



A mother with her child enrolled in OTP in Aweil Centre

Learning Brief

In focus: Community delivery and malnutrition

Evaluating access and coverage of community-based management of acute malnutrition in South Sudan

Introduction

Mired in conflict and underdevelopment, South Sudan continues to struggle to provide basic services, including healthcare, to its population. One of the key priorities of the Ministry of Health is improving access to primary healthcare by strengthening the delivery of services at the community level¹. South Sudan's child survival initiative developed in 2011 aims to achieve this goal. It includes the prevention and treatment of malaria, diarrhoea and pneumonia, community-based promotion and referral of children with severe acute malnutrition (SAM) and severe complications to the nearest primary healthcare facility².

Malaria Consortium has been implementing an integrated community case management (iCCM) programme for the diagnosis and treatment of malaria, pneumonia and diarrhoea in children 6-59 months in South Sudan since 2010. A nutrition component was integrated into this programme in 2011 in recognition of the inextricable link between health and nutrition. This programme, is implemented in close collaboration with the Ministry of Health together with partners and integrated into the health system structure.

Key findings

- » An integrated community case management, with the inclusion of nutrition services, is a comprehensive approach that has shown to improve delivery and increase coverage of nutrition services.
- » The referral of children to outpatient therapeutic programmes strategically located within the community is a key feature in the iCCM + nutrition approach, which has resulted in high recovery rates of children admitted with severe acute malnutrition.
- » Strengthening the connection between iCCM and nutrition, improving training and supervision of field staff, and following up after referrals, are recommended for future programming aiming to reduce morbidity and mortality from malnutrition.

This learning brief aims to describe the model Malaria Consortium is currently implementing to deliver community-based management of acute malnutrition (CMAM) using the iCCM structures in Aweil Centre county in Aweil state and Aweil West county in Lol state.* The learning from the evaluation of this model serves as the basis for recommendations for future programming, in an effort to improve and sustain the delivery of CMAM in Aweil and Lol states.

Context

South Sudan faces multiple challenges, including on-going conflict and a poor economic outlook, resulting in high levels of poverty, with more than 51 percent of households living under a dollar a day³. Access to healthcare remains low, with only 44 percent of the country's population living within 5km of a health facility⁴. Facilities encounter frequent shortages of drugs and lack skilled health personnel. There are 8.2 million people living in South Sudan and it is estimated that there are 1.5 doctors per 100,000 people¹.

In South Sudan, the rates of infant and under-five mortality are reported to be 75 and 105 deaths per 1,000 respectively⁵ as compared to 58 and 86 deaths respectively⁶ for sub-Saharan Africa. The major causes of mortality among children in South Sudan include malaria, pneumonia and diarrhoeal diseases. Malnutrition among children under five years is perennial and multiple factors contribute to the high prevalence of malnutrition – fragile food security owing to late rains and flooding, inadequate child feeding practices and a dramatic rise in inflation. According to the results of the last SMART survey carried out in November 2015, the global acute malnutrition (GAM) rate was found to be 2.6 percent, which is categorised as serious according to World Health Organization (WHO) standards. SAM is at 2.5 percent, which exceeds the WHO threshold of 2 percent.⁷

The weakened healthcare system coupled with high rates of morbidity and mortality among children highlights the need for a strengthened approach for the delivery of community-based healthcare. The Ministry of Health introduced a community-based child survival programme in 2009, and in 2010 Malaria Consortium began implementing an iCCM programme to provide prompt and effective treatment of fever (a proxy for malaria), pneumonia and diarrheal disease. In 2011, CMAM was integrated into Malaria Consortium's on-going iCCM programme in recognition of the interdependence that nutrition and infectious diseases have on child health and mortality.

1. Malaria Consortium has been implementing an iCCM programme in Aweil Centre and Aweil West counties located in the former Northern Bahr el Ghazal state. Aweil Centre county is currently in Aweil state and Aweil West county is in Lol state.

