IMAGES DEPICT COMMUNITY HEALTH VOLUNTEERS WORKING WITH MOTHERS TO MEASURE CHILD MID-UPPER ARM CIRCUMFERENCE IN SAMBURU AND TURKANA COUNTIES. PHOTO CREDIT USAID NAWIRI

USAID NAWIRI - STRENGTHENED COMMUNITY HEALTH SYSTEMS (CHS) TO PROVIDE HIGH-QUALITY, RISK-INFORMED, AND SHOCK-RESPONSIVE SERVICES STUDY

Literature Review, Landscape Analysis, and Formative Data Collection Report

August 2021

USAID Nawiri - Strengthened Community Health Systems (CHS) to Provide High-Quality, Risk-Informed, and Shock-Responsive Services Study

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ACRONYMS AND ABBREVIATIONS

ALIMA	The Alliance for International Medical Action
AMREF	African Medical and Research Foundation
ANC	antenatal care
ASALs	arid and semi-arid lands
BFCI	baby-friendly community initiatives
CGV	care group volunteers
CHA	community health assistant
CHC	community health committee
CHEW	community health extension workers
CHMT	county health management team
CHS	community health system
CHV	community health volunteer
CHW	community health worker
CLTS	community-led total sanitation
CMAM	community management of acute malnutrition
CU	community health unit
FGD	focus group discussion
GAM	global acute malnutrition
HFMC	health facility management committee
HIS	health information system
ICCM	integrated community case management
IFA	Information for Action
IGA	income-generating activity
IMAM	integrated management of acute malnutrition

IYCF	infant and young child feeding
KII	key informant interview
MAM	moderate acute malnutrition
MCNP	Maternal Child Nutrition Program
MIYCN	maternal, infant, and young child nutrition
MNCH	maternal, newborn, and child health
MOH	Ministry of Health
MUAC	mid-upper arm circumference
NGO	nongovernmental organization
NHIF	National Hospital Insurance Fund
ORS	oral rehydration salts
OTP	Outpatient Therapeutic Program
PAM	persistent acute malnutrition
RUSF	ready-to-use supplementary food
RUTF	ready-to-use therapeutic food
RMNCAH	reproductive, maternal, newborn, child, and adolescent health
RTI	Research Triangle Institute
SAM	severe acute malnutrition
SBCC	social behavior change communication
SCHMT	subcounty health management team
SD	standard deviation
SMART	Standardized Monitoring and Assessment of Relief and Transitions
SQUEAC	semiquantitative evaluations of access and coverage
TOPS	Technical and Operational Program Support
UNHCR	United Nations High Commissioner for Refugees

UNICEF   United Nations Children's Fund

USAID   United States Agency for International Development

WASH   water, sanitation, and hygiene

WHO   World Health Organization

WHZ   weight-for-height z-score

EXECUTIVE SUMMARY

ES.1 BACKGROUND

Samburu and Turkana Counties are prone to a variety of shocks and stresses, including recurring and prolonged drought, that contribute to consistently high levels of global acute malnutrition (GAM) among young children. The community health system (CHS) is essential for addressing GAM in these two counties because it provides a direct link between community members and services for early detection and treatment of acute malnutrition. Based on national guidelines, the CHS in each county comprises community health units (CUs) that serve 5,000 people, have one community health volunteer (CHV) for every 25 households, and have one community health assistant (CHA) supervising 25 CHVs. CHVs are the communities' first point of contact for health and nutrition services. Samburu has 45 CUs and 1,438 CHVs, while Turkana has 208 CUs and 2,268 CHVs. The USAID Nawiri Project intends to work with county governments to strengthen the CHS to provide health and nutrition services more effectively. To do this, the project needs to understand what is already known about CHVs and the factors that influence the quality of their work, as well as tested strategies for facilitating CHVs' work and their ability to provide health and nutrition services.

ES.2 METHODS

USAID Nawiri seeks to learn from the existing literature, both globally and from arid and semiarid lands (ASALs), and to determine how those strategies can be applied or adapted in Samburu and Turkana. This includes the following activities: a review of published and grey literature; a landscape analysis based on key informant interviews (KIIs) with staff of county governments and implementing organizations in the counties; a desk review of the materials collected during the KIIs; qualitative data collection with county government officials, implementing partners, CHAs, CHVs, and community members; CHV capacity assessments; and a CU functionality assessment (in Samburu only). Dissemination and validation meetings were held in each county to discuss the findings, how the key issues that emerged are affected by shocks and stresses, and priority actions to address systemic barriers and constraints.

ES.3 RESULTS

The results of this assessment generally converged across the different methods—findings from the literature and desk review triangulated with the results of the formative data collection. CU functionality in both Samburu and Turkana Counties remains low, with issues identified related to supplies, transport, supervision, and reporting, among others. CHV capacity to carry out a variety of tasks was mixed, with lower capacity on certain types of tasks in both counties and generally lower capacity overall in Samburu.

Global recommendations indicate that CHVs should have a minimum level of education and receive training, supportive supervision, and remuneration. Many factors are known to influence CHV motivation, including lack of monetary incentives or delayed incentive payments, inadequate or infrequent training, lack of supportive supervision, lack of community support, catchment areas that are too large, lack of transport, insufficient or infrequently replenished supplies and equipment, lack of identification or visibility items (e.g., badges, vests), and too many tasks. Nearly all these issues were identified through literature on CHVs in Kenya and through the qualitative data collected by USAID Nawiri in Samburu and Turkana Counties.

Key challenges to CHVs' motivation and performance in Samburu and Turkana are related to incentives, training, supervision, community respect and recognition, transport, supplies and equipment, data collection and reporting, and long hours on the job.

- **Incentives.** The main challenges with incentives for CHVs were delayed payments in Turkana and no payments in Samburu, because the counties had not passed CHS legislation when the data were collected. Issues related to incentives affected CHVs' motivation to do their work and made supervision difficult.
- **Training.** Training is essential for ensuring that CHVs have the basic knowledge and skills needed for the job. Training allowances and certificates are forms of motivation. Some CHVs in Samburu and Turkana have not been trained on all relevant topics and many need refresher training (especially on first aid and administration of medicines). Some CHVs are regularly selected for training and others are passed over. Low literacy among CHVs makes it hard for them to understand the training content, and trainings are not interactive or adapted to the setting.
- **Supervision.** Supervision is important to provide technical support and motivation for CHVs. Training for CHV supervisors and use of WhatsApp or other tech tools can improve supervision techniques and increase supervisory reach. CHVs in Samburu and Turkana rely on supervision by CHAs to help them resolve community issues, provide technical support, and complete their reports. However, supervision is often inconsistent because of the distances the CHAs need to cover and lack of transport. CHAs also lack training on supervision and supervision tools.
- **Community support, respect, and recognition.** Benchmarking visits—in which CHVs visit other CHVs who have successfully achieved key performance indicators—and community support are important for CHV motivation. In Samburu and Turkana, CHVs feel appreciated when community members recognize their work or follow their advice. However, in some locations, community members were hostile to CHVs and refused to interact with them. This was often because they felt CHVs were earning money by extracting information from them, they did not think CHVs were adequately trained in diagnosing and treating illnesses, or they believed that CHVs lacked the necessary supplies and equipment to do their work.
- **Supplies and equipment.** The most common items that CHVs in Samburu and Turkana lacked were medicines, bags, uniforms or badges, rain gear, reporting tools, and means of transport. CHVs also mentioned that items such as bicycles, mobile phones, and timers needed repairs or replacement.
- **Data collection and reporting.** CU functionality assessments indicated that CHV reporting was low in both counties. Some CHVs lacked reporting tools and pens. The large size of the tools makes them difficult for CHVs to carry. CHVs with low literacy have trouble filling out the tools. Migration and large communities make it difficult for CHVs to collect the necessary data.

This assessment also reviewed and collected information on CHVs' nutrition-related activities and tools.

- **ICCM-CMAM.** Published research provides strong evidence across countries that CHVs can implement community management of acute malnutrition (CMAM) cost effectively

and with good quality. Lessons learned in a recent integrated community case management (ICCM)-CMAM study in Turkana mirrored issues raised for other aspects of the CHS, including recruiting more CHVs, engaging literate CHVs, providing CHVs with transport, offering them stipends and regular supervision, and ensuring community sensitization. USAID Nawiri qualitative data showed that community members in Samburu and Turkana were generally positive about CHVs treating common childhood ailments at the community level. The main challenges to ICCM were inadequate training of CHVs on use of the drugs, their lack of skills and practice in treating patients, and lack of medicines and other necessary supplies. A variety of challenges to CMAM were CHVs' lack of training on acute malnutrition detection, worn-out tapes for measuring mid-upper arm circumference (MUAC), and stockouts of ready-to-use therapeutic food (RUTF). Lack of transport and distance to facilities made it challenging for families with an acutely malnourished child to get to a health facility and contributed to defaulting. Community issues, including stigma associated with acute malnutrition, selling or sharing RUTF, and lack of caregiver knowledge about acute malnutrition, were also barriers.

- **Family-led MUAC.** Peer-reviewed literature has documented that mothers and other family members are effective at measuring MUAC, and that simple MUAC insertion tapes are more accurate than other devices. In Samburu and Turkana, mothers reported that they were generally happy to measure their child's MUAC because it gives them immediate information for changing the child's diet or taking the child for treatment. Some community members with a malnourished child reported seeking a referral from the CHV, but others go straight to the facility with a referral. However, some community members said they were turned away from the facility without a referral note.

- **Tools for identification and tracking of acute malnutrition.** Several digital tools for identification, tracking, and treatment of acute malnutrition cases have been or are currently being tested in Kenya, including in Wajir and Samburu Counties. Nondigital paper-based tools have also been successful in Kenya and neighboring drylands areas, including pictorial patient registers for tracking the progress of children's treatment for acute malnutrition in South Sudan and a similar tool used for ICCM-CMAM in Turkana.

ES.4 RECOMMENDATIONS

Recommendations for challenges were identified by participants in the formative data collection. We suggest a co-design process and learning and adaptation process for USAID Nawiri's activities to support the counties to address the gaps. Key recommendations are as follows.

- **Incentives**: Develop and test a motivation package for CHVs that includes supportive supervision, adapted reporting tools, peer and community support, and a monthly performance reward system. Use strategies to support income-generating activities among CHVs to address gaps in incentives from county governments.

- **Training**: Improve coordination between government and implementing partners for a more systematic approach to training and capacity development (e.g., create a CHV training database in each county). Develop training strategies that are more interactive and adapted to low-literate CHVs (e.g., make training interactive, use pictorials in training modules). Explore nontraditional training strategies to make training more practical and available to more CHVs (e.g., peer-to-peer training, training through

WhatsApp or the African Medical and Research Foundation [AMREF] Leap mobile app). Ensure prompt payment of training allowances and distribution of training certificates.

- **Supervision**: Provide CHAs with transport, supervision tools, and training on supervision skills. Provide network boosters to facilitate communication between CHAs and CHVs. Use WhatsApp or text messages to support supervision and create peer-to-peer learning opportunities.
- **Supplies and equipment**: Develop a system for tracking provision of supplies and equipment for CHVs. This might involve building on or extending the cStock (commodities stocking app) already in use in the counties. Provide refresher training for CHVs so they know how to use all of their supplies and equipment. Provide storage containers to CHVs for medicines and nutrition commodities.
- **Reporting**: Add pictorial elements and/or simplify language used in reporting tools. Create smaller, simplified version of tools so they are easier to fill out and carry. Simplify submission of CHVs' reports by offering them different submission options (e.g., by phone, text, or photo). Pair CHVs so that literate CHVs can help low-literate CHVs in completing reports.
- **Special populations**: For migrating pastoralists, identify CHVs within the community who travel with the group, set up mobile CUs, or develop a system whereby CHVs at the migrant location can link the group to the nearest CU. Support CUs to map out migration routes and form mobile clinics along those routes. Develop a supply chain system to ensure that commodities reach migrating populations. Use camel caravans to provide services to migrating communities. For adolescents, use youth groups, conduct adolescent health talks, involve youth leaders, and provide adolescent safe spaces and youth-friendly services during less-busy times at health facilities. Offer night-time services for adolescents so they can access them when they are not working.
- **ICCM-CMAM and family-led MUAC**: Make sure CHVs have the necessary tools (e.g., MUAC tapes), medicines, and nutrition commodities (e.g., RUTF). Provide CHVs with storage boxes for commodities. Work with the county government on a stocking system for RUTF to prevent stockouts. Sensitize community members on benefits and proper use of RUTF, stigma related to acute malnutrition, and harmful beliefs and practices that contribute to malnutrition. Create a malnutrition defaulter tracking system. Set up a system so CHVs can consult CHAs as they diagnose and treat. Simplify ICCM monitoring tools for low-literate CHVs and provide continuous mentoring on ICCM-CMAM tools and reporting. Train CHVs to hold family meetings and mini-dialogues to engage the community and obtain community feedback. Provide CHVs with SBC materials and lesson plans to guide them during family and group meetings to ensure quality counseling. Use data from family-led MUAC referrals in IMAM surge surveillance.
- **Tools**: Build on the experiences from South Sudan and Turkana County to use pictorial tools for acute malnutrition detection and treatment that are adapted for CHVs with low literacy.
- **Manage work schedules for CHVs**: Despite working on a voluntary basis, many CHVs seem to be working full time or more. The number of activities CHVs are asked to perform and their time use should be rationalized in collaboration with county governments.

1. INTRODUCTION/PROBLEM STATEMENT

1.1 USAID NAWIRI PROJECT

The goal of the United States Agency for International Development (USAID) Nawiri Project is to sustainably reduce levels of persistent acute malnutrition in Kenya's arid and semi-arid lands (ASALs). In Samburu and Turkana Counties, USAID Nawiri is facilitated by a Mercy Corps-led consortium of diverse international and national partners that share a commitment to putting county governments and their citizens in control of their own journeys to self-reliance. In the first phase of USAID Nawiri, the consortium is carrying out desk reviews, formative data collection, and implementation research to identify household and systemic drivers of acute malnutrition and, using the information gained, to tailor and test program activities so that they address the key drivers of acute malnutrition.

USAID Nawiri has developed an initial theory of change for the program (**Figure 1**) that is based on a conceptual framework of acute malnutrition in Africa's drylands (Young, 2019), adapted from the United Nations Children's Fund (UNICEF) nutrition framework (UNICEF, 1990). USAID Nawiri's theory of change indicates that a wide variety of interrelated factors contribute to nutrition in this context. Health is one of the most proximal factors that affects nutritional status. The practices and systems that support health are shown in light blue in the theory of change. USAID Nawiri posits that an effective community health system (CHS) leads to sustained improved access to quality health services, sustained uptake of appropriate maternal, infant, and young child nutrition (MIYCN) practices, and sustained water, sanitation, and hygiene (WASH) practices. All these factors contribute to sustained good health and, subsequently, to the nutritional status of women and children.

Figure 1. Nawiri's overall theory of change
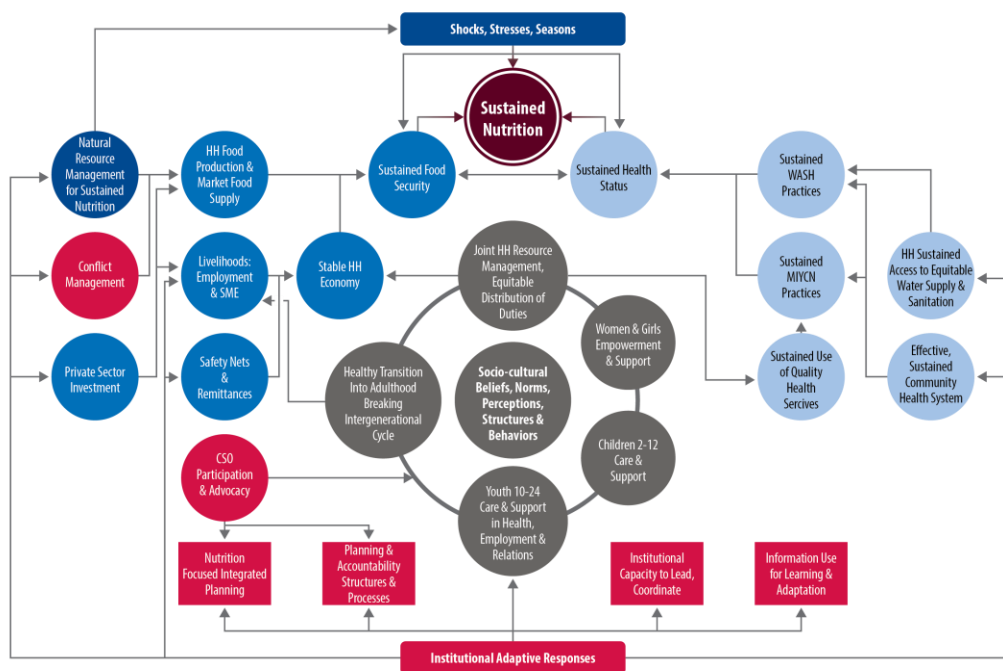
1.2. HEALTH AND NUTRITION SITUATION OF CHILDREN AND WOMEN IN SAMBURU AND TURKANA

Samburu and Turkana are ASAL counties prone to a variety of shocks and stresses, including recurring and prolonged drought. In Samburu, 57% of the population is pastoral, 37% is agro-pastoral, and 6% is involved in formal employment or casual wage labor (Kenya Food Security Steering Group & Samburu County Steering Group, 2020). In Turkana, 60% of the population is pastoral, 20% agro-pastoral, 12% fisher folk, and 8% is composed of urban/peri-urban areas with formal and informal employment (Turkana County Department of Health Services, 2018a). In both counties, resource-based conflict and cattle rustling are common, and lead to loss of life and livestock. Other shocks, such as flash floods and locust infestation, also affect food security in the area.

Among children <5 years of age, global acute malnutrition (GAM), defined as weight-for-height z-score (WHZ) < –2 standard deviation (SD), has remained at or above the global emergency threshold of 15% for the last 5 years in both counties (**Figure 2**) (de Onis et al., 2019; UNHCR, n.d.). The prevalence of GAM is typically higher and varies more in Turkana than in Samburu. Severe acute malnutrition (SAM), defined as WHZ < –3 SD among children <5 years of age, parallels the peaks and valleys in GAM prevalence in Turkana, and is more stable in Samburu. GAM includes children with SAM and those with moderate acute malnutrition (MAM), defined as WHZ ≥ -3 SD and WHZ < -2 SD. Children with MAM or SAM require treatment either in the community by using ready-to-use therapeutic food (RUTF) or as inpatients at a health facility if there are complications. Screening for MAM and SAM, tracking and referring cases, and providing treatment are functions of the CHS in Kenya.

Figure 2. GAM and SAM prevalence among children <5 years of age in Samburu and Turkana Counties from SMART (Standardized Monitoring and Assessment of Relief and Transitions) surveys
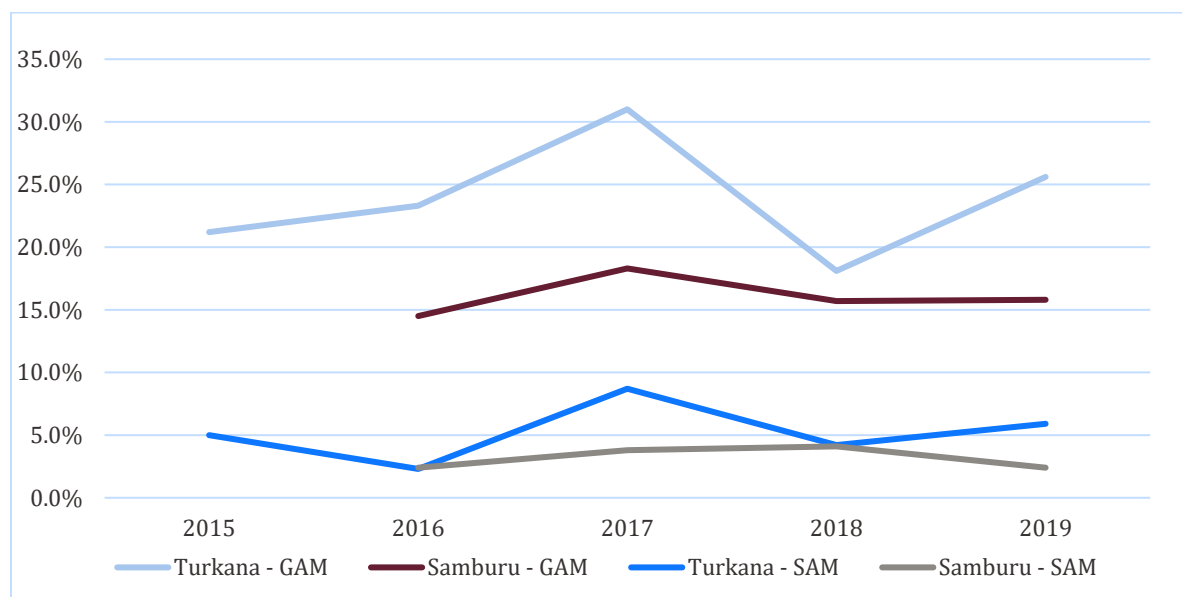
(Samburu County Department of Health Services, 2016, 2017b, 2018, 2019; Turkana County Department of Health Services, 2015, 2016, 2017, 2018b, 2019)

Infant and young child feeding (IYCF) practices are major contributors to child nutritional status. With respect to IYCF practices, knowledge of optimal breastfeeding practices is high and perceptions and attitudes toward breastfeeding are positive in the two counties (Ochola, 2017a, 2017b). In Samburu and Turkana Counties, nearly all infants were ever breastfed, received colostrum, and were breastfed on demand. Most were still breastfeeding at 1 year of age (85% in Samburu and 89% in Turkana), although less than 50% continued to receive breast milk at 2 years of age. Although 94% of mothers reported that exclusive breastfeeding should last 6 months, only 77% of infants in Samburu and Turkana under 6 months of age were exclusively breastfed. About a quarter of children in Samburu and 13% of children in Turkana were fed with a bottle the previous day.

Complementary feeding practices are far from optimal, and knowledge about complementary feeding is less well documented compared with that of breastfeeding in both counties (Ochola, 2017a, 2017b). For example, only 73% of mothers in Turkana reported that complementary feeding should begin at 6 months of age, and in Samburu 23% reported that food should be introduced between 7 and 12 months of age. Among infants 6–8 months of age, only 48% in Samburu and 36% in Turkana had received solid or semisolid foods the previous day. Overall, only about one-third of children 6–23 months of age were fed the minimum number of times per day, and only 60% in Samburu and 47% in Turkana had minimum dietary diversity. Knowledge of how to prepare foods for the children was reported to be a constraint to appropriate feeding practices in Turkana (Turkana County Department of Health Services, 2017).

Morbidity or illness is the other proximal contributor to the nutritional status of young children. The 2019 Standardized Monitoring and Assessment of Relief and Transitions (SMART) surveys indicated that 41% of children in Turkana and 27% in Samburu were ill during the last 2 weeks (Samburu County Department of Health Services, 2019; Turkana County Department of Health Services, 2019). Among these, in Turkana and Samburu, respectively, 37% and 24% had fever with chills, 41% and 64% had acute respiratory infections, and 18% and 12% had watery diarrhea. Of those with diarrhea, 85% in Turkana and 56% in Samburu received zinc supplementation.

Vitamin A supplementation, deworming, and immunizations are provided to children <5 years of age to prevent illness. In 2019, 60% of children 6–59 months of age in Turkana and 73% in Samburu received vitamin A supplementation at least once, and 60% of children 12–59 months of age in Turkana and 74% in Samburu received deworming medication at least once (Samburu County Department of Health Services, 2019; Turkana County Department of Health Services, 2019). Immunization coverage was high in Turkana, except for measles vaccination at 18 months of age, which was 70%. In Samburu, immunization coverage was a bit lower than Turkana for all vaccines and was 49% for measles at 18 months of age.

Access to water and following good WASH practices can reduce morbidity in young children. In 2019, 64% of households in Turkana and 41% in Samburu obtained water within 500 m of their households; 18% of households in Turkana and 13% in Samburu treated their water; and 27% of households in Turkana and 12% of household in Samburu washed their hands at four critical

times (Samburu County Department of Health Services, 2019; Turkana County Department of Health Services, 2019).

Women of reproductive age with a mid-upper arm circumference (MUAC) <21 cm are considered to have acute malnutrition. The prevalence of acute malnutrition among women in Samburu and Turkana from 2016–2019 is shown in **Figure 3**. The prevalence has remained near 8% in Turkana, and has been more variable in Samburu, rising to over 11% in 2019. Dietary diversity among women in the two counties was quite low, with only 20% of women in Turkana and 31% in Samburu eating 5 or more out of 10 food groups (minimum dietary diversity for women). Among pregnant women, 96% in Turkana and 81% in Samburu were given iron folate, but only 47% in Turkana and 16% in Samburu took it for 90 days or more.

Figure 3. Acute malnutrition prevalence among women of reproductive age in Samburu and Turkana Counties from SMART surveys
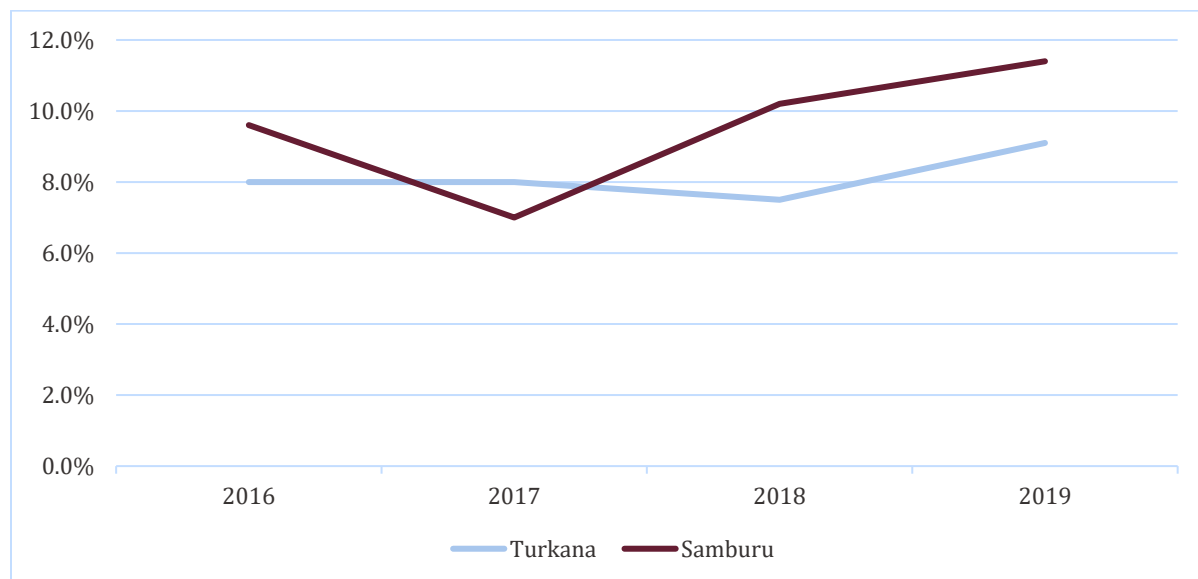
(Samburu County Department of Health Services, 2016, 2017b, 2018, 2019; Turkana County Department of Health Services, 2016, 2017, 2018b, 2019)

1.3 COMMUNITY HEALTH SYSTEMS GLOBALLY

Globally, CHSs were developed and expanded, following the 1978 Alma Ata Declaration on primary health care, to fill a critical gap in the health workforce and make essential health services available to people in hard-to-reach and underserved areas (Ballard & Montgomery, 2017; World Health Organization, 1978). A large gap in the health workforce still exists today, and strengthening CHSs will continue to be central to the achievement of the Sustainable Development Goals and universal health coverage (World Health Organization, 2006).

