	60	12	1	Winfred	FHI		
					Winfred/	GHS 1/	13/7/2013	
Nkum	Akwapem	26	10	1./3	Rahel	FHI		
Nkum	Nana Saman	130	11	2./4	Roger/Cynt hia	GHS 2/ GHS 3		

Annex 5. Data Collection Schedule