Integrating iCCM + Nutrition

With funding from the UK Department for International Development (DFID), Malaria Consortium has been implementing a project that integrated nutrition into iCCM services (iCCM + Nutrition) in Aweil Centre and Aweil West since April 2013. The iCCM approach is not a standalone programme; rather, it is designed to complement the existing health system while increasing access to health services for the early diagnosis of malaria, pneumonia and diarrhoea, treatment of these illnesses, early detection of severe acute malnutrition (SAM) and referral to a health facility with nutrition services. Malaria Consortium, in partnership with the UN Children's Fund (UNICEF), has established a network of outpatient therapeutic programme (OTP) sites in Aweil Centre and Aweil West counties in Aweil and Lol states with the aim of improving the delivery and coverage of nutrition services within these two counties.

The integration of nutrition services into the iCCM programme in Aweil Centre and Aweil West, which include the assessment of children and provision of food supplements, is meant to help prevent or reduce cases of wasting and stunting among children 6-59 months. Malnutrition, resulting in wasting and stunting, increases susceptibility to infectious diseases and can cause irreversible damage in some cases. The iCCM model, with the inclusion of nutrition services, is a comprehensive



A child suffering from severe acute malnutrition receives PlumpyNut during an appetite test at an OTP site in Aweil Centre

approach in healthcare delivery to children under five years and follows the guidance set forth by the Government of South Sudan.

The responsibilities of programme personnel for the iCCM + nutrition model and activities are outlined below.

Programme personnel

- » *Community-based distributors (CBDs)* are volunteers selected by the community to diagnosis and treat children 6-59 months for malaria, pneumonia and diarrhoea. CBDs also screen for nutrition using the mid-upper arm circumference (MUAC).
- » *CBD supervisors* are based in the community and support in the supervision of CBDs, oversee the distribution of drugs at the community level to CBDs, follow up on referrals to health facilities provided by CBDs, assist with the collation of routine programme data for monitoring and evaluation and support in the payment of CBD incentives. Each CBD supervisor is responsible for the management of 14-16 CBDs within a catchment area.
- » *Field officers (FOs)* are Malaria Consortium staff based in the community. Each FO is assigned to 1-2 *payams*, depending on the number of CBD supervisors they manage and the population density. The FO participates in the training and refresher training of CBDs and CBD supervisors. He/she receives drugs and reporting tools from project officers (POs) and distributes these supplies to CBD supervisors. He/she provides technical support supervision to CBD supervisors and collects monthly reports from them for submission to POs.
- » *Community nutrition workers (CNWs)* are selected by the community and assigned to an OTP site. CNWs with their assistants screen for malnutrition by measuring MUAC and taking height and weight measurements. CNWs are responsible for maintaining accurate records on the distribution of food supplements and medications to children enrolled at the OTP site for the treatment of SAM.
- » *Community mobilisers* act as the link between Malaria Consortium and the communities where iCCM + Nutrition is implemented. Their activities involve interacting with the community to identify key health issues, to discuss ways of addressing these, to empower people with information on preventative practices to encourage communities to take charge of their health and to promote the importance of prompt health-seeking behaviour while encouraging caregivers to take advantage of the iCCM + Nutrition programmes available. Community mobilisers hold community meetings, lead focus group discussions and facilitate health and nutrition education sessions with mother support groups.
- » *Project officers (POs)* are responsible for ensuring all community-based activities are carried out for both Nutrition and iCCM programmes. They ensure drugs are provided to FOs and distributed to CBD supervisors and CBDs, distribute food supplements and other commodities to CNWs, conduct several supportive



A PlumpyNut distribution at an OTP site in Aweil Centre

supervision visits per month with FOs, CBD supervisors, CBDs and CNWs, collect monthly patient data and stock reports and carry out data quality checks of reports received. POs work in teams of two, where one PO oversees the iCCM activities and one the nutrition activities within a catchment area.

Capacity-building

- » *Community-based distributors:* As of February 2016, 1,668 CBDs have been trained in the diagnosis and treatment of malaria, pneumonia and diarrheal disease in Aweil Centre and Aweil West counties. CBD training consists of six days; refresher training consists of three days.

All training follow the Ministry of Health iCCM Training Guidelines. The key topics covered are the role of CBDs (job description), the CBD medical kit, iCCM treatment protocols, essential communication skills, reporting tools and the assessment and treatment of malaria, pneumonia, diarrhoea and malnutrition and danger signs. The CBD handbook contains the training information in pictorial form and the training is done in the local language.

CBDs are often not literate, therefore training materials, data collection tools and job aids have been adapted for low literacy. CBDs are administered a competency test at the end of training to assess their proficiency.