Community health workers (CHWs) provide basic health education and health care in the community, and are the key element of most CHSs. They are often trained to do community health work, but they do not have formal or paraprofessional health training (Lewin et al., 2010). CHWs may be based in the community they serve and be selected by and accountable to the community, or they may cover a larger area (Lehmann & Sanders, 2007). They are often linked

to the formal health care system, and may be supervised by health care workers at primary-level health facilities and make patient referrals to this level.

CHWs are asked to do a wide variety of tasks and, in some cases, are asked to dispense basic curative health services (Kok et al., 2015). They are often the first point of contact between the community and the health care system. In some settings, CHWs are volunteers, while in others, they receive a stipend or some other type of remuneration.

1.4 COMMUNITY HEALTH SYSTEM IN KENYA

Kenya adopted the World Health Organization (WHO) guidelines on the attainment of universal health coverage, and developed a national community health strategy to increase access to and improve the quality of health services at community level (Kenya Ministry of Health, 2014a, 2014c, 2020b). In Kenya, the lowest level (Level 1) of the health system is the community health unit (CU). The purpose of the CU is to encourage adoption of healthy behaviors, recognize signs and symptoms of illness requiring referral, and facilitate community diagnosis, management, and referral of illnesses (Kenya Ministry of Health, 2014a). Each CU is mandated by the national government to serve a population of 5,000 people, have one community health volunteer (CHV) for every 25 households, and have one community health assistant (CHA) supervising 25 CHVs. CHVs are the first point of contact for communities for health and nutrition services. CHVs' activities are monitored by CHAs and reported using Ministry of Health (MOH) reporting tools, with information feeding into the Kenya health information system (HIS).

In Turkana, there are 208 active CUs, while in Samburu, there are 45 active CUs. A recent assessment in Turkana County found that 10% were functional, 48% were semi-functional, and 42% were nonfunctional (Turkana County Government, 2020). Samburu County has not conducted a CU functionality assessment.

Turkana County provides a monthly stipend to CHVs, while Samburu County has just passed a bill legislating a stipend for CHVs. More details about the stipends and how they affect CHV motivation is found in Section 5.1.1.

Throughout this document, the term CHW refers to community health workers globally. The term CHV stands for CHWs in Kenya. They are specifically called volunteers in Kenya because either they are not paid or, in select counties, they receive a small monthly stipend.

1.5 PROBLEM STATEMENT

USAID Nawiri intends to strengthen the CHS as the structural and functional space where community health is operationalized, through linkages between the different levels of the health system and its responsiveness to the needs of its intended users. To do this effectively, the project needs to understand what is already known about CHWs and the factors that influence the quality of their work, as well as tested strategies for facilitating CHWs' work and their ability to provide health and nutrition services. USAID Nawiri seeks to learn from the existing literature both globally and from ASALs, and to determine how those strategies can be applied or adapted in Samburu and Turkana. This includes the following activities: a review of published and grey literature; a landscape analysis based on KIIs with staff of county governments and implementing organizations in the counties; a desk review of the materials collected during the

KIIs; qualitative data collection with county government officials, implementing partners, CHAs, CHVs, and community members; a CHV capacity assessment; and a CU functionality assessment (in Samburu only). Together, these pieces of information will form the CHS landscape analysis, which will be triangulated with learnings from COVID response activities, to design USAID Nawiri's learning and program activities to strengthen the CHS and to further adapt USAID Nawiri's overall theory of change.

To guide the project's work on the CHS, USAID Nawiri developed a detailed theory of change that shows the possible pathways through which improving CHS functionality, technical support for CHVs and CHAs, support for CHV motivation, and nutrition program implementation will lead to reductions in persistent acute malnutrition, and which guided the formative and landscape analysis process for this work (**Figure 4**). USAID Nawiri also expects to adapt the CHS theory of change based on the formative and implementation research findings.

Figure 4. Draft Nawiri CHS theory of change
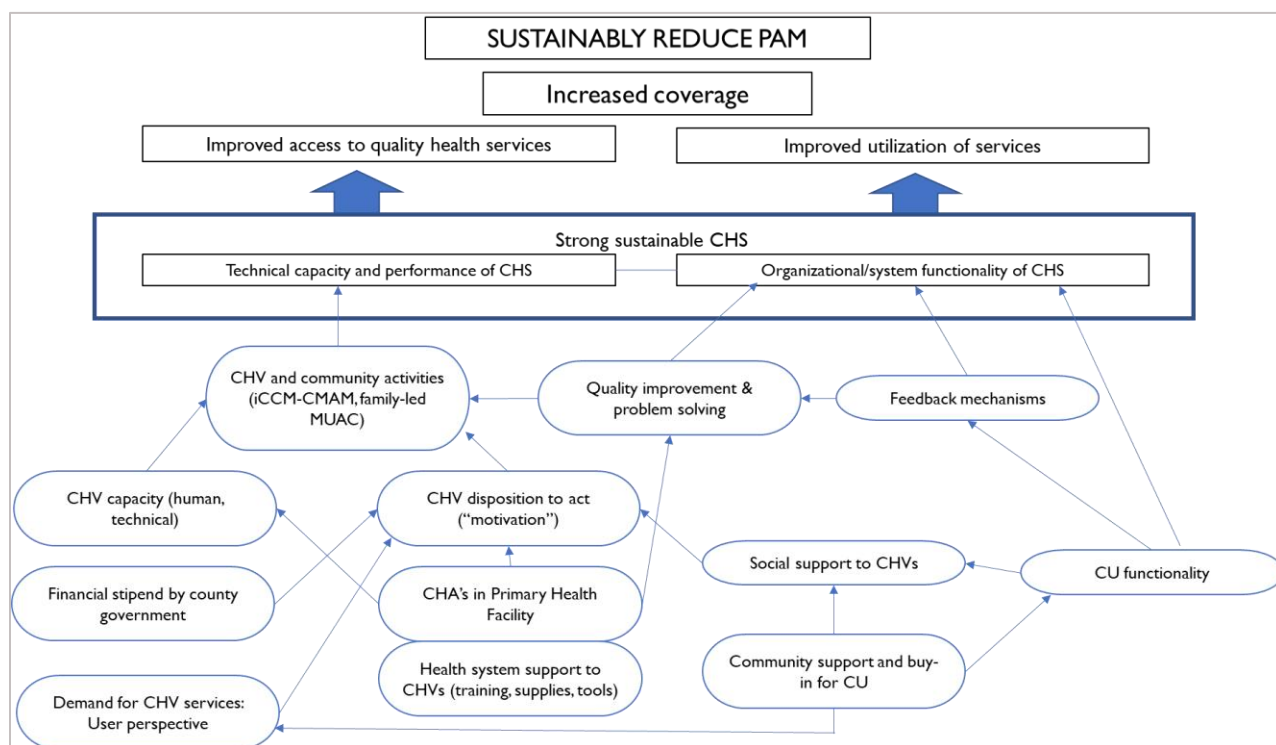
CMAM = community management of acute malnutrition; ICCM = integrated community case management; PAM = persistent acute malnutrition.

1.6 RESEARCH QUESTIONS

Guided by the CHS theory of change, this report seeks to answer the following questions.

1.6.1 LITERATURE REVIEW

1. What is already known globally and what are the experiences in Kenya, Turkana, and Samburu related to:

a. CHV performance
b. CHV incentives and motivation
c. ICCM-CMAM integration
d. Family-led MUAC
e. Tools or digital solutions for identifying and tracking acute malnutrition cases

2. What can we learn from global and local experiences and use or adapt in Nawiri?
3. What policy/legislative frameworks exist in the counties and what is their implementation status?

1.6.2 LANDSCAPE ANALYSIS

1. Where are other CHS implementers working in the counties? What is the focus of their programs, both topically and geographically?
2. What can we learn from local implementers to ensure that CHS programming in Nawiri addresses gaps?

1.6.3 DESK REVIEW

1. What training, social behavior change communication (SBCC), monitoring and evaluation, and other materials are being used by government and CHS-implementing partners in Samburu and Turkana?
2. How well are the materials adapted to the context?

1.6.4 FORMATIVE DATA COLLECTION AND LEARNING SPRINTS

1. **Improved Functioning of CHVs**: How can the work of CHVs to provide health and nutrition services at community level be strengthened through improvements or changes in social support, incentives, training, supervision, and reporting?
2. **Acute Malnutrition Case Detection and Management**: How can CHV tools, family-led MUAC, and ICCM-CMAM integration be adapted to the context to improve the early detection, management, referral, reporting, defaulter tracing, and follow-up of acute malnutrition cases for the sustained reduction of persistent acute malnutrition?
3. **Technical Support to Strengthen the CHS**: What technical support, including feasible and low-cost innovations or technological solutions, is needed to improve the design, implementation, and management of the CHS, including its contextualization, responsiveness, and internal surge capacity during shocks?
4. **User-focused CHS**: What modifications are necessary to provide client-centered needs in an accountable, supportive manner, with demonstrable improvements in level 1 service indicators to which the CHS contributes?

2. METHODS

The goals of this work are to describe CHS approaches globally; document CHS approaches, facilitators and barriers to their implementation in Samburu and Turkana; and identify solutions or adaptations for improving the functionality of CHS in the two counties, especially with respect to prevention and treatment of acute malnutrition. This report includes a literature review of published and grey literature, a landscape analysis based on key KIIs, a desk review of materials collected during the interviews, formative data collection from CHVs and community

members, a summary of USAID Nawiri's learning sprints conducted as part of the project's COVID response, and findings from county-level dissemination and validation meetings.

2.1 LITERATURE REVIEW

The literature review focused on several different aspects of CHS, including policies, functionality, and programming, and considered peer-reviewed published literature and grey literature, including

- national and county health and CHS policies, strategies, and guidelines;
- reports of CHS and CHV performance and functionality in Samburu and Turkana;
- global research on factors affecting CHV motivation;
- global research on tools for identification and tracking of acute malnutrition cases;
- global policies and experiences with ICCM-CMAM integration;
- global experiences with the IMAM surge approach; and
- global research on effectiveness and experiences with mother-led or family-led MUAC measurement.

2.2 LANDSCAPE ANALYSIS

During KIIs (described below), USAID Nawiri collected information to ensure current and accurate information regarding which stakeholders are conducting what activities, in which locations, and at what scale. Key informants from organizations with ongoing and recent programs in the counties were also asked to describe their implementation successes and challenges.

2.3 DESK REVIEW

This activity comprised a desk review of materials collected during the landscape analysis. The desk review focused especially on

- CHV training materials,
- SBCC materials and how well they are adapted to the local context, and
- tools used by partners and government to track acute malnutrition cases.

2.4 FORMATIVE DATA COLLECTION

Site selection for the formative research included 73 CUs: 32 in Samburu and 41 in Turkana spread across the Samburu and Turkana subcounties. The sites were selected based on livelihood zones: urban, rural, agro-pastoral and pastoral; CU functionality (e.g., functional CUs, semifunctional CUs, and nonfunctional CUs); new and old CUs; and whether CUs are in remote places. For Turkana, sites were also considered where the baby-friendly community initiative (BFCI) and integrated community case management and community-based management of acute malnutrition (ICCM-CMAM) activities were previously implemented.

2.4.1. INTERVIEW AND FOCUS GROUP DISCUSSION DATA COLLECTION AND ANALYSIS

The formative component of this work was designed to collect information from government, implementers, CHAs, CHVs, and community members in each county, including

- KIIs with government staff and implementing organizations;
- KIIs with community representatives;
- focus group discussions (FGDs) with CHVs, including questions about family-led MUAC and ICCM-CMAM activities in locations where those activities had been conducted as part of Nawiri's COVID response; and
- FGDs with community members.

In collaboration with government staff in the two counties, USAID Nawiri compiled lists of government agencies, implementing partners, and other organizations involved in supporting the CHS. Based on those lists, 23 representatives (13 Turkana and 10 Samburu) from key organizations were identified to participate in KIIs. Other participants included 22 leaders or members of CHCs or health facility management committees (HFMCs) (14 in Turkana, 8 in Samburu) to participate in interviews. KIIs were conducted by USAID Nawiri staff from Research Triangle Institute (RTI) and Save the Children.

FGDs were held with CHVs [6 FGDs Samburu (N = 36), 14 FGDs Turkana (N = 84)] and community members, including CHC and HFMC members [6 FGDs Samburu (N = 36), 4 FGDs Turkana (N = 24)]. FGDs were conducted by a team of moderators and notetakers. CHVs were mobilized to participate by CHAs, and community members were mobilized by CHVs within the targeted CU. Two FGDs with CHVs were conducted per subcounty. Four FGDs with community members were planned per county, but two extra FGDs were conducted in Samburu.

Interviews and FGDs were digitally recorded then transcribed and translated into English. The transcripts were uploaded into NVivo and analyzed using qualitative content analysis methods (Hsieh & Shannon, 2005). A codebook of deductive codes was developed based on the question guides and inductive codes of topics that emerged during the interviews. The transcripts were coded by three staff and research assistants. Codes were grouped into themes, and descriptive summaries of key findings and illustrative quotes were prepared for each theme based on the code reports from NVivo.

2.4.2 CHV CAPACITY ASSESSMENT AND CU FUNCTIONALITY ASSESSMENT (SAMBURU ONLY) DATA COLLECTION AND ANALYSIS

A CHV capacity assessment was conducted with 13 CHVs in Samburu and 25 CHVs in Turkana. The data collection tool was adapted from the USAID CHW Assessment and Improvement Matrix (CHW AIM) (Crigler, Hill, Furth, & Bjerregaard, 2011). A CU functionality assessment was conducted in 13 CUs in Samburu. The functionality assessment was not conducted in Turkana because the African Medical and Research Foundation (AMREF) had recently completed one for the county. AMREF's Turkana findings are described in Section 3.4. The data collection tool used in Samburu was the same tool used by AMREF in Turkana (Ager et al., 2016).

The assessments were conducted by the same team of data collectors that conducted the FGDs. Assessments were completed using paper data collection tools, and the data were transferred to Excel files for analysis. Data for the CHV capacity and CU functionality assessments were analyzed descriptively by county in Stata.

2.5 LEARNING SPRINTS

In collaboration with Samburu and Turkana County Departments of Health, USAID Nawiri conducted learning sprints on ICCM-CMAM and family-led MUAC as part of the project's COVID response. The activities were co-created and collaboratively planned and implemented. For each activity, a road map document was created describing the design, knowledge gaps, assumptions, elements to be tested, existing evidence, rationale for the activities, results and evidence sharing methods, resources required, monitoring plan, and reflect and adapt timelines. Throughout implementation regular (every 2-4 weeks) reflect and adapt meetings were held to discuss experiences and co-create adaptations for further testing.

2.6 COUNTY DISSEMINATION AND VALIDATION

After compiling this report and discussing the results within the consortium, USAID Nawiri conducted dissemination and validation meetings in each county. These were virtual meetings held on two days for 2–3 hours per day. On day 1, the findings from the report were presented and discussed. On day 2, participants were divided into five groups, and each group was assigned a thematic area to discuss how it is affected by shocks and stresses, actions that can be taken within and outside the CHS, system constraints, and priority actions. The meetings were attended by 75–80 participants, including county staff across relevant sectors and other stakeholders.

3. LITERATURE REVIEW

3.1 GLOBAL CHS GUIDELINES

Based on a review of evidence in 2018, the World Health Organization (WHO) developed guidelines on policies and systems support for CHWs (World Health Organization, 2018). Briefly, the guidelines recommend that CHWs have an appropriate minimum level of education, acceptance by the community, and personal attributes and capabilities consistent with community service. CHWs should be offered preservice training on health promotion and prevention, roles within the health care system, social and environmental determinants of health, provision of psychosocial support, interpersonal skills, and personal safety. Training modalities and duration should be adapted to the curriculum and setting. CHWs should have competency-based certification if they have successfully completed training. Supportive supervision with an appropriate supervisor/supervisee ratio, training for supervisors, and coaching and mentoring strategies should be implemented. WHO strongly recommends that CHWs receive remuneration for their work, but it should not be based mainly or entirely on performance-based incentives. CHWs should have contracting agreements and the possibility of a career ladder. WHO provides guidance on criteria for determining CHW-to-population ratio. CHWs should collect and use data on their activities. CHW programs should develop and implement a community engagement strategy. Supplies for CHWs should be provided and tracked through existing health supply chains and systems.

3.2 NATIONAL CHS POLICIES, STRATEGIES, AND GUIDELINES

Kenya has several national policies, strategies, and plans that guide the implementation of the CHS. The *Kenya Health Policy 2014–2030* describes the policy framework goals, objectives, and implementation of the health system (**Figure 5**) (Kenya Ministry of Health, 2014a).

Figure 5. Organization of Health Service Delivery System in Kenya

COORDINATION LEVEL

NATIONAL
Health policy; Regulation; National referral facilities; Capacity building and technical assistance to counties

COUNTY
- County health facilities and pharmacies
- Ambulance services
- Promotion of primary healthcare
- Licensing and control of undertakings that sell food to the public
- Veterinary services (excluding regulation of the health profession)
- Cemeteries, funeral parlours and crematoria
- Refuse removal, refuse dumps and solid waste disposal

SUB COUNTY

ORGANIZATION OF HEALTH SERVICES

NATIONAL REFERRAL SERVICES
Comprises of all tertiary (level 6) referral hospitals, National reference laboratories and services, Government owned entities, Blood transfusion services, Research and training institutions providing highly specialized services. These include (1) General specialization (2) Discipline specialization, and (3) Geographical/regional specialization. Focus is on: Highly specialized healthcare, for area/region of specialization, Training and research services on issues of cross-county importance

Referral Health Services

COUNTY REFERRAL HEALTH SERVICES
Comprise all level 4 (primary) and level 5 (secondary) hospitals and services in the count: forms the County Health System together with those managed by non-state actors. Provides:
- Comprehensive in patient diagnostic, medical, surgical and rehabilitative care, including reproductive health services;
- Specialized outpatient services; and
- Facilitate, and manage referrals from lower levels, and other referral.
- Management of cemeteries, funeral parlors and crematoria

Referral Health Services

PRIMARY CARE SERVICES
Comprise all dispensaries (level 2) and health centres (level 3), including those managed by non-state actors. Are those constitutionally defined, including:
- Disease prevention and health promotion services;
- Basic outpatient diagnostic, medical surgical & rehabilitative services;
- Ambulatory services
- Inpatient services for emergency clients awaiting referral, clients for observation, and normal delivery services;
- Facilitate referral of clients from communities and to referral facilities.

Referral Health Services

COMMUNITY HEALTH SERVICES
Comprise community units (level 1) in the County. Those that are constitutionally defined, and in community heath strategy, including;
- Facilitate individuals, households and communities to embrace appropriate healthy behaviors;
- Provide agreed health service;
- Recognize signs and symptoms of conditions requiring referral;
- Facilitate community diagnosis, management and referral.

Source: Kenya Ministry of Health, 2014a

Kenya has had community health policies since 2006 with the goal of developing and strengthening the level 1 health system for the attainment of universal health coverage. The Strategy for Community Health 2014–2019 is the second of these policies (Kenya Ministry of Health, 2014c). It provides a policy framework that serves as the basis for the CHS, indicators for measuring improvements in CHS implementation, and a costed implementation plan. The third community health strategy for 2020–2024 is currently being developed (Kenya Ministry of Health, 2020a).

The recently signed Kenya Community Health Policy 2020–2030 describes the background and basis for the policy, and then structure and functioning of the CHS and its elements (Kenya Ministry of Health, 2020b). A CU serves a designated population and has a certain number of CHVs and CHAs based on the size of the population. A CU is governed by a CHC, which is linked to a primary health facility. To be functional, a CU must fulfil 11 criteria (e.g., existence of a trained CHC that meets quarterly). CHCs are composed of community members selected by the community and must include one CHV and the CHA. The CHC provides leadership and oversight for health and community services. Each subcounty and county has its own health management team to coordinate all health services, including the CHS. CHAs are employees of the county government who serve as the link between the health facility and community. The CHA is responsible for setting up the CHC, training and supervising CHVs, managing drugs/commodities, and compiling data. The CHA must be an adult resident of the community who is literate (except where this is not feasible). CHVs are selected by the community and should receive two trainings and 4 months of practical training. CHVs' key duties are to deliver health messages; register households; treat common ailments and minor injuries; diagnose, treat, manage, and refer common childhood illnesses; keep their CHV kits stocked with supplies; refer cases to link facilities; conduct home visits; hold community health activities; and maintain records of activities. CHVs are engaged as volunteers, but counties can legislate payments to CHVs to motivate them. The policy also outlines the service packages that should be implemented through the CHS and prescribes a structure for the community-based health information system (HIS).

The Government of Kenya CHS Communication Strategy was designed to address gaps in communication between departments and among the public about the CHS, and to set out a comprehensive communication framework for the CHS with unified health messaging (Kenya Ministry of Health, 2012). The strategy also makes provisions for ensuring that health communication materials and messages are adapted regionally, and for adequate training of health staff and volunteers.

3.3 COUNTY CHS POLICIES AND LEGISLATIVE FRAMEWORKS

The national community health strategy policy document guides counties on a framework for operationalizing community health services so that they respond to local health and nutrition challenges. Turkana County enacted laws to domesticate the policy and Samburu County has recently followed suit. In Turkana, the CHS legislative framework was passed in 2018. The Turkana law stipulates that a CU includes up to 20 villages and there is one CHV per village, which may include up to 100 households (Turkana County, 2018). It also has a provision for a monthly stipend of KSh 2,000 for CHVs, which was recently increased to KSh 3,000 for CHVs who are providing essential health services during the COVID-19 pandemic. Samburu passed a CHS bill in 2021, including a plan for paying CHVs a monthly stipend not less than KSh 2,000. This will need to be budgeted for and approved before payments start.

The 2020 national CHS bill in Kenya made a provision for CHVs to treat uncomplicated cases of acute malnutrition at the community level. However, there is currently no provision in the county policy or legislative frameworks for CHVs to treat acute malnutrition in the community as part of ICCM-CMAM. A consortium of partners led by UNICEF recently completed a study of the

feasibility and effectiveness of ICCM-IMAM integration in Turkana (results are described in Section 3.7).

3.4 DOCUMENT REVIEW ON CU FUNCTIONALITY IN SAMBURU AND TURKANA

CU functionality has been defined as having the necessary inputs (such as sufficient numbers of CHAs/CHVs, training, kits, reporting tools, transport, supportive supervision, stipends) and outputs (action planning, CHV monthly meetings, CHV activities, and reporting) (Turkana County, 2018). A recent assessment in all Turkana subcounties found that out of 163 CUs, 10% were functional, 48% were semifunctional, and 42% were nonfunctional (Turkana County Government, 2020). Turkana West and Kibish had no functional CUs. To be considered functional, a CU must have a score ≥80% on 17 elements, including all three of the cardinal elements in the last 6 months (i.e., CHV reporting rate above 80%, quarterly dialogues taking place, health action days taking place monthly). A semifunctional CU has a score of >50% to <80% and a nonfunctional CU has a score of ≤50%. Of the 17 elements assessed in each CU, the lowest scores were in CHC training, quarterly CHC meetings, CHVs having CHV kits, and CUs having a sustainability initiative; however, one-third to one-half of CUs were lacking in most elements.

As noted above, no CU functionality assessment has previously been conducted in Samburu. However, according to the 2017 Samburu nutrition capacity assessment report, a total of 61 CUs were needed in the county, 28 CUs had been formed, and 21 of them were functional (Samburu County, 2017). Only 32% of health facilities were linked to CUs. None of the CHAs were trained in nutrition, but CHVs reported that they were trained on nutrition. Key issues were that insecurity caused challenges for patients to seek treatment; CHVs lacked kits; communities did not trust CHVs because they lacked tools and equipment; CHVs lacked motivation; CHVs lacked transport to cover long distances; and CHVs used their own money to transport patients. In addition, the report noted a lack of government support for CUs, which were entirely supported by partners.

3.5 FACTORS AFFECTING CHV PERFORMANCE AND MOTIVATION

In 1978, the Declaration of Alma-Ata identified Health for All as a key goal of primary health care (World Health Organization, 1978). To achieve this goal, many low- and middle-income countries either adopted or began scaling up CHW programs as a way of increasing coverage in contexts where the number of trained health workers per population was low. Many decades of programmatic experience and research have shown that CHWs can be effective at implementing health programs at the community level. For example, a study in three counties in Kenya showed that counseling by CHVs increased women's knowledge related to maternal and newborn health, and increased the percentage of women who delivered with a skilled health provider (Adam et al., 2014).

Ensuring that CHWs perform their assigned duties well is essential to the functioning of the CHS and attainment of good health outcomes in the populations served by CHWs. Two similar frameworks for determining the factors that contribute to CHW performance have been developed (Agarwal et al., 2019; Naimoli, Frymus, Wuliji, Franco, & Newsome, 2014). The framework by Agarwal et al. (2019) places CHWs within the larger context of the CHS and provides a set of indicators with definitions that can be used to measure different aspects of

CHW performance (**Figure 6**). Key programmatic processes, such as supportive supervision, data use, CHW recruitment, training, incentives, and community support contribute to CHW knowledge, service delivery and quality, reporting, and absenteeism, as well as CHWs' motivation, job satisfaction, and attrition.

Figure 6. CHW performance measurement framework
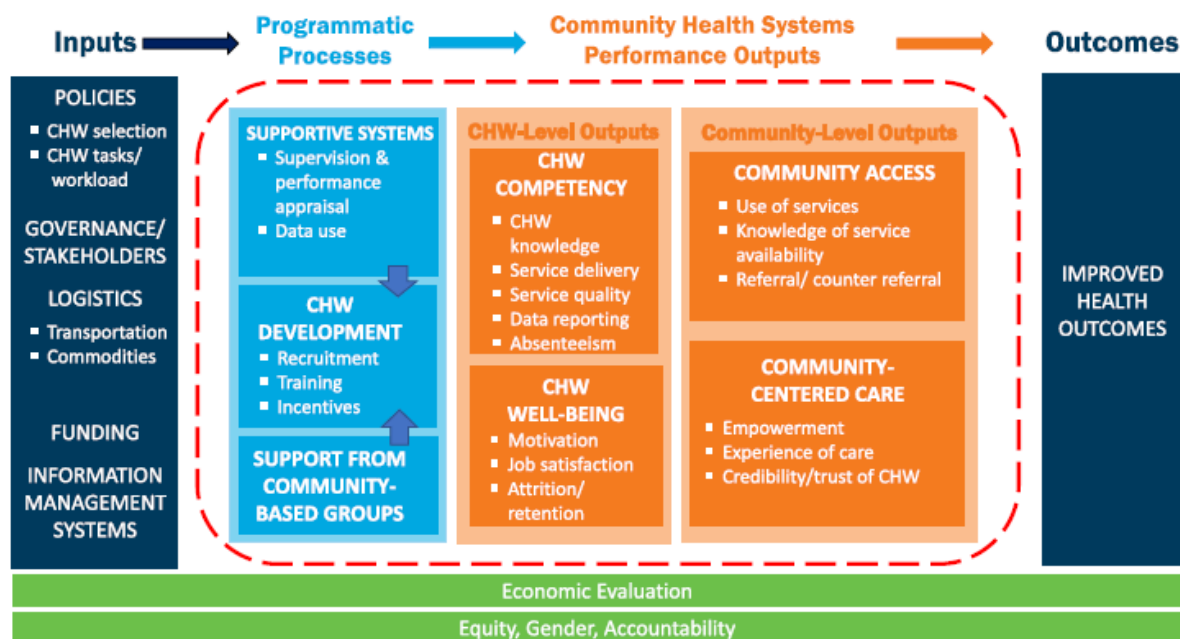
Source: Agarwal et al., 2019

CHWs' performance is linked to their motivation. Consensus across the published and grey literature indicates that CHWs' performance and motivation is influenced by financial and nonfinancial incentives, supervision, training, availability of supplies and equipment, and community support. Reviews and studies related to CHW motivation, performance, and supervision, particularly in Kenya, are shown in **Table 1**. Training and supervision were found to be especially important for Kenyan CHVs in the ASALs. Strategies to effectively improve CHV motivation and to improve the quality of supervision have been tested in Kenya, and experiences from those projects could guide USAID Nawiri's programming to improve CHV performance and motivation.

Table 1. Summary of literature on CHW performance, motivation, and supervision

Reference	Location	Key Findings
CHW Performance		
(Ballard & Montgomery, 2017)	Review	▪ CHW performance strategies related to recruitment, supervision, incentivization, and equipment are important

Table 1. Summary of literature on CHW performance, motivation, and supervision

Reference	Location	Key Findings

		▪ Effective strategies to improve CHW performance include:
		  – Emphasizing career possibilities when recruiting
		  – Sending reminders for overdue CHW tasks and following up with CHWs who were not performing well
		  – Providing guidance to CHWs on procedures through mobile apps
		▪ Incentives for specific tasks did not work to improve performance of multitask CHWs

(Kok et al., 2015)	Review	▪ CHW performance was enhanced by:
		  – Mix of financial and nonfinancial incentives
		  – Frequent supervision
		  – Continuous training
		  – Clearly defined CHW roles and clear lines of communication across health system levels
		▪ Embedding CHWs in a CHS decreased their workload and increased their credibility
		▪ Performance-based financial incentives sometimes resulted in neglect of unpaid tasks

CHV Motivation		

(Bhattacharyya, Winch, LeBan, & Tien, 2001)	Report	▪ CHWs have challenges with motivation when they:
		  – have too many tasks
		  – spend too much time in training
		  – do not have time to practice skills
		  – have catchment areas that are geographically large or contain too many clients
		  – lack transport
		▪ CHWs motivation and retention are increased by monetary and nonmonetary incentives, supportive supervision, peer support, community support, regular replenishment of supplies, appropriate job aids, and identification items (e.g., badges, vests)
		▪ CHW motivation and retention are influenced by their age, gender, ethnicity, and economic status

(Ormel et al., 2019)	Bangladesh, Ethiopia,	▪ CHW motivation was affected if: – incentives were lower than expected or paid late

Table 1. Summary of literature on CHW performance, motivation, and supervision

Reference	Location	Key Findings
	Kenya, Malaysia, Malawi, Mozambique	- material incentives and job enablers were lower than expected - incentives were unequally distributed - In Kenya, the CHVs were not paid, and this meant they were not motivated and did not do their jobs well
(Wagner, Asiimwe, & Levine, 2020)	Uganda	- CHWs who were given the opportunity to sell treatment for child diarrhea and keep the profits visited fewer households and performed fewer SBCC activities - Selling a health product incurred a social penalty, whereas providing it for free was socially rewarding
(Odhiambo & McCloskey, 2021)	Busia County, Kenya	- Tested two motivational packages for CHVs versus a control group - Both intervention groups had increases in extrinsic motivation and one intervention group also had an increase in intrinsic motivation - Both intervention groups had increases in different components of four key maternal, newborn, and child health services, but one group had the bigger increases in households visited and cases of illness detected
(inSupplyHealth & HealthRight International, n.d.)	ASALs, Kenya	- Training and supervision are highly motivating for CHVs and should be the responsibility of county government, but are mostly done by implementing partners and can be inconsistent - Relationships with other community and health stakeholders enhance trust and acceptance of CHVs in the community and act as a motivator - CHVs are motivated by being chosen by their communities - CHVs need the right combination of financial and nonfinancial incentives
(Ngugi et al., 2018)	Kwale County, Kenya	- Nearly 50% of CHVs dropped out over 7 years - Demotivating factors that led to CHV drop out: - Absence of refresher training

Table 1. Summary of literature on CHW performance, motivation, and supervision

Reference	Location	Key Findings
		– Lack of feedback from supervisors – Workload was higher than expected
(Ochieng et al., 2014)	Rural agrarian, peri-urban and pastoral areas, Kenya	▪ CHV motivation came from supportive supervision, equitable allocation of resources for curative care, training compensation, and recognition ▪ In pastoral areas, CHV motivation was based on training in curative skills, technical support, and resources for curative care ▪ CHVs in pastoral areas provided services beyond the task-shifting range because of distance to facilities, migration, and scarcity of health providers
(Oliver, Geniets, Winters, Rega, & Mbae, 2015)	Eastern Kenya and Nairobi	▪ CHVs often lacked adequate resources and training to do their work ▪ CHV programs should be codesigned with CHVs to ensure the activities are adapted to their experiences and not based on external priorities
CHV Supervision		
(Karuga et al., 2019)	Kenya	▪ Tested a CHV supervisor training intervention to try to shift from controlling and administration to coaching and problem-solving supervision ▪ After the training, supervisors did fewer group supervision visits and more supervision during home visits
(Kok et al., 2018)	Ethiopia, Kenya, Malawi, Mozambique	▪ Same CHV supervisor training intervention as Karuga et al. ▪ Qualitative results showed perceived improvements in CHV motivation and in the supervision process, including more teamwork, skill sharing, facilitation, and coaching ▪ Quantitative results showed no differences in perceptions about supervision and motivation
(Henry et al., 2016)	Kibera and Makueni, Kenya	▪ Tested use of WhatsApp for supervisory support of CHVs ▪ Used WhatsApp for one-on-one, group, and peer-to-peer supervision and support, and switched between these modes

3.6 DIGITAL AND NONDIGITAL NUTRITION AND OTHER HEALTH TOOLS

Given the large-scale adoption of mobile phones by health workers, especially at the primary health care level, and CHWs, the use of mHealth strategies by CHWs and health workers is increasingly viewed as promising for improving health care delivery (Agarwal, Perry, Long, & Labrique, 2015). Such approaches include the use of mobile phones for decision support, data collection, access to training, communication between health workers, as mobile job aids, and for client education. Mobile data collection improves promptness of data collection, reduces errors, and improves data completeness. Regular access to health info through SMS or mobile decision support systems may improve health workers' adherence to treatment algorithms.

A 2016 report on global mHealth use noted that uptake of mHealth programs is expanding so rapidly that peer-reviewed literature is not able to keep pace with the introduction of new platforms (Johns Hopkins University Global mHealth Initiative, 2016). The report reviewed 92 projects using mHealth in Africa at the time. It found that the majority of the programs focused on reproductive health, maternal and child health, and infectious diseases; only two projects reviewed addressed nutrition. Further, about 75% of projects provided phones to frontline health workers, and about 60% of those workers used smartphones.

A recent review of health workers' perceptions and experiences using mHealth to deliver primary health care services found that mHealth made health workers feel more connected to their colleagues and generally improved coordination, although some preferred face-to-face communication or had issues with senior colleagues' responses (or lack thereof) (Odendaal et al., 2020). mHealth enabled health workers to work flexibly and reach clients in hard-to-reach areas. Health workers liked when it improved feedback, speed, and workflow, but not when the device was slow or time consuming to use, and some saw it as creating more work. mHealth helped health workers communicate with clients, but some clients needed face-to-face contact. Moreover, some health workers do not want to be contacted outside work hours. Health workers wanted training, technical support, user-friendly devices, and systems that were integrated into existing electronic health systems. Challenges included poor networks, lack of electricity, cost of recharging phones, and damaged phones.

In 2011, Kenya deployed a cloud-based national HIS, becoming the first country in sub-Saharan Africa to do so. Implementing a national-level HIS system has been part of Kenya's national health strategy to improve health quality and health care service delivery, and to collect meaningful information at the health facility level for data-driven decision making (Johns Hopkins University Global mHealth Initiative, 2016). This technological shift indicates the MOH's willingness to adopt digital approaches for systematic improvements in the country's health sector.

Numerous mobile applications (apps) have been developed and tested for CHVs, CHWs, and health care workers, including some apps specific to Kenya. Digital and nondigital tools that may be relevant for USAID Nawiri are summarized in Table 2. Key findings are that apps for nutrition and other maternal and child health services can be helpful in improving CMAM implementation and quality of CHVs' services, and can be adapted for use by low-literate CHVs. However, apps that require smartphones are sustainable only if county or national governments

adopt and fund the provision of phones. Nondigital solutions, such as pictorial registers for acute malnutrition tracking, or simple phone technologies like SMS reporting, are also effective. Some of the tools in Table 2 are still in use, or their use has been expanded, including Mbiotisho, cStock, and the pictorial SAM patient treatment register.

Table 2. Summary of digital and nondigital nutrition and maternal and child health tools

Tool Name and Reference	Location	Tool Description	Key Findings
Nutrition Digital Tools			

CMAM mHealth app (Frank, 2017)	Wajir County, Kenya	▪ Smartphone app for health workers for case management of acute malnutrition
		▪ Guides them through CMAM protocols and provides data for district health managers to respond to changes in caseloads and treatment outcomes, manage supplies, and inform national statistics
			▪ Improved case management of acute malnutrition by forcing health workers to complete all steps in the protocol
			▪ Improved diagnosis and treatment of acute malnutrition and minimized default
			▪ Challenges:
			  – Using the app took health workers more time than using the paper tools
			  – Time and motivation of health workers needs to be considered
			  – High health staff turnover
			  – Stockouts of nutrition commodities
			▪ CMAM app should be integrated with other child health focused apps

Mbiotisho (International Livestock Research Institute & Food, Agriculture and Natural Resources Policy Analysis Network, 2018)	Samburu County, Kenya	▪ Smartphone app that uses a simple audio and icon-based interface to help caregivers report on their own and their children's food consumption and health status, including 24-hour dietary recall and MUAC ▪ Caregivers receive reports on status and	▪ Caregivers are successfully using the tool to collect, submit, and receive information ▪ Smartphones were provided to the mothers

Table 2. Summary of digital and nondigital nutrition and maternal and child health tools

Tool Name and Reference	Location	Tool Description	Key Findings
		trends on their information and recommended actions	
SMS malnutrition reporting (Sarma et al., 2018)	Ghana, Rwanda, Senegal, Uganda	▪ CHWs used SMS rather than paper forms for reporting malnutrition screening results	▪ SMS with reminders increased timely child malnutrition screening by CHWs
Other Digital Tools			
Information for Action (IFA) (van Heerden, Sen, Desmond, Louw, & Richter, 2017)	Western Kenya	▪ Smartphone app prompts CHVs to collect data on child growth and development, then provides tailored feedback/prompts to CHVs to help them engage with caregivers about suggested behavior changes in child caregiving	▪ App facilitated dialogue between CHVs and caregivers and improved quality of home visits ▪ Caregivers felt more supported by CHVs using the app ▪ Challenges were logistical—lack of electricity for charging phones, first-time mobile phone users
cStock (InSupplyHealth & JSI, n.d.)	Siaya, Turkana, Samburu, Mandera, Waji Counties, Kenya	▪ Smartphone app for CHVs to report supply chain stock information ▪ Uses visual dashboards for low-literate CHVs ▪ Interoperable with DHIS2	▪ Created a culture of data use and action planning among CHVs and health facilities ▪ Linked stock reporting to immediate resupply decision making
Nondigital Tools			
Pictorial SAM treatment patient register (Van Boetzelaer, Zhou, Tesfai, &	South Sudan	▪ Paper-based pictorial patient register for tracking treatment progress of children with acute malnutrition	▪ Low-literate CHWs were able to accurately follow the SAM treatment tool ▪ 91% of CHWs passed the performance test

Table 2. Summary of digital and nondigital nutrition and maternal and child health tools

Tool Name and Reference	Location	Tool Description	Key Findings
Kozuki, 2019) (Tesfai, Marron, Kim, & Makura, 2016)			▪ Performance improved with each supervision visit ▪ This tool has also been used in Turkana
Mwanzo Mwema Monitoring and Tracking Tool (Avery et al., 2017)	Taita Taveta County, Kenya	▪ CHVs use the paper-based tool to plan their workloads and activities and to identify women, newborns, and children who need to access maternal, newborn, and child health (MNCH) interventions	▪ Participants served by CHVs who used the tool showed improvements in MNCH indicators, especially antenatal care and facility delivery ▪ Participants were more likely to report early initiation of breastfeeding and exclusive breastfeeding

3.7 EXPERIENCES WITH IMPLEMENTION OF CMAM AND ICCM-CMAM INTEGRATION BY CHWS

CMAM is an approach whereby community workers, such as CHWs or CHVs, screen children for SAM or MAM, treat uncomplicated cases at the community level with RUTF or ready-to-use supplementary food (RUSF), and refer complicated cases to a health facility. ICCM is a strategy whereby CHWs or CHVs diagnose and treat childhood illnesses, including diarrhea, pneumonia, and malaria, at the community level. Both of these strategies are important for child health where health care coverage is low, including in Kenya ASAL counties.

Research has shown that CHWs implementing CMAM or integrated ICCM-CMAM increase coverage and acute malnutrition cure rates. CHWs are able to provide a high quality of care, and their implementation of CMAM is cost effective. Key findings of CMAM and ICCM-CMAM studies are summarized in **Annex A**. Two studies with direct relevance to USAID Nawiri were conducted in South Sudan and Turkana County.

A study in South Sudan tested adaptations for the treatment of uncomplicated SAM by low-literate CHWs (Van Boetzelaer et al., 2019). The adaptations included a set of tools that do not require literacy or numeracy, including a MUAC tape that divides the red zone into three sections (dark red <9.0 cm, red 9.0 to <10.25 cm, and pink 10.25 to <11.5 cm); a weight scale decal to assist with determining the daily RUTF dosage; a dosage calculator for counting the weekly RUTF; a pictorial patient register for tracking treatment progress; and a flipchart with RUTF feeding messages. Following training, 91% of the CHWs achieved 80% performance accuracy. CHW performance increased with every supervision visit and was not influenced by

other CHW characteristics. This study adopted a user-centered approach for designing the adapted tools in collaboration with CHWs and through multiple rounds of testing.

A cluster-randomized trial in Turkana County conducted by UNICEF, Save the Children, and the African Population & Health Research Center (APHRC) was designed to study the impacts of integrating CMAM into ICCM (Kimani-Murage et al., 2019). CHVs were trained to use a simplified MUAC tape, weighing scale, and treatment register for the CMAM component. In Turkana, the integrated approach resulted in 17% increase in the acute malnutrition cure rate, 19% reduction in default, and good quality of care for both CMAM and ICCM. In addition, the cost per child reached and child cured were substantially lower in the areas where integrated ICCM-CMAM was provided. Based on qualitative findings, implementers recommended recruiting more CHVs and including CHVs with at least a primary level of education, providing a mode of transport to CHVs, offering them remuneration and consistent supervision, and ensuring that the community is sensitized to the new CHV activities.

A recent review of operational experiences with CHWs treating uncomplicated SAM in communities summarized key learnings (Lopez-Ejeda, Charle-Cuellar, Vargas, & Guerrero, 2019).

- CHWs can identify and treat uncomplicated SAM, achieve cure rates at around 90% or above, and reduce default rates below 7%. They can also increase treatment coverage to 80% or above.
- Early detection and treatment of SAM by CHWs is cost effective compared with outpatient or inpatient treatment.
- Training and supervision of CHWs are essential to maintain good performance.
- Financial or other incentives are important for CHW motivation and quality of services.
- Stock shortages of RUTF can be a challenge.
- Nutrition and health policies may need to be adapted to accommodate CHWs' treatment of SAM.

3.8 EXPERIENCES WITH CMAM OR IMAM SURGE APPROACH

Acute malnutrition prevalence has seasonal peaks, and the CMAM surge approach was designed to ensure that health systems are prepared to scale up CMAM for a surge in a timely manner and then scale back down. The approach involves several actions to set up the system, including

- analysis of acute malnutrition trends and drivers;
- review of health system capacity and identification of gaps;
- setting caseload thresholds for CMAM scale-up and scale-down, using facility data on diarrhea, pneumonia, MAM, and SAM;
- defining surge actions and linking them to costs; and
- formalizing commitments from government and partners.

Once these steps have been completed, the approach involves regular monitoring of cases against thresholds and scaling up/down surge support. Finally, periodic reviews and adaptation of the process are needed to reset caseload thresholds, review the surge response, and make modifications for the next cycle.

The CMAM surge approach was developed around 2009, described in 2010 (Hailey & Tewoldeberha, 2010), and piloted by Concern Worldwide in Marsabit County, Kenya, in 2012 (Concern Worldwide, 2017). Since then, the approach has been implemented in 13 countries, mainly in sub-Saharan Africa, by different organizations (Concern Worldwide, n.d.-a). Based on their experiences implementing and evaluating the CMAM surge approach in several countries, Concern developed operational guidance that can be used to help implement and further adapt the approach in different contexts (Concern Worldwide, n.d.-b).

An evaluation of the pilot in Kenya found that the surge model strengthened the health system to manage a surge in the caseload due to a shock and helped to increase health system resilience (Hailey, 2015). Some of the key recommendations are listed below.

- Amend the threshold review process so health facilities can adapt the thresholds more frequently.
- During threshold setting, characterize the types of shocks that have created surges in the past.
- Review tools for recording data and monitoring thresholds to prevent duplication and ensure that a system is in place for triggering surge actions as quickly as possible.
- Use program data and historical trends to plan rather than using nutrition survey results.
- Include customer and health worker satisfaction monitoring in the approach.
- The county health management team should lead and manage the surge model system.
- Develop simple dashboards for the subcounty health management team (SCHMT) and county health management team (CHMT) that will provide a real-time overview of the nutrition situation.
- Clarify roles and responsibilities for the movements and secondment of health staff in response to triggers.

Kenya's MOH adopted the approach and published operational IMAM surge guidelines for health workers in 2016 (Kenya Ministry of Health, 2016). CHVs play a key role within the health system in Samburu and Turkana Counties for the prevention and treatment of acute malnutrition, because access to facility-based health services is low (Duba, Mur-Veeman, & van Raak, 2001). The county semiquantitative evaluations of access and coverage (SQUEAC) of IMAM provides information about the functionality of the CHS specifically with regard to IMAM.

The most recent Turkana report is from December 2017 to January 2018, and results were reported by survey zones without any overall county-level estimates (Turkana County Department of Health Services, 2018a). Coverage of the outpatient therapeutic program for SAM ranged from 59.6% to 71.9% across survey zones, which met the Sphere cutoff of >60% in rural areas for all but two zones. Coverage for the supplementary feeding program for MAM ranged from 61% to 81% across survey zones, which met the Sphere rural cutoff in all zones. The report identified the following barriers to IMAM program implementation: sharing of commodities; migration, which results in defaulting; poor adherence to IMAM protocols by providers; beneficiaries needing to travel long distances to access the service; misperception that RUTF is food and not medicine; poor defaulter tracing in some facilities; lack of CHV motivation; poor

child-caring behaviors at household level, which are related to alcohol consumption by caregivers; and inadequate facility–community linkages.

The latest SQUEAC report for Samburu was conducted in May 2017 (Samburu County Department of Health Services, 2017a). The estimated overall coverage for the outpatient therapeutic program for SAM is 45.2%, which did not meet the Sphere cutoff for rural areas. This estimate was lower than the previous one in 2013. Low coverage in 2017 was due to inadequate community screening and active case finding and weak defaulter tracing. These issues were attributed to lack of incentives for CHVs. Some CHVs had previously received incentives from program implementers, which were withdrawn when the program ended, leading to low motivation. The main barriers to IMAM implementation in Samburu were insufficient screening and outreach; sharing of RUTF; weak defaulter tracing; poor linkages between communities and facilities; consumption of alcohol by caregivers; migration during the dry season, drought, and conflict; long distances to reach the program; RUTF stockouts; and poor documentation.

A recent review of IMAM surge experiences in Kenya found that 63% of health facilities in ASAL counties had implemented the approach by June 2020 (Ngetich et al., 2021). The approach has increased demand for and use of local nutrition data for decision making. A case study in Turkana County showed that IMAM surge led to better planning of supplies and human resources when there is a surge. Successes included early and sustained government involvement, IMAM surge integration into national and county planning documents, mentoring at facility level and on-the-job training, and use of IMAM surge data dashboards for decision making. One major challenge was nonfunctional CUs where CHVs were not conducting acute malnutrition prevention, screening, or referral activities, and data for IMAM surge decision making was not flowing from communities to facilities. This could be addressed by strengthening CUs and involving CHVs in the IMAM surge process. Resource constraints and funding of IMAM surge activities by implementing partners were other important challenges. Planning and costing of IMAM surge should be incorporated into subcounty and county planning and budgeting.

3.9 EFFECTIVENESS AND EXPERIENCES WITH MOTHER-LED OR FAMILY-LED MUAC

Mother-led or family-led MUAC is based on the theory that training mothers or other family members to measure MUAC of their young children can improve early detection of acute malnutrition (ALIMA, 2016). Trainings for mothers and other family members of children 6–59 months of age are conducted by CHWs but can be led by other community volunteers or health workers. The trainings are short and include a mix of key messages and practical training on how to use a MUAC tape. They can take place in the community or at a health facility. Supervisors conduct checks in randomly selected households and conduct refresher training if 25% do not have MUAC tapes, do the measurements incorrectly, or if agreement on measurements between mothers and supervisors drops below 90%.

Several studies have examined the effectiveness of and field experiences with mother-led or family-led MUAC. A nonrandomized evaluation in Niger compared mothers' and CHWs' measurement of MUAC and found that agreement between mothers' and CHWs' measurements was almost perfect (Blackwell et al., 2015). The few errors made by mothers were in classifying

children with SAM as having MAM when their measurement was near the class boundaries. A nonrandomized pragmatic trial in Niger compared MUAC measurements taken by mothers and CHWs (Ale et al., 2016). Mothers received a 30-minute group training on MUAC measurement at the health facility. Mothers' measurement of MUAC was noninferior to that of CHWs', and they had a higher rate of agreement than CHWs with health facility staff in their detection of whether the child met the MUAC cutoff. Mothers detected acute malnutrition cases earlier than CHWs, and their children were less likely to be admitted to the hospital. Training mothers required more upfront costs than training CHWs but was less expensive overall because of earlier detection. The authors suggest using pictorial rather than verbal descriptions in trainings for mothers.

To facilitate MUAC measurement by families, in Isiolo County, Kenya, Action Against Hunger tested three simple click MUAC devices and a redesigned MUAC insertion tape to determine if they could improve the sensitivity of mothers or caregivers to detect acute malnutrition (Grant et al., 2018). The three click MUAC devices were made of plastic and had different designs, whereby they clicked into place with an internal circumference of 115 mm (two devices) or 115 and 125 mm (one device). The MUAC insertion tape had a large tab that helped control tensioning and a three-slot buckle to simplify measurement. These were compared with measurements taken by a research assistant using the MUAC insertion tape. Although sensitivity was high (>90%) for SAM and GAM for all click MUAC devices when used by mothers or caregivers, sensitivity was higher for the MUAC insertion tape. Mothers/caregivers had a one-on-one demonstration on use of devices, which may have improved sensitivity. Specificity was high for all devices with no differences by type of device (click or insertion).

3.10 SUMMARY OF LITERATURE REVIEW FINDINGS

Policies and legislative frameworks: National policy frameworks for CHS implementation are in place, but some of these need to be domesticated at the county level, including permission for CHVs to treat uncomplicated SAM and MAM as part of ICCM-CMAM. Both counties have now passed CHS legislation that includes incentives for CHVs. Incentives still need to be approved and budgeted for in Samburu County.

CHW performance and motivation: CHW performance and motivation depend on financial and nonfinancial incentives, supervision, training, availability of supplies and equipment, and community support. Training and supervision are highly motivating for CHVs in Kenya ASALs. CHV motivational packages tested in Kenya increased motivation and improved maternal and child health services. Use of WhatsApp for one-on-one, group, and peer-to-peer CHV supervision was effective where tested in Kenya. CHV programs should be codesigned with CHVs to make sure they account for their experiences.

CU functionality: Based on an assessment by AMREF, only 10% of CUs in Turkana are functional. A CU functionality assessment is needed in Samburu and was conducted as part of USAID Nawiri's formative research and is described in Section 5.5.

Nutrition and MCH tools: A pictorial SAM treatment tool for low-literate CHWs improves accuracy and has been used in Turkana. A smartphone CMAM app was tested in Wajir but had several challenges and is not adapted for use by CHVs. Other smartphone phone apps (e.g., cStock) are being used by CHVs in Samburu and Turkana. Apps that require smartphones need

support from county government and interoperability with the health information system to be sustainable.

CMAM and integrated ICCM-CMAM: Use of pictorial tools by low-literate CHWs in South Sudan for treatment of uncomplicated SAM resulted in high performance accuracy. Performance was further increased with supervision. The same tools when used by CHVs in Turkana implementing ICCM-CMAM increased the acute malnutrition cure rate, reduced default, and lowered costs. Training, supervision, incentives, and transport for CHVs are essential for ICCM-CMAM implementation.

IMAM surge: Key issues related to IMAM surge in Samburu and Turkana are insufficient outreach and screening; sharing of RUTF; long distances to reach the program; migration, which results in default; weak defaulter tracing; poor adherence to IMAM protocols by providers; lack of CHV motivation; poor child-caring behaviors; and inadequate facility-community links. Surge activities have been funded by implementing partners. There is a need for county and subcounty planning and budgeting for surges. Data dashboards have been helpful in county level planning for surges.

Family-led MUAC: Mothers are accurate at measuring their children's MUAC. Training mothers requires more upfront costs than CHW training, but is ultimately cost-effective because it leads to earlier detection of acute malnutrition. Using a simple MUAC tape is more accurate than other MUAC devices.