A PlumpyNut delivery at an OTP site in Aweil Centre

- » **CBD supervisors:** CBD supervisors are trained to provide supportive supervision to CBDs; 112 CBD supervisors have been trained as of February 2016 in Aweil Centre and Aweil West.

CBD supervisors undergo two types of trainings; the first is similar as the CBD training, ensuring CBD supervisors understand the role and expectations of the CBD. The second is a three-day training on quality supervision, stock management and reporting. CBD supervisors are expected to record stock and summarise the reports from the 15-20 CBDs under their supervision.

- » **Field officers:** FOs are provided with a motorbike to increase the catchment area they are capable of supervising. The Ministry of Health has developed a six-day iCCM training-of-trainers (TOT) course for iCCM. FOs undergo this training, which clearly communicates the roles of CBDs and CBD supervisors along with all the components of the iCCM programme.
- » **Community nutrition workers/Community nutrition workers assistant:** As of February 2016, 50 CNWs and 50 CNW assistants have been trained and assigned to an OTP site in Aweil Centre and Aweil West counties. CNWs and their assistants participate in a five-day training that covers proper screening and triage of malnutrition, management of SAM and infant and young child feeding (IYCF) practices. On completion of the training, a competency test is administered to determine proficiency. The competency test identifies CNWs and their assistants who might require more supportive supervision and any other gaps in capacity. This training is followed up by on-the-job training and supportive supervision at the OTP sites.

CNWs are provided with a CNW guidebook describing their key activities, OTP registers, mass MUAC screening

tally sheets, OTP patient cards, stock cards, stock consumption sheets, MUAC tapes, weighing scales and weighing pants. In addition, they are supplied with PlumpyNut, a food supplement given to the malnourished children admitted into the programme in ratios determined by the child's weight.

- » **Community mobilisers:** Community mobilisers participate in on-the-job training led by the behaviour change communication (BCC) officer. They learn about the importance of BCC, facilitation techniques for conducting community meetings and how to disseminate health and nutrition education information to communities using information, education and communication (IEC) materials (t-shirts, posters, etc.).