4. PARTNER LANDSCAPE IN SAMBURU AND TURKANA COUNTIES AND DESK REVIEW

Several partners are currently or have recently completed projects to support government community health activities (**Table 3**). Smaller projects or those that were completed further in the past are included in **Annex B**.

Table 3. Current and recent community health implementing partners in Samburu and Turkana Counties

Implementing Partner, Program, Funder and Project Dates	Activities	Challenges	Adaptations	Target and Geographical Regions
CURRENT SAMBURU AND TURKANA COMMUNITY HEALTH PARTNERS				
IP: UNICEF Funder: UNICEF Project Dates: 2018–2021	Activities to support the CHS and work with CHVs 1. Through UNICEF technical assistance, Turkana County developed, passed, and actualized the CHS Act. 2. UNICEF supported the training of all CUs on basic CHV general modules and selected CUs on ICCM, baby-friendly community initiative (BFCI), community-led total sanitation (CLTS) and nutrition (module 8 and micronutrients). 3. UNICEF was part of the consortium that conducted the ICCM-CMAM research and is supporting current rollout. 4. Mother-led MUAC rollout. 5. Growth monitoring. 6. Rollout of Rapid pro, a messaging app for sending alerts and surveillance messages to communities. 7. UNICEF will support making all 208 CUs baby-friendly through the Nutritional Improvements through Cash	Challenges related to improving the functioning of the CHS 1. Low literacy of CHVs. 2. Low government funding, delayed stipends in Turkana. 3. Poor prioritization by the county government of the initiatives aimed at strengthening the CHS. 4. Vulnerability leading to attrition of CHVs. 5. Stockout of reporting tools. 6. High transition rate of CHVs. 7. Lack of stipends in Samburu, hence CHVs drop out.	Adaptations for acute malnutrition and treatment 1. Family-led MUAC rollout. 2. Color-coded MUAC to CHVs. 3. Simplified reporting tools to CHVs. 4. Supported mobile phone reporting and SBCC (Rapid pro). 5. Conducted data reviews and audit. 6. Developed and sensitized nutrition quality improvement tools, including IMAM and IMAM surge dashboards. 7. Supported nutrition supply chain integration through sensitization and	**Target group**: Community members, CHVs, and CHAs. **Location**: Samburu and Turkana Counties

Table 3. Current and recent community health implementing partners in Samburu and Turkana Counties

Implementing Partner, Program, Funder and Project Dates	Activities	Challenges	Adaptations	Target and Geographical Regions
	and Health Education (NICHE) program. Activities that improved the functioning of the CHS 1. Training of the CHVs on nutrition modules. 2. Provision of nutrition assessment and reporting tools and equipment. 3. CHS Act. 4. BFCI 5. ICCM-CMAM. 6. CLTS. Activities to detect, treat and track cases of acute malnutrition 1. Trained both health workers and CHVs on IMAM. 2. Provided screening tools such as MUAC tapes (both at facility and community levels). 3. Provided CMAM treatment by strengthening integrated supply chain of therapeutic food and ensuring no stockout. 4. Facilitated integrated outreaches and mass screening activities in areas highly	8. Inadequate coverage and distribution of CUs across Samburu County. 9. Inadequate training of CHVs on both basic and technical modules. 10. Inadequate coordination and support supervision to CUs. Challenges in acute malnutrition activities 1. Commodity stockout. 2. Inadequate training on IMAM. 3. Inadequate surveillance and referral at community units. 4. Deteriorating food and nutrition situation (hunger).	rollout of the logistics management information system for nutrition/IMAM commodities monitoring and reporting.	

Table 3. Current and recent community health implementing partners in Samburu and Turkana Counties

Implementing Partner, Program, Funder and Project Dates	Activities	Challenges	Adaptations	Target and Geographical Regions
	affected and with low coverage of health facilities, especially during drought periods. 5. Supported the department of health on coordination and surveillance/monitoring activities. 6. Initiated IMAM surge surveillance. 7. Supported with procurement of reporting tools and supply of anthropometric tools. 8. Supported monitoring and evaluation. Activities that worked well in acute malnutrition programming 1. Supply chain integration. 2. IMAM surge for surveillance and preparedness.	5. Calamities, for example, COVID-19, cholera, etc., leading to diversion of attention. 6. Diminishing funding. 7. Low prioritization and low government funding.		
IP: Save the Children Program: Global Malnutrition Initiative	Activities to support the CHS and work with CHVs 1. Training CHVs on ICCM, ICCM+CMAM, Family MUAC, community nutrition and IMAM surge. 2. Providing CHVs with equipment, such as data registers, bags, and medicines. 3. Support for monthly meetings. 4. Support for data review.	Challenges related to improving the functioning of the CHS 1. Low literacy of CHVs. 2. Increasing population increases the number of	Adaptations for acute malnutrition detection and treatment 1. Modified MUAC tapes so they have five different colors. 2. Added pictorials to data registers.	Target group: Community members, CHVs, and CHAs.

Table 3. Current and recent community health implementing partners in Samburu and Turkana Counties

Implementing Partner, Program, Funder and Project Dates	Activities	Challenges	Adaptations	Target and Geographical Regions
Funder: Save the Children (SCUK) Project Dates: 2014–2023	5. Provide lunch to CHVs. 6. Provide transport allowance to CHVs during trainings. 7. CHVs exchange learning visits. 8. Supporting distribution of MUAC tapes to CHVs; printing community strategy tools. 9. Training CHVs on village savings and loan association and provision of seed fund for startup. 10. CHVs' monthly mentorship and supervision. 11. Supporting prepositioning of nutritional commodities and procuring supplies and equipment, such as CHV jackets, CHV bags, and CHV reporting tools. Review adaptations of SBCC materials and guidelines to COVID-19, printing, and distribution. Activities to detect, treat, and track cases of acute malnutrition. 1. Training of trainers and training for CHVs. 2. Procurement of data collection tools. 3. Provision of supplies and equipment, such as medicine and RUTF.	households a CHV must cover. 3. Delayed monthly stipends for CHVs. 4. Delay in procurement of supplies, such as ORS. Challenges in acute malnutrition activities. 1. Large villages made it difficult for CHAs to conduct supervision of CHVs twice per month. 2. Illiterate CHVs were not able to fill the data registers correctly.		**Location**: Turkana County

Table 3. Current and recent community health implementing partners in Samburu and Turkana Counties

Implementing Partner, Program, Funder and Project Dates	Activities	Challenges	Adaptations	Target and Geographical Regions
	4. Tracking malnutrition cases and treatment. Activities that worked well in acute malnutrition programming. 1. Simplification of data tools helped CHVs to use them. 2. Community members were happy using the MUAC tapes. 3. CHV mentorship.			
IP: Concern Worldwide Program: I-Create project Funder: USAID/Office of Foreign Disaster Assistance (OFDA) Project Dates: 2020–2022	Activities to support the CHS and work with CHVs 1. CHS monitoring and supervision. 2. Identifying gaps in the community. 3. Supporting community dialogues. Activities that improved the functioning of the CHS 1. CHAs monitoring. 2. CHS monitoring. Activities to detect, treat, and track cases of acute malnutrition 1. CHAs monitoring supervision. 2. Family-led MUAC. 3. IMAM surge of acute malnutrition.	Challenges related to improving the functioning of the CHS 1. Delayed payment of CHVs in Turkana. 2. Low motivation of CHVs. 3. Weak coordination at community level. 4. Low work force at community facility. 5. No mode of transportation. Challenges in acute malnutrition activities	Adaptations for acute malnutrition detection and treatment 1. Provision of MOH tools and chalkboards.	**Target group**: Community members, CHVs, and CHAs. **Location**: Samburu and Turkana Counties

Table 3. Current and recent community health implementing partners in Samburu and Turkana Counties

Implementing Partner, Program, Funder and Project Dates	Activities	Challenges	Adaptations	Target and Geographical Regions
	Activities that worked well in acute malnutrition programming 1. Family-led MUAC. 2. Capacity improvement.	1. Weak CHS. 2. Gap in CHS work force. 3. Poor motivation of community health extension workers (CHEWs) at community level.		
IP: Feed the Children Funder: Feed the Children internal funding from US Project Dates: 2017–2022	Activities to support the CHS and work with CHVs 1. Formation of CUs. 2. Supporting some CUs with stipends. 3. Supporting monthly or regular dialogue and action days activities. 4. Supporting CUs with tools such as MoH 514, 513, 516, and MoH 100. 5. Supporting CHEWs by facilitating regular supportive supervision. 6. Convening meetings with CHVs. 7. Supporting CHEWs/CHAs. Activities that improved the functioning of the CHS 1. Monthly stipends for CHVs have helped in terms of reducing the attrition rate of CHVs and have motivated them	Challenges related to improving the functioning of the CHS 1. CUs are very large, and CHVs must walk long distances to attend the monthly meetings. 2. Some areas are remote, making it difficult to convene any ad-hoc meetings with the CHVs because most of them are out of network and not reachable by phone.	Adaptations for acute malnutrition detection and treatment 1. Contextualize some tools because several CHVs are illiterate and semi-illiterate, and hence are not able to fill in the tools. 2. Pair CHVs, whereby a less-literate CHV is supported by another CHV who is able to read and write; during reporting time, the literate CHV can help the other to fill in the	**Target group**: Pregnant and lactating mothers, children <5 years of age, and CHVs. **Location**: Samburu, Archers Post, Waso Division

Table 3. Current and recent community health implementing partners in Samburu and Turkana Counties

Implementing Partner, Program, Funder and Project Dates	Activities	Challenges	Adaptations	Target and Geographical Regions
	to continue volunteering and supporting the communities. Activities to detect, treat, and track cases of acute malnutrition 1. Provide support for growth monitoring. Activities that worked well for acute malnutrition programming 1. Family-led MUAC training with CHVs has worked to address some of the malnutrition issues. This effort has resulted in an increase in cases that are being reported at the facilities. CHVs were trained and linked to care group volunteers (CGVs) who are women in the neighborhood. Feed the Children distributed MUAC tapes in almost all households in their target geographical regions with the support of MOH and UNICEF.	3. Some pastoral communities, including CHVs, are migratory. There are cases where CHVs move from one area to the other in search of water and pasture. 4. Some CUs have cases of attrition because CHVs are looking for other employment opportunities. Challenges in acute malnutrition activities 1. Lack of anthropometric equipment, whereby one facility has a weighing scale that is faulty. This limits the ability to do routine growth monitoring and identification of	tools and reports every month.	

Table 3. Current and recent community health implementing partners in Samburu and Turkana Counties

Implementing Partner, Program, Funder and Project Dates	Activities	Challenges	Adaptations	Target and Geographical Regions
		cases for rehabilitation.		
PAST SAMBURU AND TURKANA COMMUNITY HEALTH PARTNERS				
IP: AMREF (Lead Partner) Program: Afya Timiza Funder: USAID Project Dates: 2016–2021	Activities to support the CHS and work with CHVs 1. Supporting CUs to increase uptake in reproductive, maternal, newborn, child, and adolescent health (RMNCAH), and WASH services. 2. In the CHS, there were specific officers that dealt with CHVs. 3. First, a formative assessment was done to set a baseline of the CHVs, which indicated that people did not access the services due to lack of information on those services, and issues around behavior. 4. Capacity building through trainings including on-job training 5. Supporting dialogue days and household visits. 6. Supporting health talks/education sessions.	Challenges related to improving the functioning of the CHS 1. Low literacy among CHVs. 2. High staff turnover. 3. Logistics were a challenge due to the vast distances and a means of transport was needed. 4. Batteries for the Digisomo gadgets was a challenge because batteries would wear out or deplete and replacements could not be found nearby; solar power was suggested for future projects.	Adaptations for acute malnutrition detection and treatment 1. At the community level, CHVs in the CUs were supporting acute malnutrition detection and treatment. All CHVs were trained on the nutrition and BFCI modules. 2. CHVs were provided with all the materials needed, such as MUAC tapes, and referred malnourished children to the health facility by completing the appropriate referral form, MOH 100. There were no	**Target group**: Community members, CHVs, and CHAs **Location**: Two subcounties in Samburu (Samburu Central and Samburu East) and three subcounties in Turkana (Loima, Turkana

Table 3. Current and recent community health implementing partners in Samburu and Turkana Counties

Implementing Partner, Program, Funder and Project Dates	Activities	Challenges	Adaptations	Target and Geographical Regions
	Activities that improved the functioning of the CHS 1. Capacity building of the CHVs, CHAs, and health workers. 2. Supporting dialogue days. 3. Use of the Digisomo gadgets at the village level, which contained a curriculum that covered RMNCAH and WASH. First the CHEWs were trained, then the CHVs were trained on how to use the gadgets when training the community during household visits. Digisomo was a one-stop-shop for RMNCAH services. 4. Use of local radio stations, like Serian FM, whereby the health promotion officer of the government participated in broadcasts to inform listeners on family planning and RMNCAH. Parents could call and join in the discussions. Activities to detect, treat, and track cases of acute malnutrition 1. At the village level, MUAC tapes were used by the CHVs, and children under 5	5. Motivation was a challenge because the CHVs were given a stipend of KSh 2,000, which was not sustainable. The Turkana County government devised a plan to ensure sustainability of the stipend, whereby a bill was passed by the county assembly to pay the CHVs a monthly stipend. Challenges in acute malnutrition activities 1. Food insecurity. 2. Poor terrain and inaccessible roads, especially during floods. 3. Insecurity. 4. Low literacy of CHVs.	specific tools for tracking malnutrition, but they used the BFCI tracking tool. The project adapted the data collection tools so they were portable, easy to use, and feasible.	South, and Kibish).

Table 3. Current and recent community health implementing partners in Samburu and Turkana Counties

Implementing Partner, Program, Funder and Project Dates	Activities	Challenges	Adaptations	Target and Geographical Regions
	years of age with acute malnutrition were referred. 2. CHVs were provided with equipment such as pima toto (a calibrated tin for measuring children's food). 3. Mentorship programs were carried out during the monthly CHV meetings so that CHS officers were able to identify the challenges. 4. Mass screenings were conducted. 5. Outreaches were conducted. 6. Household visits were conducted. 7. Child Welfare Clinic days were supported. Activities that worked well for acute malnutrition. 1. Specific community units were identified through an assessment of the capacity of the facilities in those units to manage malnutrition, and if training was needed. In Samburu East and Samburu Central, 90% were trained and retrained. 2. A mentorship program was introduced to the health facilities to capacity-build because CHVs were a main source of	5. Cultural and social norms, e.g., maternal workload, patriarchal communities. 6. Issues with kitchen gardens, which could only grow where there was plenty of water or when it rained; some places like Maralal, Loikas, Kisima, and other areas around Maralal were sustainable if accepted and practiced, but other places could not sustain gardens. 7. Tracking the children at the village depended on the CHAs and CHVs, some of whom were illiterate, so the BFCI data might not have been accurate.		

Table 3. Current and recent community health implementing partners in Samburu and Turkana Counties

Implementing Partner, Program, Funder and Project Dates	Activities	Challenges	Adaptations	Target and Geographical Regions
	information on acceptable childcare and feeding practices for the mothers. 3. Kitchen gardens were integrated with BFCI at the village level. 4. Fishing was introduced in Baawa and training was conducted on how to cook the fish to supplement nutrition.	8. Some CHVs were nomadic and moved around in search of greener pastures with no logistics or plan for submitting the data.		
IP: World Vision Kenya Program: Maternal Child Nutrition Project (MCNP 11) Funder: UNICEF Project Dates: 2018–2020	Activities to support the CHS and work with CHVs 1. Following up on their target groups at the community, as they were implementing BFCI and, for it to be successful, CHVs had to be included in follow-ups with pregnant or lactating mothers. 2. Formed mother-to-mother support groups, and CHVs oversaw the groups to ensure that they were working as intended. Activities that improved the functioning of the CHS 1. World Vision worked together with the county government through the subcounty community health strategic focal person. The focal person was in	Challenges related to improving the functioning of the CHS 1. Some of them were financial, as the project provided the CHVs with a transport allowance every time they did an activity. 2. Some nomadic communities moved and had to be followed, because the mothers were part of support groups.	Adaptations for acute malnutrition detection and treatment 1. For illiterate CHVs, color-coding the work dates as either yellow, red, or green was effective.	**Target Group**: CHVs, CHAs, pregnant women, lactating women, and children under 5 years of age. **Location**: Samburu and

Table 3. Current and recent community health implementing partners in Samburu and Turkana Counties

Implementing Partner, Program, Funder and Project Dates	Activities	Challenges	Adaptations	Target and Geographical Regions
	charge of CHVs, while the nutritionist was in charge of the general BFCI component. Activities were successful because CHVs were able to link mothers to the facilities, and the follow-up is currently continuing in some subcounties, such as Turkana South. Activities that worked well for acute malnutrition 1. Community outreach. 2. BFCI was a success; an internal assessment demonstrated that it was effective.	Challenges in acute malnutrition activities 1. High numbers of malnutrition cases. 2. Difficulties in transporting all the reports from the field to the office where they would be processed to ensure the CHVs were facilitated. When there were delays, the CHVs were not able to reach their designated sites on time. 3. When it rained, the dry valleys would flood, and movement would be affected.		Turkana Counties.
IP: International Rescue	Activities to support the CHS and work with CHVs 1. Introduction of CLTS. 2. Introduction of ICCM.	Challenges related to improving the functioning of the CHS	Adaptations for acute malnutrition detection and treatment 1. None.	**Target group**: CHVs, CHAs,

Table 3. Current and recent community health implementing partners in Samburu and Turkana Counties

Implementing Partner, Program, Funder and Project Dates	Activities	Challenges	Adaptations	Target and Geographical Regions
Committee (IRC) Program: Family-Led MUAC, Training Mother to Mother Support Groups and IMAM Surge review report Funder: Swedish International Development Agency Project Dates: 2020–2021	3. Family-led MUAC 4. IMAM surge. 5. Mother-to-mother support groups. 6. Incentives for CHVs. 7. CHV training on household mapping. Activities that improved the functioning of the CHS 1. Training for CHVs on project-specific interventions. 2. Family-led MUAC. Activities to detect, treat, and track cases of acute malnutrition 1. Supported ICCM-CMAM activities. 2. Supported malnutrition screening. 3. Supported family-led MUAC. Activities that worked well for acute malnutrition 1. Family-led MUAC helped to increase referrals to health facilities. 2. Community screening by CHVs.	1. Some CHVs were not motivated, so they did not implement some of the activities. 2. Lack of CHV skills for implementing different activities. 3. Illiterate CHVs. **Challenges in acute malnutrition activities** 1. MUAC tapes are being sold because they are in high demand by organizations and individuals. 2. Lack of health facilities' "ownership" of programs to treat acute malnutrition, because the facilities do not have nutritionists.		community members. **Location**: Turkana County, specifically: Loima, Turkana Central and Turkana South.

Table 3. Current and recent community health implementing partners in Samburu and Turkana Counties

Implementing Partner, Program, Funder and Project Dates	Activities	Challenges	Adaptations	Target and Geographical Regions
		3. Some CHVs lack skills in implementing the IMAM approach.		

4.1 DESK REVIEW

The materials collected as part of this desk review are summarized in Annex C.

4.1.1 SBCC MATERIALS

Afya Timiza developed a set of counseling cards for CHVs in Samburu. The cards include photos and drawings that are specifically adapted to the setting, and convey messages on pregnancy, newborn care, immunization, illness management, maternal and child nutrition, food safety, sanitation and hygiene, and family planning (Afya Timiza, n.d.). Digisomo "talking books" were developed by AMREF for use by low-literate CHVs and have been used in Samburu and Turkana. Other SBCC materials used by CHV in Samburu and Turkana Counties are the national MIYCN/BFCI counseling cards.

4.1.2 TOOLS FOR TRACKING ACUTE MALNUTRITION

The MOH has several CHS data collection tools that include some information about children with acute malnutrition.(Kenya Ministry of Health, 2014b) Two tools, MOH 513 Household Register and MOH 514 Service Delivery Log, are meant to be completed by CHVs. Both of these tools have a place for CHVs to record if a child 6–59 months of age in a household has SAM or MAM based on MUAC measurement. The Community Treatment and Tracking Tool also has a place for CHVs to record if a child is in the red or yellow zones for MUAC, and to indicate if the child was followed up, referred, defaulted, recovered, or died. None of the CHV tools have a place to indicate that the CHV provided RUTF (as part of ICCM-CMAM) or to monitor changes in MUAC over time. All MOH tools require sufficient literacy to complete.

The consortium that tested integrated ICCM-CMAM in Turkana County used a SAM treatment register for CHVs with low literacy (**Figure 7**), which is the same as the tool cited in Table 2. A similar pictorial treatment register for MAM is also available.

Figure 7. SAM treatment register for CHVs

4.1.3 CHS IMPLEMENTATION MATERIALS

The MOH has several CHV training modules, including a basic module and various topical modules and a CHC training manual that are used in Samburu and Turkana Counties. Most of the materials used in the counties have been developed at the national or global levels. Stakeholders also shared a Kenya-specific training manual for FamiliaBora to train community workers on SBC for pregnant women and children under 2 years of age, and on the use of Kenya's applied nutrition toolkit. Stakeholders in Samburu also use global training manuals developed by USAID Technical and Operational Program Support (TOPS) for setting up care groups and training community health workers on SBC. A contextualized job aid for ICCM has been developed for CHV in Turkana. It provides pictures and simple text showing how to assess and treat common illnesses in young children.

4.2 SUMMARY OF THE CHS IMPLEMENTATION LANDSCAPE AND DESK REVIEW

Key implementing partners: The key implementing partners in Samburu are UNICEF, Feed the Children, and AMREF. The main implementing partners in Turkana are UNICEF, Save the Children, Concern Worldwide, and Feed the Children.

Programmatic implementation gaps: In Samburu, key program implementation gaps are the weak linkages of community data to facilities and frequent stockouts of CHV reporting tools. In Turkana, the gaps are low literacy of CHVs, inadequate funding by government and delayed CHV stipends, and frequent stockouts of reporting tools.

Geographic implementation gaps: Samburu North has few partners supporting CHS activities. Most areas in Wamba North subcounty in Samburu East lack network connectivity. Turkana has limited coverage of CHS-related programs by implementing partners across the county.

Desk review: Most SBCC materials and training materials for CHVs in the counties are national, except for the Afya Timiza counseling cards, which have been locally adapted for Samburu, and Digisomo talking books. Pictorial SAM and MAM treatment registers have been used in some parts of Samburu and Turkana Counties. A pictorial job aid for ICCM has been used by CHVs in Turkana. Training manuals in the counties are mainly from the national MOH.

5. FORMATIVE AND LEARNING SPRINT RESULTS

The formative results include findings from in-depth interviews with county-level government staff, implementing partners, CHC/HFMC members, and CHAs and focus group discussions with CHVs and community members. In addition to qualitative data collection, a CHV capacity assessment was conducted with selected CHVs in each county, and a CU functionality assessment was conducted in Samburu. In some cases, the results of the qualitative data may appear to be contradictory, because there were discrepancies among participants about whether something is working well. For example, some CHVs said that recognition from the community motivates them, while others said that the negative attitudes of community members toward them demotivates them. Both perspectives are valid. For the purposes of this report, both facilitators and barriers are described, but the main focus is on understanding the barriers to CHV

performance and on the functioning of CUs, so that USAID Nawiri can develop strategies to address them.

5.1 FACTORS AFFECTING CHV MOTIVATION AND THEIR IMPLEMENTATION OF NUTRITION AND OTHER ACTIVITIES

Six main themes related to CHVs' motivation and their implementation of activities were identified from the in-depth interview and FGD data: financial and nonfinancial incentives; training; supervision and mentoring; social support, respect and recognition; supplies and equipment; and reporting. A few cross-cutting issues also emerged from the formative data—the challenge of providing services to migrating pastoralists, the vast distances that CHVs and CHAs must cover, and low literacy among CHVs. The themes and cross-cutting issues affect CHVs' motivation and were mentioned as factors influencing their ability to implement nutrition and other activities. All themes and cross-cutting issues apply in both counties. Topics that were raised in specific subcounties are noted in tables and in quotes. The cross-cutting themes are incorporated into discussions of the themes. A separate subsection describes participants' suggestions for providing services to special populations, specifically migrating pastoralists and adolescents.

5.1.1 FINANCIAL AND NONFINANCIAL INCENTIVES

When the data for this assessment were collected, Turkana County was providing a monthly stipend to CHVs, but Samburu County had not yet passed its CHS bill and did not provide its CHVs with a stipend. Therefore, Samburu participants cited lack of financial incentives as a major challenge for CHVs. Participants explained that some nongovernmental organizations (NGOs) provide stipends in Samburu, but many of these had stopped, and some NGOs in Turkana provide additional stipends on top of the government stipend. The stipends and other payments for training or casual labor at health facilities are motivating for CHVs. In Turkana, the county was having discussions on enrolling CHVs to the National Hospital Insurance Fund (NHIF) for insurance coverage as another strategy to motivate them.

> *"AMREF has been motivating [CHVs] by giving them KSh 2,000 per month."*
>
> *CHA, Samburu Central*

> *"The county provides incentives to the community health volunteers. We are providing a stipend of KSh 3,000 per month… Currently we are in discussions of enrolling all CHVs to [receive] insurance cover[age], that is NHIF."*
>
> *County Government Representative, Turkana*

Assistance with or support for CHVs to engage in **income-generating activities,** such as table banking (a type of savings group) and kitchen gardening, was another type of financial incentive for them. Income-generating activities were supported by partners and were described by participants as motivating CHVs and helping to improve their performance, increasing attendance at trainings and monthly meetings, increasing timely submission of reports, reducing poverty and dropout among CHVs, contributing to empowerment of female CHVs, and creating cohesion among CHVs within a CU. In Samburu, the county government registered 45 fully

functional CUs as community-based organizations so that they can apply for loans to ensure that income-generating activities are sustainable.

> "As the Afya Timiza model, we were paying the groups [from Turkana South, Loima and Kibish] so that they can use the funds to do some sort of income generating activities."

> *Implementing Partner, Turkana*

> "The approach we have taken as an office so that we see the sustainability of income generating activities, we have registered all our formal CUs, the 45, as CBOs so that they can apply for some loan and the IGAs. They have started the IGAs as groups and not as CUs but they are registered as CBOs."

> *County Government Representative, Samburu*

CHVs could also be demotivated when these important factors were lacking. For example, stipends were motivating when received by CHVs, but demotivating when payments were delayed or when stipends were not available at all. Lack of nonfinancial incentives, including identification items, such as vests and badges, was also demotivating for CHVs. **Table 4** summarizes key barriers related to financial and nonfinancial incentives for CHVs.

Table 4. Key Barriers to CHV Financial and Nonfinancial Incentives

Key Barriers to CHV Incentives	Illustrative Quotes
Lack of stipends by county government (all Samburu subcounties)	*"Parents are supposed to be trained on prevention of malnutrition every time and then to remind them what they are supposed to do by CHVs but if CHVs are not motivated in any way like monetary incentives then it's hard for them to keep on training to their households as expected." KII CHA, Samburu Central*
Delayed payment of monthly stipends by the county government (all Turkana subcounties)	*"Delayed stipends discourage me as a CHV in conducting my activities because we also have families to cater for." CHV, Loima, Turkana* *"Like the stipend, it delays because we are depending on the national government to send funds to the county. That is why we sometimes lump them together, maybe six months, then we pay the CHVs because of the delays of reimbursements from the national government to the counties." County Government Representative, Turkana*
Lack of identification items, such as badges, uniforms, and jackets (Samburu Central,	*"We, the CHVs, need uniforms that will distinguish us from the rest. We need badges also." CHV, Samburu North*

Table 4. Key Barriers to CHV Financial and Nonfinancial Incentives

Key Barriers to CHV Incentives	Illustrative Quotes
Samburu North, Turkana West, Loima, Turkana East)	

5.1.2 CHV TRAINING

For CHVs to undertake their work effectively, they must be adequately trained. According to the county government representatives interviewed, 1,487 CHVs had been trained in Samburu and 2,098 CHVs had been trained in Turkana. Most CHVs acknowledged that they had participated in several trainings, including both induction and technical trainings, that focused mainly on maternal, infant, and young child nutrition and care; IMAM; defaulter tracing and follow up; family planning; MOH tools; household registration and visits; administration of drugs and supplements; WASH; community engagement activities; and CHV roles and responsibilities.

Other training topics mentioned by CHVs included referral of patients using a standard form (MOH 100), how to contextualize health information, elderly care, tuberculosis, polio, early childhood development, community approach, first aid, girl child nutrition and care, HIV/AIDS, mobilization of community members, using Digisomo, data collection and reporting, and COVID-19 symptoms, effects, and prevention mechanisms. According to some of the key informants, training duration ranged from 5 to 15 days per training. Training was provided either by the county governments or partner organizations.

There was a general feeling among CHVs that the inception trainings were informative and prepared them for the work ahead. The trainings improved their confidence about the health knowledge received, and they were able to see the results of their work serving their communities. According to most of the key informants, trainings helped CHVs gain and transfer the knowledge acquired to community members, which improved service delivery in the community.

> *"These trainings are there to help the CHVs have good skills on how to manage the community and also creating awareness."*
>
> *CHC Member, Turkana West*

Training motivated CHVs mainly because of the skills they acquired, training certificates provided, meals offered, and the training allowances given by the implementing partners.

> *"After trainings, [CHVs] are given certificates so that when they are out, they can show that they have been trained."*
>
> *CHA, Samburu Central*

> *"What motivates CHVs is support drawn from NGOs and county government through trainings they attend and finally get paid some cash for their domestic use."*

After being trained, CHVs were able to address some illnesses, such as diarrhea, at the community level, because they knew the symptoms and treatment.

> *"These trainings have given CHVs knowledge on the different types of illnesses, for example, water-related illnesses, among others. They have known the symptoms of illnesses and can offer first aid before one reaches the hospital."*

KCHC Member, Samburu Central

> *"In this facility, ICCM cases have really decreased because CHVs are treating minor ailments at the community level."*

CHA, Turkana Central

Some HFMC members reported that some of the training manuals given to CHVs had pictures that helped illiterate CHVs comprehend the training content. In Samburu East and Samburu North, the AMREF Leap mobile app (https://amref.org/enterprises/our-products/leap/) helped keep CHVs informed on various topics.

> *"The Leap platform has helped CHVs to learn through their phones. Currently, they are doing [training on] COVID-19."*

CHA, Samburu East

In planning for CHV trainings, CHAs, CHC members, and implementing partners explained that they consider the number of CHVs needed for trainings, target geographical sites, those who have been trained before, those identified by the county health strategy focal person, and registered CHVs. The following quotes describe how implementing partners select CHVs for trainings:

> *"If we are to train the CHVs on Community Led Total Sanitation (CLTS) and we are not targeting the entire community health unit for the CLTS, we will only need like 2 to 3 villages to trigger. We will only train CHVs from those 2 to 3 villages you want to trigger."*

Implementing Partner, Samburu

> *"Because they are on payroll, we are not identifying [CHVs who need training] again. You are just given who is on the payroll."*

Implementing Partner, Turkana

The most frequently mentioned barriers related to CHV training were infrequent trainings and lack of regular refresher trainings, CHVs' literacy levels, difficulty understanding all the materials because of the complex language used in trainings, and distance to training venues.

More details about these topics and other barriers raised are found in **Table 5**, along with suggestions for improvement offered by participants.

Implementing partners suggested that CHV training modules should be evaluated because they are too technical. The modules should be contextualized (i.e., translated to local dialects for ease of understanding by illiterate CHVs), more CUs should be trained on technical modules, a mentorship model for trainings should be used, and a database of CHVs who have been trained should be created to ensure that all CHVs are trained in both counties.

Table 5. Key barriers to CHV training

Key Barriers to CHV Training	Illustrative Quotes
Infrequent trainings and lack of refresher trainings (all Samburu subcounties, Loima, Turkana East, Turkana Central, Turkana North)	*"Have refresher trainings to enable our CHVs to remain skilled and experienced. Prolonged number of days for trainings allow CHVs to digest and internalize what they have been taught."* CHC Member, Samburu Central
Low literacy makes it difficult for CHVs to grasp all the material during training and hard for them to execute what they have been taught, including use of MUAC tapes and recording results (all Samburu subcounties, Turkana West, Loima, Turkana Central)	*"Most CHVs are illiterate and during trainings, CHAs will be forced to translate to them because the language that is used to teach them is not easy to understand to make them gain knowledge and skills."* CHA, Turkana West
Distant training venues cause some CHVs to arrive late (all Samburu subcounties, Loima, Turkana East, Turkana Central)	*"Distance also affects CHV training attendance because some of the CHVs live far, i.e., Echoke. Some walk and arrive late or miss completely."* CHA, Turkana East
Lack of visual presentations during CHV trainings (all Samburu subcounties)	*"Do trainings using projectors, charts, posters. Visual presentations help people to understand things better for example child growth."* CHC Member, Samburu Central
Lack of benchmarking trainings, in which CHVs visit areas or regions that successfully achieved key performance indicators, as examples for other locations to emulate (Samburu Central, Turkana Central)	*"We need CHVs to have benchmarking trainings, so we identify one community unit that has done well, and we take others there to see what have been done well."* CHA, Turkana Central

Table 5. Key barriers to CHV training

Key Barriers to CHV Training	Illustrative Quotes
Lack of training follow-ups to ensure that CHVs are executing what they have been taught (Samburu East, Samburu North, Turkana North)	*"The CHV trainings are okay and should not be changed. However, follow ups are the only things missing to see if the training is efficiently implemented." CHC Member, Samburu North*
Some CHVs are not trained on certain topics or are not selected for specific trainings (Kibish, Loima, Turkana East)	*"Another problem with [the acute malnutrition] detection and treatment process is that CHVs in some parts of this county have not been trained on those technical areas. This makes it hard for the entire county and communities around the county to catch these [acute malnutrition] cases at an early stage." CHA, Kibish* *"It is challenging that you may have 20 CHVs and only two may be required to attend certain trainings. This makes it difficult to select who to attend for all of them qualify to attend these trainings." CHA, Turkana East*
Some CHVs do not attend trainings even when invited (Samburu Central, Samburu North)	*"Some CHVs are still unable to use MUAC to detect malnutrition cases, and some are unable to do demonstrations accordingly due to absenteeism during training." CHA, Samburu Central*
Delayed training allowances by partners (Turkana West, Turkana North) or **minimal amount of training allowance by partners** (Loima)	*"CHVs should be given training allowances immediately after the trainings instead of promising them that their allowances will be sent to them via mobile phone but never happens." CHC Member, Turkana West*
Some trainers do not provide certificates after the trainings (Samburu North, Samburu East, Kibish, Turkana North)	*"Certificates that are offered after training is something that motivates us CHVs. They show the trainings you have undergone." CHV, Samburu East*

5.1.3 SUPERVISION OF CHVS

Participants widely acknowledged that, for any CHV project or activity to be successful, regular and reliable supervision is necessary. According to most of the key informants, where CHAs and sometimes subcounty government officials have supervised CHVs, improvements are noted in patient referral, defaulter tracing, community engagement activities (such as action days and community dialogues), health-seeking behaviors, detection of acute malnutrition, timely submission of reports, household visitations, attendance at monthly meetings, CHV motivation,

and WASH indicators. The following quotes from key informants illustrate the impact of CHV supervision.

> *"The current CHV supervision is good because [CHVs] are always accompanied by the CHAs."*

> *HFMC Member, Turkana South*

> *"CHV supervision has helped trace children that have not been coming to clinic and bring them back for clinic to help do growth monitoring. The same is done to the pregnant mother."*

> *CHA, Samburu Central*

CHAs said they supervised CHVs on patient referrals, monthly reports, community engagement activities (e.g., community dialogue and action days), household visits, household follow-ups, and defaulter tracing. Regular individual supervision and group meetings help the CHAs and CHVs to work together well and solve problems.

> *"Supervision brings unity among CHAs and CHVs because they are able to work together and learn from each other."*

> *CHC Member, Samburu North*

Most CHC and HFMC members said that they did not directly supervise the CHVs, but rather were informed on CHVs' progress by CHAs, and helped to support CUs (i.e., by advocating for trainings and monthly salaries/incentives for CHVs).

> *"We supervise their [CHVs] work through reports they submit to the facility monthly through the CHAs. The reports show they are actively engaged and committed to their roles in extension services."*

> *HFMC Member, Kibish*

In both counties, the duration and frequency of supervision was found to be inconsistent, but rather varied based on CHA workload. Some CHVs from Samburu Central, Samburu East, and Turkana East said they are accompanied by a CHA during their work once weekly. Most CHVs from Samburu Central and Samburu East pointed out that they are also supervised during community engagement activities and malnutrition screening in the community. Some CHVs from Samburu North, Kibish, Turkana South, and Turkana North said that they are accompanied on home visits twice a month by the CHA, and some from Loima and Turkana Central indicated they are supervised once a month—in some cases, only when they are filling in their monthly reports.

Most CHVs were comfortable with supervision because it encouraged them to work better, they received guidance and were supported on weak areas (such as filling in reports), and it helped them manage hostility from the community in some areas and other social challenges that they encounter in their work. They explained that supervision also helps clarify concerns on site. In

addition, during supervision visits, CHAs can check ongoing projects in the community, like construction of toilets or latrines.

Supervision or coaching/mentoring from CHAs motivated CHVs because they were advised or mentored in areas where they were less skilled, such as reporting.

> *"Having the CHA helps them in report writing and being closely monitored gives them the motivation to work."*

> *CHA, Samburu North*

Key barriers to supervision and suggestions for addressing them are outlined in **Table 6**. The most frequently mentioned barrier was the distance to communities and CHAs' lack of transport. Other key barriers to supervision were the low literacy of CHVs, lack of CHV reporting tools, communication difficulties because of poor network coverage, and lack of supervision tools.

Table 6. Barriers to CHV supervision

Key Barriers to CHV Supervision	Illustrative Quotes
Distant villages make it hard for CHAs to conduct supervision, especially during household visits (all Samburu subcounties, Loima, Turkana Central, Turkana North)	*"I should be provided with a motorbike to be able to access the 8 villages since in those villages I only have 20 CHVs. If I had the means of transport, service delivery would improve a lot since I would be able to solve the problems affecting the CHVs instantly instead of prolonging them."* CHA, Samburu East *"It could have been good if the area of supervision could have been reduced by increasing the number of CHAs because right now the CHA is handling a larger population."* CHA, Samburu Central
Low literacy among some CHVs makes it difficult for CHAs to correct them when they made mistakes (Samburu Central) **and for CHVs to do their work** (Samburu East, Samburu North, Turkana Central)	*"The understanding level of some CHVs is not up to date. Most of them understand while others, their understanding level is low and out of 28 CHVs, only 10 understand properly."* CHA, Samburu Central
Poor mobile network coverage makes it hard for CHAs to communicate with CHVs (Samburu East, Samburu North, Turkana North)	*"Some CHVs are working from outstations in outcast areas like Nadopua, Natoot, Mlango, and face poor network for communication."* CHA, Turkana North

Table 6. Barriers to CHV supervision

Key Barriers to CHV Supervision	Illustrative Quotes
Lack of supervision tools such as supervisor checklist among some CHAs (Samburu North, Loima)	*"There is no checklist for doing supervision of CHVs." CHA, Samburu North*
Some CHVs and communities migrate, hence it is hard for CHAs to conduct CHV supervision (Samburu Central, and Samburu North)	*"Some of the CHVs are pastoralists so getting them is hard since they move a lot." CHA, Samburu North*
Difficult for CHAs to conduct CHV supervision because of COVID-19 (Samburu Central)	*"CHV supervision is not working well due to COVID-19" KII CHA, Samburu Central*

5.1.4 SOCIAL SUPPORT, RESPECT, AND RECOGNITION FOR CHVS

Social support from community members, CHCs, HFMCs, CHAs, and health facilities in charge motivated the CHVs. They were also motivated when community members attended community engagement activities led by CHVs, followed what CHVs had taught them, and spread the information to other community members.

> *"Community support is there because the community is cooperating to do what they are told by CHVs and accepting them as their doctors."*
>
> *CHC Member, Samburu North*

Respect and recognition from the CU, from partners by using recognition messages, and from community members and leaders motivated CHVs. Some CHVs explained that they appreciate when they are recognized or praised for their good work by chiefs during the chief baraza community meetings. Others described how their communities support them by giving them money, purchasing means of transport for them, or offering them food or drinks.

> *"Sometimes maybe during community barazas, the chief recognizes their work and gives them a chance to give health talks to the community."*
>
> *CHV, Samburu East*

"The CHVs are highly recognized and respected by the community. It is because of this support that makes CHVs perform and do their work smoothly. During community mobilization there is high turn up of community and this gives CHV that extra motivation."

CHA, Turkana Central

"Community members recognize the efforts of CHVs, and they are proud of them for their readiness to deliver community health services at grass root level. Some community members give them cash or prepare tea for them when they pass by their doorsteps."

HFMC Member, Kibish

The main barrier related to social support and recognition of CHVs was hostility from the community, which was mentioned in Samburu Central, Samburu North, Turkana East, and Turkana Central. This occurred when community members felt that CHVs were gaining financially from collecting information from the community.

"Sometimes we get resistance from our community members because they believe we benefit ourselves using their names."

CHV, Turkana Central

"Intimidation, abuse and even name calling from the members of the community."

CHV, Turkana East

"Hatred from the community also demotivates us."

CHV, Samburu Central

5.1.5 CHV SUPPLIES AND EQUIPMENT

According to the CHCs, HFMCs, and CHVs, some CHVs across both counties had the following supplies and equipment: backpacks to carry their tools, mobile phones, bicycles, reporting books, referral books, badges, medical kits, rapid diagnostic tests for malaria, counseling cards, stationery, reflector jackets, C-stock medicines (only in selected CUs), family planning methods (such as condoms), beads for screening children's breathing level (mostly in Turkana), and uniforms. Not all CHVs had all these supplies and equipment; some had only a few of these items.

"They have phones, bicycles for a few CHVs for movement here and there, books, and drug kits that contain Panadol, bandages for purposes of first aid."

CHC Member, Samburu Central

"We have tools and supplies such as RDT [rapid diagnostic test] for testing malaria, medicines like Zinc and ORS [oral rehydration salts] to give to our community members with cases related to those medicines, treatment register and sick child recording register."

CHV, Turkana Central

Although some CHVs were well supplied, several barriers related to supplies and equipment were identified (Table 7). Some CHVs were missing supplies and equipment and found this demotivating. CHAs and CHVs mentioned that MUAC tapes and RUTF at facility and community levels were needed to facilitate acute malnutrition detection and treatment. Participants said that it is important for CHVs to have RUTF available, because the long distances families had to travel to health facilities led to defaulting.

"The system of giving out supplements (RUTF) should be devolved to the community level to be able to serve those that are far from the health facility since because of distance some of them become defaulters."

CHA, Samburu Central

Others reported that they do not know, or have forgotten, how to use some of their supplies, especially first aid materials, and how to administer drugs. Some CHVs reported that replenishment of supplies was delayed or that some of their equipment was not functional. CHVs do not have storage containers for supplies and equipment to keep them safe, and they stated that storage containers for medicines and nutrition commodities would be beneficial. Some implementing partners felt that there was need for a tracking system to ensure equal distribution of commodities in the different subcounties and as a way of improving CU functionality.

Table 7. Barriers to supplying CHVs

CHV Supplies and Equipment Barriers	Illustrative Quotes
Lack of supplies and equipment, such as first aid kits (Samburu North, Turkana East, Turkana North, Turkana West), **bags to carry cStock commodities and tools** (all Samburu subcounties, Turkana East), **and smartphones** (Samburu North)	*"Lack of first aid kits to enable CHVs attend to emergencies in the community."* CHV, Turkana North *"As CHVs, what discourages us is that after being trained, we are not given enough supplies and equipment to perform our duties at the community and this discourages us because we do not see any meaning of us being CHVs."* CHV, Turkana West
Inadequate tools to detect malnutrition; Worn out MUAC tapes; lack of MUAC tapes (all Samburu subcounties, Turkana	*"Most CHVs use MUAC tapes that were given to them some five years ago, so those MUAC are worn out now. As a result of this, there is inaccuracy of their data."* CHA, Kibish

Table 7. Barriers to supplying CHVs

CHV Supplies and Equipment Barriers	Illustrative Quotes
East, Turkana Central, Kibish, Loima, Turkana North)	
Lack of RUTF; expired RUTF; theft of RUTF (all Samburu subcounties, Turkana South)	*"Sometimes commodities run out of stock in the facility and patients might have come from far distance thus may not get the necessary assistance. Expiry of nutrition commodities i.e., due to supply of commodities that are almost expired, brought in plenty from the government." CHA, Samburu North*
CHVs have limited knowledge on the use of some supplies and equipment (e.g., first aid kits) and have forgotten how to use others (e.g., administration of some medicines) (Samburu East)	*"We lack basic knowledge on how to use some supplies such as first aid kits." CHV, Samburu East*
Delayed distribution of supplies and equipment (Samburu East, Turkana South)	*"The supplies and equipment run out and might take long before we are equipped with them again." CHV, Samburu East*
Limited means of transport (Samburu North, Samburu East, all Turkana subcounties)	*"Availability of bicycles that make it easier for CHVs to move to households and meetings. CHVs cover large areas and since it is voluntary work, sometimes we, the CHVs, get demoralized when we move from one place to another on foot." CHV, Samburu East*
Faulty equipment, e.g., bicycles, motorcycles, mobile phones, timers (Samburu Central)	*"The existing bicycles are not working." CHV, Samburu Central*

5.1.6 CHV DATA COLLECTION AND REPORTING SUPPORT

CHC and HFMC members reported that they assist CHVs with data collection at the community level and follow up to ensure that referred patients visit the health facility. CHCs/HFMCs would like to be trained on data collection and reporting to assist CHVs better.

> *"As CHCs we also need to have some extension trainings on what CHVs are trained so that we can help them sometimes in discharging duties like writing reports."*
>
> *CHC Member, Samburu Central*

The reporting tools as mentioned by most of the respondents were MOH 514, the service delivery logbook, MOH 513 for household registration, MOH 100 for community referrals, BFCI form 1 and 2 (introduced by World Vision, mentioned in Samburu East, Samburu North, and Turkana Central), notebooks, and pens. According to some of the partners, data collection and reporting were working well, given that in Turkana reporting was at 98%. Some of the partners explained that national reporting structures have been fully adopted by the county governments.

According to most of the CHAs, CHV data collection and reporting were timely; some CHVs understood their roles and responsibilities with respect to data collection and reporting; CHVs did household visits every day and collected data; and CHAs provided mentoring on these tasks. Where all of these systems were functioning, the quality of reports submitted was improved. According to the CHAs, some of the reports were well filled out, which helped in tracking activities at the community level, and this was linked to skills gained by CHVs from past trainings on data collection and reporting.

> *"MoH 514 is well filled, and they are able to fill MoH 513 that is the home register for households and also able to fill MoH 100."*

> *CHA, Samburu Central*

> *"In the training on data management, we gave the CHVs a roadmap on how to summarize their data so that they do not wait for the last days [of the reporting period]."*

> *Implementing Partner, Turkana*

Several barriers to CHV data collection and reporting were identified (**Table 8**), including low CHV literacy, the large number of tools and indicators, lack of MOH reporting tools and stationery in some locations, unwillingness of some community members to provide information required for reporting, and unwillingness of some CHAs to help CHVs with their reports.

Table 8. Barriers to CHV data collection and reporting

CHV Data Collection and Reporting barriers	Illustrative quotes
Low literacy among CHVs makes it difficult for them to fill out some of the reporting tools, such as MOH 100, MOH 513, and MOH 514. Having the tools in English was also a barrier (all Samburu subcounties, Turkana East, Turkana West, Turkana Central)	*"Most CHVs are unable to fill the MoH 514 used for monthly reports due to the length of the tool as it has many indicators that need to be filled, language barrier as the tool is done in English and the community health volunteers are unable to read."* CHA, Samburu Central *"Among us CHVs, there are those who are not able to read and write. We are grouped in to two per village and the one who can write helps the illiterate one to fill the tool and at the end of the month we all submit the report to the CHA."* CHV, Kibish

Table 8. Barriers to CHV data collection and reporting

CHV Data Collection and Reporting barriers	Illustrative quotes
Delayed reports due to low literacy among some CHVs, migrating communities and some migrating CHVs, and vast villages (all Samburu subcounties, Turkana West, Kibish, and Turkana Central)	*"The geographical distances between villages are very vast and that deters accurate reporting as CHVs get hard time to reach villages for data collection." CHA, Turkana West* *"There is a vast distance to cover between households with no means to ease mobility." CHC Member, Samburu Central*
Lack of or insufficient updated reporting tools (all Samburu subcounties, Kibish, Turkana East, Turkana South, and Turkana Central)	*"Currently there are no tools for reporting. We do not have the revised tools and the DHIS is not accepting the old tools since we are doing fresh registration of households and continuous monthly reporting." CHA, Samburu Central* *"Sometimes we run short of report booklets. During the day when you are required to send the report, you end up not submitting the report." CHV, Turkana Central*
The reporting tools were also considered physically bulky (e.g., MOH 513 and MOH 514) and difficult to carry around (all Samburu subcounties, Turkana East, Turkana West, Turkana South, and Turkana Central)	*"Sometimes our CHVs have so many registers so if it can be possible to integrate a tool that can carry the needed information, instead of carrying several registers yet sometimes they do not have means of transport. It becomes difficult at times to fill all these registers and carry them all the way to and from." County Government Official, Samburu*
Migration of communities makes it challenging for CHVs to conduct household visits and collect data; also, some CHVs migrate in search of pasture for livestock or due to insecurity, and hence are unable to report or collect data (Samburu North, Samburu Central, and Loima)	*"There is a problem because not all CHVs make home visits. For example, in Nteremka, Simiti, it has been 4 months and the CHVs have not reported because some of them migrated from home in search for pasture for livestock. They also migrated because of insecurity in the area." CHA, Samburu North*
Newly recruited CHVs had not yet been trained on the reporting tools and some existing CHVs had forgotten	*"Some of the recruited CHVs have never been trained on basic health modules including filling the reporting tools." CHA, Turkana East*

Table 8. Barriers to CHV data collection and reporting

CHV Data Collection and Reporting barriers	Illustrative quotes
how to fill out the tools (Turkana East, Turkana South, and Kibish); **some CHVs had forgotten how to fill out the tools, or new indicators had been added** (Samburu Central, Turkana South, and Turkana West)	*"There are problems we experience because we are not trained on how to fill the data in the tools." CHV, Kibish*
Lack of stationery (Samburu North, Samburu East, and Turkana North)	*"Sometimes we may not have pens to fill the reports and may not have the money to buy the pens." CHV, Samburu East*
Some CHAs were unwilling to assist CHVs with the reporting tools (Loima and Turkana South)	*"CHAs are not doing prior visits to confirm how CHVs are fairing on [reporting tools]." CHV, Loima*
Unwillingness by some community members to disclose sensitive information, e.g., age, birth certificates (Samburu East)	*"Uncooperative community members who will not be willing to disclose some sensitive information such as date of birth of child, ID number." CHA, Samburu East*

5.1.7 CHS SERVICES FOR SPECIAL POPULATIONS: MIGRATING PASTORALISTS AND ADOLESCENTS

PASTORALISTS: A large percentage of the population in Samburu and Turkana Counties follow a pastoralist livelihood, and they often migrate during dry periods to seek pasture for their livestock. Migration and distances to reach the population affect the CHVs' ability to provide nutrition and other health services and make it challenging for the population to reach health facilities, as described in **Table 9**.

Table 9. Challenges with Providing CHS Services for Migrating Pastoralists

Challenges identified providing CHS Services for Migrating Pastoralists	Illustrative quotes
Migration affects access to children with acute malnutrition and leads to defaulting as children are far from the health facilities (all	*"Migration. After being identified, the community migrates together with an identified child to far places. In most cases, there are no networks for accessing them and also most places have no facilities to link them with, which makes it difficult to trace the child again." CHA, Samburu East*

Table 9. Challenges with Providing CHS Services for Migrating Pastoralists

Challenges identified providing CHS Services for Migrating Pastoralists	Illustrative quotes
Samburu subcounties, all Turkana subcounties)	*"CHVs cannot treat the malnourished. …Most mothers do not come back to the facility for treatment due to migration. Usually, the child should be brought back to the hospital to be weighed, but mostly they fail, and they become defaulters." CHA, Samburu Central*
Inaccessibility of the communities by the CHVs due to vast distances and lack of transportation; Long distances to facilities increases defaulter rates and makes outreach challenging (all Samburu subcounties, all Turkana subcounties)	*"Transportation because some communities live far but just because there are no means of transportation by the CHVs this can't be achieved." CHA, Loima* *"Distances from facilities hence higher defaulter rates." CHA, Samburu East* *"Initially we had outreaches which enabled us reach even the furthest villages in our catchment areas but at the moment caregivers have to walk longer distances so as to bring children to the facility for screening. This also has led to reduction of patients as some are not able to walk to the facility." HFMC Member, Turkana South*

To address the challenges with migrating population, CHC members across both counties suggested that when pastoralists migrate to new CUs, they should be linked to the nearby CHV to get health care services. One suggestion was to create mobile CUs or to assign a CHV who will migrate with the community to provide them with health care services. Most CHAs across both counties noted the importance of CHVs communicating promptly with the health facilities of the villages that pastoralists migrate among.

> *"For the case of those people moving with livestock at satellite camps the CHVs, who will be living near where they migrate to still refer them to the health facility that is nearby."*
>
> *CHC Member, Samburu East*

> *"Mobile units should be available everywhere to assist them in far places."*
>
> *CHC Member, Turkana West*

> *"Pastoral communities also need to be given their CHVs slots and be trained on how to handle cases at their set ups. In case of trainings, they also need to be informed to attend to gain skills that may help them handle cases."*
>
> *HFMC Member, Kibish*

Some CHCs also pointed out that it necessary to have specific community engagement activities and outreach that target pastoralists.