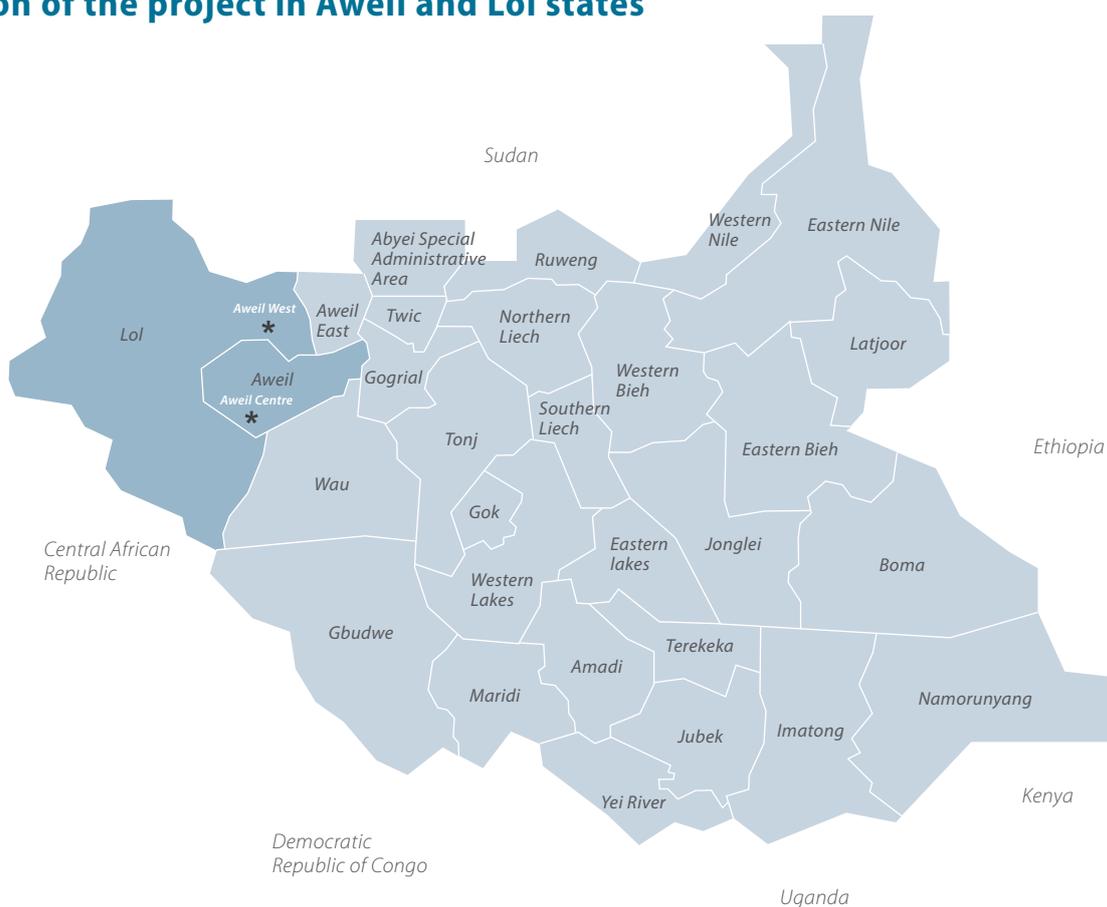
Community-based activities

In Aweil Centre and Aweil West counties from April 2013 to December 2015, a total of 722,995 treatments were given by CBDs to children 6-59 months. CBDs provide referrals to the nearest health facility for children who display danger signs. Children who are determined to have SAM according to MUAC measurement are referred to an OTP site for further assessment by a CNW. Apart from assessment, treatment and referral, other community activities include health education to caregivers on the prevention of malaria, diarrhoea and malnutrition.

OTP site activities

Malaria Consortium has established a network of 49 OTP sites in Aweil Centre and Aweil West, with 14 based in health facilities and 35 in the community. The OTP sites were introduced within the communities so as to allow the OTPs to be conducted right in the heart of the communities,

Location of the project in Aweil and Lol states



as mobile or outreach clinics, usually on a weekly basis. The key difference in this approach, compared to that used in classical CMAM projects is in the latter, OTPs are situated in health facilities or in another central location where children need to travel and stay as inpatients. This approach has the potential to negatively impact on coverage and increase defaulter rates.

From April 2015 to December 2015, 8,462 children under five years old were screened for malnutrition by CNWs and 6,327 of them were admitted into an OTP in the two counties. CNWs and CNW assistants are present at OTP sites twice a week and the activities carried out include screening of children and identification of SAM cases, dissemination of health messages on SAM prevention, IYCF and proper hygiene practices, along with the distribution of albendazole for de-worming, vitamin A as micronutrient supplementation and PlumpyNut as a food supplement. While CBDs conduct screening within their community and refer children identified as having SAM to OTP sites, CNWs also conduct door-to-door screening within the community.

Behaviour change communication

Community mobilisers are integral in the dissemination of health messages within the community and information on the services CBDs and CNWs offer. They facilitated four community meetings between November 2015 and February 2016, at which training was carried out to address the challenges faced at the OTP sites within Aweil Centre

and Aweil West counties. Aiming to promote the prevention of malnutrition, 13 mother support groups associated with OTP sites have been formed, each consisting of 10 mothers/caregivers. These groups are regularly trained on key IYCF messages and participating mothers are encouraged to disseminate the information they learn to non-member mothers within their community.

As a pilot to integrate improved agricultural practices through kitchen gardens into this programme, the mother support groups are also provided with onion, okra, tomato, aubergine and *sukuma wiki* (kale) seeds, in the hope this will boost vegetable intake for their families, thus improving their nutritional status, and also provide an income-generating activity for these mothers.

In addition to these activities, the BCC officer, with support from community mobilisers, a representative from the County Health Department and Ministry of Health staff, holds bi-weekly radio talk shows at a local radio station. These sessions cover health and nutrition topics and radio listeners are encouraged to call in with questions and comments.

IEC materials including posters and t-shirts have been printed with messages highlighting the importance of breastfeeding and prevention of malaria by sleeping under mosquito nets, as well as other basic hygiene and nutrition promotion messages. Distribution of materials is carried out at OTP sites through CNWs, CBDs and other community leaders.