ADOLESCENTS: Adolescent reproductive health issues are relevant to acute malnutrition as teenage pregnancies drive PAM in a number of ways. Adolescent mothers have increased chances of having low-birth-weight babies. Adolescents miss out on interventions designed for supporting pregnant mothers, including IFA and antenatal clinics (ANC) due to stigma and lack of adolescent-friendly services, and they are unlikely to seek ANC services. In addition, adolescent mothers lack the knowledge and capability for optimal IYCF practices and have low economic empowerment. Adolescent mothers are traumatized and unlikely to breastfeed.

CHVs across both counties were urged by CHAs and CHCs to make use of youth groups, conduct adolescent health talks at the health facilities, and hold youth meetings to sensitize them on the benefits of abstaining from drugs, use of family planning methods, reproductive health care (i.e., use of sanitary towels), general personal hygiene, and seeking health care at the facility. During these engagements, facilities should consider providing the adolescents with training allowances and family planning methods and reproductive health care products, such as sanitary towels, to motivate them.

> *"There should be regular trainings for the adolescents to teach them especially on sex education. They should be given training allowances when they are trained. We should have a safe space for the adolescents where they come and discuss their issues without fear and get help."*
>
> *HFMC Member, Turkana North*

The need to educate young adolescents on body changes, such as breast growth and menstruation, among others, was mentioned. Health talks could be done in schools for school-going adolescents.

Most CHAs and CHCs across both counties emphasized that youth leaders should be educated on these topics so they can pass the information on to their peers and assist in mobilizing adolescents for youth meetings. Most CHAs and CHCs across both counties said that the CUs should create a program for young community members, to increase the perception among youth that they are being embraced, recognized, and heard.

> *"Involve adolescents in health education to enhance their health seeking behavior since most NGOs only focus on child and mother. They should also have a package for the youths since they have a lot of issues that affect them in the community."*
>
> *CHA, Samburu East*

In addition to this, CHAs highlighted that health facilities should have an adolescent safe space/youth-friendly center where the adolescents can openly express themselves and feel welcome. CHAs and CHCs suggested that youth-friendly services could be provided during less busy times at the health facility to avoid stigma. There was also a need to have outreaches that specifically targeted youth.

"Adolescents shy away from coming to the health facility for fear of stigmatization but through public outreaches, adolescents can be sensitized."

KII CHC, Turkana West

"There should be creation of youth friendly centers where adolescents are free to visit. The adolescents are identified by the CHVs at the household to be given health education whether they are near the facility or if they have migrated."

KII CHA, Samburu Central

Some CHAs also pointed out the benefits of providing written materials, such as booklets, that target adolescent health concerns. Currently, health issues focus on the population as a whole, without specific emphasis on youth; programs targeted to young communities need to be developed. CHVs, who work within the communities, should be trained on how to handle youth issues, and should be adequately supplied with family planning methods such as condoms and contraceptives, to encourage safe sex; they should hold forums specifically designed to address the health issues affecting adolescents.

"They should come up with a booklet to address adolescents in the community because we have a lot going on with the youths."

CHA, Samburu Central

CHAs across both counties said that most activities that target youth or adolescents who are not in school should be done in the evening because adolescents are busy with other activities, such as livestock herding, during the day.

"For Morans, they usually do not like coming to the health facility to look for services, like if a Moran is infected with STI, they may want to come to the facility at night or look for the health provider to accompany them."

CHA, Samburu North

5.2 EXPERIENCES WITH ICCM-CMAM AND FAMILY-LED MUAC

Several strategies for improving early detection of acute malnutrition also emerged from the qualitative data. The most mentioned strategy was early screening and CMAM. At the household level, use of family-led MUAC, which encouraged frequent and prompt screening, was mentioned frequently as a best practice by CHAs, CHVs, and community members. At the community level, the need for outreach and mass screenings that also targeted migratory and remote communities was a major concern in both counties. To optimize early detection at the community level, mass screenings, defaulter tracking, and referral were suggested as optimal strategies for both counties, with mass screening and outreach. Other suggestions included increasing awareness of malnutrition at the community level, including using the food distribution centers to sensitize the community on eating a balanced diet, health education, cash transfers, relief donations, and improved hygiene and sanitation. These suggestions were mentioned by most respondents from both counties.

Several aspects of acute malnutrition detection and treatment were working well in the counties. In Turkana, some CHAs mentioned that they had issued MUAC tapes to families and trained them on their use. CHC and HFMC members in Samburu, Turkana Central, and Loima reported that acute malnutrition was integrated into the child welfare clinic or at other health facility clinics where children with acute malnutrition are given nutritional supplements and entered into a follow-up system.

> *"Every Wednesday, there is a child welfare clinic where they check on the welfare of the children and that is where they trace those with malnutrition. After they are detected, the community health volunteers follow them to their home and establish a system where the malnourished are given supplements such as ujimix and plumpy nut."*
>
> *CHC Member, Samburu Central*

In Samburu, a CHC member also explained that CHVs link children diagnosed with acute malnutrition to health facilities. In addition, mass screening for acute malnutrition was reported to be working well in some locations. For instance, a CU in Turkana North initiates mass screenings whenever there is a surge in the number of children with acute malnutrition, and a CHC in Turkana West noted that mass screening is achieved during outreaches to identify malnourished children and place them into the nutrition program.

5.2.1 COMMUNITY AND CULTURAL BARRIERS TO ACUTE MALNUTRITION DETECTION AND TREATMENT

Participants reported several challenges to acute malnutrition detection, treatment, and follow-up related to incentives, training, supplies, and reporting, which have been described in previous sections of this report. Community and cultural barriers to acute malnutrition detection and treatment are described in **Table 10**. Key issues were acute malnutrition stigma, harmful cultural beliefs and practices, taking children in too late for detection, and sharing of nutrition supplements.

Table 10. Community and cultural issues related to detection and treatment of acute malnutrition

Community and Cultural Issues Related to Detection and Treatment of Malnutrition	Illustrative Quotes
Stigma around acute malnutrition (Samburu North, Samburu Central, Loima)	*"Some mothers fear children to be measured because they fear stigmatization in the community."* CHA, Loima *"Using of different names [because of stigma]. In the hospital records, the name is different from one the child is using in the village, so following up that child is a bit difficult. Some parents hide their affected children, so it is hard to trace them for follow up."* CHA, Samburu Central

Table 10. Community and cultural issues related to detection and treatment of acute malnutrition

Community and Cultural Issues Related to Detection and Treatment of Malnutrition	Illustrative Quotes
Inaccessibility of the communities by the CHVs due to vast distances and lack of transportation; Long distances to facilities increases defaulter rates and makes outreach challenging (all Samburu subcounties, all Turkana subcounties)	*"Transportation because some communities live far but just because there are no means of transportation by the CHVs this can't be achieved."* CHA, Loima *"Distances from facilities hence higher defaulter rates."* CHA, Samburu East *"Initially we had outreaches which enabled us reach even the furthest villages in our catchment areas but at the moment caregivers have to walk longer distances so as to bring children to the facility for screening. This also has led to reduction of patients as some are not able to walk to the facility."* HFMC Member, Turkana South
Harmful cultural beliefs and practices that could contribute to acute malnutrition or deter seeking health care, including avoidance of some foods e.g. eggs; practices around birth that affect exclusive breastfeeding; dislike of health facilities or screening; lack of family planning and male involvement. (all Samburu subcounties, Turkana West)	*"Some community members in some villages do not like their children to be screened as they believe in the traditional ways."* CHA, Turkana West *"Family planning, male involvement, child spacing is a challenge. Poverty. Lack of knowledge regarding nutritional management i.e., diversity of diet. Cultural practices. Like you find out that our community we don't take eggs."* CHA, Samburu East *"Culture, this is whereby the community around naturally do not like health services."* CHA, Samburu East
Late detection of acute malnutrition as a result of failure to bring children for growth monitoring (all Samburu subcounties, Loima, Kibish)	*"Failure of parents to bring children for growth monitoring and promotion so they could be detected earlier."* CHA, Samburu East
Lack of knowledge by caregivers on good nutritional practices and on when a child has malnutrition (Samburu East, Samburu Central, Turkana North)	*"Lack of knowledge by caregivers to know when the child is malnourished. Family MUAC by SAVE has helped to detect malnutrition in household level."* CHA, Samburu East,
Sharing of nutrition supplements [RUTF] due to lack of knowledge and food	*"Ignorance and irresponsibility of parents of children on nutrition programme e.g., a young child brings another to get the plumpy nuts. Sharing of the nutrition commodities*

Table 10. Community and cultural issues related to detection and treatment of acute malnutrition

Community and Cultural Issues Related to Detection and Treatment of Malnutrition	Illustrative Quotes
insecurity; Selling of nutrition supplements due to alcoholism and poverty (Samburu East, Samburu North, Turkana Central, Turkana West)	*with other children in the household…thus at the end of the day it will not help the malnourished child." CHA, Samburu North* *"Alcoholic mothers also instead of giving the kid these therapeutic foods she will sell to earn income to purchase alcohol." CHA, Turkana Central*

5.2.2 COMMUNITY EXPERIENCES WITH ICCM-CMAM

Research has proven that there are many efficiencies to be gained from combining ICCM with CMAM. USAID Nawiri's formative CHS data collection sought to learn about community members' experiences with the integration of ICCM with CMAM.

Community members in Loima, Turkana North, Turkana South, and Samburu Central reported that CHVs treat some common ailments—including malaria, flu, diarrhea, worms in children, fever, and acute malnutrition—and mothers reported that their children recovered after treatment by CHVs. **Mothers were happy with the services offered by the CHVs** and referred to them as convenient and lifesaving. Mothers were happy that the CHVs were able to administer drugs that **stabilized the children before they could reach the hospital**—given the long distances that had to be travelled to reach health facilities—thereby saving the lives of their children. Community members in Turkana South also reported that CHVs treating the children at home led to **reduction in costs**, given that nomadic people who were far from the health facilities did not incur the cost of travelling to seek medication.

> *"R3: Yes, my child was treated for malaria over a month ago by a CHV. Their service was well and pretty good.*
>
> *R4: I had my child treated with diarrhea but over five months ago. The CHV administered ORS to the child and, fortunately, the child recovered."*
>
> *CHC Members, Loima*

In some cases, CHVs were not able to treat the health problems, and referred the child to the health facility.

> *"Sometimes they treat and sometimes they do not treat, based on of the type of disease the child is suffering from. There are some childhood cases that are very hard for CHVs to treat. In cases where the problem persists the CHV makes a referral of the child."*
>
> *CHC Member, Turkana North*

The main challenges to ICCM-CMAM were inadequate training of CHVs on use of the drugs, their lack of practice/confidence in treating patients, lack of medicines, and facilities' hesitancy to give CHVs medicine due to lack of accountability (**Table 11**).

Table 11. Challenges to ICCM-CMAM implementation

Challenges to ICCM-CMAM Implementation	Illustrative Quotes
Lack of training and lack of practice in using drugs to treat minor ailments	*"They need to be trained very well on how to give drugs to avoid children being given the wrong drugs. They need additional continuous trainings so it will help those people with no ability to travel to the hospital because you will get treatment from CHV in your own village." CHC Member, Samburu Central* *"Only a handful of CHVs have the necessary skills and knowledge to treat these diseases…They have had so many trainings, but the larger percentage of these CHVs have no solid experience and knowledge on treatment of these childhood illnesses." CHC Member, Turkana West*
Low literacy among CHVs leads to inaccuracy in measurements	*"Most CHVs are illiterate and that hinders the accurate measure of MUAC tape and documentation." CHA, Turkana West*
Lack of supplies among the CHVs especially medication	*"If they had the required tools, like instruments for measuring and drugs, they could have been helping instead of just watching. CHVs do not have drugs or medicines to treat children for diarrhea, pneumonia, malaria, and acute malnutrition but they sensitize and refer children to the treated at the health facility." CHC Member, Samburu North*
Lack of accountability system for CHVs to manage and store commodities securely	*"Commodity management and support for the community health strategy has not come out well in the county. They feel that giving the CHVs commodities to be managing cases in the community, it's not working for them. So they are not supporting that. Maybe it will start from the aspect of qualification and the quantification of the commodities needed to support the community health strategy and ICCM which has not taken place currently." Implementing Partner, Turkana* *"The CHV was also given commodities, although issues of preliminary results show that issues of security for those commodities. Safeties of those commodities were*

Table 11. Challenges to ICCM-CMAM implementation

Challenges to ICCM-CMAM Implementation	Illustrative Quotes
	not yet guaranteed." *County Government Official, Turkana*
Perception of community members that CHVs are not correctly trained to diagnose	*"[CHVs are] helpful but there are mistrust issues because you just have to take the child to the hospital to see the doctor, so we don't trust [CHVs] so much."* CHC Member, Samburu Central *"The CHVs are not well trained to detect, treat and manage these diseases. They also do not have the medicines to treat these diseases."* CHC Member, Loima
Patients referred to health facilities were not attended	*"CHV referrals sometimes may not be signed by health providers at the health facility. This discourages us as CHVs because it shows our clients were not served accordingly."* CHV, Samburu East

5.2.3 LEARNING SPRINT FINDINGS ON ICCM-CMAM

USAID Nawiri's COVID response learning sprints enabled the team to surface some systematic weaknesses in the CHS, and to test strategies for addressing them. Key learnings from the learning sprint related to ICCM-CMAM were as follows:

- Some ICCM monitoring tools need to be simplified for low-literate CHVs.
- CHVs require continuous mentorship to improve on quality of reported data and to increase their understanding of the tools.
- Family meetings and mini-dialogues are useful approaches for community engagement and obtaining community feedback.
- CHVs needs SBC materials and lesson plans to help them in their discussions with families and groups and to ensure quality counseling.

5.2.4 COMMUNITY EXPERIENCES WITH FAMILY-LED MUAC

Family-led MUAC was introduced in some areas but not in others. Participants in Loima reported that they were assembled into small groups where they were given MUAC tapes and trained on how to use them, while those in Turkana South and Turkana West were given the MUAC tapes by CHVs, who advised them on their use. In Turkana North, while some mothers had been trained and had the MUAC tapes, others had been trained but had not received the tapes. In Samburu, community members in Samburu Central reported to having been given MUAC tapes and trained, and in Samburu North, some had been trained and had the tapes and some did not.

Mothers who had MUAC tapes reported that they regularly used the MUAC as advised by CHVs and were happy because they could now monitor the health of their children themselves.

> *"Yes, last week on Wednesday, I took MUAC measurement for my children. All my two children were on the green color, which stands for good nutritional status. I am yet to take their readings again after a period of two weeks as prescribed by the CHV."*

> *CHC Member, Turkana West*

> *"I was among the first group to be trained. I always use my MUAC to check my child because my child always keeps on falling sick… All of us in this community unit have a MUAC tape."*

> *CHC Member, Loima*

The discussions generally indicated that community members knew how to use the MUAC tapes correctly. One mother in Samburu reported that even the husband used the MUAC tape on their child. Mothers in both counties pointed out that having the MUAC tape in the house **positively influenced the household's eating behavior**.

> *"I have good experience using MUAC. Having a MUAC tape in the house makes you to be careful about the food we eat on a daily basis. This tool has transformed the household in that after every two weeks you take MUAC measurement to see the status of your nutrition."*

> *CHC Member, Turkana North*

> *"When it is in the yellow zone...start changing the diet to push it to the green mark to avoid the red zone...you just give the child nutritious foods e.g., greens and fruits etc."*

> *CHC Member, Samburu Central*

Family-led MUAC also improved the relationship between CHVs and mothers, because some mothers did not have confidence in the measurements taken by the CHVs, as explained by the respondent below. When CHC members were asked how they felt about taking the MUAC measurements themselves, they said

> *"Mothers feel good about taking MUAC measurements themselves because some community members never believed some of the measurements taken by the CHVs."*

> *CHC Member, Turkana South*

Most mothers were happy whenever they measured their children, as they were assured that their children were healthy—or that they could act promptly if not. However, some mothers were sad when the measurements showed that a child had malnutrition; this was more so when the **mother felt that she could not do anything to change the situation**.

"I am not happy because when I measure my children using the family MUAC and find that they are malnourished I will not be happy because I do not have the ability to remedy the situation. You will be happy when you measure and realize that their status is ok but when they are malnourished you will not feel good."

CHC Member, Samburu North

Some participants felt that **having the referral form from the CHV eased the process of going to the health facility**, because community members did not feel confident about explaining the situation clearly without the referral form. The respondents also mentioned that referral depended on who screened the child (a CHV or a family member). However, cases of **being turned away after self-referral** were reported in Turkana by the CHC members.

R1: "CHVs are always the ones who are tasked to make referrals for a child in the community to the facility. Nowadays, before you are admitted to the facility, they first ask you whether you have a referral letter from the CHV. Cases of severe acute malnutrition are very serious they require further medical attention from health facilities."

R3: "It depends on CHVs availability, if the CHV is around we go to him/her to make a referral for the child. But in cases where there is no CHV, we directly go to the hospital."

R4: "For communities who live in far places, they usually take their children to the hospital without coming to CHV to take a referral form. They do not know those protocols."

CHC Members, Turkana North

In Turkana, there were several reports from the community FGDs of **taking the sick child to an herbalist**, although the respondents noted that this was not always successful; in some cases, the **child is taken to church for divine intervention** through prayer.

"We usually take the child to herbalist. They are given some herbals which have in several times proven unsuccessful."

CHC Member, Loima

"We take the child to church to receive prayers. But nowadays people are preferring to have their children taken to the hospital than the church."

CHC Member, Turkana North

5.2.5 LEARNING SPRINT FINDINGS ON FAMILY-LED MUAC

Key learnings from the learning sprint related to family-led MUAC were as follows:

- Meetings following family-led MUAC screening revealed the interplay between gender roles, distance to food markets, food diversity, and consumption at household level.

- CHVs used guides to conduct health education at household level and this ensured consistency and quality of discussions.
- Family-led MUAC referrals are likely to promote more effective IMAM surge surveillance in health facilities.

5.3 SHOCKS AND STRESSES THAT AFFECT ACUTE MALNUTRITION DETECTION AND TREATMENT

Participants mentioned three types of shocks and stresses that affect provision of acute malnutrition and other services by CHVs: poverty and food insecurity, community insecurity, and COVID. These are described in **Table 12**.

Table 12. Shocks and Stresses that are Barriers to Nutrition and Other CHS Service Provision

Shocks and Stresses	Illustrative Quotes
Poverty and food insecurity (Samburu East, Samburu Central, Turkana West, Turkana North, Loima)	*"After discharge there is nothing to eat again so chances are that they still get malnourished again." CHA, Samburu Central*
Insecurity discourages CHVs from detection activities and community members are unable to go to health facilities (Samburu North, Samburu East, Turkana West, Loima, Kibish)	*"Intercommunity raids interfere with the village's household visitation as the CHVs fear to risk their lives at the midst of feuds." CHA, Turkana West* *"Insecurity makes it a challenge for people to access health services or for CHVs to visits household located far." CHA, Samburu North*
COVID-19 has hindered acute malnutrition detection and follow-up activities (Samburu)	*"We have had a major hit on community screening for malnutrition because CHVs can no longer go to the communities freely like they used to. We have had a major hit on defaulter tracing because again, CHVs cannot move from household to household as they used to before COVID. We have also had a significant drop in terms of community health education on malnutrition among others. So, I could say those are three major hits, for now, to the IMAM program within the CHS." Implementing Partner, Samburu*

5.4 NAWIRI CHV CAPACITY ASSESSMENT AND CHV TIME USE RESULTS

5.4.1 CHV CAPACITY ASSESSMENT

CHV capacity was based on CHVs' self-report that they are able to counsel, provide, or refer for a variety of antenatal, childbirth care, postnatal, child immunization, illness, and nutrition topics.

A detailed table of results by county is shown in Annex E. CHV capacity varied by type of activity and between the two counties. It was generally lower in Samburu than Turkana. For example, within the domain of child nutrition, only 13% of CHVs in Samburu did all tasks related to providing CMAM using RUTF, while 95% did so in Turkana.

In both counties, less than 50% of CHVs reported providing all relevant services for several service areas.

- SAMBURU: birth preparedness, newborn care counseling, maternal nutrition counseling, malaria-related activities, all childbirth care activities, postpartum family planning, CMAM, most child immunization activities, and childhood illness activities.
- TURKANA: newborn care counseling, maternal newborn complication activities, home visits within 2–3 days of birth, lactational amenorrhea method education, some elements of childhood illness activities, and WASH cross-cutting issues.

5.4.2 CHV TIME USE

As part of the CHV focus groups, CHVs were asked to name the seasons of the year, use seeds to indicate during which season they are most busy, list activities they do during the busy season, and agree on the approximate number of days and hours a CHV works per week during the busy time. Then, participants were given beads equal to the number of hours their group agreed they work per week, and they were asked to divide the beads across the activities their group listed to indicate the hours each CHV spends on the activities mentioned. CHVs reported working 2 to 7 days per week during the busy time of year. On average, CHVs worked on 5 days (Annex D, Table D-1). The most common activities among CHVs were group activities, home visits, malnutrition prevention, activities with community groups or households, and administrative tasks or reporting (Table 13). The average number of hours CHVs worked was 27.5, ranging from 10.5 to 58.3. The amount of time CHVs reported they spend on different

Table 13. Average number of hours per week CHVs spend on specific activities

Hours spent by activity	AVERAGE among the FGDs reporting the activity
a) Addressing health problems	4
b) Community outreach activities	9
c) Group activities	3.4
d) Home visits	3.8
e) Malnutrition prevention	1.3
f) Prevention or health education activities	8
g) Supervision by a health professional	1.7
h) Community dialogues and action days	3.7
i) Other meetings	3
j) Trainings	6
k) Additional activities	3
l) Administrative tasks or reporting	3.9
m) Campaigns	3.5
n) With CU or administrative supervision	3.2
o) Travel time	1.8
p) Total work time	27.5

activities each week varied across the focus groups (Annex D, Table D-2). Only a couple of FGDs reported addressing health problems, conducting community outreach activities, and carrying out prevention or health education activities. About half of the FGDs reported no time spent on supervision during their busy time of year.

5.5 CU FUNCTIONALITY ASSESSMENT IN SAMBURU COUNTY

CU functionality in Samburu is low overall; only 29% of facilities visited were scored as functional (**Table 14**). Elements that were especially low included trained CHAs, CHVs with kits, means of transport, supervision of the CU by the SCMT in the last 6 months, and CHCs holding quarterly meetings in the last 6 months. Two of the three cardinal elements were at 50%: CHV reporting rate in the last 6 months and health action days taking place each month during the last 6 months.

Table 14. CU functionality assessment results, Samburu

	Inputs	(N = 14)	Level of completion or comments
1	Existence of trained CHAs (2 per CU)	43%	
2	Existence of trained CHC (7, 9, 11, or 13 based on population)	93%	
3	Existence of trained CHVs (number of CHVs based on population density)	93%	
4	CHVs currently have kits containing commodities agreed upon with the SCHMT or CHMT	21%	Where they have the kits, they have been provided by JSI through C-Stock
5	All trained CHVs currently have UPDATED community referral form (MOH 100), household registration (MOH 513), and service delivery logbook (MOH 514)	79%	2 CUs are using the old tools and 1 CU does not have referral forms
6	Availability of UPDATED CHA summary (MOH 515)	100%	
7	Availability of chalk board or white board (MOH 516)	93%	
8	All trained CHVs currently have referral booklets	79%	1 CU waiting for additional referral booklets; 1 CU has some CHVs missing booklets; 1 CU has one area with illiterate CHVs who are not able to fill in the booklets

Table 14. CU functionality assessment results, Samburu

	Inputs	(N = 14)	Level of completion or comments
9	CU currently has adequate means of transport (at least 10 bicycles/motorbikes) for use by CHVs	43%	Most of the CUs without transport have no motorbikes or bicycles; a couple have only 2 bicycles
10	Supervision of CU by SCHMT in the last 6 months	57%	
Outputs			
11	CHC in place	100%	
12	CU currently has a plan of action (check wall or file)	86%	
13	CHCs held quarterly meetings in the last 6 months (check minutes in file)	50%	
14	CHVs held monthly feedback meetings in the last 6 months (check minutes in file)	86%	1 CU held meetings but not monthly; 1 CU held meetings, but the minutes were missing
15	Existence of sustainability initiative (discuss with CHEW, CHC, & CHVs)	79%	
Cardinal elements for basic functionality			
16	CHV reporting rate above 80% in the CU in the last 6 months	50%	2 CUs said that CHVs who migrate did not achieve the reporting rate of 80%; others were just missing reports from some CHVs
17	Quarterly dialogues taking place in the last 6 months (check reports in file)	64%	2 CUs reported they did not hold dialogue days because of the COVID pandemic; others did not give a reason
18	Health action days taking place each month during the last 6 months (check reports in file)	50%	Many of the CUs reported no action days because of the COVID pandemic
Functionality categories		**Percentage of facilities in each category**	
≥80% = Functional		29%	

Table 14. CU functionality assessment results, Samburu

Inputs	(N = 14)	Level of completion or comments
>50% to <80% = Semifunctional	57%	
≤50% = Nonfunctional	14%	

* The three cardinal elements (#16–18) must ALL be fulfilled for a CU with ≥80% score to be functional.

5.6 COUNTY DISSEMINATION AND VALIDATION FINDINGS

The results of the small group work during the county dissemination and validation meetings are shown in **Table 15**. COVID, droughts, floods, and conflict were the main shocks and stresses, some of which resulted in community migration. Shocks and migration made it difficult to provide CHS services. Many actions and barriers to the actions that were raised by stakeholders during the county meetings are similar to the findings that emerged from the formative data.

Table 15. How shocks and stresses affect the CHS, recommended actions, and barriers to action

Topic	Responses

How shocks and stresses impact the CHS	▪ COVID-19:
	  − CHVs do not have skills or knowledge to respond
	  − The primary supplier of health commodities and supplies ran out of items and there was no budget available to buy COVID-related supplies
	  − Fear in the community that health facilities are hotspots, which is reducing health care seeking
	  − Difficult to hold community meetings because of COVID regulations and CHVs' lack of protective gear
	▪ Droughts/Conflicts/Floods/Migration:
	  − Disrupt service delivery by CHVs and limit community access to health facilities
	  − Hinder CHV mentorship and supervision because CHVs have moved
	  − CHV attrition increases
	  − Communities share commodities, such as RUTF
	  − Limit information flow because migrating CHVs are not able to get information from their assigned households
	  − Host facilities and CUs where communities migrate do not have enough health-related supplies and commodities

Table 15. How shocks and stresses affect the CHS, recommended actions, and barriers to action

Topic	Responses
Actions within the CHS to address shocks and stresses	▪ Improve community reporting system through IMAM surge to plan and respond to shocks and stresses. ▪ Build capacity of CHVs on emergency response through a technical training module. ▪ Build capacity of CHVs to forecast stock requirements for predictable shocks and manage commodities. ▪ Establish mobile CUs to move with pastoral populations during migration to ensure access to services. ▪ Support CUs to map out migration routes. ▪ Connect CHVs with CHAs in the location where they have migrated. ▪ Form mobile clinics along migratory routes. ▪ Provide CHAs with reporting tools and transport so they can collect data. ▪ CHAs should work with facility in-charges to include level one commodities in link facility orders. ▪ Sensitize communities so they understand that RUTF is therapeutic and is not food. ▪ Strengthen storage of commodities at community level. ▪ Allocate one person to manage nutrition commodities. ▪ Strengthen reporting by giving CHVs latest data collection tools and working on data quality. ▪ Develop a supply chain system to ensure that commodities are delivered to migrating populations. ▪ Provide moonlight services for adolescents and use camel caravans to reach migrating communities that are not easily accessible. ▪ Consistently provide personal protective equipment to CHVs. ▪ List CHVs as essential service providers to increase acceptance by community members.
Actions outside the CHS to address shocks and stresses	▪ Improve infrastructure to facilitate access by CHVs to ensure regular service delivery. ▪ Use community peace committees and other multisectoral approaches to address conflicts. Leverage

Table 15. How shocks and stresses affect the CHS, recommended actions, and barriers to action

Topic	Responses
	security agents in the community to get early warning when conflicts may happen.
	▪ Link CHS with NDMA to get information on early warning to prepare for predictable shocks, stresses, and migration. Strengthen the alert system so that planning can be built in for expected shocks and stresses.
	▪ Provide performance-based rewards for quality reports submitted on time.
	▪ Provide county budget to support capture of nutrition data.
	▪ National-level conversation is needed with the commodity procurement agency to avoid delays in providing supplies.
	▪ Set up emergency fund to support supplies for shock response.
	▪ Strengthen and diversify livelihoods to avoid sharing of nutrition commodities during drought.
	▪ Involve political class for assistance on logistical support when shocks or stresses occur.
	▪ Fast track the implementation of the CHS bill (Samburu).
Systemic constraints and barriers to implementing actions to address shocks and stresses	▪ Weak supply chain system that leads to stock outs
	▪ Uncoordinated stakeholders' forum for addressing interdepartmental issues
	▪ Limited resources (human resources, commodities, technical support) for setting up mobile clinics
	▪ Lack of prompt coordination when CHVs migrate with their communities
	▪ Lack of CHV and CHA reporting tools
	▪ Lack of recognition of level one of the health system (e.g., CHS)
	▪ Delayed payment of CHV stipends (Turkana) and lack of CHV stipends (Samburu)
	▪ Decreasing funds from national to county government

5.7 SUMMARY OF FORMATIVE AND LEARNING SPRINT RESULTS

CHV motivation and activity implementation: Financial and nonfinancial incentives; training; supervision; social support, respect, and recognition; supplies and equipment; and reporting affect CHV motivation and their ability to implement activities. Migrating communities, vast distances to be covered, and low CHV literacy are important challenges that cut across the other factors influencing CHV motivation and activity implementation.

- **Incentives:** CHVs in Samburu have lacked financial incentives until now, while CHVs in Turkana often receive their incentives late. Income-generating activities are important for CHVs to fill the gap in financial incentives. Nonfinancial incentives, such as vests and badges that identify them as CHVs, are also important.
- **Training:** CHVs are motivated by the knowledge they gain during trainings and the training allowances they receive. In some cases, they are able to get refreshers through the AMREF Leap mobile app. However, a number of challenges to training were identified: lack of training on some topics; infrequent refresher training; low literacy of CHVs, making it hard for them to absorb the material; distance to training venues; lack of training follow-ups by supervisors; and lack of training certificates.
- **Supervision:** Supervision by CHAs is helpful for mentoring CHVs on community engagement, household visits, outreach, defaulter training, and monthly reports. Participants said that supervision was inconsistent. This was often because CHAs lacked transport, CHVs were based in distant villages or migrated, poor mobile network coverage made it difficult to communicate with CHVs, and CHAs lacked supervision tools.
- **Social support, respect, and recognition:** Social support and recognition from the community is highly valued by CHVs, and was generally the norm. However, CHVs in some communities reported resistance because community members felt that the CHVs were gaining financially from them or that the CHVs did not have the skills or the supplies to provide the necessary services.
- **Supplies and equipment:** CHVs need basic supplies, equipment, and reporting tools to provide basic health care in the community so that community members do not need to go to the health facility. CHVs often lack supplies, or their supplies or tools are worn out or broken (e.g., MUAC tapes, bicycles). CHVs would like to have RUTF to be able to treat acute malnutrition in the community, but some facilities are reluctant to give it to them because they cannot store it securely.
- **Reporting:** Low literacy and migration make it difficult for CHVs to fill out reporting tools and submit them on time. The MOH reporting tools are heavy and difficult to carry around. Some CHAs are not willing to help CHVs with their reports and some community members are not willing to share information with CHVs, which makes it difficult for them to complete the reports.
- **Special populations:** The CHS is challenged with ensuring that migrating pastoralists and adolescents have access to nutrition and other health services. For migrating populations, participants suggested identifying CHVs within the community who travel with the group, setting up mobile CUs, or developing a system whereby CHVs at the migrant location link the group to the nearest CU. Suggestions for reaching adolescents included forming youth groups, conducting adolescent health talks, involving youth

leaders, and providing adolescent safe spaces and youth-friendly services during less busy times at health facilities.

Nutrition program implementation: ICCM-CMAM, family-led MUAC, and IMAM surge are the key implementation modalities for acute malnutrition programming in the counties. These modalities face different successes and challenges, and can be influenced by community/cultural barriers and shocks/stresses.

- **ICCM-CMAM:** Mothers were happy that CHVs offered basic health services in the community, which could save the family from having to take the child to the health facility, or could stabilize the child before going to the health facility. Challenges with ICCM-CMAM were CHVs' lack of training and practice using drugs and treating minor illnesses, CHVs' lack of supplies, and lack of accountability system for the supplies. The key learnings from the COVID learning sprint were that ICCM monitoring tools need to simplified, CHVs require continuous mentorship, family meetings and mini-dialogues are useful approaches, and CHVs needs tools to help them with their discussions with families and groups.
- **Family-led MUAC:** Most mothers felt good about using MUAC tapes and liked monitoring their children's health themselves. A red MUAC reading sometimes positively influenced child feeding practices. Getting a referral from the CHV facilitated the process if a family needed to go to a health facility based on the MUAC reading. Some mothers did not like measuring MUAC because they felt they could not do anything to change the situation if the reading was in the red or yellow zone. Others preferred to go to an herbalist or seek divine intervention. The learning sprint surfaced the following learnings: CHVs' use of guides to conduct household-level education helped ensure consistent and quality discussions. Referrals to health facilities based on measurements taken as part of family-led MUAC can contribute to IMAM surge surveillance.
- **Community and cultural barriers to acute malnutrition detection and treatment:** Key barriers to acute malnutrition detection and treatment included stigma related to acute malnutrition, harmful cultural beliefs and practices, late detection of acute malnutrition, lack of caregiver knowledge about good nutrition, and sharing or selling of nutrition supplements.

CHV capacity and CU functionality: Overall CHS functionality in a county is dependent on the functionality of its CUs and the capacity of the CHVs within them. CHVs are volunteers, and it is necessary to understand how much time they spend on their CHV work so that it can be rationalized.

- **CHV capacity:** CHV capacity was low in Samburu on antenatal, postpartum, CMAM, child immunization, and childhood illness activities. CHV capacity was low in Turkana on antenatal, postpartum, childhood illness, and WASH issues.
- **CHV time use:** CHVs work 5 days per week and an average of 28 hours per week. The most common activities CHVs reported were group activities, home visits, malnutrition prevention, activities with community groups or households, and administrative tasks or reporting. Few CHVs reported spending time addressing health problems, conducting

outreach, carrying out prevention or health education, or participating in supervision during the busy time of year.

- **CU functionality in Samburu:** Only 29% of the CUs assessed were functional. The elements that were lacking in at least half the CUs were trained CHAs, CHVs' kits, adequate transport, CHC meetings, CHV reporting rate above 80%, and monthly health action days.

Shocks and stresses: During the dissemination and validation meetings, stakeholders identified COVID, droughts, conflicts, floods, and migration as shocks and stresses that affect the CHS by making it difficult to provide services and access communities. Many of the challenges identified by stakeholders in the meetings were similar to those summarized above for the formative data, indicating good triangulation between different sources of information.

6. CONCLUSIONS AND RECOMMENDATIONS

In this section, the report consolidates the different sources of information accessed or collected to summarize the key findings and possible solutions to address them, and to offer recommendations for USAID Nawiri's CHS activities in collaboration with county governments.

6.1 KEY FINDINGS

Policy and legislative frameworks for the CHS are in place at the national level in Kenya, including a provision for CHVs to treat uncomplicated SAM and MAM at the community level. A CHS policy has been passed in Turkana, which includes a monthly stipend for CHVs, and a similar policy has just been passed in Samburu.

CU functionality in both counties is low, based on a report from AMREF in Turkana and USAID USAID Nawiri's assessment in Samburu. In Turkana, the biggest gaps in CU functionality were training of CHC members, quarterly CHC meetings, CHV kits, and sustainability initiatives. In Samburu, the biggest gaps in CU functionality were training of CHAs, CHV kits, means of transport, supervision, CHC meetings, CHV reporting, and holding health action days. In terms of CHV capacity, several gaps were identified in both counties related to antenatal, postpartum, and childhood illness activities. CHVs reported working close to 30 hours per week on average. Given that they are volunteers with little or no pay, it is necessary to be realistic about how much work can be expected of them, given that they have their own household and livelihood responsibilities. USAID Nawiri should work with the counties to rationalize CHV tasks so that CHVs are not overburdened and do not become demotivated.

6.1.1 FACTORS AFFECTING CHV MOTIVATION

For CHVs to function well and contribute to improved health outcomes, they need to be motivated and supported to do their work, and the CHS within which they are embedded should be functional. Global literature and reports emphasize the importance of inputs (policies, logistics, transportation and commodities, funding, information systems); programmatic processes (supportive supervision, CHV training and incentives, support from community), CHV-level outputs (knowledge, service delivery and quality, reporting, motivation, job satisfaction, retention), and community-level outputs (use of services, knowledge of service availability, referral, trust of CHV) in ensuring a functional CHS. Many factors are known to

influence CHV motivation, including lack of monetary incentives or delayed incentive payments, inadequate or infrequent training, lack of supportive supervision, lack of community support, catchment areas that are too large, lack of transport, insufficient or infrequently replenished supplies and equipment, lack of identification or visibility items (e.g., badges, vests), and too many tasks. Nearly all of these issues were identified through literature on CHVs in Kenya and through the qualitative data collected by USAID Nawiri in Samburu and Turkana Counties.

- **Incentives.** Formative participants indicated the importance of incentives for motivating CHVs in Samburu and Turkana counties. In Turkana, the main challenges with incentives were related to delayed payments, while in Samburu CHVs did not receive incentives at the time of our data collection. The lack of incentives or delayed incentives are being addressed through CHV income-generating activities. Incentives or stipends were mentioned as a motivation for CHVs to participate in training. Lack of stipends was mentioned as a barrier to supervision because CHVs were reluctant to work without a stipend and were not motivated to attend monthly supervision meetings.

- **Training.** Literature from other parts of Kenya showed that training is important for CHV motivation, and that lack of refresher training was one of the reasons CHVs dropped out. USAID Nawiri's formative data showed that training is important for increasing the knowledge and skills needed by CHVs to do their jobs. CHVs are also motivated by the training allowances and certificates they receive. Infrequent trainings and refresher trainings are a challenge, because some CHVs have never been trained on some topics and CHVs tend to forget the information covered in trainings. In some locations, CHV training materials included pictures, which helped less literate CHVs learn the material. In some locations, AMREF's Leap mobile app is helping CHVs maintain or increase their competency through self-learning. Selection of CHVs for training was mentioned as an issue—some CHVs complained that there was favoritism, with some CHVs being selected for training repeatedly while others were receiving no training. The most frequently mentioned barriers related to CHV training were lack of regular refresher trainings, CHVs' level of literary, challenges understanding the materials because of the complex terminology used in training, and distance to training venues.

- **Supervision.** Studies in Kenya showed that lack of feedback from supervisors was one of the reasons CHVs dropped out, and supervision or technical support was important for CHV motivation. Training of CHV supervisors helped them shift from an administrative to a coaching and problem-solving supervision style, and from group supervision to more individual supervision, which CHVs found beneficial. A study using WhatsApp for supervisory support of CHVs found that it was used for one-on-one, group, and peer-to-peer supervision and support. USAID Nawiri's qualitative data showed that supervision from CHAs helps CHVs do their work and improves their skills, and the feedback they receive from CHAs motivates them. CHVs rely on visits from their supervisors to help resolve issues in their interactions with community members and to complete their reports. However, duration and frequency of CHV supervision was inconsistent. Major barriers to effective supervision included distances the CHA needed to cover and lack of transport. Other challenges to CHAs were lack of supervision tools, CHVs' low literacy, CHVs' lack of reporting tools, and poor mobile phone networks for communication between CHAs and CHVs. CHVs were further impeded by lack of stipends, which

demotivated them from attending monthly meetings; migration of pastoralist CHVs and communities; and difficulties conducting supervision during COVID.

- **Social support, respect, and recognition.** Studies in Kenya showed that a benchmarking visit to peer CHVs was important for increasing CHV motivation, and that community support was key for CHVs, especially when they lacked adequate resources and training for their work. USAID Nawiri qualitative data showed that CHVs feel appreciated when community leaders or peers recognize their work and when community members seek their advice. In some locations, participants noted hostility toward CHVs because they are receiving stipends or somehow benefitting from their position.
- **Supplies and equipment.** A previous study in Kenya showed that supplies for curative services were important for motivation of CHVs in pastoral areas. CHV visibility items, which were included in a study in Kenya, were found to increase CHV motivation.

  USAID Nawiri qualitative data showed that having adequate supplies and equipment motivated CHVs to do their work. CHVs who were trained but not given the necessary supplies and equipment were discouraged. Without supplies, they cannot provide treatment for minor ailments, carry their materials, or easily get to all the households in their catchment areas. Training/refresher training on the use of first aid kits and medicines was identified as a need. Some items, such as bicycles, mobile phones, and timers, required repairs or replacement.
- **Data collection and reporting.** A study in Kenya included reporting tools in a package of activities that increased CHV motivation and performance. USAID Nawiri's qualitative data showed that lack of reporting tools, lack of revised reporting tools, and lack of stationery (especially pens) were barriers to reporting in some subcounties. The physical size of the reporting tools makes them difficult for CHVs to carry around. The number of indicators on the tools and the fact that the tools are in English makes it challenging for low-literacy CHVs to fill them out. Migrating CHVs/communities and large size of CHV catchment areas were also barriers to data collection and reporting. Other barriers were lack of training/refresher training for CHVs on the reporting tools and support from CHAs in filling them out. Implementing partners in Turkana said reporting was working well because more than 90% of reports were received; however, this was not supported by the recent AMREF CU functionality assessment. Similarly, the CU functionality assessment in Samburu indicated that CHV reporting was low.

6.1.2 IMPLEMENTATION OF NUTRITION-RELATED ACTIVITIES

Acute malnutrition case detection and management. SQUEAC reports identified gaps in IMAM implementation in both counties, including insufficient screening and outreach, poor CHV motivation, weak defaulter tracing, migration of some communities, long distances, RUTF supply issues, and inadequate linkages between community and facility.

USAID Nawiri formative data showed that CHVs in both counties had worn-out MUAC tapes. Inadequate training of CHVs on detection of acute malnutrition was mentioned as a significant barrier in both counties, and requests for regular refresher trainings arose in many of the interviews in both counties. Literacy of CHVs was also a challenge because it hindered some CHVs from correctly using the MUAC tapes and documenting acute malnutrition cases. Participants in both counties reported that some community members were uncooperative and

refused to have their children screened for malnutrition due to the stigma associated with acute malnutrition. RUTF was not always available when families arrived at a health facility after their child was diagnosed with acute malnutrition, and this discouraged families from seeking treatment. Transport was not readily available for CHVs to reach families, especially migratory families, for acute malnutrition screening and follow-up. This resulted in irregular outreaches and inadequate CHV follow-up. Families themselves also lacked transport for travelling to a health facility to obtain treatment. Food insecurity, selling or sharing of RUTF, lack of caregiver knowledge on when a child has malnutrition were also mentioned as barriers to acute malnutrition treatment. Shocks such as insecurity and COVID-19, affected the ability of CHVs to conduct malnutrition detection and treatment activities.

ICCM-CMAM integration. Published research provides strong evidence across countries that CHVs can implement CMAM cost effectively and with good quality. To allow CHVs to treat acute malnutrition, training and supervision are essential, financial incentives are important, RUTF stockouts are an issue, and local policies may need to be adapted to allow CHVs to treat SAM. Pictorial tools for low-literate CHVs to document and track acute malnutrition cases and provide the correct amount of RUTF were developed in South Sudan, and a similar tracking tool was used in a recent study in Turkana, which showed that this method works in Kenya ASALs. Some lessons learned in the Turkana study include the need to recruit more CHVs, engage CHVs with at least a primary education, provide transport to CHVs, offer then remuneration and regular supervision, and make sure that the community is sensitized.

The IMAM surge approach has also been successfully implemented in several ASAL locations, including Kenya, and was adopted by the MOH in 2016. Lessons learned were: the threshold review process needs to be conducted more frequently; tools for recording data and monitoring thresholds should be streamlined; program data should be used for determining when a surge is occurring; customer satisfaction should be monitored; the county health management team should lead the process; and simple dashboards are needed for the CHMT and SCHMTs to have a real-time view of the situation.

USAID Nawiri qualitative data showed that community members were generally positive about CHVs treating common childhood ailments at the community level so the problem could be resolved quickly without the family having to travel to the health facility. The main challenges to ICCM-CMAM were inadequate training of CHVs on use of the drugs, their lack of practice and confidence in treating patients, lack of medicines, and facilities' hesitancy to give CHVs medicine due to lack of accountability. Community members said that only a handful of CHVs had the necessary skills and knowledge to treat common ailments. They also noted that those who had been trained did not always have medicine and other tools required for them to do their jobs.

Family-led MUAC. Peer-reviewed literature has shown that mothers and other family members are as effective as CHVs at measuring MUAC, and that simple MUAC insertion tapes were more accurate than other devices. USAID Nawiri's qualitative data showed that family-led MUAC is being implemented in some areas of the two counties, but not in others. Families, especially mothers, were generally happy to measure their child's MUAC because it gave them immediate information for changing the child's diet or taking the child for treatment. However, some mothers felt that they did not have a means to remedy the situation if they applied MUAC and

found that their child was malnourished. Some community members seek a referral to the health facility from the CHV if their child is malnourished, and others go straight to the healthy facility without a referral. A few participants said they preferred having the referral note in hand so they did not have to explain the problem at the health facility. Some participants said they were turned away from the facility if they did not have a referral note.

Tools for identification and tracking of acute malnutrition. Several digital tools for identification, treatment, and tracking of acute malnutrition have been or are currently being tested in Kenya. The CMAM mHealth app in Wajir was used by health workers to improve identification, treatment, and tracking of children with acute malnutrition. The Mbiotisho app in Samburu is currently being used by caregivers of young children to report MUAC, food groups consumed, and morbidity of mothers and children. Mbiotisho gives caregivers trend information and recommendations and is specifically designed for low-literacy audiences. SMS messages to CHVs have been shown to improve quality of care for nutrition services.

Nondigital paper-based tools have also been successful in Kenya and neighboring drylands areas. The Mwanzo Mwema Project used a simple monitoring and tracking tool for CHVs to plan activities and identify women and children in need of critical MNCH services. A study in South Sudan used a simple pictorial patient register for tracking the progress of treatment for children with acute malnutrition. A similar tool was used in the ICCM-CMAM trial in Turkana.

6.2 RECOMMENDATIONS AND OPPORTUNITIES

Formative participants and stakeholders who participated in the county dissemination and validation meetings offered many suggestions for ways to address challenges related to the CHS. Opportunities and strategies to address challenges were also taken from the literature review, landscape analysis, and desk review. Codesign of activities with CHVs, CHAs, and county health officials is recommended.

CHV motivation and incentives

- Build on the findings from this assessment and other studies in Kenya on CHV motivation by testing a CHV motivation package, including supportive supervision (training for CHAs and a supervision tools for CHAs to supervise CHVs), adapted reporting tools, peer-to-peer support, community support, and a monthly performance reward system.
- Include learning and adaptation in efforts to test strategies to improve CHS nutrition programming and CHV motivation.
- Use strategies to support income-generating activities among CHVs to address gaps in financial incentives from the county governments.

CHV training

- Improve coordination between government and implementing partners for a more systematic approach to training and capacity development.

- Create a database of CHVs who have been trained on different topics in each county to help ensure that training opportunities are equitably distributed and training coverage is rationalized.
- Make sure all CHVs have received the basic training and hold regular refresher trainings so CHVs can maintain their knowledge of the material.
- Build capacity of CHVs through technical training modules on emergency response
- Develop training strategies that are more interactive and adapted to low-literate CHVs by making trainings more visual and interactive, using pictorials and simplifying the language in training modules, translating the modules to local languages, and giving CHVs copies of manuals for reference.
- Identify training venues that are accessible to most CHVs.
- Explore nontraditional training strategies to make training more practical and available to more CHVs, including a mentoring or peer-to-peer model for CHV training, benchmarking training that includes CHV visits to areas that have successfully achieved key performance indicators, and online training via WhatsApp or through AMREF's Leap app.
- Make a plan for CHAs to conduct training follow-ups and use a mentorship model to reinforce training.
- Ensure prompt payment of training allowances and consider increasing the amount of training allowances, as these are important for CHV motivation.
- Offer training certificates for all CHVs who have completed training.

Supervision of CHVs

- Provide CHAs with transport or a transport allowance to facilitate supervision of CHVs.
- Provide CHAs with supervision tools, such as a supervision checklist, and training on supervision skills.
- Consider engaging more CHAs to ease the work of supervision.
- Consider recruitment of literate CHVs or provide adult literacy opportunities for CHVs.
- Provide network boosters to facilitate communication between CHAs and CHVs in areas with poor mobile network coverage.
- Use WhatsApp or text messages to support supervision when CHVs and CHAs cannot meet in person and to create peer-to-peer learning opportunities.

CHV supplies and equipment

- Develop a system to track provision of supplies and equipment to CHVs and allow them to indicate when additional supplies are needed or when equipment needs to be repaired or replaced. This may involve building on experiences from cStock or making sure that cStock includes commodities related to ICCM-CMAM and family-led MUAC.
- Provide training or refresher training so CHVs know how to use all of their supplies and equipment (e.g., how to use first aid kits, how to administer medicines).
- Build capacity of CHVs to manage commodities and forecast stock requirements, including during shocks.

- Provide storage containers for medicine and nutrition commodities to ensure they can be properly preserved.
- CHAs should work with facility in-charges to include commodities in link facility orders.

CHV data collection and reporting

- Add pictorial elements and/or simplify the language used in reporting tools to make it easier for CHVs to understand and complete reports.
- Create smaller or shorter/simplified versions of the tools so they are easier for CHVs to fill out and carry.
- Encourage CHAs to provide more mentorship to CHVs on completing tools.
- Offer regular training/refresher training on reporting tools.
- Use an app that can be operated offline to collect data and reduce paperwork, and to resolve the problem of CHVs having to carry heavy and bulky tools with them.
- If the requirement for paper tools continues, make updated versions of the materials available to all CHVs. Ensure that all CHVs have pens to fill out the paper materials.
- Allow CHVs to use different methods, such as phone calls, text messages, or WhatsApp, to submit their reports on time. CHVs may need assistance with cell phone airtime to make this feasible.
- Provide CHVs with transport to facilitate data collection.
- Assign migrating communities their own CHVs to facilitate reporting.
- Ensure that CHAs acknowledge receipt of CHV reports and provide feedback as needed.
- Build on the system in Turkana of pairing two CHVs so that the more literate CHV can mentor the less literate CHV on completing reports.

Special populations

- Migrating pastoralists: Identify CHVs within the community who travel with the group, set up mobile CUs, or develop a system whereby CHVs at the migrant location link the group to the nearest CU. Support CUs to map out migration routes and form mobile clinics along those routes. Develop a supply chain system to ensure that commodities reach migrating populations. Use camel caravans to provide services to migrating communities.

- Adolescents: Use youth groups, conduct adolescent health talks, involve youth leaders, provide adolescent safe spaces and youth-friendly services during less busy times at health facilities. Offer night-time services for adolescents so they can access them when they are not working.

- Coordinate with the USAID Nawiri adolescent working group to develop a unified approach to engaging adolescents in care and ensure that the children of adolescents are screened and treated for acute malnutrition.

ICCM-CMAM and family-led MUAC

- Train CHVs on ICCM-CMAM and set up a system for regular refresher training and frequent supervision.
- Train CHVs to hold family meetings and mini-dialogues to engage the community and obtain community feedback.
- Provide CHVs with SBC materials and lesson plans to guide them during family and group meeting to ensure quality counseling.
- Make sure that CHVs and community members have the necessary tools (e.g., MUAC tapes), medicines, and nutrition commodities (e.g., RUTF) to allow them to practice. Ensure that families and CHVs have MUAC tapes that are not worn out.
- Work with county government to develop strategies to ensure that stockouts of RUTF are limited.
- Provide CHVs with lockable boxes for storing commodities.
- Set up a system so CHVs can consult CHAs as they treat.
- Have CHVs stay in one location in the community to provide ICCM-CMAM, so commodities stay safe and community members know where to find the CHV for treatment.
- Facilitate a system in which medications are brought to CHVs in the community rather than having CHVs go to the health facility to collect them.
- Sensitize community members on the benefits and proper use of RUTF, stigma related to acute malnutrition, and harmful beliefs and practices that contribute to malnutrition.
- Simplify ICCM monitoring tools for low-literature CHVs and provide continuous mentoring on ICCM-CMAM tools and reporting for better data quality.
- Create a defaulter tracing system, using longitudinal registers to ensure that patients stay in and/or are returned to the program.
- Use data from family-led MUAC referrals in IMAM surge surveillance.
- In developing IMAM surge programming, consider including timing of threshold review process, which information to include in the review, measurement of client and health worker satisfaction, involvement of county and subcounty health teams, and training and supportive supervision.
- In times of acute malnutrition surge, continue conducting outreaches because they play a pivotal role in ensuring prompt detection and treatment in Turkana and Samburu Counties.

Tools for acute malnutrition detection and tracking

- Consider whether any of the apps tested in Kenya to assist CHVs or health care workers with delivering higher quality health and nutrition services should be adapted for use in USAID Nawiri. If the CMAM app tested in Wajir will be used by USAID Nawiri, it would need to be adapted for CHVs.
- Build on the experiences from South Sudan and Turkana County to use pictorial tools adapted for CHVs with low literacy and numeracy.

- If existing tools will be used, consider adding a space for the CHV to indicate that he/she provided RUTF (as part of ICCM-CMAM) and a way to monitor changes in MUAC longitudinally over time.
- Consider the cost, functionality, and sustainability of any new or adapted digital or paper-based systems for tracking and reporting acute malnutrition cases.