Supervision and monitoring

CBDs work from their homes, and, while they do not supervise anyone, they are responsible for monitoring their stock of drugs and supplies. The CBD supervisors' primary role is providing supportive supervision to 15-20 CBDs. They are provided with a bicycle so they can carry out weekly supervision checks of CBDs. During these visits, CBD supervisors check the expiration dates of drugs and cross-check the records of CBDs to see if they tally with the treatment and stock balances.

The CBD supervisors are supervised monthly by the FOs, who are provided with motorbikes. FOs are supervised monthly by POs. POs use a supervision checklist on which they note drug stocks, confirm adequate reporting tools are available, record a home visit to a caregiver of a child recently receiving treatment or referral for malnutrition to an OTP site or a health facility for danger signs and note any other challenges raised by the CBD, the CBD supervisor and the community.

Similarly, CNW assistants at the OTP site do not supervise any other staff but they monitor the level of their nutrition supplies and drugs. They also monitor the outcome of their treatment to children by reassessing weekly enrolment in the programme. CNWs work alongside CNW assistants and ensure accurate admissions and PlumpyNut consumption reports are prepared. Nutrition POs, similar to iCCM POs, supervise CNWs and collect monthly reports that are submitted for monitoring and evaluation.

Monthly reports collected by POs are analysed continuously to monitor drug supply and use by CBDs, use of PlumpyNut by CNWs and peaks in the diagnosis and treatment of malnutrition, malaria, pneumonia and diarrhoea within Aweil Centre and Aweil West counties, along with identifying aspects of programme implementation that can be improved or better integrated.

Evaluating community management of acute malnutrition

Method

A semi-quantitative evaluation of access and coverage (SQUEAC) of nutrition services delivered using the iCCM + Nutrition approach was carried out between November and December (post-harvest season) 2015 in Aweil Centre county. The aim was to measure programme performance and identify barriers in the delivery of nutrition services. The SPHERE standard for coverage of CMAM in rural areas is 50 percent, and this was used as the basis for this evaluation.

This survey was carried out using quantitative and qualitative data. Quantitative data included information on admissions, defaulting, recovery and MUAC. Complementary quantitative data on agricultural practices, labour, disease calendars, anthropometric nutritional surveys and food security assessments were also collated for analysis.

Qualitative data were collected using focus group discussions and semi-structured interviews with key informants involved in the CMAM programme (including CNWs, CBDs, local leaders, health facility staff, caregivers and representatives of partners). An estimate of the coverage of CMAM was made by triangulating the quantitative and qualitative data and carrying out small area surveys using active case finding and wide area coverage surveys as confirmation of the findings.

Results

In Aweil Centre county, 4,644 SAM cases were admitted to OTPs and 156 defaulted from the programme during the period January 2015 to December 2015, compared with 3,106 admissions and 1,265 defaulters in 2014. It should be noted that there was a temporary suspension of the programme between January and March 2014 as a result of the on-going conflict. An average of 387 SAM cases were admitted to OTP sites monthly in 2015. A spike in admissions was observed in May-June and August-November. Harvesting in Aweil Centre typically begins in July and ends in September; food security is usually lowest immediately before and during the harvest.

Improving coverage of nutrition services through OTP programmes

Awet Garang lives in Nyalath in Aweil Centre county of Aweil state as of 2015. Her two-year-old son, Nyual Deng, has been enrolled intermittently in the OTP programme in Maper-Akot since April 2015. Twice a week, Awet takes her son to the Maper-Akot OTP site where a CNW and CNW assistant measure and record Nyual Deng's MUAC and weight. Awet reports that the PlumpyNut supplements contributed to her son's recovery and improvement but she continues to struggle to feed her family and he has relapsed back into the programme.

Communities in Aweil and Lol states face food scarcity that peaks during the pre-harvest months of March to June. The PlumpyNut packages Awet receives weekly have helped her provide for her son during the hardest times of the year when food is most scarce. Awet admits that, if it were not for the close monitoring of the CNWs and the nutrition supplements she receives, she does not know how she would have provided for Nyual Deng. "I started bringing my child for PlumpyNut when the OTP site was still there under the big tree. The sun is sometimes very hot, but now they shifted to the new building and we now get PlumpyNut from inside here, which is good," she says.