Cross-cutting

- Create more CUs to facilitate outreach, supervision, data collection, and reporting.
- Consider linking low-literate CHVs to adult literacy programs in the counties.
- Manage work schedules for CHVs, many of whom seem to be working full time or more despite being volunteers. The number of activities CHVs are asked to perform and their time use should be rationalized in collaboration with counties.

6.3 CONCLUSIONS

USAID Nawiri will review the results of this assessment with county officials. The findings are being used to co-create implementation research to iterate and further adapt ICCM-CMAM and family-led MUAC to the context and to test strategies for increasing CHV motivation.

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ANNEX A: CMAM AND ICCM-CMAM RESEARCH SUMMARY

Table A-1. Summary of research on coverage, cure rates, quality of care, and cost-effectiveness of CMAM and ICCM-CMAM integration

References	Locations	Key Findings
CHWs implementing CMAM increases coverage and acute malnutrition cure rates		
(Keane, 2013)	South Sudan	▪ CHWs achieved acute malnutrition cure rates of ranging from 89% to 94% ▪ Death rate was 1% and defaulter rates were 2% to 6%
(Alvarez Moran, Ale, Charlie, et al., 2018)	Mali	▪ Cure ratio was 5 percentage points higher and the defaulter ratio was reduced by half when CHWs provided community-based SAM treatment compared with facility-based treatment ▪ Coverage rates were more than twice as high when CHWs provided SAM treatment
(Lopez-Ejeda et al., 2020)	Mali	▪ CHWs who treated SAM in the community detected SAM earlier compared with outpatient treatment for SAM at health facilities ▪ CHWs detected cases with higher anthropometric measurements, which improved likelihood of cure ▪ CHWs had higher cure rates (95% vs. 89%) and had fewer defaulters. ▪ CHWs provided more integrated care, including treatment of more cases of diarrhea, malaria, and acute respiratory infection
(Shiroya-Wandwa et al., 2018)	Bondo subcounty, Kenya	▪ CHWs were able to detect 97% of acute malnutrition cases after completing coaching ▪ Caregivers seeking treatment from CHWs increased from 2% to 31%
CHWs implement CMAM with high quality of care		
(Miller et al., 2014)	Ethiopia	▪ 81% of children were correctly assessed for acute malnutrition ▪ 59% of malnutrition cases were treated correctly by CHWs ▪ CHWs did not always refer cases to health facilities when warranted according to treatment protocols

Table A-1. Summary of research on coverage, cure rates, quality of care, and cost-effectiveness of CMAM and ICCM-CMAM integration

References	Locations	Key Findings
		▪ Limited use of community health services by community
(Puett, Coates, Alderman, & Sadler, 2013)	Bangladesh	▪ 89% of CHWs managed SAM cases with 90% error-free case management or higher ▪ CHWs require frequent supervision and regular refresher training when starting to implement CMAM
(Rogers et al., 2017)	Pakistan	▪ CHWs provided correct medical and nutrition treatment to 68% of children with uncomplicated SAM ▪ Quality varied by task: CHWs correctly measured edema (88%), measured MUAC (57%), conducted appetite test (42%), and provided counseling (7%) ▪ Supervision and training are needed to address gaps in quality
(Alvarez Moran, Ale, Rogers, & Guerrero, 2018)	Mali	▪ Correct assessment were performed by CHWs for signs of cough, diarrhea, fever, and vomiting (98%), presence of danger signs (95%), MUAC (97%), and edema (78%) ▪ CHWs appropriately interacted with caregivers and children
CMAM programs are cost-effective		
(Puett, Sadler, et al., 2013; Sadler, Puett, Mothabbir, & Myatt, 2011)	Bangladesh	▪ Treatment of SAM in the community cost $165 per child treated ▪ The cost to households of children treated by CHWs was one-sixth that of inpatient treatment
(Rogers et al., 2018)	Mali	▪ Costs were lower when CHWs delivered SAM treatment in the community, but only when they achieved good coverage ▪ Households whose children received SAM treatment in the community spent three times less money and half as much time per week of treatment than those treated as outpatients

ANNEX B: RECENT CHS PROJECTS IN SAMBURU AND TURKANA

Table B-1. Recently completed CHS projects in Samburu and Turkana Counties

Organizations/projects	Description of key project activities	Target groups	Coverage
Kenya Red Cross	Outreach in hard-to-reach areas or populations, emergency programming, providing ambulances for emergency cases, providing CHVs with incentives, conducting trainings on WASH and monitoring WASH activities in the communities (i.e., construction of toilets and installation of hand-washing facilities such as leak tins).	CHVs, mothers with children under 5 years and the entire community for emergency response	Samburu and Turkana Counties
AMREF – Uzazi Salama Project	Training of CHVs on basic and technical modules (WASH, MIYCN and care, community nutrition, referrals, family planning, HIV and AIDS, data collection); supporting CUs in conducting family planning outreach; forming of CUs, supporting CHVs' income-generating activities (IGAs) by providing incentives; providing support to CHAs and CHVs during dialogue and action days by providing teaching aids; training CHCs; facilitating CHAs with transport for household visits; installation of Leap app on CHVs' phones for learning; provision of ambulances; support for mobile outreach; and providing CHVs with monetary incentives, branded coats, t-shirts, bicycles, baby kits, certificates, badges, referral forms, smartphones, record books, computers, and installation of M-	CHVs, community members, and CHAs	Samburu County

Table B-1. Recently completed CHS projects in Samburu and Turkana Counties

Organizations/proje cts	Description of key project activities	Target groups	Coverage
	Jali, a group information and communication app for CHVs, on smartphones		
Agency for Technical Cooperation and Development (ACTED)	Supporting rehabilitation of land soil by setting up gabions to prevent soil erosion around the hospital compound, supported WASH activities, supported activities against female genital mutilation and early childhood forced marriages, supported CHVs' income-generating activities, such as kitchen gardens, and supported community support groups such as mother-to-mother support groups	CHVs, CHAs, and community members	Samburu County
Ananda Marga Universal Relief Team (AMURT)	Training CHVs on basic and technical modules and supporting CHVs' IGAs such as table banking	CHVs	Samburu County
FHI 360 - Nutrition and Health Program (NHP) Plus	Training of CHVs on BFCI, food demonstration and kitchen garden; supporting income-generating activities, such as kitchen garden initiatives and training of community members on nutrition	CHVs, community members, and CHAs	Samburu County
Saidia	Training CHVs on basic and technical modules, and supporting CHVs' income-generating activities, such as table banking	CHVs	Samburu County

Table B-1. Recently completed CHS projects in Samburu and Turkana Counties

Organizations/projects	Description of key project activities	Target groups	Coverage
Peace Wind Japan-United Nations High Commissioner for Refugees (UNHCR)	Construction of community houses and toilets, recruitment of CHVs, providing sanitary pads to community members, supporting WASH activities, and providing CHVs with monthly stipends of KSh 4,800	Adolescents and community members	Turkana County
Sapcone	Train CHVs and CHAs, and support screening, treatment, and prevention of acute malnutrition	Community members	Turkana County

ANNEX C: SUMMARY OF DESK REVIEW DOCUMENTS

Table C-1. Documents included in Nawiri CHS desk review

Policy, strategies, program evaluation, and other reports	National/ County contextualized	Topic or purpose of the document	County where collected
1. Training Manuals			
Title: Make Me a Change Agent: A Multisectoral SBC Resource for Community Workers and Field Staff *Published by:* USAID, TOPS, FSNetwork, Core Group, Food for the Hungry *Year:* 2015	Global	Training manual on SBC for CHWs or other community-based peer educators	Samburu
Title: Care Groups: A Training Manual for Program Design and Implementation *Published by:* FSNetwork, TOPS, Food for the Hungry, Core Group, World Relief *Year:* 2014	Global	Training manual on setting up community care groups for community-based MIYCN or other programming	Samburu
Title: Applied Basic Agri-nutrition Resource Manual for Trainers *Published by:* Ministry of Agriculture, Ministry of Public Health and Sanitation *Year:* 2013	Kenya specific	Training of trainers manual for supporting use of the Applied Nutrition Toolkit	Samburu
Title: Barrier Analysis Facilitator's Guide: A Tool for Improving Behavior Change Communication in Child Survival and Community Development Programs *Published by:* Food for the Hungry *Year:* 2004	Global	Training manual on how to conduct barrier analysis	Samburu

Table C-1. Documents included in Nawiri CHS desk review

Policy, strategies, program evaluation, and other reports	National/ County contextualized	Topic or purpose of the document	County where collected
Title: Community Health Volunteers (CHVs) Basic Modules Handbook *Published by:* MOH *Year:* 2013	Kenya specific	Basic training modules on community governance and leadership; communications, advocacy, and social mobilization; best practices for health promotion and disease prevention; basic health care and lifesaving skills; and management and use of community health information and disease surveillance	Samburu
Title: Integrated Community Case Management for Sick Children under 5 Years: participant's manual *Published by:* MOH *Year:* 2013	Kenya specific	Training manual for field workers that covers care seeking and communication skills; identifying the child's problems; looking for signs of illness; assessing and classifying (including measuring MUAC); deciding whether to refer or treat the child	Samburu
Title: Community Health Volunteers (CHVs): Water, Sanitation and Hygiene: Module 7 *Published by:* MOH *Year:* No date	Kenya specific	Facilitator's guide for training CHVs on water safety, sanitation, and hygiene	Samburu, Turkana
Title: Community Health Volunteers (CHVs): Community Nutrition: Module 8 *Published by:* MOH *Year:* No date	Kenya specific	Facilitator's guide for training CHVs on importance of nutrition in communities; food and nutrition security at family level; the lifecycle approach to nutrition improvement;	Samburu

Table C-1. Documents included in Nawiri CHS desk review

Policy, strategies, program evaluation, and other reports	National/ County contextualized	Topic or purpose of the document	County where collected
		and nutrition assessments, screening, and referrals	
Title: Training Community Health Committees in Kenya: The Curriculum for Community Health Committees *Published by:* Ministry of Public Health and Sanitation *Year:* No date	Kenya specific	Training manual for training members of community health committees	Turkana
Title: Training Community Health Committees in Kenya: The trainers' Manual for Community Health Committees *Published by:* Ministry of Public Health and Sanitation *Year:* No date	Kenya specific	Trainers' manual for training members of community health committees	Turkana
Title: FamiliaBora Facilitator's Guide: Excellent Actions for Pregnant Mothers and Children Less Than 2 Years *Published by:* MOH *Year:* No date	Kenya specific	Training manual for community workers that covers building Familia Bora HHs; influencing behaviors; how to talk to families; how to conduct home visits; monitoring and evaluation	Samburu
Title: Family MUAC: A Training Guide for Community Health Volunteers	Kenya specific	Training manual for CHVs on how to train mothers and other family members to measure their children's MUAC	Turkana
2. Existing policies and strategies relevant for CHS			
Title: Kenya Community Health Policy 2020–2030 *Published by:* MOH *Year:* 2020	Kenya specific	Describes the current national community health policy	Turkana

Table C-1. Documents included in Nawiri CHS desk review

Policy, strategies, program evaluation, and other reports	National/ County contextualized	Topic or purpose of the document	County where collected
Title: Ministry of Health Services & Sanitation: Job Descriptions *Published by:* County government of Turkana *Year:* 2018	Turkana	Provides detailed job description for every position in the county health system, but does not include descriptions for different types of health workers, CHAs, or CHVs.	Turkana
Title: Kenya Primary Health Care Strategic Framework 2019–2024 *Published by:* MOH *Year:* 2019	Kenya specific	Describes the strategic direction for primary health care in Kenya, new arrangements for primary health care, and the implementation plan and monitoring and evaluation framework	Turkana
Title: Monitoring and Evaluation Plan for Community Health Services (2014–2018) *Published by:* Ministry of Health and Sanitation *Year:* 2014	Kenya specific	Lists indicators and sources for monitoring and evaluation, describes plans for implementation, and includes CHS data collection tools in the annex	Turkana
Title: Scheme of Service of Community Health Service Personnel *Published by:* Directorate of Public Service Management *Year:* 2013	Kenya specific	Describes the personnel structure/levels for the community health service (CHA, Assistant Community Health Officer, Community Health Officer) and the required qualifications	Turkana
Title: Turkana County Community Health Services Act *Published by:* Kenya Gazette supplement No. 9 (Turkana	Turkana	Describes the establishment and functions of CHUs, CHCs, CHEWs, CHVs, and establishment of the Turkana County CHS fund	Turkana

Table C-1. Documents included in Nawiri CHS desk review

Policy, strategies, program evaluation, and other reports	National/ County contextualized	Topic or purpose of the document	County where collected
County Acts No. 5) *Year:* 2018			
Title: Adolescent and Youth Social and Behavior Communication Strategy (2018–2021) [Turkana County] *Published by:* Afya Timiza, Turkana County government *Year:* 2018	Turkana	Provides a situation/context analysis related to adolescent/youth health and describes Afya Timiza's SBC strategy for this population in Turkana County	Turkana
Title: Family Planning, Reproductive, Maternal and New-born Child Health: Communication Strategy for Turkana County (2018–2021) *Published by:* Afya Timiza, Turkana County government *Year:* 2018	Turkana	Provides a very brief situation analysis, describes Afya Timiza formative assessment in Turkana and current SBCC efforts in FP/RMNCH, and outlines the communication strategy	Turkana
3. CHS program evaluation reports and other documents			
Title: Samburu Barrier Analysis Report: Latrine Use among Mothers of Children under Five Years in Waso, Samburu County *Published by:* Feed the Children *Year:* 2018	Samburu	This report describes various factors related to latrine use in households with young children in different parts of Samburu. The goal was to use the information to develop BCC that could be integrated into the project's care groups	
Title: Samburu Program Assessments Report 2019 *Published by:* Feed the Children *Year:* 2019	Samburu	Slide presentation showing results from 2 years of surveys from the Feed the Children's Child Focused Community Development program. It also includes a summary of findings from the hygiene assessment	

Policy, strategies, program evaluation, and other reports	National/ County contextualized	Topic or purpose of the document	County where collected
		described on the previous row	
Title: Strengthening Emergency Nutrition Drought Response and Recovery in Mandera, Turkana and Wajir Counties (quarter 5 report) *Published by:* Save the Children *Year:* 2018	Mandera, Turkana, Wajir	This report describes progress toward indicators, and facilitators and barriers to achieving project targets. CMAM coverage targets were not achieved in Turkana due to high maternal workload, distance to facilities, and sharing of nutrition commodities. The cure rate for children enrolled was above the Sphere threshold. Completeness and timeliness of reports was below the target.	Turkana
Title: Turkana Family Nutrition Project Close-out Report *Published by:* World Relief *Year:* No date	Turkana	This report describes the project's activities, successes and challenges. Some of the successes were formation of care groups, use of kitchen gardens to promote nutrition, care group volunteers using picture referrals, picture lessons for care groups, and nutrition weeks. Some of the challenges were distances hindering CMAM, water shortages, and community members sharing RUTF	Turkana
Title: BFCI Self Assessment *Published by:* World Vision - MCNP project *Year:* 2020	Turkana	Slide presentation showing results of the BFCI activity under the MCNP project in Turkana. The project trained	Turkana

Table C-1. Documents included in Nawiri CHS desk review

Policy, strategies, program evaluation, and other reports	National/ County contextualized	Topic or purpose of the document	County where collected
		SCHMT, health workers, and CHVs on BFCI and set up mother-to-mother support groups in 6 CUs. CU performance on the 8 BFCI steps ranged from 66%–75%.	
Title: Afya Timiza Activity Report *Published by:* Afya Timiza *Year:* 2018	Turkana	This is the report from an activity to strengthen mother-to-mother support groups. Some of the key challenges were ways to improve food diversity, lack of CHV motivation, and young mothers' lack of knowledge on IYCF. The main recommendations for CHAs were to make sure CHVs are connected to mother-to-mother support groups, using reporting tools monthly, and training on BFCI	Turkana
Title: Nutrition Capacity Assessment: Turkana County *Published by:* Turkana County Government, UNICEF, World Vision, Concern Worldwide *Year:* 2019	Turkana	Slide presentation summarizes the capacity of Turkana County relative the Kenya Nutrition Capacity Framework as of March 2019. All of the challenges encountered by CHVs were similar to those found during Nawiri's qualitative assessment	

Table C-1. Documents included in Nawiri CHS desk review

Policy, strategies, program evaluation, and other reports	National/ County contextualized	Topic or purpose of the document	County where collected
4. Health SBC materials and job aids			
Title: Key Message Guide for Community Health Volunteers Samburu *Published by:* MOH, USAID Afya Timiza *Year:* No date	Samburu	Counseling cards on a variety of MIYCN topics	Samburu
Title: Integrated Community Case Management (ICCM) for Sick Children under 5 Years: Turkana County *Published by:* MOH, UNICEF, Turkana County government *Year:* No date	Turkana	CHV job aid with pictures and text explaining how to diagnose and treat sick children	Turkana

ANNEX D: CHV TIME USE

Table D-1. Number of days per week

Subcounty and CU	Number of days worked per week
Samburu Central, Barsaloi	5
Samburu Central, Losuuk	6
Samburu East, Archers Post	6
Samburu East, Lolkuniani	3
Samburu North, Nachola	3
Kibish, Sasame	3
Loima, Kaitese	5
Loima, Lokiriama	6
Turkana Central, Kanamkemer	6
Turkana Central, Kerio	7
Turkana East, Katilia	7
Turkana East, Lokori	7
Turkana North, Nacukui	6
Turkana West, Namortotio	4
Turkana West, Ngapeten 1	2
AVERAGE	**5**

Table D-2. Number of hours per week CHVs spend on specific activities by subcounty and CU

Hours spent by activity	Samburu Central,	Samburu Central,	Samburu East,	Samburu East,	Samburu North,	Kibish, Sasame	Loima, Kaitese	Turkana East,	Turkana North,	Turkana South,	Turkana West,	Turkana West,	AVERAGE among
a) Addressing health problems	x	x	4	x	x	x	x	x	x	x	x	x	4
b) Community outreach activities	10	8	x	x	x	x	x	x	x	x	x	x	9
c) Group activities	4	4	4	2	8	6	3	x	0.5	1.5	1	x	3.4
d) Home visits	1	3	3	2	8	5	2	8	1	8	1	x	3.8
e) Malnutrition prevention	2	0.5	5	1	0.3	0.5	1.5	1	1	1	1	x	1.3
f) Prevention or health education activities	x	x	8	x	x	x	x	x	x	x	x	x	8
g) Supervision by a health professional	x	1	x	x	6	x	0.5	x	0.5	0.5	0.5	3	1.7
h) Community dialogues and action days	3	3	x	2	8	5	2	8	1	2	3	x	3.7
i) Other meetings	3	x	4	8	6	0.5	2	x	1	1.5	1	3	3
j) Trainings	10	x	4	x	5	8	8	x	2	3	8	x	6
k) Additional activities	x	x	x	x	x	x	x	x	x	3	x	x	3
l) Administrative tasks or reporting	2	5	2	8	4	8	1	8	0.5	1	0.7	6	3.9
m) Campaigns	3	x	1	x	7	x	x	x	1.5	3	1	8	3.5
n) With CU or administrative supervision	x	2	x	x	3	x	7	8	0.5	1	1	3	3.2
o) Travel time	0.5	0.5	1	3	3	5	1.5	2	1	1.5	2	0.5	1.8

Table D-2. Number of hours per week CHVs spend on specific activities by subcounty and CU

Hours spent by activity	Samburu Central,	Samburu Central,	Samburu East,	Samburu East,	Samburu North,	Kibish, Sasame	Loima, Kaitese	Turkana East,	Turkana North,	Turkana South,	Turkana West,	Turkana West,	AVERAGE among
p) Total work time	38.5	27	36	26	58.3	38	28.5	35	10.5	27	20.2	23.5	27.5

x = this task was not mentioned by the focus group.

ANNEX E: CHV CAPACITY ASSESSMENT RESULTS

CHVs were considered to have an "activity complete" if they self-reported that they are able to provide all the expected services (counseling, providing, referring) for a given topic. They are not required to counsel, then provide, then refer in a specific order.

Table E-1. CHV capacity assessment results by county

Activity	Samburu (N = 15)				Turkana (N = 21)			
	Counsel	Provide	Refer	Activity complet	Counsel	Provide	Refer	Activity complet
ANTENATAL CARE	%	%	%	%	%	%	%	%
Anticipatory counselling								
Birth preparedness/complication readiness counseling (danger signs; skilled birth attendant)	13	53	47	0	100	57	100	57
Newborn-care counseling	27	40	40	0	95	38	90	24
Maternal nutrition								
General counseling	33	n/a	n/a	33	90	n/a	n/a	90
Iron folate supplements	n/a	n/a	80	80	n/a	n/a	100	100
Tetanus toxoid	n/a	n/a	73	73	n/a	n/a	95	95
Deworming	33	67	n/a	67	95	62	n/a	62
Malaria								
Insecticide-treated nets	33	n/a	0	33	100	n/a	86	86
Intermittent preventive therapy for malaria in pregnancy	n/a	n/a	7	7	n/a	n/a	76	76
CHILDBIRTH CARE								
Clean delivery/infection prevention (hand washing, clean blade)	n/a	n/a	27	27	n/a	n/a	81	81
Active management of third-stage labor for prevention of	n/a	n/a	13	13	n/a	n/a	57	57

Table E-1. CHV capacity assessment results by county

Activity	Samburu (N = 15)				Turkana (N = 21)			
	Counsel	Provide	Refer	Activity complet	Counsel	Provide	Refer	Activity complet
postpartum hemorrhage (uterotonics, delayed cord clamping/cutting, controlled cord traction, uterine massage)								
Immediate essential newborn care								
Immediate warming and drying	n/a	n/a	7	7	n/a	n/a	67	67
Clean cord care	n/a	n/a	33	33	n/a	n/a	95	95
Early initiation of breastfeeding	93	n/s	13	13	100	n/a	81	81
Maternal newborn complications								
Referral for obstructed labor	n/a	n/a	33	33	n/a	n/a	19	19
Newborn resuscitation	n/a	n/a	7	7	n/a	n/a	14	14
Antibiotics for neonatal sepsis	n/a	n/a	7	7	n/a	n/a	14	14
Low birth weight/premature infant care	n/a	n/a	7	7	n/a	n/a	14	14
Antibiotics for maternal sepsis	n/a	n/a	7	7	n/a	n/a	19	19
Referral for preeclampsia care	n/a	n/a	7	7	n/a	n/a	19	19
POSTPARTUM/POSTNATAL CARE								
Home visitation/contact with mother/infant within 2–3 days of birth	73	n/a	n/a	73	81	n/a	n/a	48
Essential newborn care								
Clean cord care	67	n/a	n/a	67	95	n/a	n/a	95

Table E-1. CHV capacity assessment results by county

Activity	Samburu (N = 15)				Turkana (N = 21)			
	Counsel	Provide	Refer	Activity complet	Counsel	Provide	Refer	Activity complet
Exclusive breastfeeding through 6 months	93	n/a	n/a	93	100	n/a	n/a	100
Thermal protection	87	n/a	n/a	87	71	n/a	n/a	71
Newborn immunization	80	n/a	73	67	100	n/a	100	100
Newborn eye care	67	n/a	n/a	67	86	n/a	n/a	86
Maternal nutrition counseling	20	n/a	n/a	20	76	n/a	n/a	76
Special care for low-birth-weight infant (kangaroo care)	n/a	n/a	53	53	n/a	n/a	67	67
Postpartum family planning								
Oral contraceptives	n/a	n/a	33	33	n/a	n/a	95	95
Condoms	60	n/a	20	13	100	n/a	86	86
Lactational amenorrhea method education	n/a	n/a	0	0	n/a	n/a	29	29
Injectables (Depo-Provera, etc.)	n/a	n/a	13	13	n/a	n/a	95	95
Long-acting and permanent methods (intrauterine device, tubal ligation, implants)	n/a	n/a	33	33	n/a	n/a	57	57
CHILD NUTRITION								
IYCF: Counseling for immediate breastfeeding after birth; exclusive breastfeeding for 6 months; age-appropriate complementary foods	93	n/a	n/a	93	95	n/a	n/a	95

Table E-1. CHV capacity assessment results by county

Activity	Samburu (N = 15)				Turkana (N = 21)			
	Counsel	Provide	Refer	Activity complet	Counsel	Provide	Refer	Activity complet
Vitamin A supplements (twice annually for children 6–59 months of age)	60	n/a	n/a	60	100	n/a	n/a	100
Growth monitoring	n/a	n/a	67	67	n/a	n/a	90	90
CMAM using RUTF	13	n/a	40	13	100	n/a	95	95
CHILD IMMUNIZATIONS								
Mapping/tracking for immunization coverage	n/a	n/a	60	60	n/a	n/a	81	81
Participation in immunization campaigns	67	n/a	n/a	67	67	n/a	n/a	67
BCG (Bacillus Calmette-Guérin)	47	n/a	87	40	95	n/a	100	95
DPT (diphtheria-pertussis-tetanus)	47	n/a	87	40	95	n/a	100	95
Polio	47	n/a	87	40	100	n/a	100	100
HIB (Hemophilus influenza B)	47	n/a	87	40	71	n/a	100	71
Hepatitis B	40	n/a	97	33	90	n/a	100	90
Measles	47	n/a	87	40	95	n/a	100	95
Other vaccines (e.g., pneumococcal, rotavirus, etc.)	47	n/a	87	40	95	n/a	100	95
CHILDHOOD ILLNESS								
Pneumonia								
Counsel danger signs, care seeking	7	n/a	n/a	7	95	n/a	n/a	95
Assess and treat with antibiotics	n/a	n/a	13	13	n/a	n/a	48	48

Table E-1. CHV capacity assessment results by county

Activity	Samburu (N = 15)				Turkana (N = 21)			
	Counsel	Provide	Refer	Activity complet	Counsel	Provide	Refer	Activity complet
Refer for antibiotics	n/a	n/a	13	13	n/a	n/a	48	48
Refer after treating with initial antibiotics	n/a	n/a	13	13	n/a	n/a	48	48
Diarrhea								
Hygiene counseling	13	27	n/a	0	95	67	n/a	62
Point-of-use water treatment	80	67	n/a	47	100	48	n/a	48
ORS	27	67	n/a	20	100	57	n/a	57
Zinc	27	60	n/a	20	100	48	n/a	48
Malaria								
Insecticide-treated nets	40	7	n/a	0	100	19	n/a	19
Counsel danger signs, care seeking	7	n/a	n/a	7	95	n/a	n/a	95
Testing with rapid diagnostic test	n/a	7	13	0	n/a	19	81	19
Treatment of malaria per national guidelines	n/a	7	27	0	n/a	14	76	14
CROSS-CUTTING ISSUES								
Water treatment at household	n/a	80	n/a	80	n/a	57	n/a	57
Safe excreta disposal (functional latrine use)	n/a	33	n/a	33	n/a	19	n/a	19
Hand-washing facility at household	n/a	27	n/a	27	n/a	33	n/a	33

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