Mr Peter Lual, the CNW working in Maper-Akot, acknowledges that the construction of the OTP site has made his work environment better. "I used to work under a tree. It would be hot and during the rainy season the area would be muddy with floods. Now it is better though the construction needs to be completed so the windows and doors have padlocks. We also need a latrine to be constructed near the OTP site and we have already dug a hole there," he says, pointing at a large pit adjacent to the OTP site.

Improvements to existing OTP sites and the construction of new OTP sites will help to improve the coverage of nutrition services in Aweil Centre and Aweil West and help to reduce the morbidity and mortality rates in these counties among children under five years.



Mothers and their children gathering at an OTP feeding site in Aweil Centre

A coverage survey was carried out previously in 2013. This indicated that coverage of CMAM was 24.3 percent (95 percent CI: 14.1 percent; 36.4 percent). Results from the survey completed in 2015 show coverage has increased to 58.1 percent (95 percent CI: 46.9 percent, 68.3 percent).

Barriers in the delivery and coverage of nutrition services were identified in the 2015 survey. These included stock outs of PlumpyNut at OTP sites because of delayed procurement and blocked road access during the rainy season, decreased quality of service delivery by CNWs and CNW assistants, misuse and selling of PlumpyNut by caregivers, long distances and lack of transport to OTP sites, areas of poor knowledge of health and nutrition services available and lack of follow-up of referrals to OTP sites.

Lessons learnt and recommendations

While the increase in coverage of CMAM in Aweil Centre from 2013 to 2015 indicates that services are being delivered and healthcare is being provided, the SQUEAC results and the analysis of routine data highlight areas where programme implementation can be changed to increase coverage and further improve the delivery of services.

These lessons learnt are the basis for the following recommendations, presented in the hope that programmatic improvements will lead to a reduction of morbidity and mortality attributed to malnutrition in Aweil Centre and Aweil West.

Improved procurement planning

Stock outs can most often be attributed to blocked access to OTP sites during the rainy season and delays in the procurement and delivery of supplies. Building on

experience from the project and anticipating the challenges in timely procurement, early procurement planning going forward should alleviate this barrier. In addition, pre-positioning supplies before the rainy season will ensure activities can continue throughout the rainy seasons.

Addressing poor service delivery

Regular refresher training and improved supervision can address issues of poor service delivery. Trainings should be targeted to the areas of weakness observed and reported by field staff during support supervision visits. These visits should be thorough and field staff should be encouraged to facilitate open communication with CNWs and CNW assistants.

Monitoring use of PlumpyNut

The misuse of PlumpyNut can be addressed through checks and follow-ups by CNWs at OTP sites. Requiring mothers to return with empty sachets of the previous week's distribution of PlumpyNuts will hopefully ensure mothers are using PlumpyNut as a food supplement for their child and not selling it in the marketplace. Stricter supervision and reporting on stocks at the OTP sites should be established and will help ensure only the mothers of children admitted to the programme receive PlumpyNut.

Reducing travel time

OTP site locations are strategically placed within communities, but mothers from further villages walk long distances to have their children assessed and admitted to the programme. Malaria Consortium plans to continue assessing future OTP sites with the goal of increasing coverage to the most remote communities in Aweil Centre and Aweil West.

Promoting prevention through community-based behaviour change activities

Malaria Consortium recognises that prevention is the key. Sustainable solutions have been incorporated into nutrition programming, including the promotion of IYCF practices and the piloting of small kitchen gardens among participants of mother support groups. Encouraging mothers to disseminate the health messages they receive during mother support group discussions and take the initiative to start small gardens within their communities could contribute to a further reduction in SAM among communities in Aweil Centre and Aweil West.

Referral follow-up

iCCM and nutrition are linked through the screening and referral of children with severe acute malnutrition by CBDs to OTP sites. Strengthening this connection and capturing data on follow up of referrals is a focus for programme planning. Depending on the location, children referred by CBDs may present at health facilities or other partner facilities or remain unseen; collaboration among other partners and stakeholders within Aweil and Lol states will be crucial when trying to gain further understanding of the barriers mothers face in seeking treatment for their malnourished children.

Follow-up of severe cases is also crucial and should be built into the current model by revising the duties of CBD supervisors and community mobilisers in the hope that severe cases are seen and provided with treatment.

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